**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

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| **IN THE MATTER OF:** | ) | |
| | ) | |
| | ) | |
| **STANDARDS FOR THE DISPOSAL OF** | ) | **R20-19** |
| **COAL COMBUSTION RESIDUALS** | ) | **(Rulemaking – Land)** |
| **IN SURFACE IMPOUNDMENTS:** | ) | |
| **PROPOSED NEW 35 ILL. ADM. CODE 845** | ) | |

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**NOTICE OF FILING**

To: ALL PARTIES ON THE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Pollution Control Board the **Dynegy's Index of Exhibits and First Hearing Exhibits**, copies of which are herewith served upon you.

Respectfully submitted,

*/s/ Ryan C. Granholm*
Ryan C. Granholm

Dated: August 9, 2020

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*Attorneys for Dynegy*

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**Dynegy's Index of Exhibits**

1. U.S. EPA, Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Federal CCR Permit Program, Proposed Rule, 85 Fed. Reg. 9,940 (Feb. 20, 2020)

2. U.S. EPA, Hazardous Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities: A Holistic Approach to Closure Part A: Deadline to Initiate Closure, Final Rule (Pre-Publication Copy Notice) (July 29, 2020)

3. R09-21, In the Matter Of: Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code Part 840.101 Through 840.152, Final Opinion and Order (Jan. 20, 2011)

4. 40 C.F.R. 257, Subpart D, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments (2019)

5. U.S. EPA, Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals form Electric Utilities, Proposed Rule, 75 Fed. Reg. 35,128 (June 21, 2010)

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I, the undersigned, certify that on this 9th day of August, 2020, I have served electronically the attached **Dynegy's Index of Exhibits and First Hearing Exhibits**, upon the individuals on the attached service list. I further certify that my email address is rgranholm@schiffhardin.com; the number of pages in the email transmission is 529; and the email transmission took place today after 5:00 p.m.

Respectfully submitted,

*/s/ Ryan C. Granholm*
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# Dynegy's First Hearing
# Exhibit 1

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Parts 22, 124, and 257**

**[EPA–HQ–OLEM–2019–0361; FRL–10003–82–OLEM]**

**RIN 2050–AH07**

## Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Federal CCR Permit Program

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** In December 2016, Congress passed, and the President signed the Water Infrastructure Improvements for the Nation (WIIN) Act, amending section 4005 of the Resource Conservation and Recovery Act (RCRA). The WIIN Act, among other things, requires the Environmental Protection Agency (EPA or the Agency) to implement a federal coal combustion residuals (CCR) permit program in Indian country and, subject to the availability of appropriations specifically provided to carry out a program, to implement a federal CCR permit program in nonparticipating states. The Fiscal Year 2018 and 2019 Omnibus Appropriations Acts provided appropriations to EPA to develop and implement a federal permit program for the regulation of CCR in nonparticipating states. In this action, the Agency is proposing to establish a federal CCR permit program in accordance with the requirements of the WIIN Act.

**DATES:** *Comments.* Comments must be received on or before April 20, 2020. *Public Hearing:* The EPA will hold a virtual public hearing on April 15, 2020.

**ADDRESSES:** The EPA has established a docket for this action under Docket ID No. EPA–HQ–OLEM–2019–0361. The EPA has previously established a docket for the April 17, 2015, CCR final rule under Docket ID No. EPA–HQ–RCRA–2009–0640. All documents in the docket are listed in the *https://www.regulations.gov* index. Publicly available docket materials are available either electronically at *https://www.regulations.gov* or in hard copy at the EPA Docket Center. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the EPA Docket Center is (202) 566–1742. You may send comments, identified by Docket ID No. EPA–HQ–OLEM–2019–0361, by any of the following methods:

- *Federal eRulemaking Portal: https://www.regulations.gov/* (our preferred method). Follow the online instructions for submitting comments.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, Office of Land and Emergency Management Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- *Hand Delivery/Courier:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

*Instructions:* All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to *https://www.regulations.gov/,* including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the ''Public Participation'' heading of the **SUPPLEMENTARY INFORMATION** section of this document.

A virtual hearing will be held. The hearing will convene on April 15, 2020, at 9:00 a.m. (Eastern time zone) and will conclude at 6:00 p.m. (Eastern time zone). Please note that any details and updates made to any aspect of the hearing will be posted online at EPA's CCR website (*https://www.epa.gov/coalash*). While the EPA expects the hearing to go forward as set forth above, please monitor our website or contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section to determine if there are any updates. See Section I.B. below for more details regarding the virtual hearing.

**FOR FURTHER INFORMATION CONTACT:** If you have questions on the proposed requirements of the federal CCR permit program, contact Stacey Yonce, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5304P, Washington, DC 20460; telephone number: (703) 308–8476; email address: *yonce.stacey@epa.gov.* For more information on this rulemaking please visit *https://www.epa.gov/coalash.*

**SUPPLEMENTARY INFORMATION:**

### Table of Contents



## I. Public Participation

### *A. Written Comments*

Submit your comments, identified by Docket ID No. EPA–HQ–OLEM–2019–0361, at *https://www.regulations.gov* (our preferred method), or the other methods identified in the **ADDRESSES** section. Once submitted, comments cannot be edited or removed from the docket. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the

official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.,* on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets.*

*B. Participation in Public Hearing*

EPA will begin pre-registering speakers for the hearing upon publication of this document in the **Federal Register**. To register to speak at the hearing, please use the online registration form available at EPA's CCR website (*https://www.epa.gov/coalash*) or contact Michelle Long, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5304P, Washington, DC 20460; telephone number: (703) 347–8953; email address: *long.michelle@epa.gov* to register to speak at the hearing. The last day to pre-register to speak at the hearing will be April 13, 2020. On April 14, 2020, the EPA will post a general agenda for the hearing at EPA's CCR website (*https://www.epa.gov/coalash*).

EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearings to run either ahead of schedule or behind schedule. Additionally, requests to speak will be taken the day of the hearing at the hearing registration desk. The EPA will make every effort to accommodate all speakers who arrive and register, although preferences on speaking times may not be able to be fulfilled.

Each commenter will have 5 minutes to provide oral testimony. The EPA encourages commenters to provide the EPA with a copy of their oral testimony electronically (via email) or in hard copy form. The EPA encourages commenters to provide the EPA with a copy of their oral testimony electronically (via email) or in hard copy form. If EPA is anticipating a high attendance, the time allotment per testimony may be shortened to no shorter than 3 minutes to accommodate all those wishing to provide testimony and have pre-registered. All comments and materials received at the public hearing will be placed in the docket for this rule, as well as a transcript from this hearing.

The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public hearing. Verbatim transcripts of the hearings and written statements will be included in the docket for the rulemaking.

Please note that any updates made to any aspect of the hearing is posted online EPA's CCR website (*https://www.epa.gov/coalash*). While the EPA expects the hearing to go forward as set forth above, please monitor our website or contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section to determine if there are any updates. The EPA does not intend to publish a document in the **Federal Register** announcing updates.

If you require the service of a translator please pre-register for the hearing and describe your needs by April 1, 2020. If you require special accommodations such as audio description or closed captioning, please pre-register for the hearing and describe your needs by April 8, 2020. We may not be able to arrange accommodations without advanced notice. Commenters should notify the person listed in the **FOR FURTHER INFORMATION CONTACT** section and indicate on the registration form of any such needs when they pre-register to speak.

## II. General Information

*A. Does this action apply to me?*

This rule applies to all facilities in Indian country [1] and in nonparticipating states subject to requirements of 40 CFR part 257 subpart D (''subpart D''). This generally includes electric utilities and independent power producers generating coal combustion residuals (CCR) that fall within the North American Industry Classification System (NAICS) code 221112. The term ''nonparticipating state'' is defined in the Water Infrastructure Improvements for the Nation (WIIN) Act and excludes states that have approved CCR programs where the approval has not been withdrawn, or who have submitted evidence of a state CCR program to EPA and approval is pending. This discussion is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This discussion lists the types of entities that EPA is now aware could potentially be regulated by this action. To determine whether your entity is regulated by this action, you should carefully examine the applicability criteria found in § 257.123 of this proposal, as well as § 257.50 of title 40 of the Code of Federal Regulations. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

*B. What action is the Agency taking?*

EPA is proposing to establish a federal CCR permit program in Indian country and in nonparticipating states. EPA is proposing to establish requirements and procedures to issue federal permits for disposal and other solid waste management of CCR in 40 CFR part 257 subpart E. The proposed permit requirements in subpart E include definitions, compliance deadlines, application requirements, content and duration, and modification requirements and procedures.

EPA is also proposing to rely on the general administrative procedures applicable to several EPA permit programs. These procedures, which are found in 40 CFR parts 22 and 124, apply to all other RCRA permits, as well as to certain EPA permits issued under the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA). EPA is proposing to rely on these general procedures without substantive modification and is proposing only to modify provisions in parts 22 and 124 to the extent necessary to ensure they apply to the federal CCR permit program.

All the substantive and technical requirements currently applicable to CCR units would remain in 40 CFR part 257 subpart D. EPA is not proposing to amend or otherwise reopen any of the provisions in 40 CFR part 257 subpart D through this rulemaking. EPA will not respond to any comments that suggest revisions, or that otherwise raise issues with respect to the technical requirements, and such comments will not be considered as part of the administrative record for this rulemaking. However, this is not intended to prevent commenters from identifying any inconsistencies between the existing regulations and the proposals in this notice.

[1] Indian Country is defined at 18 U.S.C. 1151: (a) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

*C. What is the Agency's authority for taking this action?*

These regulations are established under the authority of sections 1008(a), 2002(a), 4004, and 4005(a) and (d) of the Solid Waste Disposal Act of 1970, as amended, RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) and the WIIN Act of 2016, 42 U.S.C. 6907(a), 6912(a), 6944, and 6945(a) and (d).

*D. What are the incremental costs and benefits of this action?*

This action is expected to result in annualized net costs amounting to between $0.09 million and $0.85 million per year when discounting at 7%. Further information on the economic effects of this action can be found in Unit VI of this preamble.

**III. Background**

*A. CCR Regulatory Overview*

In 2015, EPA published minimum criteria for CCR disposal and management as solid waste under subtitle D of RCRA titled, ''Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities,'' (80 FR 21302, April 17, 2015). The rule established national minimum criteria for existing and new CCR landfills and existing and new CCR surface impoundments (''CCR units'') and all lateral expansions of CCR units, as codified subpart D.[2] The criteria consist of location restrictions, design and operating criteria, groundwater monitoring and corrective action requirements, closure and post-closure care requirements, and recordkeeping, notification and internet posting requirements. Subpart D also requires that CCR units failing to meet certain criteria in the rule stop receiving waste and retrofit or close, in some circumstances.

Subtitle D of RCRA generally establishes a framework for federal, state, and local government cooperation in controlling the management of non-hazardous solid waste. Within this framework, the federal role has typically been to establish the overall regulatory direction, by providing minimum nationwide standards that will protect human health and the environment, and to provide technical assistance to states for planning and developing their own programs. Implementation or enforcement of federal criteria established under RCRA subtitle D, however, remained primarily a state and local function outside of Indian country. In Indian country, tribes can develop a subtitle D program under their own authorities.

The requirements established in subpart D were designed to be self-implementing, because states were not required to develop their own CCR programs and because EPA, at that time, had no role in direct implementation or enforcement authority. In subpart D, EPA developed regulatory requirements, with which facilities could comply without the need to interact with a regulatory authority. The protectiveness of the technical requirements was strengthened through additional requirements, such as certifications of compliance by a qualified professional engineer, state and public notifications, and required posting of relevant compliance information on a publicly accessible website maintained by the facility. Since subpart D was finalized, litigation and subsequent rulemakings have resulted in changes to its requirements. Some of those changes have been finalized [3] and others are still pending.

*B. Water Infrastructure Improvements for the Nation Act*

In December 2016, the WIIN Act was passed by Congress and signed by the President. The WIIN Act amended RCRA section 4005, creating a new subsection (d). It provided authority for EPA to review and approve programs submitted by states to permit CCR units, which would then operate in lieu of the federal requirements. 42 U.S.C. 6945(d)(1)(A). The WIIN Act requires EPA to implement a federal permit program in Indian country and nonparticipating states, that will require each CCR unit to achieve compliance with applicable criteria established in subpart D, or in successor regulations promulgated pursuant to sections 1008(a)(3) and 4004(a). 42 U.S.C. 6945(d)(2)(B), (5). In the case of nonparticipating states, this requirement is subject to the availability of appropriations specifically provided to carry out this requirement. 42 U.S.C. 6945(d)(2)(B). In fiscal years 2018 and 2019, Congress provided appropriations to EPA for the purpose of developing and implementing a federal permit program for the regulation of CCR under section 2301 of the WIIN Act. Public Law 115–141 and 116–6.

The WIIN Act defines ''nonparticipating state'' as a state (1) without an approved CCR program, (2) which has not submitted evidence of a CCR program for approval, (3) which has provided notice of intent to relinquish approval of a CCR program, or (4) for which EPA has withdrawn previously granted approval of a CCR program. 42 U.S.C. 6945(d)(2)(A). The WIIN Act does not provide detailed requirements for a federal CCR permitting program and delegated significant discretion to EPA to craft a federal permitting approach appropriate to implement subpart D. The WIIN Act expressly provides that facilities are to continue to comply with applicable provisions of subpart D until a permit (issued either by an approved state or by EPA) is in effect. 42 U.S.C. 6945(d)(3), (6).

The legislation also authorized EPA to use information gathering and enforcement authorities in RCRA Sections 3007 and 3008 to enforce subpart D or permit provisions, in nonparticipating and in states with approved CCR programs, subject to certain conditions. 42 U.S.C. 6945(d)(4).

States may submit a program to EPA for approval and, once the state program is approved, permits or other prior approvals [4] issued pursuant to the approved state permit program operate in lieu of the federal requirements. 42 U.S.C. 6945(d)(1)(A). To be approved, a state program must require each CCR unit to achieve compliance with subpart D (or successor regulations) or alternative State criteria that EPA determines are ''at least as protective as'' subpart D (or successor regulations). State permitting programs may be approved in whole or in part. 42 U.S.C. 6945(d)(1)(B).

*C. Approach To Developing This Proposal*

The WIIN Act requires the Administrator to ''implement a permit program,'' to require compliance with criteria established by regulation under RCRA sections 1008(a)(3) and 4004(a), but otherwise provides few requirements on the content of the permit program and no direction on the specific procedures to be used to implement the program. This is different than, for example, section 3005 of RCRA and sections 402 and 404 of the CWA, each of which provide greater specificity.

The WIIN Act authorized the use of subtitle C enforcement authorities in sections 3007 and 3008 of RCRA to

[2] Unless otherwise specified, all references to parts 2, 22, 71, 122, 124, 144, and 257 in this preamble are to Title 40 of the Code of Federal Regulations (CFR).

[3] Partial vacatur ordered by the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) on June 14, 2016, and August 21, 2018, known as the USWAG decision.

[4] See 42 U.S.C. 6945(d)(1)(A), ''Each State may submit to the Administrator, in such form as the Administrator may establish, evidence of a permit program or other system of prior approval and conditions under State law . . .''

enforce the established criteria as well as federal CCR permits. However, Congress did not expressly reference the permitting provisions in subtitle C, strongly suggesting that Congress did not preclude EPA from considering regulatory approaches of other permit programs as well.

In the absence of more explicit Congressional direction, EPA has chosen to rely on its collective experience implementing the existing regulations under the various permit programs across the Agency to develop this proposal. As discussed below, EPA has incorporated elements from permit programs established under the CWA, RCRA, SDWA, or CAA, where the elements seemed well-suited to implement the requirements in subpart D or to particular circumstances associated with CCR units. Finally, several elements are common across EPA permit programs; EPA considers that these common elements also fall squarely within the parameters of what Congress considered to be ''a permit program.''

*D. Other EPA Permit Programs*

The Agency has experience implementing and overseeing federal environmental permitting programs.[5] EPA has modeled many of these proposals on provisions in environmental permit programs developed under other statutory authorities. In developing this proposal, EPA considered experience gained in the RCRA Subtitle C hazardous waste permitting program, CAA Title V permitting program, SDWA Underground Injection Control (UIC) permitting for Class VI wells, and CWA National Pollutant Discharge Elimination System (NPDES) permitting. EPA identified a variety of approaches, considering best practices and lessons learned, that have been incorporated into this proposed federal CCR permitting program, which is streamlined, efficient, and effective at requiring each CCR unit to achieve compliance with the requirements of subpart D.

1. RCRA Hazardous Waste Permitting

EPA relied on provisions in the hazardous waste permitting program, codified at part 270, in a number of different ways in developing this proposal. First, in select instances in which the part 270 requirements were equally relevant or applicable to CCR facilities, EPA is proposing to adopt the provision nearly verbatim. This includes the proposed provisions at § 257.122, which were taken directly from § 270.3. These provisions list federal laws, such as the Endangered Species Act, that may apply to any EPA-issued permit under RCRA. Similarly, many of the standard permit terms and conditions proposed in § 257.140 are found in § 270.30.

More commonly, EPA modeled its proposals on aspects or particular wording of part 270 that seemed well-suited to the current circumstance, with modifications to address differences in statutory authority or in the nature of the CCR units or facilities. Modifications were generally considered appropriate where the part 270 regulations reflect statutory provisions applicable exclusively to permitted hazardous waste facilities; the most significant of these for purposes of part 257 are ''facility-wide'' corrective action under sections 3004(u) and (v), the land disposal restrictions (LDRs) in sections 3004(d), (m) and 3005(j), and the 10-year permit term in section 3005(c)(3). Because there are no analogous requirements in RCRA section 4005(d) or in part 257, EPA is not proposing to include any provisions in part 270 designed to implement those requirements. For example, § 257.125 largely mirrors § 270.4, but omits the exceptions in § 270.4(a)(i) through (iii) that reflect the LDR requirements, the provision in § 3006(c)(4), and particular ''interim status'' requirements. Similarly, EPA relied heavily on § 270.1 in drafting the proposals in §§ 257.120 and 257.122 that would establish the basic parameters of the CCR permit program.

Modifications were also considered appropriate to reflect the more homogenous nature of CCR facilities. In comparison to many hazardous waste management facilities, CCR facilities handle fewer types of waste with a limited range of constituents, and typically involve a more limited range of waste management activities. One example of this is the permit modification proposals. Reflecting the more limited range of activities, EPA is proposing to establish two categories of permit modifications along with two sets of streamlined procedures that permittees are to use to request modifications, rather than the three classes of permit modifications under part 270. In essence, EPA modeled its proposals for major and minor modifications largely on class I and class III procedures under § 270.42. However, many of the elements of § 270.42 were retained: For example, EPA is proposing that CCR permittees would have a duty to report all relevant changes in the physical facility, and all other changes that may result in noncompliance. EPA is also proposing to establish a non-exclusive list of specific modifications as major or minor.

In yet other cases, EPA simply modeled the general approach in this proposed rule after an approach in part 270. For example, EPA is proposing to use a permit by rule approach for new CCR landfills (including lateral expansions of a CCR landfill) in § 257.128; this is modeled after the permit by rule provisions found in § 270.60. Although all of the requirements differ, the permit by rule is employed in both cases as an approach to meet the requirement to have a permit for a regulated unit or facility that does not require any site-specific operational flexibility and can comply with underlying requirements without site-specific tailoring. Similarly, in § 257.124, EPA is proposing tiered deadlines for the submittal of permit applications by classes of facilities, which is one of the general elements in the comparable provisions in § 270.10(e).

All told, EPA relied on part 270 to some extent in developing the following sections in this proposal: §§ 257.120, 257.122–257.125, 257.128, 257.133, 257.140, 257.141, and 257.150–257.153.

2. CAA Title V Permitting

In the development of this rulemaking, EPA also examined the federal CAA Title V (40 CFR part 71) permitting provisions to identify permitting approaches that may be appropriate for federal CCR permits. Although statutory authorities for enforcement are different in RCRA and the CAA, fundamental enforcement activities, such as information gathering and gaining access for facility inspections, are similar in all environmental programs. Some standard permit conditions EPA is proposing in § 257.140 are reflected in standard conditions required in § 71.6.

EPA also considered the permit modification procedures found in Title

[5] The hazardous waste permitting regulations were initially published in 1980 in the Consolidated Permit Regulations, (45 FR 33290, May 19, 1980) along with regulations for SDWA Underground Injection Control, CWA National Pollutant Discharge Elimination System (NPDES), CWA Section 404 Dredge or Fill Programs, and CAA Prevention of Significant Deterioration permits. On April 1, 1983, EPA published the Environmental Permit Regulations: RCRA Hazardous Waste; SDWA Underground Injection Control; CWA National Pollutant Discharge Elimination System; CWA Section 404 Dredge or Fill Programs, and CAA Prevention of Significant Deterioration in the **Federal Register** (48 FR 14146, April 1, 1983). These regulations deconsolidated the Consolidated Permit Regulations but did not make any substantive changes to any of the affected sections. The relevant sections to this proposed rule are the creation of parts 124 and 270.

V. The part 71 regulations establish three categories of permit modifications: Administrative permit amendments, minor modifications, and major modifications. Administrative permit amendments in § 71.7(d) are those needed to accommodate changes that would otherwise violate terms and conditions of the permit. These include typographical errors, change in information of any person identified in the permit, an increase in monitoring or reporting frequency, change in ownership, and a few other administrative changes. Minor permit modifications in § 71.7(e)(1) do not violate any applicable requirement; are not significant changes to monitoring, reporting, or recordkeeping requirements in the permit; do not require a case-by-case determination for the permit, and do not establish or change a permit term or condition for which there is no corresponding underlying applicable requirement. To obtain a minor permit modification, the permittee must submit an application for a permit modification, which describes the change and any applicable requirements that may change, as well as submit forms to notify affected states and certification from a responsible official. Minor modifications do not require public participation under the part 71 regulations. In turn, the permitting authority can either issue the permit modification as proposed, deny the permit modification application, determine the requested modification does not meet minor permit modification criteria and should be reviewed, or revise the draft permit modification.

All changes that are not minor modifications qualify as major modifications under the part 71 regulations. Major modifications include changes to monitoring permit terms or conditions and relaxation of reporting or recordkeeping permit terms and conditions. Major modifications follow procedures such as: Applications, public participation, review by affected states, and review by EPA. The Agency relied on some of these requirements and procedures to develop its proposals for modifications to RCRA CCR permits.

3. SDWA UIC Permitting

In the part 144 regulations for SDWA UIC permits, § 144.36, Class VI wells are issued permits for the operating life of the facility and the post-injection site care period. Similar to this provision, EPA is proposing to issue federal RCRA CCR permits without an expiration date and to require the permit be maintained through the active life of the CCR unit, during the post-closure care period, and until any required corrective action is completed. This approach ensures permit coverage for as long as the permittee is subject to the substantive, underlying requirements.

Other provisions in the part 144 regulations are also reflected in this proposal. Causes for modification in the UIC program include alterations, information, and new regulations, which are all proposed as causes to modify a RCRA CCR permit. If cause exists, in the UIC program, the Director must determine if the change meets the minor modification criteria in § 144.41, or if it is outside the scope of those criteria and is considered major. Another example of similarity between the UIC permit program and this proposal is that minor modifications do not require a draft permit or public review, but major modifications must follow procedures in part 124.

4. CWA NPDES Permitting

Additionally, EPA reviewed the part 122 regulations for CWA NPDES permits, particularly for information and processes for issuing general permits. In the NPDES program, individual or general permits may be issued. An individual permit is written to reflect site-specific conditions of a single discharger based on information submitted by that discharger in a permit application and is unique to that discharger. An NPDES general permit is issued to a category of facilities with similar operations, but no one in particular. Multiple dischargers may obtain coverage under that general permit after it is issued, consistent with the permit eligibility and authorization provisions. This is similar to the approach proposed in § 257.127 for the federal CCR program to establish procedures to issue general permits.

The benefits of CCR general permits are expected to be similar to the benefits of NPDES general permits, resulting in clarity and efficiency. CCR general permit applicants would know their permit requirements before applying for coverage under that permit. Furthermore, obtaining coverage under a general permit is expected to be quicker than for an individual permit, with coverage under a general permit occurring within 45 days. General permits would allow the Agency to provide timely permit coverage for a potentially large number of similar CCR units subject to the same requirements of subpart D.

## IV. What is EPA proposing?

EPA is proposing to create a new subpart E in part 257, which would establish the general requirements and many of the procedures that EPA would use to issue federal CCR permits. As discussed in more detail throughout this preamble, many of the proposals are similar to EPA's existing regulations in part 270, which establish the general requirements applicable to RCRA hazardous waste permits. EPA has also modeled some of its proposals on regulations in environmental permit programs developed under other statutory authorities, such as the CWA NPDES, SDWA UIC, and CAA Title V programs.

EPA is also proposing to rely on the general, administrative procedures applicable to EPA environmental permit programs found in parts 22 and 124 without substantive modification. These procedures apply to RCRA hazardous waste permits, as well as to EPA permits issued under other statutory authorities. EPA is proposing only to modify those provisions in parts 22 and 124 to the extent necessary to ensure they apply to the federal CCR permit program.

With the exception identified in Unit IV.C.3.b of this preamble, EPA is not proposing to amend or otherwise reopen any of the requirements applicable to CCR units in subpart D. EPA will not respond to any comments that suggest revisions, or that otherwise raise issues with respect to subpart D requirements, and such comments will not be considered as part of the administrative record for this rulemaking. However, this is not intended to prevent commenters from identifying any inconsistencies between the existing regulations and the proposals in this notice.

*A. Part 22 Amendments*

40 CFR part 22 contains the Consolidated Rules of Practice. These are procedural rules for the administrative assessment of civil penalties, issuance of compliance or corrective action orders, and the revocation, termination or suspension of permits, under most environmental statutes. In this action, EPA is proposing to amend only the provision in part 22 related to termination of a permit.

In § 124.5(d)(2), there is a reference to ''. . . Such termination of NPDES and RCRA permits shall be subject to the procedures of part 22 of this chapter.'' EPA is proposing a Termination of a Permit provision in part 257 and is proposing to amend § 22.44 to add a reference to § 257.153 into the regulatory text.

*B. Proposal To Use the Part 124 Procedures for Decision-Making for Individual CCR Permits*

Part 124 establishes the procedural requirements for issuing, modifying, revoking and reissuing, denying, and terminating EPA-issued permits under several federal programs, including under RCRA for hazardous waste management facilities. Part 124 also establishes procedures applicable to certain state-administered permit programs. This Unit of the preamble first describes generally how part 124 works and then presents the Agency's proposal to follow the decision-making procedures in part 124, subpart A, when issuing individual federal CCR permits under part 257, subpart E. This overview is presented solely for the reader's convenience. EPA is proposing only to modify provisions in part 124 to the extent necessary to ensure they apply to the federal CCR permit program. EPA is not proposing to amend or otherwise reopen any of the substantive obligations in these regulations. EPA will not respond to any comments that suggest revisions, or that otherwise raise issues with respect to these requirements, and such comments will not be considered as part of the administrative record for this rulemaking.

1. Overview of Part 124, Subpart A

Subpart A of part 124 (Subpart A) is codified in §§ 124.1 through 124.21 and contains general procedural requirements applicable to several EPA permit programs, including RCRA permits issued under the hazardous waste program. Subpart A describes the steps EPA will follow in receiving permit applications, preparing draft permits, issuing public notice, inviting public comment, and holding public hearing on draft permits. Subpart A also includes requirements for assembling an administrative record, responding to comments, issuing a final permit decision, and allowing for administrative appeal of a final permit decision.

Under the procedures of part 124, a facility must apply for a permit based on the requirements of a federal program (*e.g.,* part 270 for RCRA hazardous waste management facilities). EPA [6] reviews the application and notifies the permit applicant when the application is complete as required under § 124.3. EPA then decides whether to issue a notice of intent to deny the application or to prepare a draft permit as specified under § 124.6. Either of these decisions would be supported by a statement of basis required by § 124.7 or a fact sheet required by § 124.8 that becomes part of the official administrative record for the permit as specified under § 124.9.

Decisions to revoke and reissue, to terminate a permit, and some decisions to modify a permit would also follow the above procedures. See generally § 124.5. EPA may commence any of these actions on its own initiative or may act in response to a request submitted by any interested person that meet the requirements of § 124.5(a). Denials of such requests for modification, revocation and reissuance, or termination, unlike denials of applications, are not subject to public comment or public hearings. § 124.5(b). If EPA decides to deny the request, a notice briefly stating the reasons for the denial is sent to the requester. Such a notice is not accompanied by a statement of basis or a fact sheet. In addition, an administrative record is not assembled pursuant to § 124.9. Denials of requests for modification, revocation and reissuance, or termination cannot be formally appealed to the Administrator under the appeal procedures specified in under § 124.19; however, such an action can be informally appealed under the procedures specified in § 124.5(b).

All draft permits prepared under §§ 124.5 and 124.6 are subject to public notice pursuant to § 124.10, public comment under § 124.11, and, in suitable cases, public hearings pursuant to § 124.12. These processes allow any interested person to bring forward comments or questions concerning the draft permit or its supporting materials. After the close of the comment period, including any public hearing, EPA issues a final decision on the permit following the procedures under § 124.15. The final permit decision is accompanied by a response to all significant comments in accordance with § 124.17 which, together with additional supporting material, completes the final administrative record. See, § 124.18.

Whenever commenters on a draft permit ask that changes be made, the final permit will not become effective until 30 days after notice is served under § 124.15(a). This 30-day gap between the date of issuance and the effective date of a final permit allows for time to appeal a decision on a permit. If no such comments are received, the final permit is issued and effective the same day.

2. Proposal To Apply Procedural Requirements of Part 124 When Issuing CCR Permits

The Agency is proposing to apply the existing decision-making procedures in part 124 subpart A without modification, when issuing federal CCR permits. These procedures are common to several EPA permit programs, and EPA considers them to be generally applicable. By contrast, EPA is not proposing to adopt any of the requirements in subparts B, C, D, or G of part 124 as part of the federal CCR permitting program because these subparts contain procedures specific to individual federal programs, *i.e.,* RCRA hazardous waste management facilities, CAA prevention of significant deterioration (PSD) permits, and SDWA UIC permits.[7]

Some requirements in subpart A as currently written would apply to the federal CCR permit program without modification. For example, § 124.3(e) allows for site visits by the Agency when determined necessary during the processing of a permit application; this provision applies to all federal permitting programs covered by subpart A (*i.e.,* this provision is not limited to certain federal permitting programs). In this proposal, EPA intends for provisions that are not currently limited to another federal permitting program to apply to the federal RCRA CCR permitting program. Put another way, unless the provision is explicitly written to limit applicability only to other federal permitting programs or the provision is proposed to be exempt from applying to federal CCR permits, such part 124 requirements would apply to the federal RCRA CCR permitting program. For other requirements in subpart A, EPA is proposing to revise a provision to make clear whether the requirement would apply to the federal CCR permit program.

EPA is proposing: (1) New and revising several existing definitions to cover the CCR permit program; (2) amendments to particular requirements in subpart A to make clear whether the provision would apply to the federal CCR permitting program (*e.g.,* the addition of references or citations to specific provisions in the proposed CCR permit program regulations). Many of the proposed amendments to subpart A would simply make explicit whether a given requirement would be applicable to RCRA CCR permits. These proposed

[6] This background discussion assumes that the facility is obtaining an EPA-issued permit and therefore it uses the term ''Regional Administrator.'' Alternatively, in instances where the state has an approved program, the State Director would have the authority to issue the permit. As discussed elsewhere in this Unit, the agency is proposing to revise the current definition of ''Regional Administrator'' in subpart A for RCRA CCR permits.

[7] Subparts E and F of part 124 are currently reserved and contain no requirements.

amendments are discussed in this preamble and are presented in the proposed regulatory text. Furthermore, these proposed revisions do not change substantively the decision-making procedures of part 124, nor are they intended to. In proposing these minor revisions, EPA is not soliciting comments on and will not respond to comments on the existing regulatory provisions which underlie the revisions as they apply to other federal permitting programs.

a. Definitions

In addition to amending the introductory text of § 124.2(a), EPA is proposing to add three new definitions and revise five current definitions in this section. When used in §§ 124.1 through 124.21 as proposed, these new and revised definitions would allow for the proper interpretation and understanding of how the existing decision-making procedures of subpart A would apply to the federal RCRA CCR permitting program. The Agency is proposing to amend the introductory text of § 124.2(a) by adding a reference to § 257.121 in the first sentence. Section 257.121 is a new section containing proposed definitions under the regulations for the federal RCRA CCR permit program. Adding this new reference to § 257.121 will allow these key definitions to apply within subpart A without the need to recodify them in subpart A.

The Agency is proposing to add several new definitions to § 124.2(a) of subpart A.

*RCRA CCR general permit.* EPA is proposing this term to mean a RCRA CCR permit containing terms and conditions to ensure compliance with requirements of subpart D applicable to a specified category of CCR units, which are designated as eligible for coverage under the general permit. General permits in the CCR program would be issued in accordance with the proposed provision under § 257.127. This definition is needed to identify those provisions of subpart A applicable to general permits that may apply to CCR general permits.

*RCRA CCR permit.* This term would mean a permit issued pursuant to section 4005(d) of RCRA (42 U.S.C. 6945(d)). Section 4005(d) is the new section of RCRA established by the WIIN Act of 2016 that provides EPA with the authority to establish a federal CCR permit program. EPA is proposing to add this term to subpart A to identify those provisions that would only apply within the federal CCR permitting program. Put another way, the use of this term would help distinguish between types of RCRA permits. For example, this term would not apply to permits for RCRA hazardous waste management facilities because section 4005(d) does not apply to these facilities.

*RCRA permit.* The Agency is proposing that this term means a permit issued pursuant to any section of RCRA. This term would apply to CCR permits as well permits for hazardous waste management facilities. EPA is proposing to add this term (and *RCRA CCR permit*) to facilitate proper interpretation of the subpart A provisions.

In addition, EPA is proposing to revise several existing definitions in § 124.2(a) of subpart A. The Agency is proposing these revisions to incorporate the concept of CCR permits into the existing definitions. EPA is not proposing to revise or reopen the existing definitions as they apply to other federal permitting programs covered by subpart A. Accordingly, the Agency will not respond to any comments on these definitions as they apply to other federal permitting programs.

*Director* and *Regional Administrator.* EPA is proposing to revise the term *Regional Administrator* to indicate that this term includes the Administrator within the context of the CCR permitting program if the Administrator has not issued a delegation of authority to the Regional Administrator. Because of the proposed change to the definition of *Regional Administrator,* the Agency is proposing to revise the current definition of *Director* by adding the Administrator to the list of persons included in the definition. These proposed changes are necessary to properly interpret the requirements of subpart A that would include the CCR permitting program.

*Facility.* While this term is already defined in subpart A for other federal permitting programs, the Agency is proposing to revise the definition in subpart A to make clear that, for purposes of only the federal CCR permitting program, the definition of *facility* as codified in § 257.53 applies to CCR permits.

*Permit.* The Agency is proposing to revise this definition to simply incorporate the concept of RCRA CCR permits into the existing definition. This would be accomplished by adding a reference to part 257 to the first sentence and including citations to § 257.127 for RCRA CCR general permits and § 257.128 for CCR permit by rule to the second sentence. These proposed changes are necessary to properly interpret the requirements of subpart A that would include the CCR permitting program.

*RCRA.* The Agency is proposing to revise the current definition of *RCRA* in subpart A by adding a reference to Public Law 114–322 to the definition. This public law is the WIIN Act of 2016 that provides EPA with the authority to establish a federal CCR permit program. When used in subpart A as proposed, the term *RCRA* would apply to the CCR permitting program as well as other permitting programs under RCRA (*e.g.,* hazardous waste management facilities). EPA is proposing to revise this term to facilitate proper interpretation of the subpart A provisions that would include a permitting program for CCR units.

b. Other Revisions to Subpart A

EPA is proposing several minor revisions to certain provisions of subpart A to harmonize it with the proposed CCR permit program requirements. Many of the proposed revisions to subpart A simply make clear whether a given requirement would be applicable to federal CCR permits issued by EPA. One example of these minor proposed changes includes adding references or regulatory citations to the new proposed federal CCR permitting provisions. Another example would be those subpart A provisions that are affected by use of the new definitions. Any provision of subpart A that would be amended is presented in the regulatory text accompanying this action. In addition, the Agency has placed a memorandum in the docket that shows each of these amendments in redline and strikeout format.

*C. Addition of Part 257 Subpart E*

EPA is proposing to create a new subpart E to part 257 to contain federal CCR permit program regulations.

1. General Information

a. Program Overview

EPA is proposing in § 257.120 to provide a general overview of the federal RCRA CCR permit program. Paragraph (a)(1) specifies that these regulations have been established to implement the mandate pursuant to section 4005(d) of RCRA, and paragraph (a)(2) specifies that subpart E would contain requirements for permit applications, content, modifications, revocation and reissuance, and termination. Consistent with RCRA 4005(d)(2)(B), EPA is proposing at § 257.120(a)(3) that the requirements in subpart D will be the basis of the permit content.

EPA is proposing at § 257.120(b) to require owners and operators of CCR units that are located in

nonparticipating states and in Indian country, and that are subject to requirements in subpart D, to obtain a federal CCR permit. EPA intends this to mean that permits are mandatory for all CCR units in these locations. This would also mean that once a permit has been issued or a permit application has been finally adjudicated, a facility could no longer operate the permitted CCR units under the self-implementing program. Further, compliance with the applicable requirements in subpart D alone would no longer mean that a CCR unit (or regulated entity) would be in compliance with the requirements of RCRA subtitle D.

This proposal is based on both legal and practical considerations. First, EPA considers this to flow directly from the requirement in RCRA section 4005(d)(2)(B) for EPA ''to implement a permit program *to require each* [CCR] unit . . . to achieve compliance with applicable criteria established by the Administrator.'' Second, any other approach would effectively deprive the permit of any real legal or practical effect. An individual CCR permit will be the result of an adjudication that will clarify how the subpart D requirements apply to the specific facility operations and site conditions at issue to ensure that the statutory protectiveness standard in section 4004(a) of RCRA has been met. If the facility could at any time return to alternative compliance approaches it had previously developed under the self-implementing criteria, the permit effectively would become unenforceable. Moreover, if the record created through the permit process showed that particular permit conditions were necessary to meet the statutory standard, EPA would have no basis to allow the facility to operate without those conditions. It is implausible that this is the outcome Congress intended.

EPA is proposing that subpart E would apply jointly and severally to both owners and operators of a CCR unit that dispose of or otherwise engage in solid waste management of CCR. This reflects the joint and several liability established under subpart D for each of these entities. Therefore, this proposed rule would also require owners and operators of CCR units subject to requirements in subpart D, located in nonparticipating states and in Indian country, to obtain a federal CCR permit.

At § 257.120(b)(2), EPA is proposing to codify the statutory requirement that the owner and operator of a CCR unit must continue to comply with all applicable requirements of subpart D until a CCR permit is in effect. Consistent with RCRA section 4005(d)(6), once a permit has become effective for a CCR unit, compliance with the permit terms will constitute compliance with subpart D for enforcement purposes. This permit shield provision is discussed further in Unit IV.C.1.f of this preamble.

EPA is proposing at § 257.120(b)(3) that, before a permit is issued, submittal of a complete and timely permit application in accordance with the requirements in §§ 257.124, 257.130, and 257.131 serves as compliance with the requirement to obtain a permit, unless and until EPA takes final action on the application (*i.e.,* to issue or deny a permit). This proposal is based on the rationale that once the owner and operator have submitted a timely and complete permit application, the action is out of their hands until the Administrator acts on the application. The owner and operator should not be deemed out of compliance if they have done everything possible to obtain a permit and are awaiting action by EPA. This does not affect the applicant's obligation to continue to comply with all applicable requirements in subpart D.

EPA is proposing at § 257.120(b)(4) that any CCR unit located in a nonparticipating state or in Indian country must have a permit during each stage of operation listed in § 257.123(a). The requirement to obtain and maintain a permit would apply throughout all stages of operation during which solid waste management of CCR occurs at the facility, including the active life of the CCR unit (*i.e.,* during active placement of waste in the unit and until closure activities are completed), the post-closure care period and until completion of all corrective action. This corresponds with the statutory mandate that a permit program require each CCR unit to achieve compliance with the requirements in subpart D. As these requirements apply at all stages of operation, it is likewise necessary to require the CCR unit to have a permit throughout all stages of operation.

After the Administrator has issued a permit, the permittee must continue to have a permit. Any CCR unit without either a permit or a timely, complete permit application in accordance with proposed §§ 257.124, 257.130 and 257.131 will be considered an ''open dump,'' as defined in 42 U.S.C. 6903(14), irrespective of the unit's compliance with the requirements of subpart D and may no longer receive waste. This flows from the prohibitions on open dumps and ''open dumping'' in RCRA §§ 4004(a) and 4005(a).

EPA is proposing three permitting approaches at § 257.120(b)(5). These are a general permit (see § 257.127 and Unit IV.C.1.h of this preamble), a permit by rule (see § 257.128 and Unit IV.C.1.i), or an individual permit. In most cases, EPA intends to issue a single individual permit to each regulated facility, which implements all applicable requirements of subpart D for all CCR units at the facility. However, in some cases, a single federal CCR permit for all CCR units at a facility may not be feasible. This could occur, for example, in situations where one CCR unit is eligible for the permit by rule or a general permit, but the other CCR units at the facility require an individual CCR permit. This could also occur in instances where a state program is approved to operate in lieu of the federal program to issue permits for only some of the requirements in subpart D (*i.e.,* a partial state program approval) and other subpart D requirements must be implemented through a federal CCR permit. Thus, a single individual permit would be issued to a facility only when feasible. The default approach for a CCR permit is an individual permit, but if there is a CCR unit that meets the eligibility criteria for a permit by rule or general permit, then those approaches would satisfy the requirement to obtain a permit for those CCR units that meet the respective eligibility criteria.

Additionally, EPA is proposing at § 257.120(b)(6) that the Administrator may issue or deny a permit for one or more CCR units at a facility without simultaneously issuing or denying a permit to all the CCR units at the facility. The status of any CCR unit for which a permit has not been issued or denied would not be affected by the issuance or denial of a permit to any other CCR unit at the facility, even if multiple units were included in the same permit application. The compliance status of each unit should normally be evaluated individually.

EPA is proposing at § 257.120(b)(7) that CCR permits issued by EPA will not have an expiration date. This provision is discussed in detail in Unit IV.C.1.g of this preamble. Permit terms will remain in effect until modified, revoked and reissued, or terminated. EPA is proposing at § 257.132 that a permittee must review and resubmit each permit application, or each notice of intent to be covered by the permit by rule, no less frequently than every 10 years. This is intended to ensure that EPA will have current information about operations at each permitted facility, which would alternatively be gained through a permit renewal process if permits had an expiration date.

EPA is proposing in § 257.120(b)(8) that a federal CCR permit may be modified, revoked and reissued, or terminated for cause by the Administrator as set forth in §§ 257.150 through 257.153. This provision and the rationale for it are described in Units IV.C.4.a and IV.C.4.d of this preamble.

b. Definitions

EPA is proposing to establish the following definitions at § 257.121.

i. Applicable Requirement

EPA is proposing to create a definition of ''applicable requirement'' to establish criteria for CCR permit content. For the Administrator to issue federal CCR permits consistent with RCRA section 4005(d), to require each CCR unit to achieve compliance with applicable criteria established in subpart D, the permit must contain those requirements. Therefore, EPA is proposing to define applicable requirement as a requirement in subpart D to which the permittee is subject. A definition of this term provides clarity regarding requirements in this proposal pertaining to applicability, application requirements, content, modification application requirements, and schedules of compliance, in a manner consistent with the statutory language of RCRA section 4005(d).

ii. Completion of All Corrective Action

EPA is proposing to define the term ''completion of all corrective action'' as completion of activities required by § 257.95(g) through (i), § 257.96, § 257.97, and § 257.98(a) and (b) in accordance with the requirements of § 257.98(c) through (f). Because permits must require permittees to achieve compliance with applicable criteria established in subpart D, EPA is proposing that the term ''completion of all corrective action'' correspond to all required corrective action activities in subpart D. This definition is for use in subpart E only and is not intended to modify any provision in subpart D.

iii. General Permit

For clarity, EPA is proposing to define the term ''general permit'' in a manner consistent with how the term is used in other federal permitting programs. General permit regulations in other federal permit programs provide for issuance to categories of facilities or processes based on criteria relevant to the specific program (*e.g.,* the definition of general permit in the NPDES program in § 122.2 includes geographic area as a criterion for categorization.) The definition of general permit is necessarily different in this proposal than in other permit programs, in that it contains language unique to the RCRA 4005(d) for a federal CCR permit program and references subpart D. The categorization of CCR units eligible to be covered by a general permit would be based on criteria defined by operating parameters unique to CCR units, such as wet or dry operation (*i.e.,* landfills or surface impoundments) and which determine applicability of requirements of subpart D. General permits would be issued to a category of CCR units, which would be defined in the general permit itself and would contain all subpart D requirements applicable to that category of units.

iv. Individual Permit

EPA is proposing a definition of the term ''individual permit,'' to distinguish permits issued for CCR units at a single facility from general permits or permit by rule. An individual permit can be tailored to the site-specific conditions at the facility (*i.e.,* by establishing unique terms and conditions to require compliance with the applicable requirements of subpart D, based on site-specific approaches, which may be proposed in the permit application or otherwise developed in the permit writing process).

v. Owner and Operator

EPA is proposing to adopt the definition of ''owner or operator'' that is consistent with part 270. A permitting program, by definition, regulates interaction between applicants and permitting authorities, and legal obligations and procedures governing those interactions. Therefore, EPA is proposing to align this definition more closely with part 270 than with subpart D. Because this proposal utilizes approaches and provisions from existing federal permitting programs, using the definition from the federal RCRA hazardous waste permitting program seems more appropriate.

vi. Permit by Rule

EPA is proposing a definition of the term ''permit by rule,'' consistent with how the term is used in other federal permitting programs. The permit by rule is a permitting approach, which is established in § 257.128. Compliance with the permit by rule procedures and requirements satisfies the requirement in § 257.123(a) to have a CCR permit as long as the conditions in § 257.128(a) are met. No subsequent or facility-specific permit is issued.

vii. Responsible Official

EPA is proposing to use a definition of ''responsible official'' that is based on the definition of that term found in § 71.2, which is similar to the definition found in § 270.11, to describe the appropriate signatories to permit applications and reports. This language is standard across environmental programs and defines the level of responsibility, within various organizational structures, from which EPA will accept formal communications and certifications for permitting and compliance purposes. The organizational structures included in the definition are: Corporations, partnerships (a partner may be a corporation), sole proprietorship, and municipalities. Because the appropriate level of responsibility at an organization for legal purposes is not dependent upon the details of a particular environmental program, EPA believes there is no basis to define this level of responsibility differently in this proposal.

c. Considerations Under Federal Law

When issuing federal permits, EPA may be subject to obligations under other federal laws that may impact the permits. If any of these laws is applicable to issuance of a particular permit, then its procedures must be followed. Furthermore, these laws may require EPA to include certain conditions in the CCR permit or to deny a CCR permit. The five federal laws relevant to the issuance of CCR permits are proposed at § 257.122: *The Wild Scenic Rivers Act, the National Historic Preservation Act of 1966, the Endangered Species Act, the Coastal Zone Management Act and the Fish and Wildlife Coordination Act.* These same federal laws are also included in part 270 and part 144 permitting regulations. These laws are included in this proposed regulation because they impose obligations on EPA's permit issuance process; other federal laws may impose requirements on a permitted facility that are not listed here. The public, the Corps of Engineers, the Fish and Wildlife Service, the National Marine Fisheries Service, and other interested Federal agencies, all have the opportunity to comment on any draft CCR permit. EPA seeks comment on whether the list of Federal laws is appropriate or whether any should be added or removed.

d. Applicability

RCRA section 4005(d) provides that the Administrator is to administer a permit program to require each CCR unit located in nonparticipating states or in Indian country to achieve compliance with applicable requirements established by the

Administrator under part 257 (subpart D). See 42 U.S.C. 6945(d)(2)(B) and (d)(5). Therefore, EPA is proposing that the applicability criteria of the CCR permit program would mirror the applicability criteria found in § 257.50. Owners and operators not subject to the requirements of subpart D would not be subject to requirements of this proposal.

EPA is proposing at § 257.123(a)(1) to require all owners and operators of CCR units (*i.e.,* CCR landfills and CCR surface impoundments, including any lateral expansions of such units) who are subject to the requirements of subpart D to submit a CCR permit application. This requirement would apply whenever the CCR unit is subject to requirements of subpart D, including throughout the active life, post-closure care period, and until completion of all corrective action. Depending on the stage of operation of the CCR unit, only a portion of these requirements may remain applicable, for example if the CCR unit is undergoing closure or is in post-closure care. Any CCR unit subject to any requirements in subpart D would require a permit for any of these stages of operation. These requirements would apply to CCR units and associated solid waste management activities located offsite of an electric utility or independent power producer, as long as the CCR unit is subject to requirements of subpart D. To comply with the requirement to obtain a CCR permit, the owner and operator of a CCR unit must jointly (when they are separate entities) submit a complete and timely permit application in accordance with §§ 257.124, 257.130, 257.131 and any subsequent **Federal Register** notice or other notification establishing a deadline for a CCR permit application.

EPA is proposing at § 257.123(a)(2) that the owner and operator of a CCR unit and associated solid waste management activities need not apply for a federal CCR permit if it is subject to requirements of a Participating State CCR Permit Program, or a State CCR Program that has been submitted to EPA and approval is pending, as EPA only has the authority to issue permits in nonparticipating states and Indian country. RCRA section 4005(d) provides that states may submit a CCR permit program, or other system of prior approval, to the Administrator for approval to operate in lieu of the federal program. See Unit III.B of this preamble. In addition to state CCR permit program approval in whole, state CCR permit programs may be approved by the Administrator in part. A partial program approval would result in a state CCR permit program that operates in lieu of the federal program for only a subset of subpart D requirements. For example, if a state submits for approval a CCR permit program that only regulates certain types of CCR units (*e.g.,* landfills) or does not require compliance with all elements of the CCR regulations (*i.e.,* does not contain requirements for structural stability), EPA could grant a ''partial approval'' that would approve the state's permit program to operate in lieu of only certain provisions in the federal CCR program. For any subpart D requirements not covered by the approved state program, the state is considered a nonparticipating state and the owner and operator of such CCR units would be required to apply for and obtain a federal CCR permit.

EPA is proposing at § 257.123(a)(3) that the owner and operator could meet this obligation by submitting an application (or in one case, a notification) for any of the following three kinds of CCR permits. The first is an individual permit. An individual permit would be issued to one or more CCR units at the same facility and would contain terms and conditions tailored to the site-specific circumstances at the facility, such as controls and procedures to achieve compliance with applicable requirements of subpart D. In the second approach, the owner and operator may apply for coverage under a general permit. EPA is proposing at § 257.127 to establish provisions under which EPA may issue one or more general permits. The Administrator could issue a general permit for a category of similar CCR units, which would contain all requirements of subpart D applicable to that category of CCR units and associated solid waste management operations. See Unit IV.C.1.h of this preamble for more discussion on general permits. The third is compliance with the terms of the permit by rule proposed in § 257.128. See Unit IV.C.1.i for more discussion on the permit by rule. This approach would only be available to new landfills or lateral expansions that meet the eligibility criteria and other requirements proposed in § 257.128. If the owner and operator do not meet the criteria for, or choose not to pursue, a general permit or permit by rule for a CCR unit, they must apply for an individual permit. EPA expects most CCR units subject to this program would be issued an individual CCR permit.

The permit by rule and general permit approaches are proposed to streamline the CCR permit program. EPA believes they would result in more timely permitting actions that meet the statutory mandate to issue permits requiring each CCR unit to comply with applicable requirements in subpart D. The permit by rule or general permit approaches are protective alternatives that will allow the Administrator to focus on issuance of permits to those units whose greater risks, or more complicated operations or site conditions, warrant the level of oversight associated with an individual permit. These streamlined approaches would be available only to certain CCR units with less complex operations or site conditions and more straightforward requirements in subpart D. Both the permit by rule and the general permits would contain eligibility criteria to ensure that coverage is available only to CCR units appropriately regulated through these alternatives. Consistent with this proposal, states would be able, but not required, to incorporate general permits and permits by rule into their programs submitted for approval to the Administrator. This could be considered as an option for permitting CCR units when developing state programs.

A facility could utilize more than one permitting mechanism. For example, at a facility with multiple CCR units, each unit could operate under a different type of permit. Thus, one unit that is a new landfill and its associated solid waste management activities could operate under a permit by rule, while another CCR unit and its associated solid waste management activities may meet the eligibility criteria for a general permit established in accordance with § 257.127, and an individual permit could be issued for the remaining CCR units and their associated solid waste management activities at the facility.

As discussed in Unit IV.C.2.d of this preamble, if EPA receives a permit application that does not meet the requirements in §§ 257.130 through 257.131, the procedures in § 124.3 would apply without modification. However, EPA is proposing at § 257.123(b) that this would not affect the requirement for the owner and operator of a CCR unit to obtain a permit. If the Administrator determines an application is incomplete, the owner and operator must re-apply for a CCR permit. If the owner and operator fail to re-apply for a CCR permit, the CCR unit will be considered an open dump, subject to an enforcement action, and must cease placing waste in the unit. In such cases, the owner and operator would nevertheless be required to continue to conduct other required activities under subpart D, including, but not limited to fugitive dust control, groundwater monitoring, retrofit, closure, post-closure care, or corrective action. Any owner and operator that

does not continue to conduct these activities under subpart D would also be subject to enforcement action for open dumping under RCRA § 4005(a).

EPA expects that the deadline to re-apply for a permit will be established in the notification of the final adjudication of the original permit application (denial for incompleteness) and would be based on the scope of the missing information. Alternatively, EPA is considering establishing a single deadline in the regulation for an applicant to re-apply after a permit is denied based on an incomplete application. EPA is taking comment on these approaches and alternative approaches and timeframes for an applicant to remedy a permit denial based on an incomplete application.

EPA is not proposing to require entities who are exclusively engaged in the beneficial use of CCR, consistent with the requirements in § 257.53 to obtain a federal CCR permit. This exemption is proposed at § 257.123(c)(1). The beneficial use of CCR is not regulated under subpart D; therefore, EPA would have no basis to require entities who only engage in beneficial use to apply for and obtain a permit. If owners and operators of a CCR unit are subject to other requirements under subpart D and also engage in beneficial use of CCR, they would be required to apply for a CCR permit for only the regulated activities.

In addition to the exemptions from subpart D, EPA is proposing to adopt at § 257.123(c)(2) a provision similar to § 270.1(c)(3) that owners and operators are not required to obtain or modify CCR permits in order to conduct an immediate response. An immediate response is a response action taken when there is a release, or an imminent and substantial threat of a release, of CCR that poses a reasonable probability of adverse effects on health or the environment. EPA is proposing this exemption to avoid delays, due to permit applications or processing, in response activities necessary to address a health or public safety concern that is urgent or potentially urgent.

EPA is not proposing a definition of immediate response to give the Administrator and the facility flexibility to assess individual situations on a case-by-case basis and to coordinate with state, and local emergency responders. However, EPA envisions that immediate responses are those that are conducted as quickly as feasible. In evaluating whether an individual situation constitutes an immediate response, the Administrator and the facility should consider any indications of urgency with which the response is conducted to assess eligibility for this exemption. These indications could include, for example, conducting the response activities on a continuous basis (*i.e.,* 24-hour days, 7 days per week), short-term rental of equipment to increase the pace of the response, procurement of response contractors, or other levels of effort above and beyond staffing and resources used during normal operations. Once the immediate response is over, the owner and operator would be required to obtain or modify a permit as needed to conduct any long-term response actions or address any changes to the unit or operations resulting from the release or response.

e. Deadlines for Application Submissions

As previously stated, all owners and operators of a CCR unit in nonparticipating states and in Indian country must apply for and obtain a federal CCR permit in accordance with § 257.123(a). In determining when the owner and operator of a CCR unit should be required to submit a permit application to the Administrator, EPA considered many factors. To determine how to prioritize applications in a timely and orderly fashion, EPA analyzed the number of CCR units located in nonparticipating states and in Indian country based on information posted on each facility's publicly accessible CCR website in accordance with § 257.107, so that CCR permits for all regulated units may be issued as expeditiously as possible. EPA also looked at application deadlines established in other permitting programs, described in Unit III.C of this preamble, and how those programs prioritized application submittal.

To prioritize the processing of individual permit applications for existing CCR units, EPA is proposing at § 257.124(a)(1) and (2) to establish tiers of deadlines when permit applications must be sent to the Administrator. Tiering application deadlines for owners and operators of CCR units will help EPA review each permit application thoroughly and act on each permit application in a timely manner. Tiering applications may avoid a situation where EPA would receive a large number of applications at the same time. This could result in poor quality permits or in permit appeals that could have been avoided if EPA had sufficient time to review each application and draft permit content, or it could result in the need for facilities to update pending permit applications if information in them becomes out of date by the time EPA acts on them. In addition, tiering applications will allow EPA to address the highest priority CCR units first.

If a CCR facility has multiple CCR units and one or more of the CCR units at the facility triggers an application deadline, the permit application must include all CCR units at the facility that are not covered by a permit by rule or general permit. The compliance deadlines proposed at § 257.124(a) would require permit applications for either a general permit issued in accordance with § 257.127, the permit by rule proposed at § 257.128, or an individual permit. The compliance deadlines in the proposed rule would not prevent owners and operators from submitting applications early.

EPA is proposing at § 257.124(a)(1) that the first tier of permit applications would be due 18 months after the effective date of the final rule for several reasons. This timeframe would allow owners and operators sufficient time to prepare applications and document compliance strategies they wish to propose in their permit applications, with supporting documentation to justify these approaches. Eighteen months will also allow EPA sufficient time to develop any necessary implementation materials, such as permit applications and instructions or technical guidance documents, as well as an electronic system for federal CCR permitting. Finally, this time will also provide states with an opportunity to develop and submit for approval CCR State Permit Programs in light of the requirements that will be established in this federal permitting program. EPA considers this approach to be protective and otherwise consistent with RCRA 4005(d). Facilities must continue to comply with the rule during this time, and the statute contemplates that facilities will continue to operate during this period. Section 4005(d)(3) expressly provides that facilities must continue to comply with the federal rule until a state or federal permit is effective; this would be unnecessary if they had to stop operating.

To determine which CCR units should comprise the first tier of applications, EPA decided to prioritize the issuance of permits to CCR units that present higher acute risks. Accordingly, EPA looked to the hazard potential classification system for CCR surface impoundments. The hazard potential ratings refer to the potential for loss of life or damage if there is a dam or embankment failure. The ratings do not refer to the current structural stability of the dam or embankment. Subpart D requires owners and operators of CCR impoundments to conduct periodic hazard potential classification

assessments and rate the units as either a high hazard potential CCR surface impoundment, a significant hazard potential CCR surface impoundment, or a low hazard potential CCR surface impoundment. See §§ 257.73(a)(2) and 257.74(a)(2). The high hazard potential CCR surface impoundments are among the highest priority for EPA because the high hazard classification means a diked surface impoundment where failure or mis-operation of these surface impoundments will probably cause loss of human life. Each hazard potential classification assessment is required to be certified by a qualified professional engineer and contain documentation to provide the basis for the current hazard potential rating. The initial hazard potential assessment was required by October 19, 2016, for existing units and prior to the initial receipt of CCR in the unit for new units or lateral expansions. Several of these units are in states that EPA has been working with to develop a CCR State Permit Program, so EPA assumes that these units would be in Participating states and would consequently not be subject to federal CCR permitting requirements, by the time a final rule is effective. Therefore, the first proposed tier would include any CCR facility with at least one existing CCR surface impoundment, new CCR surface impoundment, or inactive CCR surface impoundment that is classified as high hazard potential under § 257.73(a)(2) or § 257.74(a)(2) and located in a nonparticipating state or in Indian country. Furthermore, all CCR units at such a facility would be required to be included in this initial permit application at this time, or to apply for a general permit or permit by rule. EPA considers this subset of CCR units to be the highest priority to submit a permit application and should therefore constitute the first tier.

EPA is also proposing to require owners and operators of CCR units in Indian country to submit applications in the first tier. RCRA provides no option other than a federal CCR permit for these CCR units, regardless of state program approval status or appropriations. EPA has no reason to delay submittal of applications for these CCR units. EPA is aware of three facilities in Indian country with CCR units that would be subject to this rule; this relatively small number of permits also would not delay issuance of other CCR permits to units with potentially higher risks.

EPA is not proposing to define subsequent tiers of applications at this time. EPA is proposing at § 257.124(a)(2) that the Administrator will notify owners and operators of CCR facilities by a notice in the **Federal Register** at least 180 days before the application submission is required. This timeframe is similar to the requirement established in the RCRA hazardous waste permitting program at § 270.1(b) for part B applications. The proposed CCR permit application requirements, described in Unit IV.C.2 of this preamble, will not include a part A and part B, as was done in part 270, because submission of a separate part A would serve no useful purpose. As noted, Congress has already effectively granted currently operating units the equivalent of interim status in RCRA 4005(d)(3) by requiring compliance with subpart D until a permit is in effect. The CCR units that would be covered by subsequent tiers must comply with subpart D until they are covered by an effective federal or Participating State CCR permit.

EPA believes that 180 days is sufficient time for the owner and operator to prepare the permit application. As described in Unit IV.C.2, the information required in the permit application will be information about the facility, information about the applicant, technical information about the CCR units at the facility, site conditions, plans, maps, drawings, and other documents. Since the CCR units are already subject to subpart D, most of the information required in the application has already been developed by the owner and operator in accordance with subpart D, and in many cases is posted on the facility's publicly accessible website.

EPA is considering several approaches to prioritizing the permit applications in subsequent tiers. Examples are provided here in no particular order:

- CCR units located in states that affirmatively declare to EPA that they do not intend to pursue program approval;
- CCR units located at specific facilities;
- CCR surface impoundments with significant hazard potential for structural stability;
- CCR surface impoundments that are in assessment of corrective measures or corrective action after an exceedance of a groundwater protection standard or after experiencing a release;
- CCR units that are undergoing closure;
- CCR units that are undergoing closure with CCR remaining in the unit;
- CCR units that are in the post-closure care period;
- CCR landfills;
- CCR landfills that are in assessment of corrective measures or corrective action after an exceedance of a groundwater protection standard or after experiencing a release;
- New CCR landfills or lateral expansions that are not covered by a permit by rule under § 257.128;
- CCR units that have not met the location restriction requirement for placement above the uppermost aquifer demonstration under § 257.60; or
- CCR units that have not met the location restriction requirement for wetlands (§ 257.61), fault areas (§ 257.62), seismic impact zones (§ 257.63), or unstable areas (§ 257.64).

EPA requests comment on approaches to prioritizing applications, including how many tiers of permit application deadlines there should be for this permitting program. In the development of this proposed rule, EPA has considered having two, three, or more tiers of permit application deadlines to space out the applications so that EPA may act on them in a timely manner. The number of tiers will depend on whether owners and operators choose to submit permit applications early, the number of CCR facilities that meet the different criteria, and the time needed for EPA review of permit applications and drafting of permits in this new program. EPA also solicits comment on the method of deciding which units must apply, and the timeframe, as there are many ways that CCR units can be prioritized based on the criteria listed above or using other methods.

EPA is proposing at § 257.124(a)(3) to establish deadlines for the submittal of a permit application for any CCR unit that becomes subject to the requirements of subpart D on or after the promulgation of the federal CCR permit program final rule. For CCR units that become subject to subpart D, and therefore this rule, after this rule is finalized, the deadlines to submit a permit application are phased in. For CCR units that become subject to federal permitting requirements after promulgation of the final permitting rule, but prior to 24 months after the effective date of the rule, permit applications would be due 24 months after the effective date of the final rule. This is six months after the first tier of applications under the prioritization approach discussed above, and this deadline reflects the fact that the first tier of applications would be the highest priority for EPA to act on. For CCR units that become subject to federal permitting requirements after that date, the owner and operator would submit a permit application for such a CCR unit no less than 180 days prior to becoming subject to the requirements of subpart D.

CCR units that become subject to federal permitting requirements after

this rule is finalized would include units that are constructed before promulgation of the final federal CCR permit program rule but that initially receive waste after that date. It would also include new CCR units that begin construction after the final federal CCR permit program promulgation date. EPA believes that 180 days is a sufficient, but not excessive, amount of time before receipt of waste is expected to begin for an owner and operator to submit a permit application. If the new CCR unit is a CCR surface impoundment, or if for any reason the owner and operator choose not to apply for a permit by rule for a new CCR landfill or lateral expansion in accordance with § 257.128, they will need to apply for an individual permit following the requirements of §§ 257.130 and 257.131. If the owner and operator submitted a permit application to the Administrator at least 180 days before becoming subject to the requirements of subpart D, this would fulfill the requirement to obtain a permit, and after 180 days they may begin to operate the unit in compliance with applicable requirements of subpart D, even if a permit has not been issued by the Administrator. EPA considers this approach to be protective as facilities must comply with the rule until a permit is in effect, which will be sufficient in the interim. Consistent with EPA's interest in prioritizing the issuance of permits based on risk, EPA intends to initially focus on issuing permits for existing units, which generally pose higher risks than newly-constructed units.

CCR units that become subject to federal permitting after this rule is finalized would also include CCR units (located in nonparticipating states or in Indian country) that ceased receipt of CCR before the effective date of subpart D, October 19, 2015, but begin receiving waste in the CCR unit again. For example, consider a CCR landfill (''Landfill A'') that contained CCR before 2015 and then ceased receipt of waste. If Landfill A becomes subject to the requirements of subpart D because it begins receipt of CCR again, the proposed provisions in § 257.124(a)(3) would require the owner and operator of Landfill A to apply for a CCR permit no less than 180 days before becoming subject to the requirements of subpart D. This requirement would ensure that all CCR units meeting the applicability criteria proposed at § 257.123(a) would be required to obtain a federal CCR permit.

EPA is also proposing at § 257.124(a)(4) that requests for coverage under a general permit or Notification of Intent (NOI) to be covered by the permit by rule are due at the same time applications for individual permits. If the new CCR unit is a CCR landfill and it meets the criteria for a permit by rule under § 257.128, the obligation to apply for a CCR permit may be met by submitting an NOI to be covered by the permit by rule. Submittal of the NOI would be required on or before the deadline for other CCR units at a facility to apply for an individual permit or submit a request for coverage under a general permit, as specified in § 257.124(a)(1) through (3). This proposal would give the owner and operator of a new landfill sufficient time to obtain coverage under a permit by rule by the date a permit application for other CCR units at the facility would be required, or to obtain coverage under a general permit.

In the course of developing this proposed rulemaking, EPA also considered requiring all permit applications to be submitted with the same deadline. EPA decided not to propose that all applications be submitted at the same time due to concerns about the potential for a backlog of permit applications, as discussed previously in this Unit. If, after receiving comments, the Agency decides that all applications should be required by the same date (*e.g.,* 24 months after the promulgation of the final CCR permitting regulation), EPA would prioritize issuance of the permits using one or a combination of the approaches discussed above.

f. Effect of a Permit

EPA is proposing at § 257.125(a) that compliance with the terms and conditions of an issued and effective CCR permit would constitute compliance with the requirements of subpart D for the CCR units and operations covered by the permit. This provision, known as a ''permit shield,'' would implement sections 4005(d)(3) and 4005(d)(6) of RCRA. Section 4005(d)(3) provides that the applicable criteria in subpart D apply to each CCR unit unless a permit issued under an approved state program or a federal CCR permit is in effect for the unit. Section 4005(d)(6) provides that a CCR unit shall be considered a sanitary landfill for purposes of RCRA only if it is operating in accordance with the requirements of a CCR permit, issued by a state with an approved program or by EPA, or in accordance with the applicable criteria in subpart D.

The wording of proposed § 257.125(a) is generally similar to permit shield provisions in other federal permit programs, such as §§ 270.4(a)(1) and 71.6(f). Consistent with those provisions, the proposed permit shield provision expressly provides that compliance wth a permit shields the permittee from any claim in an enforcement proceeding (including a citizen suit proceeding brought pursuant to RCRA section 7002) that the permittee was or is not in compliance with any subpart D requirement not specified in the permit.

The proposed permit shield provision does not prevent EPA from modifying the permit to make changes or incorporate additional requirements on its own initiative. EPA is also proposing in § 257.150(a)(5) that it may initiate a modification to correct any error in a permit. EPA is proposing to include an express statement to this effect in § 257.125(a) to avoid any confusion about the relationship between these two regulatory provisions and about the effect of the provisions in RCRA sections 4005(d)(5) and (6).

Establishing these regulatory provisions to implement the statutory permit shield provision would generally provide certainty regarding a permittee's legal obligations under subpart D and reaffirms that the permit will provide a clear determination of the actions that the permittee must take to be in compliance with those requirements. A permit shield would not apply prior to the effective date of a permit or any permit modification, even for those modifications that do not require prior approval. Under the express wording of RCRA 4005(d)(6) a permit shield is only available through compliance with requirements in an effective permit. In § 257.125(b) and (c), language is proposed to clarify that issuance of a CCR permit does not convey any property rights of any sort, nor any exclusive privilege, and that a CCR permit does not authorize injury, invasion of private rights, or violations of local or state law. EPA is also proposing to specify that a CCR permit does not authorize violations of federal laws not explicitly considered and addressed in the permitting action. These provisions are consistent with other EPA permit programs under RCRA, the CWA, and the CAA, which provide neither property rights, nor any other special privilege under State or Federal law. Further, there is no indication on the face of RCRA 4005(d) that Congress intended to grant CCR permittees any greater rights or privileges than were provided to permittees under these other federal permit programs. The language that EPA has proposed here is generally consistent with the comparable regulatory provisions in other federal

permitting programs (see §§ 270.4(b), 270.4(c), 71.6(a)(6)(iv)).

g. Duration of a Permit

EPA considered durations of permits in other federal permitting programs when evaluating whether to establish a specific term or limited duration for federal CCR permits (*e.g.,* to require that all permits expire after a specific time). For example, CAA Title V permits expire five years after the date of issuance, in accordance with § 71.6(a)(11). Under RCRA § 3005(c)(3) hazardous waste permits are effective for a fixed term not to exceed ten years. By contrast, permits issued in the UIC program for Class VI carbon dioxide geologic sequestration wells do not expire and are issued for the operating life of the facility and the post-injection site care period. See § 144.36(a). Federal permitting programs have various and unique statutory mandates, which may determine the effective permit term in any given program. Congress did not direct EPA to issue CCR permits for a particular term.

EPA is proposing at § 257.126 that RCRA CCR permits would be issued without expiration and would remain in effect throughout the active life of the CCR unit, the post-closure care period, until completion of all corrective action, and until the permit is terminated. A permittee could request termination of the permit in accordance with the requirements proposed in § 257.153 when all applicable requirements of subpart D have been satisfied. EPA is proposing to adopt this approach because it best ensures sustained regulatory oversight of the facility throughout the full cycle of solid waste management activities regulated under subpart D, as well as until completion of all corrective action and post-closure care. EPA is proposing other mechanisms to ensure the permit is periodically updated as necessary to accurately reflect current operations and regulatory requirements.

To require a CCR unit to achieve compliance with subpart D, a CCR permit must be effective and enforceable. Permitting programs that issue permits with expiration dates often face challenges issuing timely permit renewals. While there are mechanisms to allow for enforcement of an expired permit, such as administrative continuance, these mechanisms can frequently result in a very similar outcome to the proposed approach of issuing CCR permits with no expiration date. The benefit of the proposed approach is that permitting actions will occur only when needed, to address changes at a facility or in applicable requirements,

Based on EPA's experience issuing permits under part 270, permit expiration can also result in situations in which the permit has expired before the cleanup or other post-closure activities have been completed. In practice, it can be difficult to ensure permittees submit timely and complete applications before the expiration date, once active waste management has ceased and only corrective action or post-closure activities remain. Although EPA has authority to issue an order to compel compliance, these situations highlight potential challenges of expired permits.

In general, permit expiration serves several important functions. It provides a mechanism for regular review of the existing permit and its terms and conditions, and for incorporation of any new information and, if necessary, new conditions into the permit through a public process. It also helps to ensure sufficient opportunities for public participation during the life of the CCR unit. The Agency believes the proposal to issue federal CCR permits without an expiration will also provide these same functions, albeit through other mechanisms, as discussed below.

If a permit is issued with an expiration date, renewal must occur at that time, even if no changes have occurred at a facility or if a permit had been recently modified and was up-to-date. EPA could not identify one timeframe for the expiration of all CCR permits that would anticipate a single time for a permitting action that would capture all changes in operations or underlying requirements at a particular CCR unit or facility. Re-issuance of a CCR permit at a specified frequency in addition to the proposed modification requirements would not reasonably be expected to improve the permit or provide valuable opportunity for oversight or public participation. Renewing CCR permits without changes could divert facility resources or Agency resources away from higher priority permitting actions, such as applying for and issuing major modifications or ensuring that minor modification procedures are being implemented properly.

EPA believes that the goal of ensuring that permits continue to require compliance with all applicable requirements of subpart D and accurately reflect current operations is best accomplished through appropriate modification requirements and periodic permit application reviews. The proposed modification requirements in §§ 257.150 through 257.152 are intended to address all situations where changes to a permit are needed. Additionally, if a permit remains unmodified for ten years, the Agency is proposing to require permittees to review and resubmit CCR permit applications by that date to ensure that the Administrator has current information about the CCR units. See proposed § 257.132 and Unit IV.C.2.c of this preamble. These requirements provide mechanisms for timely incorporation of any new information or requirements into the permit, or corrections to errors or omissions that might render the permit at odds with regulatory or statutory requirements. Combined with the ability of citizens to petition EPA to modify a permit (see Unit IV.C.4.a of this preamble and the existing procedures in § 124.6), these mechanisms provide sufficient opportunities for public participation throughout the life of the CCR unit.

In sum, the Agency believes the proposed approach to issue federal CCR permits without expiration will result in permits that are effective and enforceable and provide appropriate mechanisms to require permits be kept up-to-date, while ensuring adequate transparency and public engagement.

h. General Permit Provisions

EPA is proposing at § 257.127 to establish procedures for issuance of one or more general permits, as an alternative to individual permits. The EPA is proposing that the Administrator could issue a general CCR permit to an identified category of CCR units involving the same, or substantially similar, operations, which are all subject to the same applicable requirements of subpart D and would require the same permit terms and conditions to achieve compliance with subpart D. See proposed § 257.127(a). A general permit would be issued when, in the opinion of the Administrator, it would be more appropriate to regulate those units under a general CCR permit than under individual CCR permits. A general CCR permit would be proposed in the **Federal Register** and finalized in accordance with the applicable requirements of part 124. Once a general permit is final, it would be available for eligible CCR units to seek coverage to satisfy the requirement to obtain a federal CCR permit.

Each general permit would be written for a defined category of CCR units (*e.g.,* a surface impoundment closing with waste in place, undergoing corrective action implementing a pump and treat system). EPA is proposing at § 257.127(b) that each general permit would identify criteria indicating which

CCR units are eligible for coverage. The general permit would contain all requirements necessary to achieve compliance with the requirements of subpart D applicable to those CCR units, and it would contain eligibility criteria limiting its availability only to those CCR units, as well as procedures to obtain coverage under the general CCR permit.

Requirements in a general permit would also include liner design criteria, unit design criteria, structural stability requirements, location restrictions, inspections, groundwater monitoring, and posting information to a publicly accessible CCR website. A general permit could contain limitations not specifically found in subpart D, but which would be necessary for the general permit to require compliance with subpart D for each CCR unit covered by it. These terms and conditions could include operating limitations necessary to ensure the completeness and appropriateness of the terms and conditions in the general CCR permit. For example, if a general permit was issued for a category of CCR units that includes existing surface impoundments but excludes CCR units subject to the requirements § 257.73(c) through (e), the general CCR permit would not contain terms and conditions requiring compliance with § 257.73(c) through (e) (*i.e.,* a compiled history of construction, periodic structural stability assessments, or periodic safety factor assessments). Such a general permit would instead contain limitations, derived from the applicability criteria in § 257.73(b), on the height (20 feet) or storage area and height (20 acre-feet and 5 feet) of CCR units covered by it. By including eligibility criteria in the general permit, which would limit its availability to CCR units operating at a height no greater than 20 feet, or a storage area no greater than 20 acre-feet and a height no greater than 5 feet, the general permit in this example would satisfy the statutory mandate to require compliance with subpart D, even though it would not include terms incorporating requirements in § 257.73(c) through (e).

In addition to requirements in subpart D and operational limitations inherent to ensuring appropriateness of the terms and conditions, general permits would also include requirements regarding: Criteria for eligibility to be covered by the general permit, procedures to apply for coverage under the general permit, monitoring, reporting and notifications, and posting information to a publicly accessible CCR website. EPA intends that a general permit will proscribe clearly what types of CCR units are eligible for coverage and will require compliance with those criteria. A general permit would contain clear procedures, with deadlines, for an owner and operator of a CCR unit to follow if, after obtaining coverage under the general permit, the CCR unit becomes ineligible for the general permit and must satisfy the requirement to have a CCR permit through another mechanism.

EPA is proposing that coverage under a general permit would be optional. Even if a CCR unit is eligible for coverage under a general permit, the owner and operator could elect to apply for an individual permit instead. To obtain coverage under a general permit, an owner and operator must submit a request to be covered, in accordance with procedures provided in the general permit, and coverage would be effective 45 days after receipt of a complete and accurate request, in the absence of any objection from the Administrator. EPA intends that a request for coverage under a general permit will require more detailed information than an NOI for coverage under the permit by rule, but less than what would be required in an application for an individual CCR permit. Once a request for coverage has been submitted in accordance with the requirements in § 257.127(c) and the general permit, the permittee need take no further action to obtain a permit, provided the CCR unit meets the eligibility criteria.

If the Administrator determines the CCR unit does not meet the eligibility criteria established in the general permit, the Administrator would notify the owner or operator in writing that an NOI or individual permit application is required, and will include a brief statement of the reasons for this decision and a deadline for the owner and operator to submit an NOI or individual permit application, and a statement that on the effective date of the individual CCR permit the general permit as it applies to the individual permittee shall automatically terminate. The determination that a permittee must apply for an individual permit would not be subject to judicial review as it is not a final permitting action. If an owner and operator requests coverage under a general permit for which a CCR unit is not eligible, they would be potentially subject to enforcement action for failure to apply for and obtain a CCR permit. The owner and operator would be required to comply with all applicable requirements of subpart D until an effective federal or Participating state CCR permit has been issued.

EPA believes general permits may be an appropriate permitting mechanism in this program because the permitting universe has a limited number of types of CCR units, the waste management practices are relatively common among CCR units, and compliance monitoring and notification provisions are already generally established in subpart D. It is also possible that, as the corrective action portion of the program matures, there could be certain commonly used cleanup approaches, due to the limited number of regulated constituents, which are primarily the same chemical class (metals). The relative uniformity of CCR units and the focused regulatory requirements may make general permits an efficient and effective permitting approach for CCR units. If there are categories of CCR units with similar permitting needs, issuance of general permits could result in improved clarity about applicable regulatory requirements through quicker permitting of CCR units with enforceable and effective CCR permits.

In exchange, a general permit would not be tailored to site-specific conditions and would not provide the specificity an individual permit could provide. Instead, it would be somewhat tailored to a category of CCR units (*e.g.,* a general permit only available to certain types of surface impoundments would not contain subpart D requirements that are only applicable to landfills). A general permit would be issued without site-specific considerations and could not be modified for an individual permittee.

EPA is proposing that only the following procedures in part 124 would apply to the issuance of a general permit: §§ 124.6–124.14. By contrast, requests for coverage under a general permit would not be subject to any of the part 124 procedures for applications because they are not applications for permits. The part 124 procedures applicable to the denial, termination, and modification of permits would not apply either to the issuance of a general permit or to the process of requesting coverage under a general permit; instead EPA is proposing routes for revocation or termination of coverage.

EPA is requesting comment on the appropriate use of general permits, including categories of CCR units for which general permits may be appropriate, requirements for content in the streamlined application, whether public comment on individual applications for a general permit is appropriate, and whether EPA should be required to issue a determination that coverage under a general permit is appropriate for a particular CCR unit.

i. Permit by Rule

A permit by rule is proposed in § 257.128, which would deem the owner and operator of a new landfill or lateral expansion of a landfill to have a CCR permit as long as certain conditions are met. No subsequent or facility-specific permit would be issued and the owner and operator of a CCR unit eligible for the permit by rule would not be required to submit an application for EPA to review in order to qualify. However, a notification requirement is included in the proposed permit by rule, to allow EPA to track the universe of CCR units regulated under the federal CCR permitting program for purposes of program oversight and enforcement.

The proposed permit by rule would only be available to new CCR landfills (which includes lateral expansions of CCR landfills) that meet the criteria in § 257.128 (*e.g.,* the CCR unit must be in compliance with the applicable technical requirements of subpart D). The proposed permit by rule would only be available to new CCR landfills that meet the design criteria at § 257.70(a) or (b). A new CCR landfill constructed with an alternate composite liner, as provided at § 257.70(c), would not be eligible for the permit by rule. See proposed § 257.128(a)(1)(vi). In addition, groundwater monitoring of the uppermost aquifer must show no detections of constituents in Appendix IV at a statistically significant level above a groundwater protection standard, which would trigger corrective action requirements. See proposed § 257.128(a)(1)(vi). There must also be no non-groundwater releases from the CCR unit; the proposal would require the owner and operator to apply for a general permit or individual CCR permit if a leak or release is detected. See proposed § 257.128(a)(10) and § 257.128(b). Similarly, EPA is proposing that, no less than 180 days prior to initiating closure of any unit covered by the permit by rule, the owner and operator must apply for either a general or individual permit. See proposed § 257.128(a)(4) and § 257.128(b). If a CCR unit is designed or operated in any way that deviates from the criteria in § 257.128(a), it would no longer be eligible for the permit by rule and the owner and operator would be required to apply for an individual or general CCR permit within 60 days of becoming ineligible; *e.g.,* if an owner or operator completes a statistical analysis and identifies a statistically significant increase in the monitoring data above a groundwater protection standard for any constituent in Appendix IV. These restrictions on eligibility for the permit by rule are necessary to ensure that compliance with the requirements of the permit by rule will result in compliance with applicable requirements in subpart D. Additionally, EPA believes that the subpart D requirements which would be applicable when any of these conditions are not met are more appropriately addressed by a general or individual CCR permit.

EPA is proposing the permit by rule for new CCR landfills based on the risks these types of units present and the nature of the technical requirements. EPA's 2014/2015 risk assessment [8] shows that CCR landfills meeting the liner requirements in subpart D present significantly lower risks than the other types of units regulated under subpart D, generally by an order of magnitude. Furthermore, the proposed criteria in § 257.128 are designed to ensure that these units continue to operate safely. This provision is limited to units constructed with a composite liner and a leachate collection and removal system that meet the requirements in § 257.70(a), (b) and (d). The unit must also comply with all location restrictions standards.

The design and operating standards applicable to the new CCR landfills eligible for the permit by rule at § 257.70(a), (b), and (d) through (g) are generally both less extensive and more prescriptive than for other CCR units. Consequently, these units have few options for compliance and operational practices are not expected to vary widely to account for site specific conditions; the requirements should therefore be relatively uniform. To ensure this remains the case, EPA is proposing to restrict eligibility for permit by rule in § 257.128 to units that have not initiated corrective action or closure. The compliance options for closure can vary substantially in response to site conditions, and EPA therefore considers that these activities warrant the oversight and ability to more precisely tailor the requirements that comes from an individual permit. Newly constructed landfills are expected to operate for a significant time before either closure of the unit or corrective action becomes necessary. If the owner and operator is operating a CCR unit in accordance with the permit by rule and a change occurs that makes the unit ineligible for the permit by rule, EPA is proposing at § 257.128(b) a requirement to apply for an individual or general permit within 60 days of the change, *e.g.,* within 60 days of completing statistical analysis that identifies a statistically significant increase above a groundwater protection standard for any Appendix IV constituent. An application for an individual or general permit would also be required no less than 180 days prior to initiating closure.

Because the requirements in subpart D applicable to the CCR units meeting the proposed criteria in § 257.128(a) are fairly straightforward, EPA does not believe issuance of an individual CCR permit would add significant value as far as clarifying applicable requirements, Agency review of an application, or public comment. The permit by rule would require compliance with applicable requirements of subpart D until a more complex determination of applicable requirements and appropriate compliance strategies is needed, such as when the unit begins closure.

The permit by rule would allow the Agency to focus on issuing individual CCR permits to other facilities and CCR units facing complex applicability issues and compliance strategies. Individual CCR permits remain appropriate in these circumstances, where the permit issuance process may provide more value in terms of clarification to the permittee, the Agency, and the public regarding applicable requirements and acceptable compliance approaches. EPA is requesting comments on this approach, and whether there are other categories of units that could be appropriately permitted by rule.

j. Transfer of Permit Program Administration

EPA anticipates that after federal CCR permit applications have been submitted, or possibly after federal CCR permits have been issued, one or more states may obtain CCR State Permit Program approval and begin permitting CCR units in lieu of the federal program. Alternatively, after a state has been operating an approved CCR State Permit Program, the state could relinquish the program or EPA could withdraw the approval, and the CCR units in that state would need to be permitted by EPA under the federal program. These situations would require close coordination between the state and EPA to clarify permittee compliance obligations, as well as each agency's responsibilities, during such a transition.

RCRA § 4005(d)(2)(B) provides authority to implement a federal CCR permit program only in Indian country

[8] US EPA, ''Human and Ecological Risk Assessment of Coal Combustion Residuals'', December 2014. This document is available at *www.regulations.gov* as docket item EPA–HQ–RCRA–2009–0640–11993.

and in nonparticipating states. EPA is proposing at § 257.129 procedures to transition between federal and state CCR permit programs when approvals of state CCR permit programs are issued or withdrawn. Because each state has its own regulatory procedures (usually established by statute and/or regulation) EPA anticipates that the procedures necessary to transfer administration of a permit program between a state and EPA will necessarily vary. Based on its specific circumstances, a state might prefer, for example, to revoke and reissue all permits immediately, or the state might prefer to have EPA continue to administer a small subset of permits for some period of time (*e.g.,* where the facility is in the final stages of corrective action). To allow for this, EPA is not proposing to establish uniform procedures for transferring documents and responsibilities associated with CCR permit program administration. Instead, the procedure to be used would be specified in the proposed and final notices announcing the change in CCR State Permit Program approval status. Further details could be specified in a Memorandum of Agreement (MOA), a letter, or a **Federal Register** notice.

If a program is being transferred to EPA from a state and the application deadlines established in § 257.124 and subsequent **Federal Register** notices have passed, alternative deadlines will need to be established for CCR units previously regulated by the state to apply for a federal permit. EPA is proposing language that would require these alternative compliance deadlines to be proposed and finalized in a **Federal Register** notice.

EPA envisions that during a transition period when administration of a CCR permitting program is being transferred between EPA and a state, any CCR permits that have been issued by one agency would remain in effect until a new CCR permit issued by the agency receiving the program is effective. Details about this and other issues would be clarified in a notice provided by EPA, or in a MOA between EPA and the state agency.

2. Permit Applications

EPA is proposing at § 257.130 to require the owner and operator of one or more CCR units subject to subpart D meeting the applicability criteria in § 257.123(a) to submit a timely and complete application for a federal CCR permit. The deadlines for the submission of applications would be established as proposed in § 257.124, and requirements for content of an application are proposed in § 257.131. An application would be considered timely and complete when it meets the requirements proposed in § 257.124, § 257.130, and § 257.131 and when the applicant(s) submit any supplemental information requested by the Administrator that is necessary to establish permit conditions to require compliance with subpart D, including to assess the applicability of subpart D.

a. Permit Application Requirements

EPA is proposing at § 257.130(a)(1) that a CCR permit application must contain information about each CCR unit at the facility, as well as operations beyond the CCR units related to the solid waste management of CCR. All portions of the CCR permit application relevant to the CCR units must be completed, except as discussed in the next two paragraphs. While subpart D primarily regulates CCR units, solid waste management activities which occur beyond the unit boundary may be subject to requirements in subpart D (*e.g.,* fugitive dust control along roadways that are used to transport CCR beyond the unit). Information about solid waste management activities could also be necessary for the Administrator to establish permit conditions to ensure compliance with the requirements, or determine applicability, of subpart D. One example of this is where non-CCR waste streams are managed in CCR units. A CCR permit application could require information about those waste streams, such as volumes or water content.

There may be cases where there are multiple CCR units at a facility subject to federal CCR permit requirements, and one or more has already met this requirement through the permit by rule provision in § 257.128, or through coverage obtained in a general permit issued in accordance with § 257.127. In these cases, EPA is proposing at § 257.130(a)(2) that detailed information about the CCR unit(s) that have already satisfied the federal permitting requirements would not be required in a permit application for the remaining CCR units at the facility in order for that permit application to be complete. However, EPA may request some limited information on these units, for identification purposes or as needed to assess applicability and draft permit terms for other CCR units at the facility, in the application.

There may also be cases where one or more CCR units at a facility are subject to federal CCR permitting requirements and one or more other CCR units at the facility are not. This could happen if the state is partially nonparticipating (*i.e.,* a partially-approved state program). In these cases, only detailed information about CCR units or related solid waste management activities subject to regulation under the federal CCR permit program would need to be included in the federal CCR permit application. EPA may request identification of state-regulated CCR units or related solid waste management activities at the facility in the permit application, but the content requirements in § 257.131 would not apply to these CCR units, which are excluded from the federal CCR permitting requirements by RCRA section 4005(d)(2)(B).

As discussed in Unit IV.B.2 of this preamble, EPA is proposing to rely on the existing procedural requirements in part 124 for CCR permits. This would include the provisions at § 124.3 requiring EPA to determine that the applicant(s) has fully complied with the CCR permit application requirements before beginning to process an application. Consistent with § 124.3(c) EPA would review the application for completeness, and if the application is found to be incomplete, EPA will notify the applicant(s) in writing and will list the information necessary to make the application complete. In practice, EPA has frequently informally requested additional information from the applicant or provided an opportunity to supplement their application prior to triggering a formal notification that an application is incomplete. EPA generally expects to adopt a similar practice for CCR permit applications.

The requirement at § 257.130(a) for both the owner and the operator to submit the permit application, and to be joint permittees, reflects the joint and several liability established under subpart D for the owner and operator. In addition, based on EPA's experience implementing the part 270 regulations, it is important that both the owner and operator be permittees. When the facility or unit owner is not the operator, he or she may be removed from daily activities. A requirement to certify the permit application ensures that the owner has at least some familiarity with the facility operations for which he or she will be liable. It also ensures that the owner is aware of and acknowledges this potential liability.

EPA recognizes some owners may believe this transparency is unnecessary and may be willing to accept joint and several liability for submittals and permit applications signed and certified solely by the operator. EPA is proposing an option in § 257.130(a)(2) to allow the owner to defer to the operator's signature and certification of posted documents, submittals and applications, while remaining a permittee and accepting joint and several liability for

those submittals and compliance with the federal CCR permit, as modified. EPA believes this acknowledgment of liability, and the issuance of all federal CCR permits to both owners and operators, would result in permits which are as effective and enforceable as they would be if an owner signed and certified each posted document, submittal, or application individually. After a permit is issued, the owner would remain a permittee, subject to civil or criminal enforcement, as appropriate, for any violations of the permit conditions or these regulations. With respect to transparency about the requirements, each permit or permit modification would be issued to both permittees, and the owners would be aware of requirements in the permits. Owners would have the right to comment on any draft permit or appeal any final permit if he or she did not believe the permit conditions were in accordance with regulatory or statutory requirements. EPA is requesting comment on this approach.

EPA is proposing at § 257.130(b) that an application is complete when the Administrator receives the information required by §§ 257.130 and 257.131, including any supplemental information requested during review of the application, about all CCR units and related solid waste management operations at the facility, and the application is completed to the Administrator's satisfaction. For example, the Administrator could determine an application to be incomplete under these provisions where portions of the permit application are not sufficiently detailed to allow the Administrator to determine the specific requirements in subpart D that apply to the facility or to draft the terms and conditions necessary to require compliance with the regulatory requirements or the statutory standard. The breadth of this requirement corresponds to the statutory mandate that federal CCR permits must require each CCR unit to achieve compliance with the requirements of subpart D; EPA must be able to require sufficient information to issue permits that meet those standards.

The proposed standard for completeness would include any supplemental information requested by the Administrator during the review of the application (*i.e.,* before the application is determined to be complete). After the application is determined to be complete, consistent with § 124.3(c), EPA may request additional information from the applicant(s) but only when necessary to clarify, modify, or supplement previously submitted material. Requests for such additional information will not render an application incomplete.

Any notice of incompleteness or request for supplemental information issued pursuant to this process would clearly state the information that is missing and provide a deadline for submittal, to avoid delays in permit issuance. If the applicants fail to respond to a notice of incompleteness or to correct the identified application deficiencies, EPA may deny the permit and initiate enforcement action under RCRA section 3008. See § 124.3(d).

EPA is proposing at § 257.130(c) to require the applicant(s) to submit any information determined to be missing from or inaccurate in the permit application to the Administrator as soon as the applicant becomes aware of the missing, new or corrected information. This requirement would apply even without a request from the Administrator. As operations continue after the application is submitted, changes to the facility or operations may occur or new information may become available through monitoring that would result in a different CCR permit application than the application previously submitted. Proposed § 257.130(c) would also require submittal of inadvertently omitted information and revisions to incorrect information, as soon as the applicant becomes aware of it. EPA believes this requirement comports with RCRA section 4005(d). In order to correctly determine applicability and appropriate permit terms EPA must have correct, up-to-date information about the CCR units and facility operation. Consistent with the requirements of subpart D (which apply to both owners and operators), and with the proposal to require both operators and owners to obtain a permit, EPA is proposing that this requirement would apply independently to the owner and operator where they are not the same person, and that either would be required to submit corrected or updated information when it becomes available.

EPA is proposing in § 257.130(d) to allow CBI claims in a federal CCR permit application for any information that is not required to be made publicly available under part 257. An applicant would be required to claim information in the permit application as CBI at the time of submittal. The applicant would be required to provide supporting documentation of the validity of the claim. If EPA determined the information to be CBI, it would be treated in accordance with requirements in part 2, which would limit public availability of the information. This proposed provision would ensure compliance with requirements in part 2 regarding proper treatment of CBI. EPA is not aware of any information that would be required in the permit application which would qualify as CBI and is requesting comments on this provision and on inclusion of CBI procedures in the proposal. The Agency specifically requests comments providing examples of information to be required in a CCR permit application that might be claimed as CBI.

All CCR permit applications would require certification for truth, completeness and accuracy, based on reasonable inquiry, by a responsible official in accordance with proposed § 257.130(e). The language proposed to be required in the certification is similar to certification language required by other federal environmental permit programs in parts 71, 122 and 270. The level of responsibility held by a responsible official within various organizational structures is provided in the proposed definition of responsible official in § 257.121. EPA believes the proposed requirement for certification of the application is appropriate to fully implement the WIIN Act and issue CCR permits which require compliance with subpart D, in light of the permit shield provision. Certification by a responsible official of the truth, accuracy and completeness of the application, upon which the permit will be based, would ensure a level of care in preparation of the application. This certification demonstrating that a responsible official has taken adequate care in the preparation of the application can help to prevent any failure on the part of CCR unit owner and operator to meet the requirements of RCRA through error or omission, or by carelessness or deliberate act. The certification language also would provide the responsible official with clear notice of enforcement liability for any such lack of due care. See also proposed § 257.130(e)(1).

EPA is proposing in § 257.130(f) to require that records of data and information supporting the application for the federal CCR permit be maintained for the life of the permit. Because EPA is proposing that CCR permits be issued without an expiration date, the application for a CCR permit would also be a lifetime application, through the active life of the unit, post-closure care, and until completion of all corrective action. However, EPA anticipates the permit application will be revised as operations or regulations change, when inadvertently omitted, new or corrected information becomes available or when the applicant applies for a modification. EPA is proposing

that the permittee must maintain these records until the contents of the application change such that the records no longer support the application, or until the permittee no longer has compliance obligations in subpart D and the CCR permit is terminated. If the applicant revises or modifies the application, old records which no longer support the revised or modified application would no longer need to be maintained, unless they were subject to other recordkeeping requirements in this rule (*e.g.,* a groundwater well construction diagram). Because the application will be a living document and CCR permits will be issued with no expiration date, it is important that the applicant maintain all records and supporting documentation used to support the application for the permit.

b. Permit Application Contents

The proposed application requirements in § 257.131 envision the application would contain sufficient site-specific information that permit terms could be drafted to include all applicable requirements of subpart D and incorporate site-specific approaches to compliance, considering factors such as local geology, hydrogeology and ecology as well as the design, construction, operation, maintenance, and monitoring of the CCR unit. Applications would be required to contain information about the facility, the owner and operator, CCR unit(s), features surrounding the unit(s), and operating conditions at the unit(s). The proposed regulatory text describes types of information that would be required in each of these categories, with examples that are intended to be clarifying but not limiting. EPA is proposing specific language to require an applicant to provide site-specific plans and non-narrative information, such as maps, drawing, figures, or other visual information, as appropriate in any of the categories listed above. EPA intends to provide an electronic permit application form, as discussed in Unit V of this preamble.

EPA is proposing in § 257.131(a)(1) to require information about the facility in the CCR permit application. While subpart D primarily regulates CCR units, some requirements apply to property or operations beyond the boundaries for the CCR unit, such as fugitive dust control criteria or corrective action requirements; EPA may therefore request information directly related to those requirements. Information about the operating history of the facility may be necessary to determine applicability of requirements in subpart D to certain units (*e.g.,* the date when a CCR unit began receiving waste). In § 257.131(a)(1) the proposal describes types of information about the facility which would be required in the CCR permit application, including the facility's physical location and a description of the facility and its operations. This could include a description of the number of CCR disposal units at the facility, production rates, how CCR are handled at the facility (*e.g.,* dry handling, sluicing), and how the CCR are transported to the unit after generation. Information about what the facility produces in addition to electricity, if anything, and how long the facility has operated would also be required, in addition to identification of the publicly accessible CCR website the applicants intend to use to comply with information posting requirements. The application would also require an indication of whether an initial, revised, or modified permit is requested. EPA believes all this information is necessary to draft permit terms and conditions to require compliance with subpart D, including to assess applicability. To the extent the Administrator needs the information to issue a CCR permit that meets the requirements in RCRA section 4005(d), additional information about the facility not specifically listed may be requested in the CCR permit application.

EPA is proposing to require sufficient information about the applicant(s) to contact them during and after the process of issuing the permit in § 257.131(b). Information about the ownership status would be needed to issue the permit to the correct person(s) and to review the required certification by an appropriate responsible official. Information in other environmental permits held by the owner and operator is potentially relevant to the issuance of the CCR permit, such as state-issued permits for construction of the CCR unit, air permit requirements for fugitive dust control, or environmental permits related to other federal considerations (*e.g.,* scenic rivers). Additional information about the applicant(s) not specifically listed in § 257.131(b) may be requested by the Administrator, insofar as the Administrator needs the information to issue a CCR permit that meets the requirements in RCRA section 4005(d).

EPA is proposing at § 257.131(c) to require information about CCR unit(s) in a permit application. The CCR permit application would require sufficient information about each CCR unit at the facility to allow the Administrator to issue a permit to require compliance with, including to assess the applicability of, subpart D. EPA is proposing to require information in the application about the location, design, construction, operation, maintenance, closure and retrofit of each CCR unit to be permitted (*e.g.,* design of liner, description of run-on/runoff controls, design of structural stability controls and monitoring procedures, construction and placement of groundwater monitoring wells, statistical methods used to evaluate groundwater data, procedures and methods used to take samples and ensure data quality, any remedial measures in place, any closure activities conducted, and type of monitoring conducted such as detection, assessment, or corrective action). The application must describe site-specific compliance approaches the applicants are proposing to use to meet applicable requirements. Some of this information may be provided in plans, maps, drawings or diagrams attached to the permit application.

EPA intends to use this information to assess applicability of requirements of subpart D, and to draft terms and conditions to require compliance with those applicable requirements. For example, information about the design of the liner in a CCR unit would allow the Administrator to draft a permit requiring compliance with a particular liner design requirement, where the applicant has selected one design alternative from multiple options. In another example, information about run-on and run-off controls used at a CCR landfill would allow the Administrator to draft permit terms and conditions requiring the permittee implement those controls, and monitoring their effectiveness, to meet these requirements in subpart D.

A substantial amount of the information that would be required by § 257.131(c) for each CCR unit in a permit application would already have been developed and posted on a publicly accessible CCR website in accordance with subpart D, which requires site-specific plans for compliance on issues like run-on and runoff control, fugitive dust control, groundwater monitoring, etc. These plans must contain maps, drawings, and other documents that would satisfy many of the proposed application requirements. EPA is requiring submittal of this information in the permit applications, rather than allowing applicants to refer the Administrator to download documents from the public websites, for several reasons. The nature of web posting allows potentially frequent changes or amendments to posted documents, and submittal of these documents ensures

that EPA is reviewing the version the applicant intends EPA to use in the permitting action. Additionally, the proposed requirement for the CCR permit application to be certified for truth, completeness and accuracy, consistent with other federal permitting programs, requires submittal of all supporting information in the application. EPA believes that electronic submittal of CCR permit applications will minimize any burden associated with submittal of materials that may be available on publicly accessible CCR websites, and that the minimal effort associated with electronic submittal of those documents is warranted by the benefits of receiving a certified application directly from the applicants.

EPA is proposing in § 257.131(d) and (e) that the CCR permit applications would be required to contain information about the natural conditions and features surrounding each CCR unit to be permitted. The applicants would be required to provide technical and other information about the geologic, hydrogeologic and ecologic characteristics and features of the area surrounding the CCR unit, including assessment of subsurface characteristics. At a minimum, this would include information about the locations of any floodplains, wetlands, endangered species, fault lines or unstable areas, measured and modeled groundwater elevations, subsurface lithology including any confining units, surface water features, soil and subsoil characteristics, groundwater well locations and uses and adjacent land uses. This information would be provided for the areas underlying and in proximity to the CCR unit. These features have the potential to impact every aspect of the CCR unit and the effectiveness of the compliance approaches to be incorporated in the CCR permit. These include impacts to the effectiveness of the liner, stability of the unit, operation of the unit and its control structures, the effectiveness of proposed monitoring approaches and well locations, determination of background concentration of regulated contaminants, the appropriateness of proposed closure procedures, considerations of other applicable federal requirements listed in proposed § 257.122, and the appropriateness or effectiveness of any corrective action remedy, including monitoring to assess the effectiveness of that remedy. The owner and operator must provide this information for all past, present, and planned CCR units to be included in the permit.

The information required in a CCR permit application in § 257.131(f) would include attachments, such as site-specific compliance plans required by subpart D, and visual representation of information, such as maps and drawings. This information is necessary to allow the permit writer to understand site conditions and evaluate applicability of requirements and compliance strategies proposed by the owner and operator and to draft terms and conditions that will ensure compliance with the requirements of subpart D. For example, potentiometric maps indicating groundwater flow direction are necessary for the permit writer to establish requirements in the permit pertaining to groundwater monitoring and site-specific background concentrations. The attachments required will depend upon the type of CCR unit—not all items listed would be required for all units. Similarly, additional documents not specifically listed may be needed in a permit application for certain units. For example, if a CCR unit is operating under the terms of a compliance order which requires an operating plan for a corrective action remedy, that plan should be included in the CCR permit application.

The listed examples of plans include those required by subpart D (*e.g.,* emergency action plan required by § 257.73, fugitive dust control plan required by § 257.80, run-on and run-off control system plan required by § 257.81(c), inflow design flood control system plan required by § 257.82(c), assessment of corrective measures required by § 257.96, closure plan or retrofit plan required by § 257.102, and post-closure care plan required by § 257.104). The examples of maps required in a CCR permit application include a site map; a topographic map; and a sufficient number of potentiometric maps, illustrating the direction of groundwater flow, to capture temporal and seasonal changes in flow direction. These examples are provided for clarity and are not intended to be limiting. Other maps may be required in the CCR permit application, depending on site-specific circumstances at the CCR unit. The standard for completeness regarding plans, maps, drawing, and other documents is the same as the standard proposed for all other application elements; the information must be sufficiently complete for the Administrator to issue a permit to require compliance with subpart D, including to assess the applicability of subpart D.

The proposal requires minimum elements to be included in each type of map so that multiple pieces of information may be viewed on the same page. Elements to be required in maps, drawings, and diagrams include minimum elements necessary for someone reading them to understand information in the permit application holistically, in the context of the requirements of subpart D. For example, when reviewing monitoring well data, it is helpful to have a map that indicates all the following: The location of the CCR units, the location of each groundwater monitoring well with its identification noted and the direction of groundwater flow. When evaluating a proposed schedule for conducting corrective action activities, for example, it would be helpful to have a map with the location of the CCR unit, the direction of groundwater flow, the location(s) of groundwater monitoring wells where detections above background or groundwater protection standards have occurred and the detections, and the location of any downgradient potable wells. These are simply examples of situations where a well-designed map or drawing will depict multiple pieces of information together to facilitate understanding of the situation at, around, and below the CCR unit. It may be appropriate to provide additional elements on these maps for some CCR units, depending on site-specific conditions. EPA believes that, generally, permit applicants have developed maps, drawings, and diagrams required by subpart D in a manner consistent with the requirements proposed here. To the extent that owners and operators of CCR units have not done so, EPA is proposing to require such appropriate representation of data in the CCR permit applications.

All information in the application must be presented in a manner that is organized and clearly labeled, so it can be understood by another person. EPA is proposing this requirement explicitly based on experience reviewing information posted on the publicly accessible CCR websites. In some instances, information posted on these websites has been disorganized and not labeled, making it difficult for a reader to identify, for example, the date and sampling location of posted groundwater sampling results, or the type of groundwater monitoring wells (*i.e.,* background or downgradient) depicted on a groundwater monitoring system map. To avoid delays in permit issuance associated with potentially lengthy review of unclear permit application materials and incompleteness determinations, and to minimize the potential for erroneous

permitting actions, EPA is proposing to establish this requirement for clarity and organization. EPA may implement this standard through incompleteness letters, incompleteness determinations, or ultimately permit denials, if a permit application contains such lack of clarity or disorganization that the Administrator cannot draft a permit and the applicants do not correct the application.

EPA is proposing to require information necessary to evaluate the appropriateness of compliance strategies proposed in the application. Such strategies may include, but are not limited to, establishing the minimum number of downgradient wells needed to characterize groundwater quality, design of a run-on control system, establishing background concentration of constituents in groundwater upgradient of the CCR unit, establishing buffer zones to protect wetlands or sensitive ecosystems, or delineating of the nature and extent of releases when assessing corrective action measures. One example of this would be sampling data used to calculate hydraulic conductivity of a liner designed to comply with § 257.70(c). The examples included in the proposed regulatory text are intended to be clarifying but not limiting, and EPA is proposing at § 257.131(a) that the standard of completeness for the application with respect to these materials be what is sufficient to support decisions by the Administrator to draft permit conditions to require compliance with, including to assess the applicability of, the requirements of subpart D.

One type of document required by subpart D that is not included in the application requirements listed in § 257.131(f) is third-party, or Professional Engineer (P.E.), certifications required by subpart D. An applicant may include these in the CCR permit application, but EPA is not proposing to require them. The P.E. certifications are based on information required in the permit application, which EPA will review in the process of writing the permit. Also, based on cursory review of some of the P.E. certifications posted on publicly accessible CCR websites, they may not contain any substantive information that would be helpful in drafting a permit. Finally, a review of a P.E. certification to determine whether it meets the requirements of subpart D would be a compliance assurance function, rather than a permitting function. For these reasons, P.E. certifications are not included in the proposed requirements for a CCR permit application.

EPA envisions that all applications for CCR permits would be submitted electronically (e-permitting). Discussion on e-permitting approaches is found below in Unit V of this preamble. EPA intends to provide an electronic CCR permit application form to owners and operators. EPA envisions that some of the information required in the application would be submitted by responding to questions on the electronic form in various formats (*e.g.,* typing in narrative responses, selection from a multiple-choice list, selecting true or false). Other information would need to be attached to the application electronically (*e.g.,* maps, drawings, diagrams, or site-specific plans describing compliance strategies). EPA intends to make the application a living document, to be updated and amended, and submitted and certified for truth and accuracy, throughout the life of the permit. EPA believes this approach may improve the accuracy of the permit application and the quality of federal CCR permits, while minimizing the regulatory burden to applicants by eliminating the need to re-submit information the Agency has already received in an application.

c. Periodic Review of Permit Applications

EPA is proposing that CCR permits would be issued without an expiration date, as discussed in Unit IV.C.1.g, and it is hypothetically possible that a CCR permit could be based on a permit application that is many years old. EPA does not believe this situation will occur frequently, based on EPA's proposal at § 257.151 to require owners and operators to seek to modify their permit whenever any of their solid waste management operations involving CCR no longer reflect the operations described in their permit or permit application and to require that the owner and operator update the entire application whenever any permit modification is sought. Consequently, EPA expects that most CCR permits would be modified throughout the life of the permit (*i.e.,* evergreen permits) and the CCR permit application would be modified by the permittee(s) at those times, providing EPA with current information about permitted activities.

To address potential situations where many years could pass with no changes to the permit or the application, and to ensure that CCR permits remain up-to-date, EPA is proposing at § 257.132 to require that each permit application be reviewed by the permittee no less frequently than every ten years after the date of permit issuance or the last modification. At the ten-year review, the permittee(s) would be required to review the permit application and either submit necessary revisions to the application to ensure that it continues to meet the CCR application requirements of §§ 257.130 and 257.131 or submit a statement that the application continues to meet those requirements and remains accurate and complete. Responsible officials for the owner and operator would be required to certify for truth, completeness, and accuracy either a statement that the permit application remains current or an amended permit application.

If the permittee determines during a periodic review that the permit application is no longer accurate or no longer meets the proposed application requirements under §§ 257.130 and 257.131, the Agency is proposing at § 257.132(c) that the permittee must take certain actions. First, the permittee would be required to revise the permit application to meet the proposed requirements in §§ 257.130 and 257.131 and accurately reflect current operations and changes that may have occurred since the previous application was submitted. If changes to the application warrant a modification to the CCR permit, the permittee would be required to apply for a permit modification according to the proposed procedures in § 257.152. The permit application would need to be certified for truth, accuracy and completeness by a responsible official in accordance with proposed requirements in § 257.130(e) and submitted to the Administrator.

A major modification would invoke the public participation requirements in part 124. For example, draft permits are subject to public notice, public comment, and in some cases, a public hearing. These procedures would allow the public to bring forward comments concerning any draft permit or its supporting materials prior to permit issuance.

EPA is proposing at § 257.132(d) that permittees complete periodic reviews of their most recent CCR permit application no later than ten years after the date of permit issuance or after any reissuance or modification of such permit, whichever date is later. For all subsequent permit application reviews, the review would need to be completed no later than ten years after the date of the submittal resulting from the previous permit application review or after the date such permit is reissued or modified, whichever date is later. If the permit is modified or otherwise issued with a new date, the ten-year review period would begin on that new date in the permit. For example, if the initial CCR permit was issued on October 20,

2022, the permittee would be required to complete the permit application review no later than October 20, 2032. Alternatively, if the initial CCR permit was issued on October 20, 2022, and the permit was modified on February 21, 2025, the permittee would be required to complete the periodic permit application review no later than February 21, 2035. In the second example, the permit modification during the third year after permit issuance would have the effect of resetting the ten-year period during which the application review must be conducted.

EPA anticipates that facilities with operating CCR units or that are in the midst of corrective action will seek to modify their permits at least once in any ten-year period; based on the proposal to reset the clock with every modification, it is therefore likely that the ten-year periodic review will never be triggered for most facilities. Instead, for these facilities, the equivalent of this review will occur in the context of each modification, based on EPA's proposal at § 257.151(b)(1) and (d)(1) to require a facility to update the entire application whenever any permit modification is sought. By contrast, the proposed ten-year review is intended to address those situations in which the permit has not been modified in the last decade—which are expected to be the exception and are most likely to be facilities with CCR units exclusively in post-closure, with no corrective action requirements.

For the CCR permitting program, EPA believes that an application review that occurs no less frequently than once every ten years will provide an appropriate level of review and attention to maintaining an updated CCR permit application. A ten-year timeframe is consistent with the effective term of a RCRA hazardous waste permit. See RCRA 3005 (c)(3). The ten-year application review requirement is a complement to, and does not replace, the requirements for permit modifications proposed in §§ 257.150 through 257.152 and the requirement to submit new or changed information in § 257.130(c). If the ten-year application review identifies a modification that has occurred at the CCR unit without a required permit modification, the permittee may be subject to enforcement for failure to comply with modification procedures in §§ 257.150 through 257.152.

As discussed in Unit IV.C.1.i of this preamble, EPA is proposing a permit by rule for certain CCR units. The Notification of Intent required by § 257.128 does not contain detailed information about the CCR unit, but a periodic review of the Notice of Intent would provide EPA with current information from the owner and operator about the eligibility of the CCR unit for the permit by rule. EPA believes that CCR units operating in accordance with the permit by rule may update the Notice of Intent infrequently if at all, and it is expected that a new landfill or lateral expansion of a landfill may operate for many years without detecting a groundwater contaminant in part 257 Appendix IV above a groundwater protection standard. A CCR unit operating in accordance with the permit by rule could reasonably be expected to do so for longer than 10 years. To ensure that all CCR permits are kept up-to-date, the Agency is proposing that CCR units operating under a permit by rule would be subject to the periodic permit application review requirements for the Notice of Intent.

EPA is proposing in § 257.127 procedures to issue one or more general permits applicable to categories of similar CCR units subject to the same requirements in subpart D. Because a general permit would be drafted to accommodate a narrow set of circumstances, the application for a general permit would be streamlined and less detailed than an application for an individual CCR permit. Until a general permit is established with its own eligibility criteria, the potential frequency with which a CCR unit might either meet those criteria and apply for the general permit or might cease to meet the eligibility criteria and submit an application for a different type of CCR permit is unknown. However, periodic review and recertification of the application submitted would provide the same value for a general permit application as it would for an individual permit application. EPA has identified no reason to exclude CCR units operating under a general permit from a requirement to review and resubmit an application no less frequently than every ten years. Consequently, EPA is proposing that CCR units operating under a general permit would be subject to the periodic application review requirements proposed at § 257.132.

d. Permit Denial

The proposed language in § 257.133 would establish the grounds for which EPA may deny an application for an individual CCR permit. Denial of a permit could have significant consequences, including the requirement that the facility cease receipt of waste into the CCR unit. Based on experience under other federal permitting programs, EPA expects that denial of a CCR permit would occur rarely; however, it is important to establish the circumstances under which EPA would exercise this authority, to ensure that permit applicants are fully apprised of the legal standards that will apply to their applications.

The grounds for denial of a permit application, which are set forth at proposed § 257.133(a), largely mirror those EPA is proposing to establish for termination of a permit in § 257.153. Specifically, EPA is proposing that any of the following would be grounds for denial: (1) Failure by the permittee in the application or during the permit issuance process to disclose fully all relevant facts; (2) Misrepresentation by the permittee of any relevant facts at any time; (3) A determination by the Administrator that the reasonable probability of adverse effects arising from disposal or other solid waste management of CCR can only be regulated to acceptable levels by permit denial; (4) The Administrator has received notification of an applicant's intent to be covered by a general permit issued in accordance with § 257.127 or the permit by rule in § 257.128; and (5) EPA has transferred administration of the permit program to a state in accordance with § 257.129, and the state permit is in effect for each CCR unit at the facility. The latter two situations may be cases where a facility would prefer to withdraw its application. EPA considers that withdrawal of the application may be an equally appropriate mechanism to close out the federal action, but requests comment on whether there are competing considerations.

One ground that is unique to this section specifies that denial may be appropriate when an applicant fails to respond to an incompleteness determination with submittal of a complete permit application. This ground corresponds to the procedures under § 124.3 that are discussed in Unit IV.B.1 of this preamble.

The provisions proposed at § 257.133 would also specify that EPA may deny an application in whole or in part. As previously discussed, EPA is proposing to require a permit not only for disposal, but also to conduct all activities subject to requirements in subpart D (*e.g.,* monitoring, retrofit, closure, post-closure care and corrective action). The proposal at § 257.133(a) specifies that EPA may deny a CCR permit for certain activities (*e.g.,* to dispose of waste in a CCR unit), but issue a permit to conduct other activities at that unit (*e.g.,* closure, post-closure care, or corrective action).

Or, as a further example, EPA may deny a permit for waste disposal at one CCR unit at a facility but may permit disposal at a different CCR unit at the same facility. For the same reasons, EPA seeks public comment on its proposal that the Administrator may partially deny a permit for any of the enumerated grounds even if the application is incomplete; for example, EPA may deny a permit to operate one unit if information is lacking for that unit but grant the remainder of the application if the information is otherwise complete. See proposed § 257.133(b).

As noted earlier, EPA is proposing to rely on the existing procedures in part 124, which include procedures to deny a permit application (*e.g.,* procedures applicable to issuing a notice of intent to deny at § 124.6(b)). Under those procedures, the applicant may correct the deficiencies identified in a notice of intent to deny at any time by submitting a new (corrected) permit application. If the deficiencies are not corrected and a final decision to deny a permit is issued and becomes effective (see § 124.15(b)), the applicant would be subject to enforcement. Moreover, after a CCR permit is denied, the CCR unit(s) would be an open dump, and the owner and operator would be required to cease placing waste in the unit. See RCRA § 4005(a). The applicant would also remain subject to the applicable requirements of subpart D. Note that even after a denial has been issued, a revised application correcting the deficiency can be submitted.

If a permit application is denied, which is expected to occur rarely, the owner and operator would still be required to obtain a CCR permit for activities that remain subject to requirements in subpart D, such as closure. Additionally, an enforcement action may be taken to bring the facility into compliance with subpart D.

EPA believes a procedure to deny a permit is one of the necessary components of the authority delegated to EPA as part of the directive to implement a federal permit program. Without it, EPA would have no option other than to issue a CCR permit after an application is received, even in situations where that would be contrary to Congressional intent. For example, EPA lacks the authority to issue a permit that does not meet the statutory standard in RCRA sections 4005(d)(2)(B) and (d)(5). Furthermore, such a provision is consistent with other federal environmental permit programs implemented by EPA, which have the authority to deny an application for a permit on comparable grounds. See, *e.g.,* §§ 71.11 and 270.29.

3. Permit Content

a. Standard Conditions in All Permits

Proposed language at § 257.140 would establish standard terms and conditions, which would be included in each CCR permit. Many of these standard terms and conditions contain legal requirements inherent to permits and are consistent with standard terms utilized in other federal permitting programs. EPA is proposing standard terms and conditions to improve the efficiency and enforceability of CCR permits. These conditions could be either written expressly into a CCR permit or incorporated by specific references to paragraphs in § 257.140.

i. *Duty to Comply*—This standard permit term would require compliance with the permit terms and clarify that failure to comply may result in enforcement, revocation and reissuance, termination, or denial of a permit. While it is unlikely that EPA would terminate or deny a permit to remedy noncompliance without issuing a new CCR permit, EPA is proposing to preserve these options to maintain flexibility to resolve case-by-case situations as they arise, in the most appropriate manner. This term is standard in other federal permitting programs, including part 270.

*ii. Duty to submit periodic review of application*—This standard permit term would implement the requirement proposed in § 257.132 for the permittee to review the application submitted for the permit no less frequently than every ten years from the date of issuance. If no information in the application has changed, the permittee must submit a statement to that effect with a certification by a responsible official of truth, completeness and accuracy. If information in the application has changed, the permittee must modify the application and resubmit it. If a modification to the permit is needed, the permittee would be required to submit the updated information as part of an application for such a modification in accordance with § 257.152.

EPA is striving to develop an electronic CCR permit application system, which would allow the permittee to review the previous application and amend only the portions that require revision electronically. EPA intends to implement such a system to facilitate implementation of this proposed provision, by allowing the permittee to focus efforts only on information that must be updated.

Once a CCR permit is modified or reissued, it will have a new issuance date and the ten-year review period would begin anew. If a CCR permit is modified more frequently than every ten years, then the permittee would not have to conduct any periodic application reviews. However, the permittee would always be obligated to evaluate changes at the facility and changes in the regulatory requirements, and to apply for permit modifications as needed.

*iii. Need to Halt or Reduce Activity Not a Defense*—This standard term would clarify that the permittee may not use as a defense in an enforcement action that the only way to maintain compliance with the permit was to halt or reduce the permitted activity. This term is standard in other federal permitting programs, including part 270. It is also consistent with the underlying regulations in subpart D, as well as the prohibition against open dumps in RCRA section 4005.

*iv. Requirement to mitigate impacts of noncompliance*—This standard term would require a permittee to take steps to mitigate the impacts of noncompliance, should any occur, where the noncompliance results in a reasonable probability of adverse impacts to human health and the environment. This provision is similar to requirements in other federal permitting programs, including part 270. EPA believes it is consistent with RCRA § 4004(a) to require the facility to take appropriate actions after noncompliance to minimize impacts, particularly actions that may be most effective immediately after a catastrophic event such as a natural disaster. These actions could range in scope and complexity from providing immediate notification to a public water system about a release before it reaches a public water system intake, to cleaning up CCR released due to a dam failure.

*v. New statutory requirements or regulations*—This standard term would implement requirements proposed at § 257.151 that, if the underlying statutory or regulatory requirements become more stringent than the corresponding CCR permit conditions, the permittees must apply for a permit modification to reflect the updated requirements. This term is intended to ensure that the federal CCR permitting program will satisfy the statutory requirement for CCR permits to require CCR units to achieve compliance with applicable criteria established in subpart D.

This term would apply to changes in underlying requirements that result from a change in the statute, a change to subpart D, or a judicial order. This

term only requires action by the permittee if the permit is less protective than the underlying requirement after the change. If the permit is more stringent than the underlying requirement, then the permittees would not be required by this standard condition to apply for a modification to the permit to incorporate the change and could continue to comply with the more stringent permit conditions.

*vi. Proper operation and maintenance*—This proposed standard term would require that the permittee must at all times properly operate and maintain all CCR units, ancillary equipment and systems of treatment or control to achieve compliance with the conditions of the permit. The proposed language includes a variety of activities considered part of proper operation and maintenance: Performance, funding, staffing, training, and quality assurance. This proposal does not intend to create an independent technical requirement separate from subpart D, but rather to clarify that failure to properly operate or maintain equipment would not excuse failure to comply with requirements or standards in the permit. This would be required throughout the active life of the unit, the post-closure care period and until all corrective action is complete. Proper operation and maintenance would require the operation of back-up or auxiliary systems when needed to comply with the permit.

EPA believes this standard term is necessary to require the permittee to take reasonable actions to ensure that all controls, monitoring, and other requirements of the CCR permit are implemented as intended. While many permittees may already properly operate and maintain the CCR units, ancillary equipment, and treatment or control systems, failure to do so can result in malfunctions or catastrophic releases. This could also result in noncompliance with requirements in subpart D, or a reasonable probability of harm to health and the environment. EPA believes an independently enforceable requirement to properly operate and maintain this equipment is consistent with RCRA 4005(a) and may serve to prevent accidents or noncompliance before they happen. This term is required in other federal permitting programs, including part 270.

The Agency proposes to apply this requirement to both owners and operators of CCR units, consistent with their respective joint and several liability and responsibility for compliance. Where there are concerns that operators would have primary control over compliance with this proposed provision, owners may undertake efforts to ensure that operators comply with the proposed standard through private agreements that protect landowners when CCR units are operated by another entity.

*vii. Permit actions*—This proposed standard term clarifies that a permit may be modified, revoked and reissued, or terminated for cause. It also stipulates that applying for a permit modification or termination, or notifying the Administrator of planned changes or anticipated noncompliance, does not stay any permit condition. This standard term would implement the modification procedures in §§ 257.150 through 257.152. This proposed standard term is consistent with other federal permitting programs, including part 270.

EPA does not believe this standard term would conflict with the proposed minor modification provisions in § 257.151. Specifically, § 257.151(b)(7) would provide that if a permittee applies to modify the permit and the modification qualifies as minor, and if EPA does not respond to the request to modify the permit within 45 days, the permittee can proceed with the modification. While the permittee may go ahead with the minor modification, all permit terms would remain effective until EPA issues a modified permit. EPA does not anticipate conflict between these provisions, because the criteria for minor modifications generally include changes which increase the stringency of the CCR permit.

*viii. Property Rights*—EPA is proposing that each CCR permit include a term that clarifies the permit does not convey any property rights. This standard term would implement provisions proposed at § 257.125(c). EPA does not have the authority to convey property rights in a CCR permit. This proposed standard term is consistent with permit terms used in other federal permitting programs, including part 270.

*ix. Duty to Provide Information*—EPA is proposing that each CCR permit include a term that establishes the permittee's duty to provide information requested by the Administrator to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The term would also require the permittee to furnish to the Administrator, upon request, copies of records required to be kept by this permit. This standard term would implement provisions in the WIIN Act that provided EPA information gathering authority under RCRA section 3007. This proposed standard term is consistent with other federal permitting programs, including part 270.

*x. Inspection and Entry*—EPA is proposing that each CCR permit include a term that clarifies the permittee's duty to allow EPA access to inspect, collect samples, and access records at the permitted facility. These activities are necessary elements of any permitting program and are common in federal permitting programs. The authority for EPA to conduct these activities under section 3007 of RCRA was provided in the WIIN Act.

The proposed language includes provisions that inspection, sample collection, and access to records must be conducted at reasonable times, which would generally be during normal business hours. It also specifies that presentation of credentials would be required to gain access for these purposes.

*xi. Monitoring and Records*—EPA is proposing that each CCR permit include a term that establishes the permittee's duty to maintain certain types of records related to monitoring. This standard term would require that records of monitoring information, including all supporting data and quality assurance records, be maintained for a period of at least ten years, or longer if requested by the Administrator. Records used to support the permit application would be required to be maintained for the lifetime of the permit. The standard term would require that all groundwater monitoring records be maintained throughout the active life of the unit, the post-closure care period and until completion of all corrective action.

These recordkeeping provisions are consistent with the underlying CCR rule. Most of the information included in the proposed standard terms is required to be posted to a facility publicly accessible CCR website. The posting requirements do not allow for removing information from the publicly accessible CCR websites, and so information posted there is maintained throughout the life of the unit. Because CCR permits are proposed to be issued without expiration, EPA believes the records used to develop the permit application would remain relevant throughout the lifetime of the permit and should be maintained.

*xii. Signatory requirements*—EPA is proposing that each CCR permit include a term that requires applications, reports, or information required to be submitted to the Administrator by the permit be signed and certified in accordance with the procedures of proposed § 257.130(e). A CCR permit is not likely to require many submittals of information. The primary mechanism

for reporting information in the CCR program is by posting on a publicly accessible CCR website. Reporting requirements in the CCR permit are most likely to pertain to permit modifications or reports of noncompliance. For both types of submittals, EPA is proposing to require the permittees to include the same certification as to the truth, completeness and accuracy of the contents as is required for the original permit application. Applications for major permit modification would require certification according to other proposed requirements in § 257.152(b).

*xiii. Reporting requirements*—These standard terms would be placed in each CCR permit, and they require reporting of certain information within specified timeframes. These provisions are commonly found in other federal permitting programs, including parts 270 and 71.

*(A) Anticipated noncompliance*—This proposed standard term would require reporting to the Administrator in advance of anticipated noncompliance. If, for any reason, the permittee will be unable to comply with any terms or conditions, the permittee would be required to provide notice to the Administrator as soon as possible and at least 60 days prior to any planned changes in the permitted facility that may result in permit noncompliance. If the permittee applies for a modification to the permit to accommodate these changes, and the anticipated noncompliance is explained in the application, that application could serve as compliance with this notification requirement.

*(B) Twenty-four-hour reporting*—This proposed standard term would require reporting as soon as possible, but no later than 24 hours after any noncompliance that could impact health or the environment. EPA anticipates this reporting requirement will be used infrequently, such as after sudden releases of CCR to the environment beyond the facility property boundary or to a waterway. A requirement to report such incidents within 24 hours is appropriate, so that EPA can respond, if needed, to oversee cleanup or take other action to ensure any impacts to health or the environment are mitigated.

*(C) Other information*—This proposed standard term would require the permittee to supplement or correct previously submitted information if the permittee realizes later that it was incorrect or incomplete. This would help EPA to ensure that CCR permits continue to meet the requirements of RCRA § 4005(d)(2)(B) by providing the Agency the opportunity to evaluate the submitted information and determine whether any changes to the permit are needed.

xiv. *Severability*—EPA is proposing a standard term to establish severability of the CCR permit. This would mean that if a term in the permit was invalidated through an appeal process or other mechanism, the rest of the permit would remain in effect. Severability is a common element in federal permitting programs. It would allow a permittee or other affected party to pursue appeal of a permit term without risking loss of other portions of the permit. It would also avoid the administrative burden of having to re-issue an entire permit to accommodate changes to address invalidation of only a part of the permit.

b. Establishment of Permit Conditions

EPA is proposing to establish three provisions to guide a permit writer's discretion in developing individual permit conditions. Each of these provisions borrow heavily from § 270.30.

First, EPA is proposing in § 257.141(a) to include the direction that in addition to the standard conditions in § 257.140, the Administrator is to establish terms and conditions in a CCR permit, on a case-by-case basis, in accordance with the requirements and procedures of this subpart and with the mandate in section 4005(d)(2)(B) of RCRA. EPA is also proposing to codify the statutory mandate by specifying that the permit must include all permit terms and conditions necessary to ensure that each CCR unit will achieve compliance with subpart D of this part.

Second, EPA is proposing in § 257.141(b) to clarify that a permit writer may either incorporate the applicable requirements of subpart D by re-writing them into the permit or incorporating them by reference. Any incorporation by reference must include a citation to the specific provision or requirement. Allowing incorporation by reference could streamline the permit writing process or reduce the length of a permit, while maintaining clarity about which CCR rule requirements apply to the CCR unit and what the permittee must do to comply with them. Incorporation by reference could also reduce the need for permit modifications, if the permit references portions of subpart D that are subsequently amended through rulemaking. If the reference to the amended subpart D requirement in the permit continues to require compliance with the applicable requirements in subpart D, then no permit modification would be needed. EPA expects that incorporation by reference may be most effective when the reference is specific and the requirements of subpart D are straightforward, and do not require site-specific tailoring in a permit.

Third, EPA is proposing in § 257.141(c) to provide that the permit is to include such terms and conditions as the Administrator determines necessary to ensure there is no reasonable probability of adverse effects on health or the environment from the solid waste management of CCR at the permitted facility. This proposal is modeled on the RCRA ''omnibus'' provision at § 270.30(b)(2). It would authorize the permit writer to establish terms and conditions not expressly found in subpart D, but which the Administrator determines, after review of the CCR permit application materials and operations at the facility, to be necessary to meet the protectiveness standard in section 4004(a) of RCRA. Based on its experience implementing the subtitle C permit program, EPA considers this authority to be a key component of an effective permit program

A permit reflects the result of an adjudication in which the permit authority determines how the technical criteria in subpart D apply to the facility's specific operations and site conditions. During this process questions can arise as to how particular requirements apply to unique or anomalous situations that are not explicitly resolved by the text of the regulation (and likely could not be given the nature of these regulations, which establish generally applicable national requirements). ''Omnibus'' provides a kind of bridging or supplemental authority that allows permit writers to clarify how the technical criteria apply in a specific context, and to draft terms and conditions approving site-specific approaches, that are appropriate for the on-the-ground conditions at the facility, to achieve compliance with applicable requirements in subpart D. To be clear, this provision would not allow the Administrator to waive, amend, or alter any requirement in subpart D in a CCR permit, as that can only be accomplished through rulemaking.

Evaluating compliance approaches proposed by the applicant in site-specific plans or reports and incorporating them into the permit, either directly or by reference, is expected to be a large and critical part of the CCR permit writing process. A permit writer would review these documents in the application and draft permit conditions, which may be based on proposed compliance approaches found in the site-specific plans or reports that elaborate on the technical

criteria in subpart D. For example, an applicant who has triggered corrective action requirements for a CCR unit would develop a site-specific corrective measures assessment to comply with the requirements of § 257.96. The applicant would also select a corrective action remedy based on the findings of that assessment, in accordance with requirements in § 257.97. The corrective measures assessment would be submitted as part of the CCR permit application, and the applicant would provide documentation to support selection of the remedy. The permit writer would review these application materials and develop enforceable permit terms and conditions to require compliance with subpart D, reflecting specific approaches proposed in the application. These terms could include requirements to sample specific wells according to specific procedures, methods and schedules. They could also include requirements to design and implement specified remedial technologies in accordance with milestone deadlines. For example, ''The permittee shall complete design of an in-situ treatment system to contain and control releases of chromium from the CCR unit to a concentration no greater than 1 mg/l. The design shall be completed no later than December 1, 2019, and construction of the remedy shall begin within six months of completing the design.''

This adjudication of subpart D requirements would result in permit conditions interpreting those requirements, but which, consistent with the direction in RCRA § 4005(d)(2)(B), would be necessary to issue an enforceable CCR permit. The proposed language in § 257.141(a) and (c) is intended to provide the permit writer the authority and flexibility to develop such terms and conditions. It would also provide the permit writer, in the event that proposed approaches in the permit application are not sufficient to achieve compliance with the requirements of subpart D, with the authority to develop terms and conditions that will require the permittee to achieve such compliance.

Just as under the omnibus clause, EPA would bear the burden of demonstrating that the factual prerequisites to exercise the authority under § 257.141(c) have been met. EPA would present these findings in the Statement of Basis and Purpose accompanying both the draft and final permit.

Finally, because § 257.141(c) is both a procedural and substantive provision, EPA is proposing it pursuant to RCRA §§ 1008(a)(3) and 4004(a) as well as RCRA § 4005(d). As such, EPA considers it to be, at least in part, a technical criterion. EPA requests comment on whether it would therefore be appropriate to include a corresponding provision with the other technical criteria in subpart D.

c. Schedule of Compliance

EPA is proposing at § 257.142(a) that if a CCR unit is not in compliance with one or more applicable requirements of subpart D and will still be out of compliance at the time of permit issuance, a permit may be issued which includes a schedule of compliance. The schedule of compliance would consist of a series of enforceable actions, each with a deadline, which will result in compliance with subpart D as soon as is feasible. In cases where the applicant is subject to a judicial consent decree or administrative order, the compliance schedule would not deviate from the specific requirements in the consent decree or administrative order and would be no less stringent but may be more detailed (*e.g.,* may include interim milestones).

If the final compliance deadline in the compliance schedule is more than one year after the CCR permit becomes effective, then EPA is proposing that interim milestones with compliance deadlines would be established, each lasting no longer than one year. EPA is proposing a one-year timeframe to maintain effective oversight of compliance efforts, while recognizing that some work required to achieve compliance may take months or more, and that seasonal or inclement weather may impact the feasibility of accomplishing major construction or earth-moving activities more quickly.

In addition, EPA is proposing at § 257.142(a)(3) to require that no later than 30 days after each interim milestone deadline or the final deadline for compliance, the permittee must post a notification on the public CCR website of its compliance or noncompliance with the interim milestone or final requirements. EPA believes 30 days is sufficient time to prepare and post this notification, which is essentially a statement of actions taken or not taken. If the permittee fails to comply with deadlines in a schedule of compliance in a CCR permit, the permittee would be subject to enforcement, modification of the permit to incorporate additional requirements or restrictions, or potentially termination of the CCR permit.

An example of a situation where a compliance schedule may be appropriate would be where a CCR unit does not meet an applicable location standard but has not yet ceased receiving waste, even though the deadline to do so has passed. The facility may have failed to comply with the requirement to cease receiving waste due to delays in making the operational changes needed to cease sending non-CCR waste streams to the CCR unit. EPA could issue a CCR permit to require compliance with closure requirements in subpart D by establishing enforceable deadlines for project milestones in the CCR permit, as well as any applicable corrective action requirements. If the CCR unit is being operated under an enforcement order (*i.e.,* a federal consent decree or an administrative order) the Administrator could establish a schedule of compliance to incorporate the enforcement order in the CCR permit. If the CCR unit is not operating under an enforcement order, the Administrator could develop a schedule of compliance to ensure the fastest closure feasible and require the permittee to come into compliance with subpart D using a site-specific compliance approach, with milestones, in an enforceable permit. These milestones could include, for example: Completion of process change drawings no later than three months after permit issuance, ordering necessary equipment no later than one month after drawings are complete, and installing new equipment at the first scheduled shutdown of the unit or no later than 120 days after the new equipment is received.

4. Changes to a Permit

During the active life of a CCR unit, through post-closure care and until completion of all corrective action, changes to a permit are inevitable to keep pace with evolving business practices, technology, cleanup decisions, and changes in applicable regulatory requirements. It is likely that all CCR permits will need to be changed multiple times throughout the operation and closure of the unit, and EPA is proposing to establish procedures at §§ 257.150 through 257.152 to accomplish this.

EPA is proposing two basic categories of modifications: (1) Those which are initiated by EPA, including in response to a citizen petition submitted in accordance with § 124.5, and (2) those which are initiated by the permittee. The procedures EPA is proposing at §§ 257.150 through 257.152 would establish the factual findings and criteria applicable to all modifications. These procedures would distinguish between two types of permittee-initiated changes, categorizing them as either major or minor, along with a streamlined process for a facility to

request minor modifications. EPA is also proposing to rely on the existing procedures in part 124 or part 22 whenever EPA modifies or revokes and reissues a permit at its own initiative, terminates a permit, or acts on a permittee's request for a major modification.

a. Modification or Revocation and Reissuance of an Individual Permit at EPA's Initiative

EPA is proposing that the Administrator may modify or revoke and reissue an individual permit if one or more of the causes listed in § 257.150(a) exist. EPA is proposing explicitly that the Administrator may make this determination based on information from any source, such as through a facility inspection, information submitted or posted by the permittee, a petition under § 124.5 of this chapter, or whenever EPA reviews the permit file. When a permit is modified, only the conditions subject to modification would be reopened. By contrast, if a permit is revoked and reissued, the entire permit would be reopened and subject to revision. Revocation and reissuance would generally be appropriate when the changes are too extensive to be addressed through a permit modification. For example, revocation and reissuance may be appropriate when permitting authority is partially transferred to a state that has received a partial program approval. In this example, if a federal permit includes multiple CCR units, and some of them become subject to permit requirements under an approved state program, the federal permit may be revoked and reissued to include only the CCR units which remain subject to federal permitting requirements. This structure is consistent with procedures in other federal permitting programs and with the standard terms for severability proposed in § 257.140. See, *e.g.,* §§ 122.62, 144.39, and 270.41.

EPA is proposing to limit the Agency's authority to initiate a modification only to situations in which EPA determines that one or more of the causes listed in § 257.150(a) exist. These are generally similar to those found in several EPA programs including NPDES, UIC, and RCRA. See, §§ 122.62, 144.39, and 270.41.

The first cause listed in § 257.150(a)(1) would be if there are alterations or additions to the facility that would be materially and substantially different from those specified in the existing permit conditions or permit application, or that could otherwise impact the ability of the permit to require compliance with any of the requirements in subpart D. This type of modification could include changes to operations beyond the CCR unit but that could affect the measures the facility has adopted to comply with subpart D, such as a change to a process or operation that affects fugitive dust control or run-on runoff control. The EPA authority to initiate a permit modification to address this situation is necessary to ensure that CCR permits continue to require the permittee to achieve compliance with subpart D.

The second cause listed in § 257.150(a)(2) would be where EPA has received information since the time of permit issuance that demonstrates the need for modified permit conditions. EPA is proposing that it could modify a permit on this basis in two situations. The first situation is where the information was not available to EPA at the time of permit issuance, and the information would have justified the inclusion of different permit conditions at the time of issuance to require compliance with subpart D. The second situation would not hinge on whether the information was available at the time of permit issuance but would authorize modification whenever any information shows that modification is necessary to include requirements in the permit which ensure there will continue to be no reasonable probability of adverse effects on health or the environment from permitted operations.

EPA recognizes that this latter provision is broader than the comparable provisions under other EPA regulations (*e.g.,* § 270.42) but this was intentional. In contrast to other programs, EPA is proposing that CCR permits be issued without an expiration date, which means that there will be no routine opportunity to reexamine the permit as a whole or to rectify mistakes. Thus, for example, if an inspection reveals deterioration of a cap over a closed CCR landfill, the Administrator should be able to extend the post-closure care period in the CCR permit to ensure continued compliance with the performance standards in § 257.102, without regard to whether those conditions existed at the time of permit issuance, and therefore such information might have been available to EPA. The Agency considers such a provision to be an essential component of the program to ensure that any permit continues to meet the standard in RCRA section 4005(d)(2)(B) throughout the entire life of the permit. This authority is particularly critical in light of the permit shield provided by RCRA 4005(d)(6) and the corresponding provision proposed in § 257.125(a).

In accordance with proposed § 257.150(a)(3), if the Administrator has cause to terminate a permit under § 257.153 but determines that modification or revocation and reissuance is more appropriate, the Administrator may change the permit to incorporate updated permit terms to require compliance with subpart D. For example, if a CCR unit is out of compliance, rather than terminate the permit in accordance with § 257.153(a), the Administrator may initiate a modification to incorporate a schedule of compliance into the permit in accordance with § 257.142. This approach could minimize any interruption in the effectiveness of an enforceable CCR permit and may be appropriate if a permit modification could result in quicker compliance with subpart D requirements than other alternatives, such as an enforcement action. For example, in the context of a permittee that is not in compliance with the requirements for an ongoing, complex corrective action, EPA may decide to modify the permit to establish more prescriptive interim milestones, rather than terminating the permit and relying on a RCRA section 3008(a) compliance order to govern the cleanup.

The fourth cause listed in § 257.150(a)(4) for EPA to initiate a permit modification is if EPA becomes aware of transfer of ownership or operation of a permitted CCR unit. If the new owner and operator have not submitted a timely permit application to update the name(s) of the permittee(s), EPA may initiate modification of the permit. EPA views this as a necessary provision, given that a permit issued in the name of an entity which no longer has control of the CCR unit would be less effective and enforceable than a permit issued to the owner and operator currently in control of the CCR unit. Failure of the new owner and operator to apply in a timely manner for a permit modification to reflect the transfer of control should not preclude EPA from transferring the permit, where EPA has information verifying that the transfer has occurred.

An additional basis for EPA to initiate a permit modification under § 257.150(a)(5) is where modification is appropriate to correct any error, mistake or omission, so as to conform a permit's requirements to the applicable requirements of subpart D. EPA believes this requirement is necessary to meet the standard in RCRA section 4005(d), particularly in light of the proposed permit shield. To ensure the inclusion of all appropriate permit terms and conditions, EPA is proposing the Administrator may initiate modification

of a permit to correct errors, mistakes or omissions in order to conform CCR permits to subpart D.

EPA is proposing to include a reference in § 257.150(a) to the existing provision in § 124.5(a) that lays out the procedure by which any interested person may petition the Administrator to modify or revoke and reissue a permit. A corresponding reference to petitions to terminate a permit is proposed in § 257.153. As specified in § 124.5, such a petition can only be granted if EPA determines that one or more of the grounds in paragraph (a) of this section have been established. Also, as specified § 124.5, the petition must be in writing and contain reasons or factual information or evidence.

An interested party might obtain such information through personal observation (*e.g.,* observation of unpermitted or non-compliant CCR management activities at a facility subject to a permit issued under these proposed requirements; observation of excessive releases from a facility, such as fugitive dust, uncontrolled runoff, or seepage of CCR). An interested party could also obtain information by reviewing compliance information submitted to EPA or posted on a publicly accessible CCR website. If any member of the public believes that a CCR permit should be modified based on such information, EPA is proposing to provide the same opportunity to request that the Administrator modify, revoke and reissue, or terminate a CCR permit that is available for NPDES, UIC, and RCRA hazardous waste permits. EPA requests comment on whether this provision is appropriate in the context of a RCRA subtitle D permit program.

EPA is proposing at § 257.150(b) a provision modeled after § 270.41(c), which would provide that the suitability of the siting of a previously permitted unit will not be considered at the time of permit modification or revocation and reissuance unless new information or regulations indicate there is a reasonable probability of adverse effects to health or the environment that was unknown at the time of permit issuance. This provision is intended to confirm that the Administrator will not routinely require the owner and operator to evaluate whether an existing CCR facility or existing CCR unit continues to be properly sited during routine permit modifications. Such an action is not within the current scope of subpart D, which requires a single demonstration of compliance with the location criteria. However, if information becomes available demonstrating that the CCR unit presents a reasonable probability of adverse effects to health or the environment, the permit would fail to meet the protectiveness standard in RCRA section 4004(a). As an example, this provision might be triggered if the elevation of the aquifer beneath the unit had significantly and permanently increased over time, *e.g.,* as a result of intersecting surface water or aquifer deformation, such that the CCR unit located above the aquifer would no longer meet the requirements of § 257.60. The proposed provision at § 257.150(b) would clarify that in such a case EPA could modify or revoke and reissue the CCR permit with updated permit terms, under the omnibus provision proposed at § 257.141, to address the risks. This provision is similar to § 270.41(c), which is limited to situations in which the risk was unknown at the time of permit issuance. EPA is proposing to retain this limitation, even though, as discussed above, EPA is otherwise proposing to adopt more expansive bases for Agency-initiated modifications in this program. EPA believes that there should be a higher bar to impose further conditions on the siting of a unit, given that it may be technically difficult to address issues once the unit has been built and is operating. EPA is proposing to adopt language in § 257.150(b) that reflects the RCRA section 4004(a) standard and to clarify that the risk was unknown to the Administrator, rather than merely ''unknown.''

In fact, EPA expects that the likelihood that a unit's compliance with the location criteria would change over time is low, and because this will be a rare occurrence, would be properly addressed under omnibus authority. However, EPA requests comment on whether this could occur with sufficient frequency that it would be best addressed by amending the criteria at §§ 257.60 through 257.64 to reflect these circumstances rather than the approach proposed in this action. Note that the language under § 257.150(b) would not preclude routine application of the subpart D location criteria to lateral expansions. In subpart D, lateral expansions are considered new CCR units that must be permitted and must comply with all the requirements applicable to new units, including the location criteria.

To ensure adequate public notice and transparency, EPA is proposing at § 257.150(c) that the Administrator will post all EPA permitting actions on a publicly available website. This would include: Draft permits, permit modifications, revocations, terminations, and reissued permits. This is discussed further in Unit V of this preamble.

b. Permit Modifications at the Request of the Permittee

After an individual CCR permit is issued, the permittees are obligated to evaluate changes at the facility and changes in the regulatory requirements, and to apply for permit modifications as needed to maintain a permit which accurately reflects operations at the facility and requires compliance with the applicable requirements of subpart D and the protectiveness standard in RCRA section 4004(a). An individual CCR permit modification could be requested by the permittee at any time during the life of the permit, which is how EPA expects most modifications will be initiated.

To obtain a modification, EPA is proposing that the permittee would submit an application for a permit modification to EPA, in accordance with § 257.152, which would describe the type of permit modification requested and would specify the requested changes to permit provisions. In all applications for permit modifications, the permittees would submit information to EPA that describes the exact change requested to the permit conditions, proposes whether the change is a major or minor modification, and provides a permit application that contains the information required in the relevant provisions in §§ 257.130 and 257.131. All applications must also include the certification required under § 257.130(e), attesting to completeness, truth and accuracy of the application.

In addition, as part of seeking a modification to a permit, the owner and operator must review the previously submitted permit application in its entirety to determine whether it continues to accurately reflects solid waste management of CCR at the facility. If the permit application no longer completely and accurately describes these operations, the facility must submit an amended application that reflects its current operations, even if the facility believes that no modification of existing permit conditions is necessary in light of these changes.

EPA is proposing two types of modifications, major and minor, for many reasons. EPA examined several other environmental permitting programs to inform this proposed rule, as discussed in Unit III.C of this preamble. Some of these programs have more than two types of modifications, including the RCRA hazardous waste permitting program. However, based on the nature and complexity of the scope

of CCR disposal and waste management EPA is proposing that only two categories of modifications are necessary to capture all reasonably anticipated modification scenarios. CCR are generally managed in only two types of units: A landfill or a surface impoundment; in contrast, there are many more types of hazardous wastes which are typically managed in a wide variety of ways (*e.g.* treated, stored, or disposed of) in a variety of units (*i.e.,* landfills, surface impoundments, tanks, incinerators). Further, the modifications necessary for CCR units are anticipated to generally be similar for landfills and surface impoundments.

i. Minor Modifications at the Request of the Permittee

Minor modifications would be minor or administrative changes that keep the permit current with respect to common changes to the facility or its operations. These changes would not substantially alter the permit conditions or reduce the ability of the facility to operate in a manner that is protective of health and the environment. These criteria for minor modifications, which are proposed in § 257.151(a), were modeled on the criteria for class I modifications under § 270.42 and minor modifications in § 71.7(e)(1). The proposed criteria are intended to exclude any change that could decrease the effectiveness of the permit at either requiring compliance with subpart D, or otherwise ensuring that the facility continues to meet the protectiveness standard in RCRA section 4004(a). Because of their administrative nature, simplicity, routine nature, and lack of impact on the operation or protectiveness of the CCR unit and related waste management practices, such modifications should be implemented quickly and do not warrant public comment.

A list of examples of minor modifications is provided in § 257.151(a)(1) through (a)(10), but any modification that meets the criteria proposed in § 257.151(a) would be processed as a minor modification. EPA included the examples on the list largely because they are expected to be routine changes that can be quickly reviewed, and that should have little potential to impact human health or the environment, and consequently do not necessitate an opportunity for public comment.

Among the listed examples of minor modifications are any administrative or informational changes in the permit application, such as changes to the name or contact information of coordinators or other persons or agencies identified in the permit or compliance plans. Another example is any correction of typographical error in the permit, as long as these revisions do not substantively or materially impact any of the permit terms.

An example of a minor permit modification that EPA is proposing to include at § 257.151(a)(3) is the transfer of ownership or operational control of a CCR unit or facility. EPA understands that a change in ownership or operational control of a CCR unit or facility can sometimes happen quickly or may be uncertain until the transfer occurs. In that case, it may not be feasible for the permittee to apply for a permit modification 45 days prior to the transfer. Therefore, the proposal would require the new owner or operator to submit a revised permit application as soon as practicable, but no later than 30 days after the transfer of ownership or operational control occurs. The new permittee would also provide contact information to the Administrator.

In addition, EPA is proposing at § 257.151(a)(4) to consider any changes necessary to comply with new or amended regulations as minor modifications, when these changes can be incorporated directly into the permit without requiring a significant exercise of technical judgement or discretion and without substantially changing design or operational restrictions or compliance approaches required by the existing permit. EPA is proposing that public input is not needed for the kind of ministerial modification that merely implements the change in the regulation. This is also the case for any changes in statutory requirements. Since a change in the regulation underlying the permit condition would go through public notice and a public comment, further opportunity for public comment on effectuating that change is not needed. Similarly, when the statute changes, EPA has no discretion to revise Congress's mandate, and updating the permit to reflect that mandate is merely a ministerial exercise that does not warrant public comment.

In these circumstances, permittees will be expected to initially determine the changes that are applicable to their CCR units and the changes to the permit conditions that are needed. The permittees would to submit an application for a minor modification if those changes can be incorporated directly, without requiring discretion regarding applicability or any changes to site-specific compliance approaches. If the change in regulatory or statutory requirements requires a permit modification that is complex or requires changes to compliance approaches or other decisions in the permit that relied on any significant judgment or discretion, then the modifications would be considered major. See proposed § 257.151(c)(9).

EPA is proposing in § 257.151(a)(6) that minor modifications can include any changes that increase the stringency of permit requirements, such an increase in the frequency or duration of the procedures for inspection, monitoring, recordkeeping, web posting, sampling, analytical methods, or maintenance activities. If the permittee wants to inspect the CCR unit more often than required by the existing permit, conduct more groundwater samples or increase the frequency of sample collection, or use any equivalent analytical methods, this provision allows the permittee to make these changes using the minor modification procedures. Also, if there are changes to monitoring, sampling, or analysis methods or procedures that are appropriate to conform permit conditions to updated agency guidance or regulations, these would be considered minor modifications. EPA will review the proposed modifications to make sure the changes are equivalent to or more stringent than the permit terms, but EPA believes that, on balance, an opportunity for public comment would unnecessarily delay implementation of clearly desirable changes.

Another minor modification at § 257.151(a)(8) would be if an existing groundwater monitoring well needs to be replaced because it has been damaged or rendered inoperable. As long as the well replacement does not significantly change the location, design, or depth of the sampling interval of the well, this can be considered a minor modification, but if it does change any of those criteria, it would be considered a major modification. The last example of a minor modification in the proposed rule would be a change to the closure plan to adjust the estimates of the maximum extent of operations or the maximum inventory of waste onsite at any time during the active life of the facility. This is proposed at § 257.151(a)(9). These would be considered minor modifications as long as all of the other monitoring and reporting requirements are conducted in accordance with the permit and as long as these changes continue to ensure there is no reasonable probability of adverse effects to health and the environment.

The procedures to obtain a modification are proposed at § 257.151(b) and would differ for minor modifications and major modifications. In either case, the owner and operator

would submit a permit modification application to EPA in accordance with § 257.152 and indicate whether the permittee considers the proposed change to be a major or minor modification. All minor permit modification applications must contain sufficient information to justify treating the modification as minor. The Administrator would review the application and determine if that characterization is accurate. This is an important step, because the major and minor procedures differ significantly in several respects. For example, the minor modification procedures proposed at § 257.151(b) would not require a public comment period or public meeting as they are changes that do not substantially alter the permit conditions. Any modifications that meet the criteria at § 257.151(a) would be considered as minor; if multiple modifications are requested in a single application, the permittee would be required to demonstrate that all of them meet the criteria. Any that do not would be considered major modifications and processed according to the procedures proposed at § 257.151(d).

EPA is proposing two provisions that specify the timing for requesting a minor modification; first at § 257.151(b)(1), which would apply to most requests, EPA is proposing to require the permittee to submit an application no less than 45 days before making a change to the CCR unit. This deadline would be excepted for minor modifications requested due to the transfer of ownership or operational control of a CCR unit or facility, where it is often not feasible to apply 45 days in advance, as provided in § 257.151(a)(3).

Second, EPA is proposing at § 257.151(b)(2) that if there are revisions to subpart D, such as a final rule promulgation or court order, which makes the underlying requirements less stringent than the existing permit conditions, the owner and operator may continue to operate in accordance with the permit or may apply for a minor permit modification in accordance with § 257.152. All regulatory revisions will be posted in the **Federal Register**, and it will be the permittee's responsibility to be aware of any new or more stringent applicable requirements. Whenever the underlying requirements in subpart D change to be more restrictive, such that compliance with the permit no longer results in compliance with subpart D, the permittee would be required to apply for a permit modification. EPA believes that the permittee should initiate these modifications because an owner and operator is best able to identify the impact of any regulatory changes on operations at a facility. Moreover, these modifications will be put into effect faster if the permittee initiates the modification than if EPA initiated the modification.

After a permit application for a minor modification is submitted, EPA is proposing in § 257.151(d)(4) and (d)(5) that the Administrator would determine whether the modification is appropriate and protective. The Administrator may take a number of actions in response; first EPA may determine that the proposed modification does not meet the criteria for a minor modification and therefore must follow the procedures for a major modification in § 257.151(d). The Administrator could also determine that additional information is needed to evaluate the modification; for example, if the application does not contain enough supporting information to demonstrate that the change is necessary or that it meets the conditions for a minor modification. The Administrator may also deny the request if it does not contain enough supporting information or if the requested modification would result in a permit that does not require compliance with subpart D or otherwise fails to meet the statutory protectiveness standard. If the Administrator takes any of these actions, the permittee may update the application and submit it again to the Administrator. In this case, the permittee must continue to comply with the original permit conditions.

Finally, the Administrator may approve the minor modification and update the permit accordingly, including a new permit issuance date. EPA is proposing at § 257.151(b)(7) that if EPA has not responded within 45 days after the permittee submits the application for the modification, the application will be considered to be approved and the permittee may make the change as described in the permit modification application. Since minor modifications do not substantially alter the permit conditions, EPA believes that 45 days provides sufficient notice of the proposed change. This ensures that minor, unsubstantial changes are made in a timely manner and keeps the permit application up to date. Note that minor modifications would not be subject to the requirements in § 124.5, which is consistent with the approach under the NPDES, UIC, 404 programs, as well as the RCRA hazardous waste program, which excludes both Class 1 and 2 modifications. See § 124.5(c)(3).

ii. Major Modifications at the Request of the Permittee

In contrast to minor modifications, major modifications are those changes that materially alter the facility, its operation, or compliance approaches required in the existing permit, or changes to address regulatory revisions that will require a significant exercise of technical judgement or discretion to implement. EPA is proposing at § 257.151(c) that any modification that does not meet the criteria proposed at § 257.151(a) to be a minor modification would be a major modification. Major modifications would include physical or operational changes, changes to compliance approaches, or any other changes that could impact the protection of health and the environment. If a CCR unit transitions into a new operating phase and becomes subject to requirements in subpart D not included in the permit, a major modification application must be submitted to the Agency to update the permit. However, if a CCR unit transitions into a new operating phase and all requirements in subpart D applicable to the unit in the new operating phase are already included in the permit, no permit modification would be required. Examples of major modifications that meet the above criteria are proposed in § 257.151(c)(1) through (9). EPA requests comment on whether the criteria proposed in § 257.151(c) is sufficiently comprehensive to include all potential modifications that should be treated as major, and on the appropriateness of the listed examples of major modifications.

The first example of a major modification that EPA is proposing at § 257.151(c)(1) is any change that reduces the frequency or stringency of requirements for inspection, monitoring, sampling, analysis, recordkeeping, reporting, web posting, or maintenance activities by the permittee. These would be considered major modifications because there is a possibility that the change would make the newly revised permit conditions less stringent than the existing requirements in the permit, which warrants careful review and, because it could impact the public, an opportunity for public comment. The Administrator will not approve changes that make the permit conditions less protective than the underlying requirements in subpart D. For example, a facility might be required to conduct daily inspections following a structural stability failure at the CCR surface impoundment to monitor the progress of remediating the issue. After the structural stability issue is resolved, a

major modification could be requested to allow the facility to instead comply with the weekly inspection requirements in § 257.83(a)(i). This modification would be less stringent than the original permit term, but not than the technical criteria in subpart D, and could be approved because the permit would continue to meet the statutory standard that each permit requires compliance with subpart D.

Removing a permit condition because the underlying regulatory requirement is no longer applicable would be considered to be a major modification, if the change in the applicable requirement was not merely incorporating a regulatory revision, a statutory change, or a court order (*e.g.,* vacatur of a requirement). See § 257.151(c)(2). For example, this could include a change based on completion of an operating phase (*e.g.,* completion of closure activities). Another example could be a change in the applicability of emergency action plan (EAP) requirements for existing and new CCR surface impoundments, in response to a change in the unit's hazard potential classification. See §§ 257.73(a)(3) and 257.74(a)(3), respectively. The EAP is a document that identifies potential emergency conditions at a CCR surface impoundment and specifies actions to be followed to minimize loss of life and property damage. The requirement for an owner and operator of a CCR surface impoundment to prepare an EAP applies to non-incised [9] surface impoundments classified as either high- or significant hazard potential.[10] A hazard potential classification provides an indication of the potential for danger to human life, economic loss, environmental damage, disruption of lifeline facilities, or other impacts in the event of a release of CCR from a surface impoundment due to failure or mis-operation. If subject to the requirement, owners and operators must conduct periodic (*i.e.,* every five years) hazard potential re-assessments. The CCR regulations address situations where the hazard potential classification of a CCR unit changes over time (*e.g.,* the circumstances presenting the potential for loss of life no longer exist). In the situation relevant to this example, if the CCR unit is determined to be no longer classified as either a high hazard potential unit or significant hazard potential unit, then the CCR unit is no longer subject to the EAP requirements. See § 257.73(a)(3)(iii). Once this determination is made, it would be appropriate to modify the permit to remove the EAP requirements from the permit because the EAP provisions are no longer applicable to the CCR surface impoundment. EPA is proposing this would be a major modification to a CCR permit.

EPA is also proposing at § 257.151(c)(3) that any reduction in the number, or substantial changes in location, depth, or design of groundwater monitoring wells required by the permit would be considered a major modification. This is considered a major modification because there is a possibility that the change would make the requested permit conditions less stringent than the existing permit, which warrants careful review and, because it could impact the public, an opportunity for public comment.

EPA is also proposing at § 257.151(c)(4) that the addition of a new CCR unit, including a lateral expansion, would be considered a major modification, provided the new unit did not qualify for and opt for coverage by either a general permit or the permit by rule (proposed at § 257.128). Such an addition would be a significant change to the CCR facility; it may allow a higher volume of CCR to be managed at the facility, and the new CCR unit may be subject to different requirements than the other unit(s) at the facility, which may have predated the 2015 rule. This would mean that new permit terms would be required, and, because these changes could significantly impact the public, EPA would consider public notice and an opportunity for comment not only appropriate, but necessary.

EPA is also proposing at § 257.151(c)(5) that any modification of a CCR unit, including physical changes or changes in management practices which are not minor modifications under § 257.151(a) will be considered a major modification. This would include any change to the CCR unit or CCR management operations that would require a material revision to the permit terms as written.

EPA is also proposing at § 257.151(c)(6) that initiation of a corrective action program, in accordance with § 257.96, or any substantive revision to the corrective action requirements in the permit would be considered a major modification. A site-specific compliance approach to corrective action is required when there is a statistically significant increase (SSI) above a groundwater protection standard for any constituent listed on Appendix IV of part 257, which indicates that there is a reasonable probability of adverse effects on health and the environment. Since corrective action will require discretion and professional judgment to determine an appropriate compliance approach and could impact the public, this would be considered a major modification.

EPA is proposing in § 257.151(c)(7) that changes to an approved plan required by subpart D, such as a closure plan required by § 257.102(b) or post-closure care plan required by § 257.104(d), and any reduction in the post-closure care period for any reason would also be examples of major modifications. The closure and post-closure requirements are found in §§ 257.100 through 257.104. Development of a site-specific plan for a CCR unit involves many decision points. For example, when developing a closure plan, the permittee must decide whether to close by removal or close by leaving CCR in place and how to design a final cover system. Moreover, the performance standards in the regulations allow for a variety of engineering approaches and can involve complex technical issues. These decisions also involve a certain degree of long-term risk, all of which warrants the greater degree of oversight and public involvement that comes with a major modification. These same considerations would apply equally to any other plans, such as a groundwater monitoring plan, a run-on run-off control plan, or a post-closure care plan. These plans serve to establish maintenance and monitoring procedures to ensure the continued effectiveness of controls to prevent releases, monitoring to evaluate effectiveness of controls or corrective measures, or of closure requirements. Therefore, EPA is proposing that these also be considered major modifications.

EPA is also proposing at § 257.151(c)(8) that an extension of the final date in a schedule of compliance established in accordance with § 257.142 would be an example of a major modification. A compliance schedule would be included in a CCR permit if the permittee is out of compliance with one or more provisions of subpart D. A modification to extend a compliance schedule would extend its period of noncompliance. Because this could increase the probability of adverse effects on health or the environment,

[9] The CCR regulations define an ''incised'' surface impoundment as a CCR surface impoundment which is constructed by excavating entirely below the natural ground surface, holds an accumulation of CCR entirely below the adjacent natural ground surface, and does not consist of any constructed diked portion.

[10] A ''high hazard potential'' impoundment is a diked surface impoundment where failure or mis-operation will probably cause loss of human life. A ''significant hazard potential'' impoundment is a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

default approval of the proposed modification is inappropriate and public input is warranted.

EPA is proposing at § 257.151(c)(9) that if there is a change in underlying regulatory requirements, which requires substantial changes to the design, operation, or compliance strategies established in the permit, or that requires the application of significant technical judgement or discretion, this type of change would be considered a major modification. This would include, for example, the establishment or revision of a performance standard or applicability determination that is complex or relies on significant judgment or discretion to account for site-specific considerations. Public input on EPA's determinations regarding the requirements of that revised standard in the site-specific context at the particular CCR unit or facility would be warranted.

EPA is proposing to rely on the existing decision-making procedures in part 124 when issuing RCRA CCR permits, consistent with procedures followed in other federal permitting programs. The procedures for approving a major modification are the same as those that must be followed to issue the initial permit. Specifically, EPA must issue a draft permit (or tentative denial) in accordance with § 124.6 accompanied by a statement of basis or fact sheet, as appropriate. See §§ 124.7 and 124.8. The draft must be publicly noticed and made available for public comment. See §§ 124.9 through 124.11. EPA would provide notice of an opportunity for a public hearing and would hold one if EPA determines there is significant public interest and a public hearing is warranted. See § 124.12. EPA's final decision will include a response to comments and may be appealed under § 124.19. See also, §§ 124.15, 124.17. Unlike minor modifications, for major modifications, EPA is not proposing to establish a default approval if EPA does not take action within a certain number of days after the application for the modification is received.

c. Application To Modify a Permit

Whenever a permittee needs to make a change to a CCR permit, EPA is proposing that the permittee will update the permit application and submit it to the Administrator for review. EPA is anticipating that the permit application will be the same for initial permit issuance, as proposed at §§ 257.130 and 257.131 and in Unit IV.C.2, as it would be for a modification, through an electronic permitting process (see Unit V of this preamble). When the permittees need to make a change to the permit application, they would be able to access the permit application from the electronic permitting system and make any necessary changes throughout the entire permit application. Then, the permittees will be required to certify the amended permit application for truth, completeness and accuracy. The timelines for applications that EPA is proposing would be no less than 180 days in advance of the proposed change for a major modification, and for minor modification no less than 45 days in advance of the proposed change. See proposed § 257.152(c) and (b)(2), respectively. EPA anticipates more time would be needed to process major modifications to CCR permits, because the operational or regulatory changes would be more complex, and to follow the required public participation procedures.

EPA is proposing at § 257.152(a) that for either type of modification, major or minor, a complete permit application must contain sufficient information about the specific change anticipated, the modification type that is requested, and the reason why the permit modification is necessary. EPA is proposing that the permittee must give a detailed description of the exact modification or modifications requested for the facility or operations as well as any supporting documentation referenced by the permit. Since some requirements in subpart D pertain to the entire facility, such as the Fugitive Dust Control Plan required in § 257.80, any proposed changes to the facility-wide requirements must address any impacts that the modification could have around the facility. The permittee must also identify which permit condition(s) it is requesting to modify. The application must also identify whether the change meets the criteria for either a major or a minor permit modification, with sufficient information to support that classification. In addition, the permit modification application must contain an explanation of why the modification is necessary to ensure that the permit accurately reflects the current facility conditions and operations. In many cases, this explanation will include a written description of exactly why the change must be made, any technical justifications, along with supporting data, and any other applicable information required by §§ 257.130, 257.131, or 257.152. EPA believes that all of this information is necessary to completely understand and evaluate the requested modification, as well as how to draft modified permit terms that will require compliance with subpart D.

Consistent with the procedures for initial permit applications and § 124.3(c) EPA would review the application for a permit modification for completeness. If it is found to be incomplete, EPA will notify the applicant(s) in writing and will list the information necessary to make the application complete. In practice, EPA has frequently informally requested additional information from the applicant or provided an opportunity to supplement their application prior to triggering a formal notification that an application for a permit modification is incomplete. EPA generally expects to adopt a similar practice for CCR permit modification applications.

Prior to submitting the permit modification application, the owner and operator must review and update the previously submitted permit application in its entirety. The owner and operator would need to certify, as proposed at § 257.130(e), that both the updated sections to support the requested modification, and all other sections of the previously submitted permit application, truthfully, accurately, and completely describe all CCR units and solid waste management operations regulated by this program. If, the applicant, during this review, determines that any information in the prior application is no longer accurate, complete, or true, then that information must be updated in the modification application. This requirement is proposed because a modified permit would be issued with a new effective date, which would begin anew the periodic application review period proposed in § 257.132. In order to avoid a situation where a portion of a permit application could remain unreviewed for many years, this application review should occur each time an application for a modification is submitted.

EPA requests comment on whether these application procedures are sufficient and if the time periods identified for minor and major modifications are feasible for making these changes to a permit.

d. Termination of an Individual Permit

Establishing the circumstances under which a permit is no longer necessary or can be revoked is a key component of any permit program. The grounds for permit termination are specified in EPA regulations in several permit programs, including CWA, SDWA and RCRA hazardous waste permitting. See §§ 122.64, 144.40, 233.36, 270.43. These regulations share several common elements; generally, permits can be terminated under these regulations to address a significant risk, or in response to a permittee's malfeasance. See, Id. Some of these programs include

additional grounds that would be relevant in this context; allowing for termination when the permitted activity ceases, or to transition to some other regulatory mechanism, See §§ 122.64(b), 233.36(a)(3) and (4).

Accordingly, EPA is proposing at § 257.153(a) that an individual CCR permit could be terminated for limited, specified reasons. Consistent with the programs discussed above, a permit could be terminated by: Significant noncompliance; failure to fully disclose all relevant facts in an application or during the permit issuance process; misrepresentation of relevant facts at any time; or a determination that there is reasonable probability of adverse effects on human health or the environment from the permitted activity, which can only be addressed by permit termination. EPA is also proposing to adopt provisions that would authorize permit termination to allow transition to coverage by a general permit under § 257.127; permit by rule at § 257.128; to a permit issued under an approved State CCR Permit Program; or in response to cessation of the permitted activity with no remaining compliance obligations in subpart D.

EPA does not anticipate that CCR permit termination to address permittee malfeasance or a significant risk will occur often. While there is a future date where a CCR unit may no longer be subject to requirements in subpart D, and may not need a permit, these units typically operate for decades. After a CCR unit is closed, post-closure care is conducted over 30 years, and corrective action measures can take decades to achieve all cleanup goals. Closure, post-closure care and any required corrective action would be conducted under the terms of a CCR permit. Even if serious noncompliance leads EPA to deny a CCR permit for disposal, a new or modified CCR permit would be issued to require other activities to be conducted in compliance with the requirements of subpart D. Thus, in the overall scheme of the CCR permit program, permit termination should happen infrequently as the result of a unit no longer having compliance obligations, or if transitioning to a different CCR permitting mechanism, such as a general CCR permit.

EPA is proposing at § 257.153(b) that any termination of a CCR permit would follow the procedures in part 124 or part 22. Part 22 contains the Consolidated Rules of Practice Governing Administrative Assessment of Civil Penalties and the Revocation/Termination or Suspension of Permits and EPA proposes to amend it by adding § 257.153 to the list of provisions by which EPA may terminate a permit for cause in § 124.5. This would make the requirements of § 22.44 applicable to termination of a CCR permit, including requirements for public notice and comment.

## V. Electronic Permitting

The Agency is proposing to use electronic permitting (e-permitting) for as much of the permitting process as possible. E-permitting would improve the effectiveness and efficiency by streamlining the permitting process for both the permitting authority and the permittee, reducing time between application and permit issuance as well as improving the permit modification process. For each applicable CCR unit or facility, e-permitting could include the:

- Submittal of the initial permit application,
- Public notice of draft permitting actions,
- Issuance of final permitting actions,
- Submittal of an application for a permit modification,
- Public notice on draft permits and draft major modifications,
- Permittee access to the permit application for the periodic application review,
- Correspondence between EPA and the permittee or interested parties, and
- Termination of a permit.

To accomplish electronic permitting, EPA proposes to develop a CCR module in the RCRAInfo system using the Central Data Exchange (CDX) for owners and operators of CCR units to create a profile and submit information in this system. RCRAInfo allows for the creation of an EPA Identifier number if the facility does not already have one through the system. EPA envisions the system to include fillable forms with different options based on CCR unit type. For example, existing CCR surface impoundments would have different requirements to enter in the system than existing CCR landfills, and both would have different requirements in the permit application than new CCR units (*i.e.,* landfills, lateral expansions, and surface impoundments). Since EPA is proposing to ideally issue one individual CCR permit per facility, the basic information about the facility, owner, operator, and operations would be entered once in the permit application; separate information about each CCR unit at the facility would be entered based on the number and type of CCR units. The electronic system would also include the ability for the permit applicant to submit plans, drawings, and other documents into the system for review as part of the permit application.

Another option that EPA is considering for e-permitting is the use of a secure email box or another electronic method to reduce the use of paper but follow a streamlined permitting process. EPA requests comment on the use of electronic permitting. Are there other electronic information collection methods that should be considered, what would those entail and why should the Agency consider them? In addition, what type of information collection would be the most effective for this industry?

Regardless of the permit submission method that is developed for the CCR permit program, all the information submitted by the permit applicant must be certified for truth and accuracy, and then must be reviewed by a permit writer for compliance with both the technical requirements in subpart D and the permitting requirements in this proposed rule.

## VI. The Projected Economic Impacts of This Action

### *A. Costs of the Proposed Rule*

EPA estimated the costs associated with this action in an Economic Analysis (EA) which is available in the docket for this action. The EA considers two general categories of costs: Costs to regulated entities to prepare, submit, and revise initial permit applications, and to prepare, submit, and revise anticipated major and minor permit modifications; and costs to EPA to review and assess permit applications and permit modifications. The proposed permit application contents align with information already required by Subpart D to be developed and posted on publicly accessible CCR websites. Therefore, the EA estimates the incremental costs attributable to the provisions of this action against the baseline costs and practices in place as a result of the 2015 CCR final rule. The EA estimates that the net annualized impact of this proposed rule over a 20-year period of analysis will be annual costs of between $0.09 million and $0.85 million. This action is not considered an economically significant action under Executive Order 12866.

### *B. Affected Universe*

This proposed rule affects facilities subject to EPA's 2015 CCR final rule, which generally includes electric utilities and independent power producers who fall within the North American Industry Classification System (NAICS) code 221112, and who generate CCR. The EA estimates that between 86 and 271 facilities will be affected by the proposed rule.

**VII. Statutory and Executive Orders Reviews**

Additional information about these statutes and Executive Orders can be found at *http://www2.epa.gov/laws-regulations/laws-and-executive-orders.*

*A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

This action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. While this is not an economically significant action, it is expected to raise novel legal or policy issues. Any changes made in response to OMB recommendations have been documented in the docket. The EPA prepared an analysis of the potential costs and benefits associated with this action. This Economic Assessment (EA), entitled *Economic Assessment; Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Federal CCR Permit Program; Proposed Rule* is summarized in Unit VI of this preamble and is available in the docket.

*B. Executive Order 13771: Reducing Regulation and Controlling Regulatory Costs*

This action is expected to be an Executive Order 13771 regulatory action. Details on the estimated costs of this proposed rule can be found in EPA's analysis of the potential costs and benefits associated with this action.

*C. Paperwork Reduction Act (PRA)*

The information collection activities in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the PRA. The Information Collection Request (ICR) document that the EPA prepared has been assigned EPA ICR number 2610.01, OMB control number 2050–NEW. The ICR for this proposed rule will serve is an amendment to the ICR approved by OMB for the Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities published in the **Federal Register** at 80 FR 21302, April 17, 2015. You can find a copy of the ICR in the docket for this action, and it is briefly summarized here.

*Respondents/affected entities:* Coal-fired electric utility plants that will be affected by the rule.

*Respondent's obligation to respond:* The recordkeeping, notification, and posting are mandatory as part of the minimum national criteria being promulgated under Sections 1008, 4004, and 4005(a) of RCRA.

*Estimated number of respondents:* 62.

*Frequency of response:* The frequency of response varies.

*Total estimated burden:* EPA estimates the total annual burden to respondents to be *an increase in burden of* approximately 2,288 hours from the currently approved burden. Burden is defined at 5 CFR 1320.3(b).

*Total estimated cost:* The total estimated annual cost of this rule is a *cost increase* of approximately $136,312. This cost increase is composed of approximately $135,690 in annualized labor costs and $622 in capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to *OIRA_submission@omb.eop.gov,* Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than March 23, 2020. The EPA will respond to any ICR-related comments in the final rule.

*D. Regulatory Flexibility Act (RFA)*

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. The small entities subject to the requirements of this action are generally electric utilities and independent power producers who fall within the NAICS code 221112, and who generate CCR. The Agency has determined that no small entities are affected at or above one percent of annual revenues, thus, determining that there is not a significant economic impact on any small entities. Estimated costs to regulated entities rely on information in prior Information Collection Requests (ICRs) prepared for similar permitting programs, including costs to prepare, submit, and revise initial permit applications, and to prepare, submit, and revise anticipated major and minor permit modifications. Estimates of annual revenues are calculated using reported generation figures and average annual power costs. Details of this analysis are presented in Unit VI of this preamble and in the Economic Assessment, which is available in the docket for this action. This action does not change the existing regulatory requirements associated with the 2015 CCR rule, which EPA previously determined would not have a SISNOSE.

*E. Unfunded Mandates Reform Act (UMRA)*

This action does not contain an unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. This action imposes no enforceable duty on any state, local or tribal governments or the private sector. The costs involved in this action are imposed only by participation in a voluntary federal program. UMRA generally excludes from the definition of ''federal intergovernmental mandate'' duties that arise from participation in a voluntary federal program.

*F. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

*G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

This action has tribal implications because it would impose requirements on facilities located in Indian country. However, it will neither impose substantial direct compliance costs on federally recognized tribal governments, nor preempt tribal law.

The EPA will engage with tribal officials under the EPA Policy on Consultation and Coordination with Indian Tribes concurrent with the public comment process for this regulation to permit them to have meaningful and timely input into its development.

For the ''Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities'' published April 17, 2015, in the **Federal Register** at 80 FR 21302 (the 2015 CCR Rule), EPA identified three of the 414 coal-fired electric utility plants (in operation as of 2012) which are located on tribal lands. That rulemaking and the CCR rules and proposed rules that followed all

concluded however, that these facilities are not owned by tribal governments. The Agency is correcting that analysis today for the following three facilities: (1) The Navajo Generating Station in Coconino County, Arizona, which is operated by the Arizona Salt River Project and owned by the Navajo Nation; (2) the Bonanza Power Plant in Uintah County, Utah, which is operated by the Deseret Generation and Transmission Cooperative and owned by the Ute Indian Tribe; and (3) the Four Corners Power Plant in San Juan County, New Mexico, which is operated by the Arizona Public Service Company and owned by the Navajo Nation. The Navajo Generating Station and the Four Corners Power Plant are on tribal trust lands belonging to the Navajo Nation, while the Bonanza Power Plant is located on tribal trust lands within the Uintah and Ouray Reservation of the Ute Indian Tribe. Because CCR units are land-based units, the fact that these CCR facilities are located on tribal trust land means that the facility owners within the meaning of the CCR Rule are the tribal trust beneficial landowner tribes. The Agency continues to believe that the facility operators will bear all direct compliance costs associated with the above-mentioned rules and this proposal. However, to the extent that an operator fails to comply with a federal CCR requirement, CCR facility owners may also be held liable.

*H. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks*

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in the document titled ''Human and Ecological Risk Assessment of Coal Combustion Residuals'' which is available in the docket for the final rule as docket item EPA–HQ–RCRA–2009–0640–11993.

As ordered by E.O. 13045 Section 1–101(a), for the ''Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities'' published April 17, 2015 in the **Federal Register** at 80 FR 21302, EPA identified and assessed environmental health risks and safety risks that may disproportionately affect children in the revised risk assessment. The results of the screening assessment found that risks fell below the criteria when wetting and run-on/runoff controls required by the rule are considered. Under the full probabilistic analysis, composite liners required by the rule for new waste management units showed the ability to reduce the 90th percentile child cancer and non-cancer risks for the groundwater to drinking water pathway to well below EPA's criteria. Thus, EPA believes that this rule will be protective of children's health.

*I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use*

This action is not a ''significant energy action'' because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. This rule is not economically significant and is not expected to have a significant effect on the production, use or supply of energy commodities. Additionally, it is narrowly tailored such that no novel legal or policy issues adversely affecting the supply, distribution or use of energy arising out of legal mandates, the President's priorities or the principles set forth in Executive Orders 12866 and 13211 will occur.

*J. National Technology Transfer and Advancement Act (NTTAA)*

This rulemaking does not involve technical standards.

*K. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). The documentation for this decision is contained in EPA's Regulatory Impact Analysis (RIA) for the CCR rule which is available in the docket for the 2015 CCR final rule as docket item EPA–HQ–RCRA–2009–0640–12034.

EPA's risk assessment did not separately evaluate either minority or low-income populations. However, this rule creates a permitting framework that implements the CCR rule, which is risk-reducing with reductions in risk occurring largely within the surface water catchment zones around, and groundwater beneath, coal-fired electric utility plants. Since the CCR rule is risk-reducing and this action does not add to risks, this action will not result in new disproportionate risks to minority or low-income populations.

Additionally, EPA evaluated the demographic characteristics of communities that may be affected by the CCR rule. In the analysis contained in the RIA the demographic characteristics of populations surrounding coal-fired electric utility plants are compared with broader population data for two geographic areas: (1) One-mile radius from CCR management units (*i.e.,* landfills and impoundments) likely to be affected by groundwater releases from both landfills and impoundments; and (2) watershed catchment areas downstream of surface impoundments that receive surface water run-off and releases from CCR impoundments and are at risk of being contaminated from CCR impoundment discharges (*e.g.,* unintentional overflows, structural failures, and intentional periodic discharges).

For the population as a whole 24.8 percent belong to a minority group and 11.3 percent falls below the Federal Poverty Level. For the population living within one mile of plants with surface impoundments 16.1 percent belong to a minority group and 13.2 percent live below the Federal Poverty Level. These minority and low-income populations are not disproportionately high compared to the general population. The percentage of minority residents of the entire population living within the catchment areas downstream of surface impoundments is disproportionately high relative to the general population, *i.e.,* 28.7 percent, versus 24.8 percent for the national population. Also, the percentage of the population within the catchment areas of surface impoundments that is below the Federal Poverty Level is disproportionately high compared with the general population, *i.e.,* 18.6 percent versus 11.3 percent nationally.

Comparing the population percentages of minority and low-income residents within one mile of landfills to those percentages in the general population, EPA found that minority and low-income residents make up a smaller percentage of the populations near landfills than they do in the general population, *i.e.,* minorities comprised 16.6 percent of the population near landfills versus 24.8 percent nationwide and low-income residents comprised 8.6 percent of the population near landfills versus 11.3 percent nationwide. In summary, although populations within the catchment areas of plants with surface impoundments appear to have disproportionately high percentages of minority and low-income residents relative to the nationwide average, populations surrounding plants with landfills do not. Because landfills are less likely than impoundments to

experience surface water run-off and releases, catchment areas were not considered for landfills.

**List of Subjects**

*40 CFR Part 22*

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous substances, Hazardous waste, Penalties, Pesticides and pests, Poison prevention, Water pollution control.

*40 CFR Part 124*

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous waste, Indians—lands, Reporting and recordkeeping requirements, Water pollution control, Water supply.

*40 CFR Part 257*

Environmental protection, Beneficial use, Coal combustion products, Coal combustion residuals, Coal combustion waste, Disposal, Hazardous waste, Landfill, Surface impoundment.

Dated: December 19, 2019.

**Andrew R. Wheeler,**

*Administrator.*

For the reasons set out in the preamble, title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

## PART 22—CONSOLIDATED RULES OF PRACTICE GOVERNING THE ADMINISTRATIVE ASSESSMENT OF CIVIL PENALTIES AND THE REVOCATION/TERMINATION OR SUSPENSION OF PERMITS

■ 1. The authority citation for part 22 continues to read as follows:

**Authority:** 7 U.S.C. 1361; 15 U.S.C. 2615; 33 U.S.C. 1319, 1342, 1361, 1415 and 1418; 42 U.S.C. 300g-3(g), 6912, 6925, 6928, 6991e and 6992d; 42 U.S.C. 7413(d), 7524(c), 7545(d), 7547, 7601 and 7607(a), 9609, and 11045.

■ 2. Amend § 22.44 by revising paragraph (b) introductory text to read as follows:

**§ 22.44 Supplemental rules of practice governing the termination of permits under section 402(a) of the Clean Water Act or under section 3008(a)(3) of the Resource Conservation and Recovery Act.**

* * * * *

(b) In any proceeding to terminate a permit for cause under § 122.64, § 257.153, or § 270.43 of this chapter during the term of the permit:

* * * * *

## PART 124—PROCEDURES FOR DECISIONMAKING

■ 3. The authority citation for part 124 continues to read as follows:

**Authority:** Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.;* Safe Drinking Water Act, 42 U.S.C. 300f *et seq.;* Clean Water Act, 33 U.S.C. 1251 *et seq.;* Clean Air Act, 42 U.S.C. 7401 *et seq.*

■ 4. Amend § 124.1 by revising paragraphs (a) and (d) to read as follows:

**§ 124.1 Purpose and scope.**

(a) This part contains EPA procedures for issuing, modifying, revoking and reissuing, or terminating all RCRA, UIC, PSD and NPDES ''permits'' (including ''sludge-only'' permits issued pursuant to § 122.1(b)(2) of this chapter). The latter kinds of permits are governed by part 270. RCRA interim status and UIC authorization by rule are not ''permits'' and are covered by specific provisions in parts 144, subpart C, and 270. This part also does not apply to permits issued, modified, revoked and reissued or terminated by the Corps of Engineers. Those procedures are specified in 33 CFR parts 320–327. The procedures of this part also apply to denial of a permit for a RCRA CCR unit under § 257.133 or for the active life of a RCRA hazardous waste management facility or unit under § 270.29.

* * * * *

(d) This part is designed to allow permits for a given facility under two or more of the listed programs to be processed separately or together at the choice of the Regional Administrator or the Administrator, in the case of RCRA CCR permits. This allows EPA to combine the processing of permits only when appropriate, and not necessarily in all cases. The Regional Administrator may consolidate permit processing when the permit applications are submitted, when draft permits are prepared, or when final permit decisions are issued. This part also allows consolidated permits to be subject to a single public hearing under § 124.12. Permit applicants may recommend whether or not their applications should be consolidated in any given case.

* * * * *

■ 5. Amend § 124.2 by:

■ a. Revising paragraph (a) introductory text;

■ b. Adding in alphabetical order the definitions of ''RCRA CCR General Permit'', ''RCRA CCR Permit'', ''RCRA Permit''; and

■ c. Revising the definitions of ''Director'', ''Facility or activity'', ''Permit'', ''Regional administrator'', and .

The additions and revisions read as follows:

**§ 124.2 Definitions.**

(a) In addition to the definitions given in §§ 122.2 and 123.2 (NPDES), 501.2 (sludge management), 144.3 and 145.2 (UIC), 233.3 (404), and 257.121, 270.2 and 271.2 (RCRA), the definitions below apply to this part, except for PSD permits which are governed by the definitions in § 124.41. Terms not defined in this section have the meaning given by the appropriate Act.

* * * * *

*Director* means the Administrator, Regional Administrator, the State director or the Tribal director as the context requires, or an authorized representative. When there is no approved State or Tribal program, and there is an EPA administered program, *Director* means the Regional Administrator, except for RCRA CCR permits where *Director* means the Administrator. When there is an approved State or Tribal program, ''Director'' normally means the State or Tribal director. In some circumstances, however, EPA retains the authority to take certain actions even when there is an approved State or Tribal program. (For example, when EPA has issued an NPDES permit prior to the approval of a State program, EPA may retain jurisdiction over that permit after program approval; see § 123.1) In such cases, the term ''Director'' means the Regional Administrator and not the State or Tribal director.

* * * * *

*Facility or activity* means any ''HWM facility,'' UIC ''injection well,'' NPDES ''point source'' or ''treatment works treating domestic sewage'' or State 404 dredge or fill activity, or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the RCRA, UIC, NPDES, or 404 programs. For RCRA CCR permits, *facility* means *facility* as that term is defined in § 257.53 of this chapter.

* * * * *

*Permit* means an authorization, license or equivalent control document issued by EPA or an ''approved State'' to implement the requirements of this part and parts 122, 123, 144, 145, 233, 257, 270, and 271 of this chapter. ''Permit'' includes RCRA ''permit by rule'' (§ 270.60), RCRA standardized permit (§ 270.67), UIC area permit (§ 144.33), NPDES or 404 ''general permit'' (§§ 270.61, 144.34, and 233.38), RCRA CCR general permit (§ 257.127), and RCRA CCR permit by rule (§ 257.128). Permit does not include

RCRA interim status (§ 270.70), UIC authorization by rule (§ 144.21), or any permit which has not yet been the subject of final agency action, such as a ''draft permit'' or a ''proposed permit.''

* * * * *

*Regional Administrator* means the Regional Administrator of the appropriate Regional Office of the Environmental Protection Agency or the authorized representative of the Regional Administrator. For RCRA CCR permits, this term shall mean Administrator if the Administrator has not issued a delegation of authority to the Regional Administrator.

* * * * *

*RCRA* means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (Pub. L. 94–580, as amended by Pub. L. 95–609, and Pub. L. 114–322, 42 U.S.C. 6901 *et seq*).

*RCRA CCR general permit* means a RCRA CCR permit containing terms and conditions to require compliance with requirements of part 257, subpart D of this chapter applicable to a specified category of CCR units, which are designated as eligible for coverage under the general permit. General permits in the CCR program are issued in accordance with § 257.127 of this chapter.

*RCRA CCR permit* means a federal permit issued pursuant section 4005(d) of RCRA, 42 U.S.C. 6945(d).

*RCRA permit* means a permit issued pursuant to any section of RCRA, 42 U.S.C. 6901 *et seq*.

* * * * *

■ 6. Amend § 124.3 by revising paragraph (a) to read as follows:

**§ 124.3 Application for a permit.**

(a) (*Applicable to State programs, see §§ 123.25 (NPDES), 145.11 (UIC), 233.26 (404), and 271.14 (RCRA)).* (1) Any person who requires a permit under the RCRA, UIC, NPDES, or PSD programs shall complete, sign, and submit to the Director an application for each permit required under §§ 257.130 or 270.1 (RCRA), 144.1 (UIC), 40 CFR 52.21 (PSD), and 122.1 (NPDES). Applications are not required for RCRA permits by rule (§ 257.128 or § 270.60), RCRA CCR general permits (§ 257.127), underground injections authorized by rules (§§ 144.21 through 144.26), NPDES general permits (§ 122.28) and 404 general permits (§ 233.37).

(2) The Director shall not begin the processing of a permit until the applicant has fully complied with the application requirements for that permit. See §§ 257.130, 257.131, 270.10, 270.13 (RCRA), 144.31 (UIC), 40 CFR 52.21 (PSD), and 122.21 (NPDES).

(3) Permit applications (except for PSD permits) must comply with the signature and certification requirements of §§ 122.22 (NPDES), 144.32 (UIC), 233.6 (404), 257.130 and 270.11 (RCRA).

* * * * *

■ 7. Amend § 124.5 by revising paragraphs (a), (c)(1), (3), (d)(1), and (3) to read as follows:

**§ 124.5 Modification, revocation and reissuance, or termination of permits.**

(a) *(Applicable to State programs, see §§ 123.25 (NPDES), 145.11 (UIC), 233.26 (404), and 271.14 (RCRA).)* Permits (other than PSD permits) may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon the Director's initiative. However, permits may only be modified, revoked and reissued, or terminated for the reasons specified in § 122.62 or § 122.64 (NPDES), 144.39 or 144.40 (UIC), 233.14 or 233.15 (404), and 257.150, 257.151, 257.153, 270.41 or 270.43 (RCRA). All requests shall be in writing and shall contain facts or reasons supporting the request.

* * * * *

(c) * * * (1) If the Director tentatively decides to modify or revoke and reissue a permit under 40 CFR 122.62 (NPDES), 144.39 (UIC), 233.14 (404), or 257.150, 257.151, 257.152, 270.41 (other than § 270.41(b)(3)), or § 270.42(c) (RCRA), he or she shall prepare a draft permit under § 124.6 incorporating the proposed changes. The Director may request additional information and, in the case of a modified permit, may require the submission of an updated application. In the case of revoked and reissued permits, other than under 40 CFR 270.41(b)(3), the Director shall require the submission of a new application. In the case of revoked and reissued permits under 40 CFR 270.41(b)(3), the Director and the permittee shall comply with the appropriate requirements in 40 CFR part 124, subpart G for RCRA standardized permits.

* * * * *

(3) ''Minor modifications'' as defined in §§ 122.63 (NPDES), 144.41 (UIC), 233.16 (404), 257.151 and ''Classes 1 and 2 modifications'' as defined in § 270.42 (a) and (b) (RCRA) are not subject to the requirements of this section.

(d) * * * (1) If the Director tentatively decides to terminate: A permit under § 144.40 (UIC) of this chapter, a permit under § 122.64(a) (NPDES) of this chapter, a permit under § 257.153 or 270.43 (RCRA) of this chapter (for EPA-issued NPDES permits, only at the request of the permittee), or a permit under § 122.64(b) (NPDES) of this chapter where the permittee objects, he or she shall issue a notice of intent to terminate. A notice of intent to terminate is a type of draft permit which follows the same procedures as any draft permit prepared under § 124.6 of this chapter.

* * * * *

(3) In the case of EPA-issued permits, a notice of intent to terminate or a complaint shall not be issued if the Regional Administrator and the permittee agree to termination in the course of transferring permit responsibility to an approved State under § 123.24(b)(1) (NPDES) of this chapter, 145.25(b)(1) (UIC) of this chapter, 257.129 or 271.8(b)(6) (RCRA) of this chapter, or 501.14(b)(1) (sludge) of this chapter. In addition, termination of an NPDES permit for cause pursuant to § 122.64 of this chapter may be accomplished by providing written notice to the permittee, unless the permittee objects.

* * * * *

■ 8. Amend § 124.6 by revising paragraphs (c), (d)(1), (2), (3), and (4)(i) to read as follows:

**§ 124.6 Draft permits.**

* * * * *

(c) *(Applicable to State programs, see §§ 123.25 (NPDES) and 233.26 (404).)* If the Director tentatively decides to issue an NPDES, 404, or RCRA CCR general permit, he or she shall prepare a draft general permit under paragraph (d) of this section.

(d) * * *

(1) All conditions under §§ 122.41 and 122.43 (NPDES), 144.51 and 144.42 (UIC), 233.7 and 233.8 (404), 257.140 and 257.141 (RCRA CCR), or 270.30 and 270.32 (RCRA) (except for PSD permits);

(2) All compliance schedules under §§ 122.47 (NPDES), 144.53 (UIC), 233.10 (404), 257.142 or 270.33 (RCRA) (except for PSD permits);

(3) All monitoring requirements under §§ 122.48 (NPDES), 144.54 (UIC), 233.11 (404), 257.140(k) or 270.31 (RCRA) (except for PSD permits); and

(4) * * *

(i) RCRA permits, standards for treatment, storage, and/or disposal and other permit conditions under § 257.140 or 270.30;

* * * * *

■ 9. Amend § 124.10 by revising paragraphs (c)(1)(i), (2)(i), (2)(ii), (d)(1)(ii), and (1)(iii) to read as follows:

**§ 124.10 Public notice of permit actions and public comment period.**

* * * * *

(c) * * *

(1) * * *

(i) The applicant (except for NPDES, 404, and RCRA CCR general permits when there is no applicant);

* * * * *

(2) * * *

(i) For major permits, NPDES and 404 general permits, and permits that include sewage sludge land application plans under 40 CFR 501.15(a)(2)(ix), publication of a notice in a daily or weekly newspaper within the area affected by the facility or activity; and for EPA-issued NPDES and RCRA CCR general permits, in the **Federal Register**;

**Note:** The Director is encouraged to provide as much notice as possible of the NPDES, Section 404, or RCRA CCR draft general permit to the facilities or activities to be covered by the general permit.

(ii) For all RCRA permits, other than RCRA CCR permits, publication of a notice in a daily or weekly major local newspaper of general circulation and broadcast over local radio stations. For RCRA CCR permits, publication of a notice on a publicly accessible internet website and by any other method the Director determines will effectively provide timely notice to interested persons.

* * * * *

(d) * * *

(1) * * *

(ii) Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit, except in the case of NPDES, 404, and RCRA CCR draft general permits under §§ 122.28, 233.37, and 257.127;

(iii) A brief description of the business conducted at the facility or activity described in the permit application or the draft permit, for NPDES, 404 or RCRA CCR general permits when there is no application.

* * * * *

■ 10. Amend § 124.12 by revising the introductory text of paragraph (a)(3) to read as follows:

**§ 124.12 Public hearings.**

(a) * * *

(3) For RCRA permits only, other than RCRA CCR permits:

* * * * *

■ 11. Amend § 124.15 by revising introductory text paragraph (a) and paragraph (b) to read as follows:

**§ 124.15 Issuance and effective date of permit.**

(a) After the close of the public comment period under § 124.10 on a draft permit, the Regional Administrator shall issue a final permit decision (or a decision to deny a RCRA CCR permit under § 257.133 or a permit for the active life of a RCRA hazardous waste management facility or unit under § 270.29). The Regional Administrator shall notify the applicant and each person who has submitted written comments or requested notice of the final permit decision. This notice shall include reference to the procedures for appealing a decision on a RCRA, UIC, PSD, or NPDES permit under § 124.19 of this part. For the purposes of this section, a final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit.

(b) A final permit decision (or decision to deny a RCRA CCR permit under § 257.133 or a permit for the active life of a RCRA hazardous waste management facility or unit under § 270.29) shall become effective 30 days after the service of notice of the decision unless:

* * * * *

■ 12. Amend § 124.19 by revising paragraphs (a)(1) and (3) to read as follows:

**§ 124.19 Appeal of RCRA, UIC, NPDES, and PSD Permits.**

(a) * * * (1) *Initiating an appeal.* Appeal from a RCRA, UIC, NPDES, or PSD final permit decision issued under § 124.15 of this part, or a decision to deny a RCRA CCR permit under § 257.133 or a permit for the active life of a RCRA hazardous waste management facility or unit under § 270.29 of this chapter, is commenced by filing a petition for review with the Clerk of the Environmental Appeals Board within the time prescribed in paragraph (a)(3) of this section.

* * * * *

(3) *Filing deadline.* A petition for review must be filed with the Clerk of the Environmental Appeals Board within 30 days after the Regional Administrator serves notice of the issuance of a RCRA, UIC, NPDES, or PSD final permit decision under § 124.15 or a decision to deny a RCRA CCR permit under § 257.133 or a permit for the active life of a RCRA hazardous waste management facility or unit under § 270.29 of this chapter. A petition is filed when it is received by the Clerk of the Environmental Appeals Board at the address specified for the appropriate method of delivery as provided in paragraph (i)(2) of this section.

* * * * *

## PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

■ 13. The authority citation for part 257 continues to read as follows:

**Authority:** 42 U.S.C. 6907(a)(3), 6912(a)(1), 6944(a), 6945(d); 33 U.S.C. 1345(d) and (e).

■ 14. Part 257 is amended by adding subpart E to read as follows:

### Subpart E—Federal Coal Combustion Residuals Permit Program

General Information

Sec



Permit Application



Permit Content



Changes to a Permit



## Subpart E—Federal Coal Combustion Residuals Permit Program

### General Information

**§ 257.120 Program overview.**

(a) *Coverage.* (1) These regulations establish provisions for the federal coal combustion residuals (CCR) permit program for the disposal and other solid waste management of CCR pursuant to section 4005(d) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (RCRA), (Pub. L. 94–580, as amended by Pub. L. 95–609, Pub. L. 96–482, and Pub. L. 114–322; 42 U.S.C. 6901 *et seq.*).

(2) The regulations in this subpart contain federal CCR permit program requirements, such as applications,

content, modifications, revocation and reissuance, permit termination. Procedural requirements are found in part 124, subpart A of this chapter.

(3) *Technical regulations.* There are separate regulations in subpart D of this part that contain technical and substantive requirements that will be the basis of the permit requirements.

(b) *Scope of the CCR permit requirement.* (1) RCRA section 4005(d) requires the Administrator to implement a permit program to require each CCR unit, located in a nonparticipating state and in Indian country, to achieve compliance with the applicable criteria in subpart D of this part. This subpart applies to owners and operators of any CCR unit located in a nonparticipating state and in Indian country, including new and existing landfills and surface impoundments and lateral expansions of such units, that dispose or otherwise engage in solid waste management of CCR, regulated under subpart D of this part.

(2) Owners and operators of CCR units must continue to comply with all applicable requirements of subpart D of this part until a RCRA CCR permit is in effect.

(3) Prior to issuance of a RCRA CCR permit, submittal of a complete and timely permit application serves as compliance with the requirement to obtain a permit, until final disposition of the permit application. A timely permit application includes an individual permit application submitted in accordance with the requirements in §§ 257.124, 257.130, and 257.131, or an application submitted in accordance with procedures established in a general permit issued in accordance with §§ 257.124 and 257.127, or submittal of a Notice of Intent to be covered by the Permit by Rule in accordance with §§ 257.124 and 257.128.

(4) Once a permit has been issued, any CCR unit located in a nonparticipating state or in Indian country must continue to have a permit during any stage of operation covered by § 257.123(a). Any such CCR unit without a permit will be considered an ''open dump,'' as defined in RCRA 4005(d) irrespective of the unit's compliance with the requirements of subpart D of this part and may no longer receive waste.

(5) The owner and operator of a CCR unit must satisfy the requirement to have a RCRA CCR permit through one of three mechanisms: obtaining coverage under an individual permit, under a general permit issued in accordance with § 257.127, or under the permit by rule in accordance with § 257.128.

(6) EPA may issue or deny a permit for one or more CCR units at a facility without simultaneously issuing or denying a permit for all the CCR units at the facility. The status of any CCR unit for which a permit has not been issued or denied is not affected by the issuance or denial of a permit to any other CCR unit at the facility.

(7) CCR permits issued by EPA will not have an expiration date. Permit terms will remain in effect until modified, or until the permit is revoked and reissued or terminated.

(8) A permit may be modified, revoked and reissued, or terminated for cause as set forth in §§ 257.150 through 257.153.

**§ 257.121 Definitions.**

The following definitions apply to this subpart. Terms not defined in this section have the meaning defined in part 124 of this chapter, subparts A and D of this part, or in RCRA.

*Applicable requirement* means a requirement of subpart D of this part to which a permittee is subject based on applicability criteria in subpart D of this part.

*Completion of all corrective action* means that all activities required by § 257.95(g) through (i), § 257.96, § 257.97, and § 257.98(a) and (b) have been completed in accordance with the requirements of §§ 257.98(c) through (f).

*General permit* means a permit containing terms and conditions to require compliance with requirements of subpart D of this part applicable to a specified category of CCR units, which are designated as eligible for coverage under the general permit. General permits are issued in accordance with § 257.127.

*Individual permit* means a permit containing terms and conditions to require compliance with requirements of subpart D of this part issued for one or more specifically identified CCR units owned and operated by the same entities and located at the same facility.

*Owner and operator* means the owner and operator of any CCR unit or property used for solid waste management of CCR, which is subject to regulation under RCRA.

*Permit by rule* means a provision of these regulations stating that a facility or activity is deemed to have a RCRA CCR permit if it meets the requirements of § 257.128.

*Responsible official* means one of the following:

(1) *For a corporation:* (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

(ii) The manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) *For a partnership or sole proprietorship:* A general partner or the proprietor, respectively; or

(3) *For a municipality, State, Federal, or other public agency:* Either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) The chief executive officer of the agency; or

(ii) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (*e.g.,* Regional Administrators of EPA).

**§ 257.122 Considerations under Federal law.**

The following is a list of Federal laws that may apply to the issuance of RCRA CCR permits. When any of these laws is applicable, its procedures must be followed. When the applicable law requires consideration or adoption of particular permit conditions or requires the denial of a permit, those requirements must also be followed.

(a) *The Wild and Scenic Rivers Act.* 16 U.S.C. 1273 *et seq.* Section 7 of the Act prohibits EPA from assisting by license or otherwise the construction of any water resources project that would have a direct, adverse effect on the values for which a national wild and scenic river was established.

(b) *The National Historic Preservation Act of 1966.* 54 U.S.C. 300101 *et seq.* Section 106 of the Act and implementing regulations (36 CFR part 800) require EPA, before issuing a license, to adopt measures when feasible to mitigate potential adverse effects of the licensed activity on properties listed or eligible for listing in the National Register of Historic Places. The Act's requirements are to be implemented in cooperation with State and Tribal Historic Preservation Officers and upon notice to, and when appropriate, in consultation with the Advisory Council on Historic Preservation.

(c) *The Endangered Species Act.* 16 U.S.C. 1531 *et seq.* Section 7 of the Act and implementing regulations (50 CFR part 402) require EPA to ensure, in

consultation with the Secretary of the Interior or Commerce, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.

(d) *The Coastal Zone Management Act.* 16 U.S.C. 1451 *et seq.* Section 307(c) of the Act and implementing regulations (15 CFR part 930) prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management Program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the State's nonconcurrence).

(e) *The Fish and Wildlife Coordination Act.* 16 U.S.C. 661 *et seq.* requires that EPA, before issuing a permit proposing or authorizing the impoundment (with certain exemptions), diversion, or other control or modification of any body of water, consult with the appropriate State agency exercising jurisdiction over wildlife resources to conserve those resources.

**§ 257.123 Applicability.**

(a) *Requirement to obtain a permit.* (1) Owners and operators of a CCR unit located in a nonparticipating state or in Indian country, and subject to requirements of subpart D of this part, must obtain and maintain a RCRA CCR permit under this subpart. An owner and operator must apply for a RCRA CCR permit for all CCR units and associated solid waste management operations subject to requirements in subpart D of this part. The requirement to obtain and maintain a RCRA CCR permit applies throughout the following stages of operation: Active life of the CCR unit, the post-closure care period, and until completion of all corrective action.

(2) This requirement does not apply to CCR units and associated solid waste management operations, if any, that are subject to permitting under a state permit program approved by EPA pursuant to section 4005(d) of RCRA. In a state with partial approval, the requirement in § 257.123(a)(1) applies only to those CCR units and associated solid waste management operations that are subject to requirements of subpart D of this part for which the state has not been approved (*i.e.,* is a nonparticipating state).

(3) The requirements to apply for and obtain a RCRA CCR permit may initially be satisfied by submitting one of the following:

(i) A complete and timely permit application in accordance with the requirements in §§ 257.124, 257.130 and 257.131 for an individual permit,

(ii) If the CCR unit meets the criteria for a general permit, a complete and timely application in accordance with § 257.127 and procedures established in the general permit, or

(iii) A Notification of Intent of eligibility for coverage under a permit by rule in accordance with § 257.128.

(4) Submittal of any of these documents constitutes compliance with these obligations only until the final administrative disposition of the permit application.

(b) *Denial of a permit application.* The denial of a permit application to dispose or otherwise manage waste in a CCR unit does not affect the requirement to obtain a federal CCR permit in paragraph (a) of this section to conduct other activities under subpart D of this part (*e.g.,* monitoring, retrofit, closure, post-closure care or corrective action).

(c) *Exclusions and exemptions.* (1) Entities exclusively engaged in the beneficial use of CCR that meets the requirements detailed in § 257.53 are not required to obtain a RCRA CCR permit for those activities.

(2) (i) A permit or permit modification is not required for a person engaged in CCR disposal or solid waste management to conduct an immediate response to any of the following situations:

(A) A sudden release of CCR; or

(B) An imminent and substantial threat of a release of CCR.

(ii) Any person who continues or initiates CCR disposal or solid waste management activities after the immediate response is over is subject to all applicable requirements of this part for those activities.

**§ 257.124 Deadlines for application submission.**

Owners and operators of CCR units located in a nonparticipating state or in Indian country that meet the applicability requirements to obtain a RCRA CCR permit under § 257.123(a) must submit a permit application as described in this section and §§ 257.130 and 257.131 to the Administrator by the following deadlines:

(a) *First tier deadline.* For a facility with CCR units meeting the criteria in (1) or (2) where such unit was subject to the requirements under subpart D of this part prior to [DATE OF PUBLICATION OF FINAL RULE IN THE **FEDERAL REGISTER**], the permit application must be submitted for all CCR units at the facility subject to this subpart no later than [DATE 18 MONTHS AFTER EFFECTIVE DATE OF THE FINAL RULE].

(1) Located in Indian country,

(2) An existing CCR surface impoundment, new CCR surface impoundment or inactive CCR surface impoundment that is classified as a high hazard potential unit under the assessment procedures in § 257.73(a)(2) or § 257.74(a)(2).

(b) *Future tier deadlines.* For a CCR unit that is not required to submit a permit application under paragraph (a) of this section, and where such unit was subject to the requirements under subpart D of this part prior to [DATE OF PUBLICATION OF FINAL RULE IN THE **FEDERAL REGISTER**], the permit application must be submitted for such CCR unit no later than a date set by the Administrator, whereby such date provides notice of at least 180 days to the owner and operator.

(c) *Deadlines for newly subject CCR units.* For any CCR unit that becomes subject to the requirements under subpart D of this part on or after [ DATE OF PUBLICATION OF FINAL RULE IN THE **FEDERAL REGISTER**], the permit application must be submitted for such CCR unit in accordance with the following deadlines:

(1) For any CCR unit that becomes subject to the requirements under subpart D of this part on or after [DATE OF PUBLICATION OF FINAL RULE IN THE **FEDERAL REGISTER**], but before [DATE 24 MONTHS AFTER EFFECTIVE DATE OF THE FINAL RULE], the permit application must be submitted for such CCR unit prior to [DATE 24 MONTHS AFTER EFFECTIVE DATE OF THE FINAL RULE].

(2) For any CCR unit that becomes subject to the requirements under subpart D of this part on or after [DATE 24 MONTHS AFTER EFFECTIVE DATE OF THE FINAL RULE], the permit application must be submitted for such CCR unit 180 days prior to placement of waste or other action that renders the unit subject to requirements of subpart D.

(d) *Deadlines for permit by rule or general permits.* For a CCR unit that would otherwise be subject to an application deadline specified in paragraphs (a) through (c) of this section, the owner and operator of the CCR unit are not required to submit a permit application by the deadlines specified in paragraphs (a) through (c) of this section, provided the owner and operator submit a Notice of Intent required by § 257.128(a)(11) or for a general permit issued in accordance with § 257.127 by such deadline.

**§ 257.125 Effect of a permit.**

(a) *Permit shield.* (1) Compliance with a CCR permit constitutes compliance, for purposes of enforcement, with the requirements of subpart D of this part.

(2) A permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in §§ 257.150 and 257.153, or the permit may be modified upon the request of the permittee as set forth in § 257.151.

(b) *No property rights.* The issuance of a CCR permit does not convey any property rights of any sort, or any exclusive privilege.

(c) *No additional authorization.* The issuance of a CCR permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local laws or regulations, or any infringement of federal laws or regulations not explicitly considered in this action.

**§ 257.126 Duration of a permit.**

Any federal CCR permit issued pursuant to this subpart shall be issued without an expiration date and remain in effect until the permit is revoked and reissued or terminated.

**§ 257.127 General permits.**

(a) *General permits.* The Administrator may issue general permits in accordance with all of the following:

(1) A general permit shall be written to cover one or more clearly identified categories of CCR units or solid waste management practices that are subject to the same requirements of subpart D of this part.

(2) Any general permit must clearly identify what types of CCR units are eligible for coverage under the general permit and clearly identify the applicable conditions for each category or subcategory of CCR units or solid waste management practices covered by the permit. A general permit may contain terms and conditions, such as limiting operations, which would ensure continued eligibility for coverage under the general permit, even if those terms and conditions are not requirements of subpart D of this part.

(3) The general permit may exclude specified types or categories of CCR units or solid waste management practices from coverage.

(b) *Administration.* (1) Any general permit will be issued, modified, or revoked in accordance with the requirements and procedures of this subpart and the following procedures in part 124 of this chapter: 40 CFR 124.6, 124.7, 124.8, 124.9, 124.10, 124.11, 124.12, 124.13, and 124.14.

(2) To obtain coverage under a general permit, an owner or operator of a CCR unit must submit request for coverage under the general permit to the Administrator. All such requests must include all information necessary to demonstrate qualification for coverage under the general permit and must be certified as required in § 257.130(e).

(3) If the Administrator makes no objection within 45 days of receiving a request for coverage under a general permit, the owner and operator shall be covered by the general permit, provided the unit remains eligible for coverage. Such an authorization will not be considered a final permit action for purposes of judicial review.

(4) The Administrator may, in a general permit, provide further procedures by which an owner and operator of a CCR unit may obtain coverage by the general permit, as well as requirements for information that must be included in a request for such coverage. These procedures may deviate from the requirements of §§ 257.130 and 257.131.

(5) Requiring an individual permit.

(i) EPA may require any owner or operator covered under a general permit to apply for and obtain an individual CCR permit. Any interested person may petition the Administrator to take action under this paragraph. Cases where an individual CCR permit may be required include the following:

(A) The owner and operator are not in compliance with the conditions of the general permit;

(B) Circumstances have changed since the time of the request for coverage so that the CCR unit is no longer appropriately controlled under the general permit; or

(C) Revised standards for the solid waste management of CCR have been promulgated for the solid waste management or practice covered by the general permit;

(D) The Administrator has received information after the general permit has been issued. The Administrator may require an application for an individual permit on this basis if:

(*1*) The information was not available to EPA at the time of the request for coverage and would have justified requiring an individual permit to ensure compliance with subpart D of this part, or

(*2*) The information otherwise shows that requiring an individual permit is necessary to ensure there is no reasonable probability of adverse effects on health or the environment from permitted operations:

(ii) EPA may require any permittee(s) to apply for an individual permit by providing a written notification that a permit application is required. This notice shall include a brief statement of the reasons for this decision, a deadline for the owner and operator to submit the application, and a statement that on the effective date of the individual CCR permit any coverage under the general permit for which the permittee has been eligible shall automatically terminate.

(iii) Such an action will not be considered a final permit action for purposes of judicial review.

**§ 257.128 Permit by rule.**

(a) *Requirements.* Notwithstanding any other provision of this part or of part 124, subpart A of this chapter, a new CCR landfill or lateral expansion of a CCR landfill shall be deemed to have a CCR permit if the following criteria are met:

(1) The owner and operator of the new CCR landfill or lateral expansion of a CCR landfill maintain compliance with the following provisions:

(i) Section 257.60, Placement above the uppermost aquifer

(ii) Section 257.61, Wetlands

(iii) Section 257.62, Fault areas

(iv) Section 257.63, Seismic impact zones

(v) Section 257.64, Unstable areas

(vi) Section 257.70(a), (b), and (d) through (g), Design criteria for new CCR landfills and any lateral expansion of a CCR landfill

(vii) Section 257.80, Air criteria

(viii) Section 257.81, Run-on and run-off controls for CCR landfills

(ix) Section 257.84, Inspection requirements for CCR landfills

(x) Section 257.90, Applicability

(xi) Section 257.91, Groundwater monitoring systems

(xii) Section 257.93, Groundwater sampling and analysis requirements

(xiii) Section 257.94, Detection monitoring program

(xiv) Section 257.95(a), (b), and (d) through (h), Assessment monitoring program

(xv) Section 257.105, Recordkeeping requirements

(xvi) Section 257.106, Notification requirements

(xvii) Section 257.107, Publicly accessible internet site requirements

(2) The owner and operator have not detected a statistically significant increase above a groundwater protection standard for any constituent in appendix IV to this part.

(3) The owner and operator have not detected a release from the new CCR landfill or lateral expansion of a CCR landfill.

(4) The owner had operator have not commenced closure of the new CCR

landfill or lateral expansion of a CCR landfill.

(5) The new CCR landfill or lateral expansion of a CCR landfill does not have a direct, adverse effect on the values for which a national wild and scenic river was established.

(6) The new CCR landfill or lateral expansion of a CCR landfill does not have potential adverse effects on properties listed or eligible for listing in the National Register of Historic Places.

(7) The new CCR landfill or lateral expansion of a CCR landfill is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.

(8) The new CCR landfill or lateral expansion of a CCR landfill does not affect land or water use in the coastal zone. The owner and operator must certify that the new CCR landfill or lateral expansion of a CCR landfill complies with the State Coastal Zone Management program and that the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the State's nonconcurrence). The certification must be included in the Notice of Intent submitted in accordance with paragraph (a)(11) of this section.

(9) If located in a floodplain, the new CCR landfill or lateral expansion of a CCR landfill does not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of CCR, so as to pose a hazard to human health, wildlife, or land or water resources.

(10) The new CCR landfill or lateral expansion of a CCR landfill has not:

(i) Caused a discharge of pollutants into waters of the United States in violation of the requirements of the National Pollutant Discharge Elimination System under section 402 of the Clean Water Act, as amended;

(ii) Caused a discharge of dredged material or fill materials to waters of the United States in violation of the requirements of the requirements under section 404 of the Clean Water Act, as amended; or

(iii) Cause non-point source pollution of waters of the United States in violation of applicable legal requirements implementing an areawide or Statewide water quality management plan that has been approved by the Administrator under section 208 of the Clean Water Act, as amended;

(11) The owner and operator of the new CCR landfill, or lateral expansion of a CCR landfill, submit a timely and complete Notice of Intent to the Administrator in accordance with §§ 257.124 and 257.130 and posts the Notice of Intent to the facility's publicly accessible CCR website.

(b) *Transition to another permit approach.* If a CCR unit operating under this permit by rule becomes ineligible for its coverage, or the owner and operator wish to obtain a general or individual federal CCR permit, an application must be submitted in accordance with §§ 257.130 and 257.131 or established in the general permit. The owner and operator will remain in compliance with the requirement to have a federal CCR permit if a complete application is submitted to the Administrator no later than 60 days after failing to meet one of the conditions listed in paragraphs (a)(1) through (a)(11) of this section, and no later than 180 days prior to initiating closure.

**§ 257.129 Transfer of permit program administration.**

(a) *Transfer from EPA to a state.* If a state CCR Permit Program is approved to operate in lieu of the federal CCR program, in part or in whole, after any compliance deadline in § 257.124, EPA will describe provisions for the prompt transfer to the state of pending permit applications and any other relevant information not already in the possession of the State Director (*e.g.,* applications, supporting documentation for issued permits, etc.) in the notice of program approval. Where permits have been issued by EPA, the program approval should contain procedures for transferring the administration of these permits to the state, or for terminating the federal permits once equivalent state permits are issued.

(b) *Transfer from a state to EPA.* If a state CCR permit program has operated in lieu of the federal CCR program after the compliance deadlines in § 257.124, and approval of that state program is withdrawn, in whole or in part, or if the state relinquishes its program approval, EPA will issue a notice regarding transfer of permit program administration from the state to EPA. The notice will contain deadlines for units located in the state to comply with the federal CCR permitting requirements. The notice will also describe procedures for the state to transfer to EPA permit applications and any other information relevant to permit program administration not already in the possession of EPA (*e.g.,* pending applications, supporting documentation for issued permits, etc.). Where CCR permits have been issued by the state, the notice of program withdrawal should contain procedures for transferring the administration of these permits to EPA, or for terminating them once RCRA CCR permits are issued.

**Permit Application**

**§ 257.130 Permit application requirements.**

(a) *Duty to apply.* The owner and operator meeting the applicability criteria in § 257.123(a) must submit to the Administrator a complete application for a CCR permit as described in this section and § 257.131, in accordance with the applicable deadlines in § 257.124. When a facility or activity is owned by one person but is operated by another person, the owner may comply with this requirement through one of the following approaches:

(1) A single application may be submitted, but both entities must certify the permit application as specified in subsection (e) (*e.g.,* the operator may compile and submit the permit application, which the owner must also sign).

(2) In an application submitted by both entities, the owner may provide the following statement:

> Through this submitted application and the signature on this application, I acknowledge that [*name of company/corporation/owner*] is the owner of the facility/units that will be included in the permit this application seeks and is responsible for compliance with the permit requirements, including the requirement to obtain and maintain a permit for this facility/unit(s). I hereby authorize the facility/unit operator, *[enter name of facility operator here],* to submit compliance or any other required reports and future permit applications for this facility, including applications for future permit modifications, on my behalf, without my signature. I understand that I am jointly and severally liable for any noncompliance with the terms of any permit issued in response to this application or as modified in the future, and any submitted documents required by the permit and I accept responsibility for any enforcement action resulting from the actions of the operator in submitting compliance or any other required reports or permit applications on my behalf in relation to this facility/unit.

Once an owner submits this statement in a permit application, all future permit applications, including modification applications, will not require signature by the owner and may be signed by the operator(s) of the unit(s) and operations to be included in the permit. This does not change the requirement in § 257.123(a) for both the owner and operator to obtain a permit. All RCRA CCR permits will designate both owners and operators as permittees, even where the owner does not sign the application in accordance with this paragraph.

(b) *Completeness.* An application for a permit is complete when the Administrator receives an application form containing the information required by this section and § 257.131, about all CCR units and related solid waste management operations at the facility, which is completed to his or her satisfaction. The Administrator may deny a permit for disposal in a CCR unit without receiving a complete application for a permit. A complete permit application does not require the following information:

(1) Information about a CCR unit eligible for the permit by rule in § 257.128, for which a Notice of Intent has been submitted to EPA and posted on its publicly accessible CCR website in accordance with § 257.107.

(2) Information about a CCR unit eligible for a general permit issued in accordance with § 257.127, for which the owner and operator have complied with the procedures for obtaining coverage contained in the general permit. If EPA subsequently determines coverage under the general permit is not appropriate, the owner and operator must submit a CCR permit application for that CCR unit or must amend an existing CCR permit application to include that CCR unit, no later than 60 days after EPA makes this determination.

(3) Information about a CCR unit that is regulated in accordance with a state CCR permit program which has been submitted to the Administrator for partial approval to operate in lieu of the requirements of subpart D of this part. If the Administrator subsequently denies partial approval of the program, or the state withdraws its program, the owner and operator must submit a CCR permit application for that CCR unit or amend an existing permit application to include that CCR unit no later than 60 days after the denial or withdrawal becomes effective.

(c) *Duty to supplement or correct application.* Any owner or operator who fails to submit any relevant facts or who has submitted incorrect information in a permit application must, upon becoming aware of such failure or incorrect submittal, submit to the Administrator such supplementary facts or corrected information along with any necessary updated certification.

(d) *Confidential business information.* In accordance with 40 CFR part 2, subpart B of this chapter, any information submitted to EPA pursuant to this subpart that is not required to be made publicly available under part 257 may be claimed as confidential by the applicant. Any such claim must be asserted at the time of submittal. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR part 2, *subpart B.* Claims of confidentiality for the name and address of any permit applicant or permittee will be denied.

(e) *Certification of application.* Applications for CCR permits, including applications for modifications to CCR permits, must contain the following certification by a responsible official:

> I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that, based on my inquiry of the person or persons directly responsible for gathering the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(1) Where the owner and operator are different entities, a responsible official from each entity must provide this certification, and the certification must include the following statement: ''I understand that I am jointly and severally liable for the accuracy and completeness of all information provided in this application.''

(2) This certification must also be provided where a permittee submits a statement that no changes to a CCR permit application are required after a periodic application review is conducted in accordance with § 257.132.

(f) *Application recordkeeping.* The applicant must keep records of all data used to support the permit application and any supplemental information submitted to the Administrator during the application review and permit issuance process for the life of the permit. This information shall be available at the request of the Administrator.

**§ 257.131 Application contents.**

The owner and operator must provide in the application all of the information necessary for the Administrator to determine the applicability of the technical criteria in subpart D of this part to each CCR unit at the facility, to establish the permit conditions necessary to achieve compliance with these technical criteria, and to ensure there is no reasonable probability of adverse effects on health or the environment from the solid waste management of CCR at such facility. Such information includes, at a minimum:

(a) *Information about the facility.* The owner and operator must provide sufficient information about the facility for the Administrator to establish permit conditions to ensure compliance with, including to assess the applicability of, applicable provisions in subpart D of this part. Such information includes but is not limited to physical location; description; operations; operating history; products; an indication of whether the application is requesting an initial, revised, or modified permit; and publicly accessible CCR website address.

(b) *Information about the applicant.* The owner and operator must provide sufficient information in the application for the Administrator to identify, contact, and communicate with them. Such information includes, but is not limited to contact information, other environmental permits held for the facility, and ownership status (*e.g.,* private, governmental) of each CCR unit and related solid waste management operations at the facility.

(c) *Information about the CCR unit(s).* The owner and operator must provide sufficient technical information about each CCR unit in the application necessary for the Administrator to establish permit conditions to require compliance with, including to assess the applicability of, applicable provisions in subpart D of this part. Such information includes, but is not limited to the location, design, construction, operation, maintenance, closure and retrofit of each CCR unit, as well as liners, controls, monitoring approaches, the groundwater monitoring system, corrective action or remedial measures, and other practices to comply with subpart D of this part and to prevent or clean up releases from the CCR unit.

(d) *Technical information about subsurface and surrounding features.* (1) The owner and operator must provide technical and other information about the geologic and hydrogeologic characteristics and features of the area surrounding the CCR unit, including subsurface characteristics. The owner and operator must provide this information sufficiently to support decisions by the Administrator to establish permit conditions to require compliance with, including to assess the applicability of, applicable provisions in subpart D of this part, and to evaluate the compliance approaches proposed in the permit application. The owner and operator must provide, at a minimum, information about the following in proximity to the CCR unit(s): Floodplains and wetlands, fault lines or unstable areas, groundwater and surface water, soil and subsoil characteristics,

groundwater well locations and uses, adjacent land uses, and other similar information. The owner and operator must provide this information for past, present, and planned CCR units, and must provide all information in a manner that can be clearly understood, with appropriate labels.

(e) *Technical information gathered that characterizes conditions surrounding each CCR unit.* The owner and operator must provide sufficient technical and other information about conditions at the CCR unit for the Administrator to establish permit conditions to require compliance with, including to assess the applicability of, applicable provisions in subpart D of this part. This includes but is not limited to groundwater, aquifers, soil, or other sampling data; date and procedures used to characterize background concentrations; well construction diagrams and drill logs; hydrogeologic cross-sections; information about the activities that yielded the sampling data, including quality assurance data; delineation of contaminant plumes; and other relevant information required to make technical assessments to characterize the presence or absence of leakage or releases from the CCR unit.

(f) *Plans, maps, drawings, diagrams and other documents.* The technical information submitted in the CCR permit application must include plans, maps, drawings, diagrams, and other visual information, in addition to narrative information. The applicant must provide the following materials, at a minimum:

(1) A site map, depicting the location of the CCR unit(s) and surrounding features representing site conditions, monitoring wells, and other pertinent information.

(2) A topographic map, depicting each CCR unit, surrounding geologic and hydrogeologic features, surface water features, access and haul roads, and other pertinent information. Information in these maps must be provided to allow the permit writer to understand site conditions and evaluate compliance strategies proposed by the owner and operator, to draft terms and conditions that will achieve compliance with the requirements of subpart D of this part.

(3) Potentiometric maps depicting groundwater flow direction, all CCR units at the facility, any delineated plumes of contamination from releases from CCR units, all groundwater monitoring wells or other monitoring points where water level data were gathered, potable wells on the facility property or nearby property, and other pertinent information. A sufficient number and quality of maps are required to represent seasonal or temporal changes in groundwater flow direction.

(4) Other documents, including: Hydrogeologic cross-sections depicting subsurface conditions, drill logs, CCR unit construction diagram(s), and groundwater monitoring well construction diagrams.

(5) All site-specific compliance plans and assessments required by subpart D of this part (*e.g.,* fugitive emissions control plan required by § 257.80, emergency action plan required by § 257.73, run-on and run-off control system plan required by § 257.81(c), inflow design flood control system plan required by § 257.82(c), assessment of corrective measures required by § 257.96, closure plan or retrofit plan required by § 257.102, and post-closure care plan required by § 257.104).

**§ 257.132 Periodic review of permit applications.**

(a) *Requirement for periodic review.* Once a RCRA CCR permit is issued, the permittee must conduct periodic reviews to determine whether the permit application remains accurate and continues to meet the requirements under § 257.131. The timeframes for conducting periodic permit application reviews are provided in paragraph (d) of this section.

(b) *Procedures if no changes are needed.* If the permittee determines that the permit application remains accurate and meets the requirements under § 257.131, the permittee must submit a certified statement that the application continues to be complete and accurate. The certified statement must be completed by a responsible official in accordance with § 257.130(e).

(c) *Procedures if changes are needed.* If the permittee determines that the permit application is no longer accurate or no longer meets the requirements under § 257.131, the permittee must:

(1) Prepare a revised permit application in accordance with the requirements of §§ 257.130 and 257.131, which accurately reflects current operations and any changes since the previous application was submitted;

(2) Determine whether the permit must be modified based on any changes to the permit application, and, if so, apply for a permit modification according to the procedures under § 257.152.

(d) *Review frequency.* (1) The permittee must complete the initial permit application review required by paragraphs (a) through (c) of this section no later than ten years after the date of initial permit issuance or after any reissuance or modification of such permit, whichever date is later.

(2) The permittee must complete periodic permit application reviews required by paragraphs (a) through (c) of this section no later than ten years after the date of completing the previous permit application review or after any reissuance or modification of the permit, whichever date is later.

**§ 257.133 Permit application denial.**

(a) *Denial for Cause.* The Administrator may, pursuant to the procedures in part 124 of this chapter, deny an individual CCR permit application in its entirety, or in part (*e.g.,* for a specific activity or for an individual CCR unit), upon a determination that any of the following causes exist:

(1) Any permittee has failed or refuses to correct deficiencies in the application identified in a notice of deficiency issued in accordance with § 124.3(c);

(2) Failure by any permittee in the application or during the permit issuance process to disclose fully all relevant facts;

(3) Misrepresentation by any permittee of any relevant facts at any time;

(4) A determination by the Administrator that the risks arising from disposal or other solid waste management of CCR can only be regulated to acceptable levels by permit denial.

(5) The Administrator has received notification under § 124.3 of this chapter of an applicant's intent to be covered by a general permit issued in accordance with § 257.127 or the permit by rule in § 257.128.

(6) EPA has transferred administration of the permit program to a state in accordance with § 257.129, and the state permit is in effect for each CCR unit at the facility.

(b) *Denial process.* The Administrator may deny a permit in accordance with paragraphs (a)(2) through (6) of this section even in the absence of a complete application.

**Permit Content**

**§ 257.140 Standard permit conditions.**

The following conditions shall be incorporated into all CCR permits either expressly or by reference. If incorporated by reference, a specific citation to these regulations must be provided in the permit.

(a) *Duty to comply.* The permittee must comply with all conditions of this CCR permit, except to the extent and for the duration any noncompliance is authorized by the Administrator. Any unauthorized permit noncompliance

constitutes a violation of RCRA and is subject to enforcement action, permit termination, revocation and reissuance, or denial of a permit application.

(b) *Duty to submit periodic review certification.* The permittee must review the application materials submitted for this permit no less frequently than every ten years after the issuance date of this permit.

(1) Any information in the original application that is no longer accurate at the time of review, as well as any recent or new information not include in the original application, must be submitted in a revised application in accordance with §§ 257.130 and 257.131. If the changes reflected in the revised application meet the criteria for a permit modification in §§ 257.150 through 257.151, the revised application must specify the type of modification requested and include information required for a modification in accordance with § 257.152.

(2) If all information in the original application is still accurate at the time of review and there is no new or additional information relevant to the application, the permittee shall submit a statement that no information in the application has changed, certified in accordance with the requirements in § 257.130(e).

(c) *Need to halt or reduce activity not a defense.* It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(d) *Requirement to mitigate impacts of noncompliance.* In the event of noncompliance with this permit, the permittee must take all reasonable steps to minimize releases to the environment and must carry out such measures as necessary to reduce reasonable probability of adverse impacts on health and the environment.

(e) *New statutory requirements or regulations.* If the standards or regulations on which this permit is based change through changes to statute, promulgation of new or amended regulations, or by judicial decision, and this results in failure of the permit terms and conditions to ensure compliance with the revised standard or regulation, the permittee must apply for a permit modification. The permittee shall submit an application to modify this permit to include the revised requirements within 180 days after the change becomes effective.

(f) *Proper operation and maintenance.* The permittee shall ensure the proper operation and maintenance of all units, ancillary equipment and systems of treatment and control, which are installed or used to achieve compliance with the conditions of this permit. Failure to properly operate and maintain such equipment does not excuse failure to comply with requirements in this permit. The term ''Proper operation and maintenance'' includes effective performance, adequate funding, adequate staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. Operation of back-up or auxiliary equipment or similar systems is required only when necessary to achieve compliance with the conditions of this permit.

(g) *Permit actions.* This permit may be modified, revoked and reissued, or terminated for cause. The application by the permittee for a permit modification, or termination, or anticipated noncompliance, does not stay any permit condition.

(h) *Property rights.* The permit does not convey any property rights of any sort, nor any exclusive privilege.

(i) *Duty to provide information.* The permittee must furnish to the Administrator, within a reasonable time, any relevant information which the Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee must also furnish to the Administrator, upon request, copies of records required to be kept by this permit.

(j) *Inspection and entry.* The permittee shall allow the Administrator or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(1) Enter at reasonable times upon the permitted premises where a regulated unit or activity is located or conducted, or where records that must be kept under the conditions of this permit are located;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any units, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

(k) *Monitoring and records.* (1) Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.

(2) The permittee must retain records of all monitoring information, including all calibration, maintenance, and quality assurance records; all original monitoring data; copies of all reports and certifications required by this permit; and records of all data for a period of at least ten years from the date of the sample, measurement, report, certification, or application. This period may be extended by request of the Administrator at any time. The permittee must maintain records and data used to support a permit application for the lifetime of the permit. The permittee shall maintain records of all groundwater monitoring, including records of groundwater well construction and groundwater elevation measurements, throughout the active life of the unit, the post-closure care period and until completion of all corrective action.

(l) *Signatory requirements.* All applications, reports, or information required to be submitted to the Administrator by this permit must be signed and certified by the owner and operator of a CCR unit in accordance with the procedures of § 257.130(e).

(m) *Reporting requirements.* (1) *Anticipated noncompliance.* The permittee shall provide written or electronic notice to the Administrator as soon as possible, but no later than 60 days in advance of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(2) The permittee shall report by phone or electronically any noncompliance or release which has a reasonable probability of adverse effects on health or the environment as soon as possible, and no later than 24 hours after the time the permittee first becomes aware of the circumstances. The notification shall include the following:

(i) Information concerning release of any CCR that may endanger public drinking water supplies.

(ii) Any information about a release of CCR that could have a reasonable probability of adverse effects on health or the environment outside the facility.

(iii) The description of the release and its cause shall include:

(A) Name, business address, business email address, and business telephone number of the owner and operator;

(B) Name, address, email address, and telephone number of the facility;

(C) Date, time, and type of release;

(D) Name and quantity of material(s) involved;

(E) The extent of injuries, if any;

(F) An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable;

(G) Estimated quantity and disposition of recovered material that resulted from the release; and

(H) Action taken to mitigate the risk, including any preparation in advance of a severe weather event

(iv) A narrative shall also be posted on the public CCR website no later than five days after the time the permittee becomes aware of the circumstances. The narrative shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Administrator may waive the five-day notice requirement in favor of posting a written report within fifteen days.

(3) Where the permittee becomes aware that they failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Administrator, the permittee must promptly submit such facts or corrected information to the Administrator.

(n) *Severability.* Invalidation of a portion of this permit does not necessarily render the whole permit invalid. EPA's intent is that this permit is to remain in effect to the extent possible. In the event that any part of this permit is invalidated, the Administrator will advise the permittee as to the effect of such invalidation.

**§ 257.141 Establishment of permit conditions.**

(a) *Case-by-case.* In addition to the standard conditions in § 257.140, the Administrator shall establish permit terms and conditions in a CCR permit, on a case-by-case basis, in accordance with the requirements and procedures of this subpart. At a minimum, each CCR permit must include all permit terms and conditions necessary to ensure compliance with subpart D of this part.

(b) *Incorporation by reference.* Each CCR permit must incorporate, either expressly or by reference, all requirements of subpart D of this part that are applicable to the permitted CCR units and associated solid waste management activities. In satisfying this provision, the Administrator may incorporate applicable requirements of subpart D of this part directly into terms and conditions in the permit or incorporate them by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements shall be provided in the permit.

(c) *Protectiveness.* Each CCR permit shall contain such terms and conditions as the Administrator determines are necessary to ensure there is no reasonable probability of adverse effects on health or the environment from the solid waste management of CCR at such facility.

**§ 257.142 Schedules of compliance.**

When an applicant will not be in compliance with one or more applicable requirement in subpart D of this part at the time of permit issuance, the Administrator may include in the CCR permit a schedule of compliance. The schedule of compliance shall include an enforceable sequence of actions leading to compliance with subpart D of this part. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the permittee is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the requirements in subpart D of this part on which it is based.

(a) *Time for compliance.* Any schedule of compliance established in a CCR permit must require compliance as soon as feasible.

(b) *Interim dates.* If a permit establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

(1) The time between interim dates shall not exceed one year.

(2) The permit must require posting on the public CCR website of reports of progress toward completion of the interim requirements and indicate a projected completion date. The time between progress reports shall not exceed six months.

(c) *Reporting.* The permit must require that, no later than 30 days following each interim milestone deadline and the final deadline of the compliance schedule, the permittee must post a notification on the facility's publicly accessible CCR website of its compliance or noncompliance with the interim or final requirements.

**Changes to a Permit**

**§ 257.150 Modification or revocation and reissuance of an individual permit at EPA's initiative.**

When the Administrator receives any information (*e.g.,* inspects the facility, receives information submitted or posted by the permittee, receives a request under § 124.5 of this chapter, or conducts a review of the permit file) and determines one or more causes listed in paragraph (a) of this section exist, the Administrator may modify or may revoke and reissue the permit accordingly, subject to the limitations of paragraph (b) of this section, and may request an updated application, if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision. Revocation and reissuance are generally appropriate when the changes are too extensive to be addressed through a permit modification.

(a) *Causes for modification or revocation and reissuance.* The following are causes for modification or for revocation and reissuance of a permit by the Administrator:

(1) There are material and substantial alterations, additions, or changes in operation of the permitted facility which occurred after permit issuance and require permit conditions that are different or absent from those in the existing permit or if the permit application becomes inaccurate for the CCR unit and/or associated operations.

(2) The Administrator has received information after the permit has been issued. The Administrator may modify or revoke RCRA CCR permits on this basis if:

(i) The information was not available to EPA at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the inclusion of different permit conditions at the time of issuance to ensure compliance with subpart D of this part, or

(ii) the information otherwise shows that modification is necessary to ensure there is no reasonable probability of adverse effects on health or the environment from permitted operations.

(3) Cause exists for termination under § 257.153, but the Administrator determines that modification or revocation and reissuance is appropriate.

(4) The Administrator has received notification (as required, see § 257.151(a)(3)) of a transfer of ownership or control of the CCR unit or facility to a new owner or operator.

(5) An error or omission is discovered, regardless of whether it was susceptible to correction prior to the permit's issuance, and the Administrator determines modification is appropriate to conform a permit's requirements to the applicable regulatory or statutory requirements.

(b) *Facility siting.* Suitability of the existing facility location will not be considered at the time of permit modification or revocation and reissuance unless new information, standards, or regulations indicate that a there is a reasonable probability of adverse effects to health or the environment exists which was unknown to the Administrator at the time of permit issuance.

(c) *Permitting action list.* The Administrator will post all permitting actions, including: Draft and final permits, modifications, revocations, terminations, and reissued permits, on a publicly available website.

**§ 257.151 Permit modifications at the request of the permittee.**

This section lays out the procedures for a permittee to request a modification to an individual CCR permit. A permittee must apply for a modification to a permit at any time during the life of the permit when there is a change to either a CCR unit or related solid waste management operations, or to subpart D of this part, which would impact either the procedures used to comply with the permit conditions, or the applicability of requirements of subpart D of this part. There are two types of such modifications: minor and major. Minor modifications require prior notification to EPA but do not require public comment. Major modifications require prior EPA approval and an opportunity for public participation. When a permit is modified, only the conditions subject to modification are reopened.

(a) *Minor modifications.* Minor modifications are those that involve only minor or administrative changes that keep the permit current with respect to common changes to the facility or its operations. Minor modifications are changes that do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. These include changes necessary to comply with new regulations, where these changes can be implemented without substantially changing design specifications or management practices in the permit or where the revised regulation does not require the application of significant technical judgement or discretion. The following are examples of minor modifications:

(1) Administrative and informational changes, including changes to the name or contact information of permittees or other persons or agencies identified as points of contact in the permit or compliance plans.

(2) Correction of typographical errors.

(3) Transfer of ownership or operational control of a facility. The new owner and operator must submit a revised permit application 30 days prior to the transfer of ownership or operational control or as soon as practicable. If prior notice is impracticable, the revised permit application must be submitted no later than 30 days after the transfer of ownership or operational control.

(4) Changes to a permit condition to incorporate a change to a maximum contaminant level (MCL) under §§ 141.62 and 141.66, which serve as the underlying basis for the permit condition.

(5) Changes that increase the frequency, duration, or stringency of the requirements or procedures for inspection, monitoring, recordkeeping, reporting, web posting, sampling, analytical methods, or maintenance activities by the permittee.

(7) Changes to monitoring, sampling or analysis methods or procedures to conform with EPA guidance or regulations.

(8) Replacement of an existing groundwater monitoring well that has been damaged or rendered inoperable, as close as possible to the original location, and of similar design and depth.

(9) In the closure plan, increases to estimates of the maximum extent of operations or the maximum inventory of waste.

(b) *Procedures applicable to minor modifications.* (1) Except as provided in § 257.151(a)(3), the permittee must submit an application for a minor modification in accordance with § 257.152 no later than 45 days before making the proposed change, unless otherwise specified. If multiple modifications are requested, only those that meet the definition of a minor modification are eligible to use these procedures.

(2) When revisions to subpart D of this part are promulgated that change requirements applicable to a permitted CCR unit to become less stringent than the existing permit conditions, the owner and operator may either continue to operate in accordance with the permit or may apply for a permit modification in accordance with § 257.152.

(3) The permittee may apply for either a major modification or a minor modification to the Administrator. Any application for a minor modification must provide the necessary information to support the requested classification for each modification requested in the application.

(4) In determining the appropriate modification type, the Administrator shall consider the criteria in paragraph (a) of this section and in § 257.151(c) and the similarity of the modification to examples of modifications listed in those paragraphs.

(5) The Administrator may take the following actions in response to an application for a minor modification to a CCR permit:

(i) Determine that a proposed minor modification is a major modification that must follow the procedures for approval in § 257.151(d);

(ii) Deny for cause the proposed minor modification;

(iii) Determine that additional information is needed to evaluate the modification; or

(iv) Approve the minor modification.

(6) The Administrator will inform the permittee of any of these determinations and provide the reasons for the decision. If a minor modification has been denied, the permittee must comply with the original permit conditions.

(7) If the Administrator has not notified the permittee within the 45-day period of any of the determinations listed in paragraph (5) of this section, the permittee may proceed with the minor modification in accordance with the application.

(c) *Major modifications.* Major modifications are all changes to a permit that are not considered a minor modification listed at § 257.151(a). These include changes that materially alter the CCR unit or its operations, changes that impact the applicability of subpart D requirements, changes that could impact the protection of human health and the environment, and changes necessary to comply with new regulations, where these changes can only be implemented by substantially changing design, operational requirements, or compliance approaches in the permit, or where the revised regulation requires the application of significant technical judgement or discretion. The following are examples of major modifications:

(1) Changes that reduce the frequency or stringency of requirements for inspection, groundwater monitoring, sampling, analysis, recordkeeping, reporting, web posting, or maintenance activities by the permittee.

(2) Changes to remove or relax a permit condition that is based on an underlying requirement that is no longer applicable, but where this change in applicability is not due to a regulatory change that was subject to public notice and a public comment period, a statutory change, or an order from a court.

(3) Reduction in the number, or substantial changes in location, depth,

or design of groundwater monitoring wells required by the permit.

(4) Addition of a new CCR unit including a new landfill unit, a lateral expansion, or a new surface impoundment unit not already authorized by a RCRA CCR permit and not covered by a permit by rule in accordance with § 257.128.

(5) Modification of a CCR unit, including physical changes or changes in management practices which are not minor modifications under § 257.151(a).

(6) Addition of a corrective action program or changes to the corrective action requirements in the permit.

(7) Changes to a plan approved in a permit, including reduction in the post-closure care period for any reason. This does not include administrative changes, a change that is a direct incorporation of a change to subpart D, or changes to a closure plan specified in § 257.151(a)(9),

(8) Extension of the final compliance date in a schedule of compliance established in accordance with § 257.142.

(9) A change to a permit condition that is based on a change in an underlying regulatory or statutory requirement, which requires substantial changes to the design, operation, or compliance strategies established in the permit or which requires the application of significant technical judgement or discretion.

(d) *Procedures applicable to major modifications.* (1) The permittee must submit a revised permit application for a major modification in accordance with § 257.152. In addition to the information required by § 257.152, the application must include the applicable information required by §§ 257.130 and 257.131.

(2) When revisions to subpart D of this part are promulgated and requirements applicable to a permitted CCR unit become more stringent than the permit conditions, the owner and operator must apply for a permit modification to incorporate the new requirements, in accordance with §§ 257.151 and 257.152 and no later than 180 days after the effective date of the revisions to subpart D of this part.

(3) The permittee must place a copy of the permit modification application and supporting documents on the permitted facility's publicly available CCR website or other publicly available electronic document storage medium.

(4) The Administrator may take the following actions in response to an application for a major modification to a CCR permit:

(i) Determine that additional information is needed to evaluate the application;

(ii) Approve the proposed modification(s); or

(iii) Partially approve or deny the requested modification for any of the following reasons:

(A) The modification application is incomplete;

(B) The requested modification would result in a permit that would not require compliance with the requirements of subpart D of this part or other applicable requirements; or

(C) The requested modification would result in a permit that would fail to ensure there will be no reasonable probability of adverse effects on health or the environment.

(5) The Administrator shall grant or deny the major modification request according to the permit modification procedures of § 124.5 of this chapter.

**§ 257.152 Application to modify an individual permit**

(a) *Application requirements for all modifications.* The permittee must provide all information and supporting documents necessary for the Administrator to evaluate the proposed modification(s) to the permit. Any application for a modification to a CCR permit must include the following:

(1) A description of the exact modification(s) requested to the facility or operations and/or supporting documents referenced by the permit application;

(2) A description of the exact modification(s) requested to the permit conditions;

(3) Identification of the requested modification(s) as minor, in accordance with § 257.151(a), or major, in accordance with § 257.151(c), along with a justification for the classification; and

(4) An explanation of why the modification is necessary to ensure that the permit accurately reflects facility conditions or operations.

(5) A statement that the facility continues to comply with the currently applicable requirements in subpart D of this part.

(6) Corrections or updates to any information in the application that has changed since the most recent submittal of the application.

(b) *Application for a minor modification.* (1) If multiple modifications are requested, only those that meet the definition of a minor modification are eligible to use these procedures. Along with the application, the permittee must provide the applicable information required by §§ 257.130, 257.131 and 257.151, as well as any corrections or updates to any information that has changed since the most recent submittal of the application.

(2) The permittee must submit an application for a minor modification to the Administrator no later than 45 calendar days before the permittee wishes to implement the requested change(s). For transfer of ownership or operation, the permittee must submit an application for a minor modification as soon as practicable and no later than 30 days after the transfer occurs.

(3) For a minor permit modification, the permittee may instead elect to follow the procedures in paragraph (c) of this section for major modifications.

(c) *Application for a major modification.* The permittee must submit an application for a major modification to the Administrator no later than 180 calendar days before the permittee wishes to implement the requested modification(s). Along with the notice, the permittee must provide the applicable information required by §§ 257.130, 257.131 and 257.151.

**§ 257.153 Termination of an individual CCR permit.**

(a) *Causes.* The Administrator may terminate an individual CCR permit for any of the following causes:

(1) Significant noncompliance by any permittee with the permit;

(2) Failure by any permittee in the application or during the permit issuance process to fully disclose all relevant facts,

(3) Misrepresentation by any permittee of any relevant facts at any time;

(4) A determination by the Administrator that the permit fails to ensure there is no reasonable probability of adverse effects to health or the environment and the permitted activity can only be regulated to acceptable levels by permit termination.

(5) The Administrator has received notification of a permittee's intent to be covered by a general permit issued in accordance with § 257.127 or the permit by rule in § 257.128.

(6) The Administrator has determined that all permitted activities have ceased and the permittee has completed closure, the required post-closure care and any required corrective action.

(b) *Procedure.* The procedures for RCRA CCR permit termination in § 124.5 of this chapter and § 22.44(b) of this chapter will be followed when terminating an individual CCR permit.

[FR Doc. 2019–28440 Filed 2–19–20; 8:45 am]

BILLING CODE 6560–50–P

# Dynegy's First Hearing
# Exhibit 2

# Pre-publication Copy Notice:

The EPA Administrator signed the following *Federal Register* document on July 29, 2020:

Title: **Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure**

Action: **Final Rule**

Docket No.: **EPA-HQ-OLEM-2019-0172 and EPA-HQ-OLEM-2018-0524**

EPA is aware of the incorrect statement in the Summary on the first page of the pre-publication version of this final rule and is working to rectify it.

This is a **pre-publication version** of the document that EPA is submitting for publication in the *Federal Register*. While the Agency has taken steps to ensure the accuracy of this pre-publication version of the document, **it is not the official version** of the document for purposes of public comment or judicial review. Please refer to the official version of the document that will appear in a forthcoming *Federal Register* publication.

Once the official version of the document publishes in the *Federal Register*, the pre-publication version of the document posted on the agency's internet will be replaced with a link to the document that appears in the *Federal Register* publication. At that time, you will also be able to access the online docket for this *Federal Register* document at *http://www.regulations.gov*.

For further information about the docket and, if applicable, instructions for commenting, please consult the ADDRESSES section in the front of the *Federal Register* document.

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**6560-50-P**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 257**

**[EPA–HQ–OLEM–2019–0172 and EPA-HQ-OLEM-2018-0524; FRL–10013-20-OLEM]**

**RIN 2050-AH10**

# Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure

**AGENCY**: Environmental Protection Agency (EPA).

**ACTION**: Final rule.

**SUMMARY:** On April 17, 2015, the Environmental Protection Agency (EPA or the Agency) promulgated national minimum criteria for existing and new coal combustion residuals (CCR) landfills and existing and new CCR surface impoundments. On August 21, 2018, the U.S. Court of Appeals for the D.C. Circuit issued its opinion in the case of *Utility Solid Waste Activities Group v. EPA*, 901 F.3d 414 (per curiam) (*USWAG*). This rule finalizes regulations, proposed on December 2, 2019, to implement the court's vacatur of the 2015 provisions. These new regulations allow unlined impoundments to continue receiving coal ash unless they leak, and classify "clay-lined" impoundments as lined, thereby allowing such units to operate indefinitely. In addition, EPA is establishing a revised date by which unlined surface impoundments must cease receiving waste and initiate closure, following its reconsideration of those dates in light of the *USWAG* decision. Lastly, EPA is finalizing amendments proposed on August 14, 2019, to the requirements for the annual groundwater monitoring and corrective action report and the requirements for the publicly accessible CCR Internet sites.

**DATES:** This final rule is effective on **[INSERT DATE 30 DAYS AFTER THE DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** EPA has established two dockets for this action under Docket ID No. EPA–HQ–OLEM–2019–0172 and EPA-HQ-OLEM-2018-0524. All documents in the docket are listed on the *http://www.regulations.gov* web site. Although listed in the index, some information is not publicly available, e.g., confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available electronically through *http://www.regulations.gov*.

**FOR FURTHER INFORMATION CONTACT:** For information concerning this final rule, contact Kirsten Hillyer, Materials Recovery and Waste Management Division, Office of Resource Conservation and Recovery, Environmental Protection Agency, 1200 Pennsylvania Avenue NW, MC: 5304P, Washington, DC 20460; telephone number: (703) 347-0369; email address: Hillyer.Kirsten@epa.gov. For more information on this rulemaking, please visit https://www.epa.gov/coalash.

**SUPPLEMENTARY INFORMATION:**

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X. Statutory and Executive Order (EO) Reviews

## I. Executive Summary

### A. *Purpose of the Regulatory Action*

This rule takes final action on the proposed rule published on December 2, 2019 (84 FR 65941), as well as two issues included in the proposal issued on August 14, 2019 (84 FR 40353). This unit of the preamble summarizes public participation activities associated with both proposed rules. EPA is publishing this final rule to revise portions of the federal CCR regulations in title 40 of the Code of Federal Regulations (CFR) Part 257 so that they accurately reflect the regulations as they now stand in light of the D.C. Circuit's 2018 decision in *USWAG*, which vacated portions of EPA's 2015 final rule promulgating national minimum criteria for existing and new CCR landfills and existing and new CCR surface impoundments. Specifically, the D.C. Circuit vacated (1) the provisions of the 2015 rule that permitted unlined impoundments to continue receiving coal ash unless they leak (see 40 CFR 257.101(a)); and (2) the provisions of the 2015 rule that classified "clay-lined" impoundments as lined (see 40 CFR 257.71(a)(1)(i)).

In addition, this final rule addresses the October 31, 2020 deadline in §§ 257.101(a) and (b)(1)(i), by which CCR surface impoundments must cease receipt of waste; in a separate case, these regulatory provisions were remanded back to EPA by the D.C. Circuit for further reconsideration in light of *USWAG*. *See Waterkeeper Alliance Inc. v. EPA*, No. 18-1289 (D.C. Cir. 2019).

Lastly, EPA is finalizing amendments to the regulations in order to address certain issues concerning publicly accessible Internet sites, and groundwater monitoring and corrective action annual

reports that have arisen since the April 17, 2015 publication of the CCR rule. These amendments were proposed in a separate August 14, 2019 proposal. 84 FR 40353.

B. *Summary of the Major Provisions of the Regulatory Action*

In this action, EPA is finalizing five amendments to the part 257 regulations. First, EPA is finalizing a change to the classification of compacted-soil lined or "clay-lined" surface impoundments from "lined" to "unlined" under § 257.71(a)(1)(i). This merely reflects the vacatur ordered in the *USWAG* decision.

Second, EPA is finalizing revisions to the initiation of closure deadlines for unlined CCR surface impoundments, and for units that failed the aquifer location restriction, found in §§ 257.101(a) and (b)(1). These revisions address the *USWAG* decisions with respect to all unlined and "clay-lined" impoundments, as well as revisions to the provisions that were remanded to the Agency for further reconsideration by the court in the *Waterkeeper* case. Specifically, EPA is finalizing a new deadline of April 11, 2021, for CCR units to cease receipt of waste and initiate closure because the unit either (1) is an unlined or formerly "clay-lined" CCR surface impoundment (§ 257.101(a)) or (2) failed the aquifer location standard (§ 257.101(b)(1)).

Third, EPA is finalizing revisions to the alternative closure provisions, § 257.103. These revisions will grant facilities additional time to develop alternative capacity to manage their wastestreams (both CCR and/or non-CCR), to achieve cease receipt of waste and initiate closure of their CCR surface impoundments. Table 1 below summarizes the deadlines finalized in this action.

Lastly, EPA is finalizing two of the proposed amendments from the August 2019 rule: the addition of an executive summary to the annual groundwater monitoring and corrective action reports; and the amended requirements to the publicly accessible CCR Internet sites.

Table 1: New Cease Receipt of Waste and Completion of Closure Deadlines

| Regulatory Citations for CCR Surface Impoundments | Deadline Date |
|---|---|
| New cease receipt of waste deadline for unlined and formerly "clay-lined" surface impoundments (§ 257.101(a)(1)) | No later than April 11, 2021 |
| New cease receipt of waste deadline for surface impoundments that failed the minimum depth to aquifer location standard (§ 257.101(b)(1)(i)) | No later than April 11, 2021 |
| New site-specific alternative to initiation of closure due to lack of capacity (§257.103(f)(1)) | No later than October 15, 2023 (maximum of 5 years after *USWAG* decision mandate date) |
| | For eligible unlined CCR surface impoundment: No later than October 15, 2024 |
| New site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain (§257.103(f)(2)) | Completion of Closure:<br>• No later than October 17, 2023 for surface impoundments 40 acres or smaller<br>• No later than October 17, 2028 for surface impoundments larger than 40 acres |

C. *Costs and Benefits*

Several developments have changed the estimated costs of the CCR program since the publication of the final rule in 2015. First, reporting data show that the affected universe of surface impoundments is composed of more unlined units and more leaking surface impoundments than were modeled in the 2015 Regulatory Impact Analysis (RIA). The affected universe of impoundments is therefore incurring higher closure costs sooner, which increases the overall cost of the program. Second, the D.C. Circuit vacated provisions of the rule that allowed certain classes of surface impoundments to continue operating until they leaked. This decision forces these units to close sooner than they were modeled to close in the 2015 RIA. This also increases the overall cost of the CCR program. This cost

increase is estimated and shown in the RIA. This increase in costs is attributable solely to the existing provisions of the 2015 CCR rule. Overall, the provisions of this final rule decrease costs by extending certain existing compliance deadlines. The final rule is therefore considered a cost savings rule. This action is expected to result in an estimated annualized net cost savings of $26.1 million per year when discounting at 7 percent. It is also expected to have a modest impact on a subset of the benefits monetized in the RIA accompanying the 2015 CCR Rule. Further information on the economic effects of this action can be found in unit IX of this preamble and the RIA[1].

## II. General Information

### A. *Does this Action Apply to Me?*

This final rule applies to all CCR generated by electric utilities and independent power producers that fall within the North American Industry Classification System (NAICS) code 221112 and may affect the following entities: electric utility facilities and independent power producers that fall under the NAICS code 221112. This discussion is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This discussion lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not described here could also be regulated. To determine whether your entity is regulated by this action, you should carefully examine the applicability criteria found in § 257.50 of title 40 of the Code of Federal Regulations. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the FOR FURTHER INFORMATION CONTACT section.

[1] US EPA. "Regulatory Impact Analysis, Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure". July 2020.

B. *What Action Is the Agency Taking?*

EPA is revising certain provisions of the CCR regulations at 40 CFR part 257 in response to the decisions issued by the D.C. Circuit on August 21, 2018, in *Utility Solid Waste Activities Group v. EPA* 901 F.3d 414 (D.C. Cir.), and on March 13, 2019, in *Waterkeeper Alliance Inc. v. EPA*, No. 18-1289 (D.C. Cir.). In addition, the Agency is also finalizing two of the proposed amendments from the August 14, 2019 rulemaking that are not related to the *USWAG* and *Waterkeeper* decisions.

This final rule addresses the *USWAG* decision's vacatur of the provisions in the 2015 rule that permitted unlined impoundments to continue receiving waste unless they leak, 40 CFR 257.101(a), and that classified "clay-lined" impoundments as lined, thereby allowing such units to operate, 40 CFR 257.71(a)(1)(i). The *USWAG* decision also vacated the exemption from the 2015 rule for inactive surface impoundments at inactive power plants, also known as legacy units, which will be addressed in a subsequent advanced notice of proposed rulemaking.

This final rule also addresses the date by which unlined CCR surface impoundments and CCR units that failed the aquifer location standard must cease receiving waste and initiate closure, which the D.C. Circuit remanded to EPA on March 13, 2019 in the *Waterkeeper* case.

EPA is finalizing amendments to the alternative closure provisions, 40 CFR 257.103. EPA is amending the existing provisions (40 CFR 257.103(a) and (b)) to only apply to CCR landfills. EPA is establishing new alternative closure provisions, 40 CFR 257.103(f)(1) and (f)(2), for which a facility must submit a demonstration to EPA for approval to continue operating a CCR surface impoundment. These new alternative closure provisions do not amend the implementation schedules of groundwater monitoring and corrective action, as they remain unchanged. The new alternative closure provisions will grant facilities additional time to cease receipt of waste and initiate closure.

EPA is finalizing amendments to the regulations from the August 2019 proposal, addressing certain issues raised by stakeholders. EPA is amending the annual groundwater monitoring and corrective action report to include an executive summary. Additionally, EPA is finalizing amendments to the publicly accessible CCR Internet sites requirements to ensure that they are truly accessible by the public.

EPA intends that the provisions of this rule be severable. In the event that any individual provision or part of this rule is invalidated, EPA intends that this would not render the entire rule invalid, and that any individual provisions that can continue to operate will be left in place.

C. *What Is the Agency's Authority for Taking this Action?*

These regulations are established under the authority of sections 1008(a), 2002(a), 4004, and 4005(a) and (d) of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), the Hazardous and Solid Waste Amendments of 1984 (HSWA), and the Water Infrastructure Improvements for the Nation (WIIN) Act of 2016, 42 U.S.C. 6907(a), 6912(a), 6944, and 6945(a) and (d).

D. *What Are the Incremental Costs and Benefits of this Action?*

This action is expected to result in an estimated annualized net cost savings of $26.1 million per year when discounting at 7 percent or an estimated annualized net cost savings of $16.7 million per year when discounting at 3 percent. It is also expected to have a modest impact on a subset of the benefits monetized in the RIA accompanying the 2015 CCR Rule. Further information on the economic effects of this action can be found in unit IX of this preamble.

## III. Background

### A. *The "2015 CCR Rule"*

On April 17, 2015, EPA finalized national minimum criteria for the disposal of CCR as a solid waste under Subtitle D of RCRA. 80 FR 21302. The Agency refers to the April 17, 2015 rule as the "2015 CCR Rule" in this preamble. CCR are generated from the combustion of coal by electric utilities and independent power producers for the generation of electricity. CCR include fly ash, bottom ash, boiler slag, and flue gas desulfurization materials and are commonly referred to as coal ash. The CCR regulations are codified in subpart D of part 257 of title 40 of the CFR.

The 2015 CCR Rule regulated existing and new CCR landfills and existing and new CCR surface impoundments, as well as all lateral expansions of these CCR units. The federal national minimum criteria consist of location restrictions (siting limitations), design and operating criteria, groundwater monitoring and corrective action requirements, and closure and post-closure care requirements. In addition, the 2015 CCR Rule put in place recordkeeping, notification, and internet posting provisions that require owners and operators of CCR units to maintain a publicly accessible Internet site of rule compliance information. The 2015 CCR Rule does not regulate CCR that are beneficially used. It established a definition of "beneficial use of CCR" to distinguish between beneficial use and disposal.

Of particular relevance to this action, the 2015 CCR Rule required that any existing unlined CCR surface impoundment that causes groundwater concentrations to exceed a groundwater protection standard must stop receiving waste (CCR and/or non-CCR wastestreams) within six months of making such exceedance determination. This would also trigger the requirement to initiate either unit retrofit or

closure activities.[2] See § 257.101(a)(1) at 80 FR 21490 (April 17, 2015). In the 2015 CCR Rule, the term "unlined" CCR surface impoundment included any unit not constructed with one of the following types of liners: (1) a composite liner; (2) an alternative composite liner; or (3) a liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than $1 \times 10^{-7}$ centimeters per second. Lined CCR surface impoundments (as defined in the CCR regulations) that impact groundwater above the specified groundwater protection standard are not required to close and could continue to operate while corrective action is performed, and the source of the leak is addressed.

The 2015 CCR Rule was challenged by several parties, including a coalition of regulated entities and a coalition of environmental organizations ("Environmental Petitioners"). See *USWAG v EPA*, 901 F.3d 414 (D.C. Cir. 2018). The Environmental Petitioners raised two challenges[3] that are relevant to this final rule. First, they challenged the provision that allowed existing, unlined CCR surface impoundments to continue to operate until they cause groundwater contamination. See § 257.101(a)(1) at 80 FR 21490 (April 17, 2015). They contended that EPA failed to show how continued operation of unlined impoundments met RCRA's baseline requirement that any solid waste disposal site pose "no reasonable probability of adverse effects on health or the environment." See 42 U.S.C. 6944(a). The Environmental Petitioners also challenged the provisions that allowed impoundments lined with two feet of clay (i.e., compacted soil) to continue operating even when they leak, requiring only that they remediate the resulting contamination. The petitioners pointed to record evidence that "clay-lined" units are likely to

[2] Certain units may be eligible for the alternative closure procedures specified in § 257.103, which would change the date by which the unit must stop receiving waste.

[3] Environmental Petitioners also challenged the provisions exempting inactive surface impoundments at inactive power plants from regulation. The Court ruled for the Petitioners on these claims, vacating these provisions and remanding to EPA. However, in contrast to the other provisions addressed in this rule, additional rulemaking is necessary to effectuate the Court's order, as the Court's vacatur alone did not subject these units to regulation. This aspect of the decision will be addressed in a subsequent proposal.

leak and contended that EPA's approach "authorizes an endless cycle of spills and clean-ups" in violation of RCRA.

B. *The 2018 USWAG Decision*

The D.C. Circuit issued the *USWAG* decision on August 21, 2018. The Court upheld most of the 2015 CCR Rule but ruled for the Environmental Petitioners on the two claims discussed in unit III.A of this preamble. The Court held that EPA acted "arbitrarily and capriciously and contrary to RCRA" in failing to require the closure of unlined surface impoundments and in classifying so-called "clay-lined" impoundments as lined, based on the record supporting the rule. 901 F.3d at 431-432. The Court ordered that "the Final Rule be vacated and remanded with respect to the provisions that permit unlined impoundments to continue receiving coal ash unless they leak, § 257.101(a), [and] classify 'clay-lined' impoundments as lined, see 40 CFR 257.71(a)(1)(i)." *Id*. The Court issued the mandate for this decision on October 15, 2018. Therefore, part of this final rulemaking action updates the regulations to reflect the provisions that the Court vacated.

C. *The July 30, 2018 Final Rule and the 2019 Waterkeeper Decision*

EPA issued a final rule on July 30, 2018, amending several parts of the CCR federal regulations (83 FR 36435). First, the rule extended the deadlines for two categories of CCR surface impoundments to cease receipt of waste and to initiate closure when closing for cause: (1) unlined CCR surface impoundments with an exceedance of a groundwater protection standard for any constituent listed on Appendix IV to part 257[4]; and (2) CCR surface impoundments that failed to meet the location criteria in

[4] A groundwater protection standard (GWPS) is established using the methods specified in § 257.95(h). For constituents with a maximum contaminant level (MCL), the GWPS is the MCL for that constituent. For the constituents that do not have an established MCL, the GWPS is the health-based level EPA established in the July 30, 2018 rule. If the background level is higher than the MCL or the health-based level, then background should be used as the GWPS.

§ 257.60(a) (requiring either a minimum of five feet between the unit base and the uppermost aquifer or a demonstration that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the unit and the uppermost aquifer). These deadlines were extended until October 31, 2020, and were codified in § 257.101(a)(1) and (b)(1)(i).

Second, the rule established alternative risk-based groundwater protection standards for the four constituents without a maximum contaminant level (MCL) that are listed on Appendix IV to part 257. The four constituents are cobalt, lead, lithium, and molybdenum, and the alternative standards were codified in § 257.95(h)(2).

Third, the rule established procedures allowing for the suspension of groundwater monitoring requirements, provided that it can be demonstrated that there is no potential for migration of any CCR constituent listed in Appendices III and IV of part 257 from the CCR unit to the uppermost aquifer during the active life of the unit and the post-closure care period. See § 257.90(g).

Finally, the rule amended the federal CCR regulations to allow a Participating State Director (or EPA where EPA is the permitting authority) to issue certifications in lieu of requiring a certification from a Professional Engineer. The 2015 CCR Rule required technical demonstrations, when made by the owner or operator, to be certified by a qualified Professional Engineer in order to provide verification of the facility's technical judgments and to otherwise ensure that the provisions of the rule were properly applied. In 2015, states were unable to apply to EPA for approval to operate a permit program to implement the CCR rule. The situation changed with the passage of the Water Infrastructure Improvements for the Nation (WIIN) Act in 2016, which offers the opportunity for state oversight under an approved permit program. The 2018 amendments to the certification requirements reflect the new authority provided by the WIIN Act.

The July 2018 final rule was challenged by Waterkeeper Alliance, who also requested an expedited review of the October 31, 2020, deadline. See *Waterkeeper Alliance Inc, et al v EPA,* No. 18-1289 (D.C. Cir. 2018) (*Waterkeeper* decision). On March 13, 2019, the Court granted EPA's request to remand the July 2018 rule, "to allow the agency to reconsider that rule in light of th[e] court's decision in [*USWAG*]." The December 2, 2019 proposed rule reflected EPA's reconsideration of one of the remanded issues contained in the July 2018 rule: reconsideration of the current deadline of October 31, 2020, for unlined surface impoundments to cease receiving waste. 84 FR 65944. The Agency also stated in the December 2, 2019, proposal that EPA would address its reconsideration of other aspects (e.g., the adopted alternative risk-based groundwater protection standards for cobalt, lead, lithium, and molybdenum) of the July 2018 rule in subsequent rulemaking actions. *Id*.

D. *Public Participation With Respect to the August 2019 and December 2019 Proposed Rules*

This rule takes final action on the proposed rule published on December 2, 2019 (84 FR 65941), as well as two issues included in the proposal issued on August 14, 2019 (84 FR 40353). This unit of the preamble summarizes public participation activities associated with both proposed rules.

EPA conducted two public hearings to provide the public with the opportunity to present views or information concerning the August 14, 2019 proposal. The first was an in-person public hearing in Arlington, Virginia on October 2, 2019. A total of 41 people provided oral testimony at the hearing; a transcript of the hearing proceedings is available in the proposed rule docket.[5] The second was held on October 10, 2019 as a virtual public hearing using an Internet-based software platform. The platform allowed hearing participants to provide oral testimony using a microphone and speakers connected to

[5] See docket items EPA-HQ-OLEM-2018-0524-0046 through -0050.

their computers or using a phone. It provided the ability for any person to listen to the public hearing via their computer. A total of 52 people provided oral testimony during the virtual hearing and another 147 people participated by listening. The transcript for the virtual public hearing is available in the proposed rule docket.[6]

The Agency received approximately 130,000 comments, of which nearly 300 comments were unique, from members of the public on the August 2019 proposed rule. Commenters included individual electric utilities and independent power producers, national trade associations, state agencies, public interest and environmental groups, and entities involved with the beneficial use of CCR. All public comment letters submitted in response to the proposal can be found in the proposed rule docket, Docket ID EPA-HQ-OLEM-2018-0524. For those elements included in the August 14, 2019 proposed rule that EPA is finalizing in this action (see unit V of this preamble), EPA's responses to public comments are either addressed in this preamble or the response to comment document available in the docket to this final rule.

EPA also conducted one public hearing to provide the public with the opportunity to present views or information concerning the December 2, 2019 proposed rule. On January 7, 2020, the Agency conducted a virtual public hearing using an Internet-based software platform that allowed hearing participants to provide oral testimony using a microphone and speakers connected to their computers or using a phone. This platform also provided an opportunity for any person to listen to the public hearing via their computer. A total of 37 people provided oral testimony during the virtual hearing and over 40 other people participated by listening. The transcript for the virtual public hearing is available in the

[6] See docket items EPA-HQ-OLEM-2018-0524-0333 through -0335.

proposed rule docket.[7]

The Agency received over 67,200, of which nearly 150 comments were unique, comments from members of the public on the December 2019 proposed rule. Commenters included individual electric utilities and independent power producers, national trade associations, state agencies, and public interest and environmental groups. All public comment letters submitted in response to the proposal can be found in the proposed rule docket, Docket ID EPA-HQ-OLEM-2019-0172. EPA's responses to comments on the proposed rule are either addressed in this preamble or the response to comment document available in the docket to this final rule.

## IV. Statutory Authority

RCRA section 1008(a) authorizes EPA to publish "suggested guidelines for solid waste management." 42 U.S.C. 6907(a). RCRA defines solid waste management as "the systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of solid waste." 42 U.S.C. 6903(28).

Pursuant to section 1008(a)(3), the guidelines are to include the minimum criteria to be used by the states to define the solid waste management practices that constitute the open dumping of solid waste or hazardous waste and are prohibited as "open dumping" under section 4005. Only those requirements promulgated under the authority of section 1008(a)(3) are enforceable under section 7002 of RCRA.

RCRA section 4004(a) generally requires EPA to promulgate regulations containing criteria for determining which facilities shall be classified as sanitary landfills (and therefore not "open dumps"). The statute directs that, "at a minimum, the criteria are to ensure that units are classified as sanitary

[7] See docket items EPA-HQ-OLEM-2019-0172-0041 and 0042.

landfills only if there is no reasonable probability of adverse effects on health or the environment from disposal of solid wastes at such facility." 42 U.S.C. 6944(a).

RCRA section 4005(a), entitled "Closing or upgrading of existing open dumps," generally establishes the key implementation and enforcement provisions applicable to EPA regulations issued under sections 1008(a) and 4004(a). Specifically, this section prohibits any solid waste management practices or disposal of solid waste that does not comply with EPA regulations issued under RCRA section 1008(a) and 4004(a). 42 U.S.C. 6944(a). See also 42 U.S.C. 6903(14) (definition of "open dump"). This prohibition takes effect "upon promulgation" of any rules issued under section 1008(a)(3) and is enforceable through a citizen suit brought pursuant to section 7002. As a general matter, this means that facilities must be in compliance with any EPA rules issued under this section no later than the effective date of such rules, or be subject to a citizen suit for "open dumping." See 42 U.S.C. 6945. RCRA section 4005 also directs that open dumps, i.e., facilities out of compliance with EPA's criteria, must be "closed or upgraded." *Id*.

RCRA section 7004 lays out specific requirements relating to public participation in regulatory actions under RCRA. Subsection (b) provides that "[p]ublic participation in the . . . implementation, and enforcement of any regulation under this chapter shall be provided for, encouraged, and assisted by the Administrator." 42 U.S.C. 6974(b).

*Comments on EPA Authority*. Several commenters stated that RCRA section 4004(a) allows EPA to take into account non-risk considerations, citing EPA statements in the preamble to the 1991 final rule for municipal solid waste landfills (MSWLF).[8] Specifically, these commenters cited to EPA statements

[8] 56 FR 50978 (October 9, 1991).

that the term "reasonable" "has been read in other contexts to imply a balancing of competing factors," and that the "use of the word 'probability' in 'no reasonable probability' implies the discretion to impose requirements that are less certain to eliminate a perceived health or environmental threat than standards that are 'necessary to protect human health and the environment,' thus allowing for the consideration of other factors such as cost." (quoting 56 FR 50978, 50983 (October 9, 1991)). A number of other commenters, however, stated that EPA lacked the authority to consider costs in establishing any regulation under RCRA section 4004(a), citing EPA's prior statements in the 2015 CCR Rule and to the recent D.C. Circuit opinion in *USWAG v EPA*.

EPA disagrees that RCRA section 4004(a) allows EPA to take into account non-risk considerations. The commenters have misunderstood the discussion in the MSWLF preambles. The cited statements reflect EPA's interpretation of the combined authority under both RCRA sections 4010(c) and 4004(a), rather than an interpretation of section 4004(a) standing alone. 56 FR 50983-50984. As EPA has previously explained, the Agency cannot rely on section 4010(c) to issue regulations applicable to CCR facilities. See 80 FR 21333-21334 (April 17, 2015).

By contrast, EPA has consistently interpreted the mandate in section 4004(a), standing alone, not to authorize consideration of costs or any other factor unrelated to the protection of human health and the environment. EPA did not consider costs in establishing the original part 257 regulations, noting in the 1979 preamble that "[t]he Act does not call for a balancing of the costs of disposal against the "value" of ground-water resources." 44 FR 53447 (September 13, 1979). Similarly, EPA explained in the 2015 CCR Rule "that Congress did not authorize the consideration of costs in establishing minimum national standards under RCRA section 4004(a)." 80 FR 21406. See also, 80 FR 21363, 21432; 83 FR 11597 (March 15, 2018). As several commenters noted, the D.C. Circuit upheld this interpretation,

concluding that "[u]nder any reasonable reading of RCRA there is no textual commitment of authority to the EPA to consider costs in the open dump standards." 901 F.3d at 448-449 (D.C. Cir. 2018). Accordingly, EPA has not considered cost in developing any provision of this final rule.[9]

Another commenter stated that EPA lacks the statutory authority to impose a mandatory closure requirement for non-CCR wastestreams, arguing that imposing deadlines under the CCR Rule for wastestreams that are subject to different deadlines under the ELG rule runs afoul of RCRA section 1006(a) – the anti-duplication provision. The commenter argued that the proposal to ban or greatly restrict the receipt of the wastewater at unlined surface impoundments is a duplicative and inconsistent—and thus prohibited—additional regulatory layer on top of the existing NPDES requirements applicable to those same impoundments. According to the commenter, under the proposed ELG regulations, up to 10 percent of bottom ash transport water piping and equipment volume can be discharged per day until December 31, 2023. Companies subject to the ELG requirements will need to permit, design, and construct a recycling system for the bottom ash sluice waters, a new CCR or non-CCR wastewater pond, or convert to dry handling – essentially the same solutions that must be pursued for compliance under the CCR rules. Yet the deadlines for doing so do not align.

The commenter provided a specific example to demonstrate his concern: one of the Ohio Valley Electric Corporation (OVEC) plants is currently sluicing fly ash to a surface impoundment that is subject to the CCR rule. Because that impoundment meets the CCR siting criteria and has monitored no statistically significant increases above background concentrations for any of the CCR parameters, that plant has anticipated continuing to operate the impoundment through no later than December 31, 2023,

[9] Although EPA did not consider costs in developing this rule, if the Agency had considered costs, the final rule would not have been different. Based on the estimates developed for the RIA, this rule is expected to largely result in cost savings.

consistent with the ELG regulations. The proposed CCR rule, with its August 31, 2020, deadline to discontinue sluicing of fly ash to surface impoundments, effectively eliminates up to three years that OVEC had anticipated using to engineer, design, procure, construct and begin operation of the new infrastructure needed to comply with the ELG rule. The CCR rule and the ELG rule must be aligned so that the timeline for discontinuing placement of CCR into a fly ash surface impoundment is consistent with the timeline that that source has for completing dry fly ash conversion under the final ELG rules applicable to this wastestream.

RCRA section 1006(a) does not bar EPA from imposing requirements under one of the listed statutes and RCRA on the same units and waste streams, unless those requirements are inconsistent with a requirement in one of the statutes. 42 USC § 6906(a). This is clear from the second sentence, which provides that "such integration shall be effected only to the extent that it can be done in a manner consistent with the goals and policies expressed in this chapter and in the other acts referred to in this subsection." *Id*. Numerous courts have upheld this interpretation. See, *Ecological Rights Foundation v. Pacific Gas & Electric Co*., 874 F.3d 1083, 1095 (9th Cir., 2017) ("RCRA's anti-duplication provision does not bar RCRA's application unless that application contradicts a specific mandate imposed under the CWA (or another statute listed in RCRA section 1006(a))"); *Goldfarb v. Mayor and City Council of Baltimore,* 791 F.3d 500 510 (4th Cir. 2015) (The CWA must require something fundamentally at odds with what RCRA would otherwise require to be "inconsistent" under 1006(a)); *Edison Electric Institute v. EPA*, 996 F.2d 326, 337 (D.C. Cir.1993) (rejecting "generalized claim" that EPA action was barred under section 1006(a) because it interfered with "the primary purpose" of the Atomic Energy Act); *U.S. v. E.I. du Pont de Nemours & Co*., Inc., 341 F.Supp.2d 215, 236 (W.D. N.Y. 2004) (approving EPA action as "not inconsistent" under RCRA where CERCLA's heightened standard would not be met by

release of hazardous substance). The commenter has identified no requirement in the Clean Water Act that is inconsistent with EPA's proposal.

Instead, the commenter argues that the deadlines under the two rules are inconsistent and wholly duplicative. EPA disagrees with both claims. First, the deadlines for the two rules are in fact consistent. To support its claim, the commenter focused exclusively on the proposed date of August 2020, by which facilities must cease receipt of waste into the unit. But EPA also proposed to establish a process by which a facility that needs to continue receiving waste into the unit can do so, by demonstrating that it was not feasible to meet the deadline. See § 257.103(f). Under that proposal, a facility can continue to operate a unit until 2023 if it can demonstrate that that amount of time is necessary to complete its construction of alternative capacity.

Neither are the ELG and CCR proposals duplicative. The CCR requirements are designed to protect groundwater, while the ELG requirements are designed to protect surface waters.

Finally, one commenter stated their belief that EPA was required to have consulted with U.S. Fish and Wildlife Service (FWS) under the Endangered Species Act as part of developing this final rule.

EPA disagrees with the suggestion that consultation was required as part of developing this rule. Under the existing regulations, all CCR units must comply with 40 CFR 257.3–2. 40 CFR 257.52(b). That regulation, which was developed after consultation with FWS, requires facilities not to cause or contribute to the taking of any endangered or threatened species of plant or wildlife, and not to result in the destruction or adverse modification of critical habitat. This obligation is not modified or affected in any way by this final rule. The commenter has presented no facts that convince EPA that re-initiation is warranted by this rule.

## V. What Final Action Is EPA Taking on the December 2, 2019 Proposal?

### A. *Revisions to § 257.71 to Implement the 2018 USWAG Decision*

As discussed in unit III.B of this preamble, the D.C. Circuit found in *USWAG* that the rulemaking record did not support the conclusion that the 2015 CCR Rule would adequately address the adverse effects posed by clay-lined (or compacted soil-lined) CCR surface impoundments. Therefore, the Court vacated the provision that treated "clay-lined" surface impoundments differently than unlined impoundments, with the result that such impoundments are now required to be either retrofitted or closed.[10] The affected provision was codified in § 257.71(a)(1)(i), which stated that a unit with a liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than 1 x $10^{-7}$ centimeters per second was considered to be lined. In the December 2, 2019 proposed rule, EPA proposed to remove § 257.71(a)(1)(i) from the CFR. 84 FR 65944. The Agency also proposed two conforming revisions to § 257.71(a)(3) that were necessary to properly implement the removal of § 257.71(a)(1)(i). *Id*.

In this action, EPA is finalizing these proposed changes to § 257.71(a)(1) and (a)(3). Specifically, the Agency is removing § 257.71(a)(1)(i) from the CFR to reflect its vacatur as a result of the 2018 *USWAG* decision. In addition, EPA is revising § 257.71(a)(3) by removing two cross-references to § 257.71(a)(1)(i) that are no longer appropriate given that paragraph (a)(1)(i) has been removed. See revised § 257.71(a)(3)(i) and (ii).

[10] On March 3, 2020, the Agency proposed to allow a limited number of facilities to continue using alternate liners (i.e., liner systems that would otherwise be considered to be unlined systems under the CCR regulations) at existing CCR surface impoundments if the facility can demonstrate to EPA or a Participating State Director that the unit would not adversely affect groundwater, human health, or the environment. 85 FR 12456.

B. *Revisions to § 257.101 as a Result of EPA's Reconsideration*

When the 2015 CCR Rule was finalized, § 257.101 required certain existing CCR surface impoundments to close.[11] This included: (1) unlined CCR surface impoundments whose groundwater monitoring shows an exceedance of a groundwater protection standard (§ 257.101(a)(1)); (2) CCR surface impoundments that do not comply with one or more of the location (siting) criteria (§ 257.101(b)(1)); and (3) CCR surface impoundments that are not designed and operated to achieve minimum factors of safety, which are a component of the structural integrity criteria (§ 257.101(b)(2)). In each of these situations, the 2015 CCR Rule specified that the owner or operator of the CCR unit must cease placing CCR and non-CCR wastestreams into the unit and initiate closure activities (or retrofit the unit under certain circumstances) within a certain period of time after making the relevant determination.

The D.C. Circuit found in the *USWAG* decision that EPA acted "arbitrarily and capriciously and contrary to RCRA" in failing to require the closure of all unlined CCR surface impoundments and ordered that "the Final Rule be vacated and remanded with respect to the provisions that permit unlined impoundments to continue receiving coal ash unless they leak." See 901 F.3d at 449. This court-vacated provision is codified in § 257.101(a). The *USWAG* decision did not affect the codified deadlines to cease receipt of waste and initiate closure. These deadlines remained for existing CCR surface impoundments that do not comply with one or more of the location criteria under § 257.101(b)(1), as well as for those impoundments that are not designed and operated to achieve minimum factors of safety under §

[11] Section 257.101 also requires certain existing CCR landfills and new CCR surface impoundments to close. However, those provisions are not discussed in this preamble section because those CCR units were not affected by the 2018 *USWAG* decision.

257.101(b)(2).

The Agency explained in the December 2, 2019 proposed rule that EPA interprets the *USWAG* decision as only partially vacating § 257.101(a). Specifically, the Agency explained that only the following phrase in § 257.101(a)(1) was vacated by the Court: "if at any time after October 19, 2015, an owner or operator of an existing unlined CCR surface impoundment determines in any sampling event that the concentrations of one or more constituents listed in Appendix IV of this part are detected at statistically significant levels above the groundwater protection standard established under § 257.95(h) for such CCR unit". 84 FR 65944-45. The proposal discussed that a vacatur of the entire provision under § 257.101(a) would remove the requirement for unlined CCR surface impoundments to close, which would be inconsistent with the holding that it was arbitrary and capricious for EPA not to have required unlined CCR surface impoundments to close. In response to the December 2, 2019 proposed rule, EPA received no comments opposing the Agency's interpretation of the effect of the *USWAG* decision on § 257.101(a). Therefore, and as EPA discussed in the proposed rule, the vacatur of this phrase from § 257.101(a)(1) results in a requirement that owners and operators must cease placement of both CCR and non-CCR wastestreams into unlined CCR surface impoundments and initiate the closure of such units no later than October 31, 2020. This requirement also applied to both impoundments that were formally considered to be "clay-lined," and unlined impoundments that are inactive.

The October 31, 2020 deadline was established in a final rule published on July 30, 2018 (83 FR 36435). The December 2, 2019 proposal discussed that the July 30, 2018 final rule had not yet been challenged when the court issued its *USWAG* decision on August 21, 2018. As discussed in the proposed rule, the Waterkeeper Alliance subsequently challenged the July 30, 2018 final rule and requested expedited review of the October 31, 2020 deadline. In response, EPA requested a remand of the July 30,

2018 final rule, which the court granted on March 13, 2019 "to allow the agency to reconsider that rule in light of this court's decision in [USWAG]."

1. EPA's Reconsideration of the October 31, 2020 Deadline

The December 2, 2019 proposed rule reflects EPA's reconsideration of the deadline of October 31, 2020 for unlined CCR surface impoundments to cease receiving CCR and non-CCR wastestreams and initiate closure or retrofit activities.[12] As explained in the proposed rule, the *USWAG* decision faulted EPA for failing to fully estimate the risks associated with the continued operation (and potential leakage) of unlined impoundments and for failing to address the risks from allowing these units to continue to operate until they leak. The court held that RCRA requires the Agency to determine that such risks would be acceptable under the §4004(a) standard in order to authorize the continued operation of such units. In the absence of such an assessment, the court vacated the provision that allowed for the continued operation of unlined impoundments. 901 F.3d at 430. For the reasons discussed in the proposed rule, the Agency was unable to develop a nationwide risk assessment of continued operation of these unlined CCR surface impoundments. 84 FR 65945.

EPA further explained in the December 2, 2019 proposal that many utilities could not immediately cease the placement of CCR and non-CCR wastestreams into their surface impoundments without causing potentially significant disruptions to plant operations, and thus the provision of electricity to their customers. This is because there is no additional capacity to manage these wastes elsewhere. To support this conclusion, EPA pointed to the information laid out in several industry filings to the *Waterkeeper* court. The *Waterkeeper* court also recognized this, declining to vacate the July 2018

[12] As stated in the proposed rule, EPA will address its reconsideration of other aspects of the July 30, 2018, final rule in subsequent rulemaking actions. 84 FR 65944.

Rule partly because "EPA and the intervenors have shown that the consequences of vacatur would be disruptive." No. 18-1289, Order at 1.

To address these competing considerations in a manner consistent with the statute and the D.C. Circuit's decisions, EPA proposed to require that facilities cease placement of all wastes (both CCR and non-CCR) into impoundments as soon as technically feasible. 84 FR 65945. The proposal explained that such a requirement would meet the RCRA § 4004(a) standard because it requires the facility to do what is possible in the shortest achievable time. Similar to the concept behind a force majeure provision, EPA cannot impose protective measures under this provision that are not technically feasible for any facility to implement. See *USWAG* at 448; *Hughey v. JMS Development Corp*, 78 F.3d 1523 (11th Cir. 1996); *Cherry-Burrell Corp v. United States*, 367 F.2d 669 (8th Cir. 1966). The proposal further concluded that requiring facilities to expedite the initiation of closure of unlined CCR surface impoundments is consistent with the court's finding that further evidence is needed to permit such units to continue to operate. See *USWAG*, 901 F.3d at 429–430. The proposal explained that EPA lacked the evidence to support the continued operation of such units on a national level and it did not anticipate being able to develop such information in the near-term.

2. Approaches to Identify Alternative Capacity

EPA proposed to determine technical feasibility based on the steps that owners and operators need to take to obtain alternative disposal capacity. Six approaches, and the timeframes needed to implement them, were evaluated. 84 FR 65945-51. The evaluation relied principally on information contained in the declarations submitted with the *Waterkeeper* briefs, as well as CCR rule compliance information posted on facilities' publicly accessible CCR Internet sites (e.g., written retrofit plans required by § 257.102(k)(2)). The proposed rule discussed each technology approach and the Agency's

analysis of the average time needed to implement it. This included the entire process to obtain alternative capacity, from the start of the project to its completion, including the general project phases of planning and design, procurement, permitting, and construction, commissioning. Using the average timeframe for each of the six approaches was intended to capture some of the variability due to site-specific circumstances and to provide for an accurate national benchmark. The six technology approaches presented in the proposed rule and the estimated average time necessary to develop each technology approach are shown in Table 2.

TABLE 2—SUMMARY OF PROPOSED TECHNOLOGY APPROACHES

| Alternative Capacity Technology | Average Time (months) |
|---|---|
| Conversion to dry handling…… | 36 |
| Non-CCR wastewater basin…….. | 21 |
| Wastewater treatment facility…… | 16 to 21 |
| New CCR surface impoundment…….. | 27 |
| Retrofit of a CCR surface impoundment…….. | 31.5 (large unit retrofits)<br>4 to 12 (small unit retrofits) |
| Multiple technology system…….. | 21 to 36 |

a) Specific Comments on Individual Alternative Capacity Technologies and Average Time Estimates

This preamble unit summarizes the data and information considered for each of the six technology approaches in the proposed rule; the comments received in response to the use of these data and information; and the Agency's response to comments on these approaches. Several commenters

submitted actual project timeframes for completed or ongoing efforts to obtain alternative capacity. The Agency evaluated each submission according to the procedures described in this unit of the preamble. In most cases, this project information was used in the final rule alternative capacity analysis.

In general, EPA considered submissions that described completed projects or portions of completed projects to be the most persuasive and reliable. These submissions reflect projects that were in fact completed within the reported timeframe and therefore provided some guarantee that other facilities can replicate those timeframes. As these projects were initiated before the *USWAG* decision, it is likely that they do not represent expedited timeframes. EPA therefore considered them to be outer bounds of the amount of time necessary to complete these projects.

The second most reliable category of information came from submissions in which the commenter provided a detailed narrative description and project schedule, explaining all phases of the project. Submissions that fell into this category generally provided sufficient information to allow the Agency to determine whether the estimated timeframes were reasonable and consistent with those timeframes presented in submissions from commenters describing completed projects. In some cases, EPA discounted some portions of the estimated time where it appeared that the amount of time substantially exceeded the time presented in other submissions or were based on factors unique to that site that are unlikely to be relevant to other facilities nationwide. EPA calculated these adjustments by examining the project schedule and determining whether the task in question overlapped with other tasks. If the discounted task did not overlap with other activities, the Agency reduced the project schedule by the length of time of the task. However, when the task in question partially overlapped with another activity, EPA only reduced the time duration by the amount that did not overlap with a non-discounted task. EPA also reduced some portions of estimates if, based on other submissions, EPA

determined that the commenter had assumed that a phase of a project was sequential when in fact it could be completed at the same time as another phase of the project. In this final rule, EPA used the information from both of these categories of submissions to calculate the deadline to cease receipt of waste.

EPA did not use provided information when a project timeline did not include all phases of the project, or when the project timeline was presented with insufficient detail to evaluate it. EPA also excluded estimates that appeared to be outliers when compared to other estimates. As EPA explained in the proposal, outliers should not extend the deadline for all facilities to cease receipt of waste, because such action would not be consistent with ensuring that this transition occurs as quickly as technically feasible. Rather, such situations are more appropriately accounted for and addressed, if necessary, under the alternative closure process in § 257.103.

*Conversion to dry handling*. The first technology approach EPA considered in the proposed rule was conversion to dry handling of CCR. Some facilities use wet sluicing (e.g., water) to convey CCR from the boiler to a CCR surface impoundment. In the context of this rulemaking, a conversion from wet sluicing to another means of CCR ash conveyance (e.g., mechanical) would allow the facility to cease use of the unlined CCR surface impoundment once the conversion is complete (assuming, in this example, that no other wastestreams are also directed to the unlined impoundment). EPA proposed that the average amount of time needed to implement the conversion to dry handling is 36 months, although the proposed rule presented information that times ranged from 36 to 48 months. 84 FR 65946. The Agency also recognized that some facilities may need new capacity to dispose of the CCR after a conversion to dry handling is complete, such as a CCR landfill. EPA stated that it did not have information on the time needed to construct a new landfill and therefore the time needed to obtain such

capacity was not included in the proposed 36-month timeframe. The proposed rule solicited information on whether landfills are being constructed for alternative capacity in conjunction with dry handling system conversions and, if so, the timeframes to put in place such capacity. 84 FR 65947.

In response, several commenters stated that CCR landfills are constructed as part of the conversion to dry handling and that the time required to construct and permit these landfills is significant. These commenters argued, therefore, that EPA should include the time required to obtain capacity for a CCR landfill in its calculation of the time it takes a facility to convert to dry handling. These commenters provided information on seven examples from Delaware, Kentucky, Missouri, and South Carolina showing that the process from initial application to operational permit issuance of a CCR landfill had taken approximately three to five years. The commenters further explained that construction of three of these new CCR landfills was done as part of the process of converting to dry handling. However, none of the landfill construction information provided by the commenters included integrated project schedules showing both the construction of the landfill and the dry ash handling conversion, which could proceed simultaneously.

The Agency disagrees that the final rule approach should include the time to construct a CCR landfill in its calculation of the time it takes a facility to convert to dry handling. After further consideration, EPA views a combined dry ash handling conversion and new CCR landfill construction project to be more analogous to a multiple technology system, which is discussed in the "Multiple technology system" section of this preamble. In this instance, the multiple technology system would consist of a dry handling conversion project and a separate disposal capacity project. The Agency is taking this position in the final rule because some dry handling conversion projects do not involve the need to obtain disposal capacity for dry CCR, while other conversions do. EPA also notes that it did not

receive any integrated project schedules showing the construction of the landfill and the dry ash handling conversion.

EPA also received new project information regarding conversions to dry handling of CCR from Cleco Corporate Holdings LLC (Cleco) and DTE Energy.[13] The information provided by each is briefly summarized below.

Cleco submitted detailed project information and projections for dry ash conversion projects at two different Cleco plants in Louisiana. The first was for the installation of a submerged flight conveyor for bottom ash removal at its Dolet Hills Power Plant (Dolet Hills). A submerged flight conveyor is a type of mechanical ash handling system that collects bottom ash that has fallen from the bottom of the boiler into a water-filled trough.[14] Currently at Dolet Hills, bottom ash is wet sluiced to one of two 33-acre unlined CCR surface impoundments. The commenter stated that prior to the *USWAG* decision, these bottom ash impoundments were not subject to closure for cause. The commenter's project timeline shows that it will take approximately 44.5 months to complete the bottom ash handling conversion. Cleco's comments do not indicate where the bottom ash will be managed after the conversion, but EPA notes that Cleco currently operates a CCR landfill at Dolet Hills for the disposal of fly ash and scrubber sludge. The commenter's conversion project timeline includes approximately nine months for the task of "joint owner & board approval" and another five months for a budgetary study. The commenter explains that the coal-fired boiler at Dolet Hills is jointly owned and this time is needed to engage in substantial discussions with and reach concurrence with the joint owners. The commenter further stated that the

[13] See docket items EPA-HQ-OLEM-2019-0172-0085 and 0094, respectively.
[14] For additional information on bottom ash handling systems, see USEPA, 2019. "Supplemental Technical Development Document for Proposed Revisions to the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category". EPA-821-R-19-009. (November).

time allotted for discussions and decision-making with joint owners is based on its experience in reaching consensus with joint owners on the EPA air rulemaking titled the Mercury and Air Toxic Standards rule.[15] The commenter's project timeline also included three months to seek an alternative liner determination pursuant to a proposed process under consideration by the Agency in a separate rulemaking.[16] However, this 17 months (3 + 5 + 9 months) reflected in Cleco's timeline only partially overlaps with the planning and initial design phase of the project, which increased the amount of time estimated to complete the total project.

The second bottom ash dry conversion project described by Cleco was for the installation of a submerged grind conveyor, another type of mechanical ash handling system, for bottom ash removal at its Rodemacher Power Plant. Currently, bottom ash is wet sluiced to a 43-acre unlined CCR surface impoundment. The commenter stated that prior to the *USWAG* decision, the bottom ash impoundment was not subject to closure for cause. The commenter's project timeline shows that it will take approximately 45 months to complete the bottom ash handling conversion. Cleco's comments do not indicate where the bottom ash will be managed after the conversion nor if disposal capacity is needed for generated bottom ash. Similar to the timeline for Dolet Hills, Cleco's conversion project timeline includes approximately 17 months for obtaining joint owner and board approval, conducting the budgetary study, and seeking an alternative liner demonstration.

After evaluating the new information provided by Cleco, EPA is using this information in its final rule calculation of the amount of time needed to convert to dry handling because this commenter provided a detailed narrative description and project schedule explaining all phases of the project that

[15] 77 FR 9304 (February 16, 2012).
[16] 85 FR 12456 (March 3, 2020).

allowed EPA to evaluate the reasonableness of the estimate. However, after reviewing the commenter's project schedule, the Agency is adjusting the dry handling conversion timeframes used in the capacity analysis for the reasons discussed below. As discussed earlier, this commenter explains that the project schedule includes approximately nine months for the task of joint owner and board approval, five months for a budgetary study, and three months to seek an alternative liner determination (a total of 17 months). However, these actions would only partially overlap with the planning and initial design phase of the project. As EPA explained elsewhere in this preamble, the goal of the Agency's alternative capacity analysis is to identify capacity that can be obtained in the shortest feasible time. A schedule based on a protracted lengthy decision-making process is not consistent with this goal. Moreover, the length of time it takes to make a decision is within the facility's (or multiple co-owner's) control and can be expedited as necessary. For similar reasons EPA is not accounting for time taken for the facility to seek a variance under the proposed alternative liner determination provisions. Developing the materials for that process is largely within the facility's control and can therefore be undertaken simultaneously with other measures. Therefore, EPA is eliminating the time to seek an alternative liner determination (three months) and additionally reducing by eight months the upfront 14 months allocated for joint owner and board approval and the budgetary study. This action would retain six months for the planning and initial design phase of the project, which is the same amount of time identified for this phase at proposal. Thus, for purposes of the final rule alternative capacity analysis EPA will use an adjusted estimate of 33.5 months (44.5 minus 11 months) to complete the dry conversion at the Dolet Hills facility and an adjusted estimate of 34 months (45 minus 11 months) to complete the dry conversion at the Rodemacher facility. In addition, the Agency is using the Cleco data points in lieu of the information considered in the proposed rule because it is a more comprehensive analysis of a dry ash handling

conversion project. Table 3 in unit V.B.3.a of this preamble shows the information used in the final rule alternative capacity analysis for this technology approach.

DTE Energy submitted comments describing an ongoing dry fly ash handling conversion project of four boilers at its Monroe Power Plant (Monroe) in Michigan. The commenter states that one CCR surface impoundment currently receives wet sluiced fly ash and that prior to the *USWAG* decision, this 331-acre impoundment was not subject to closure for cause. The commenter's narrative description of the timeline estimates that the dry fly ash conversion project will take at least 57 months until the dry ash handling systems are operational and wet sluicing of ash can end. Monroe currently operates a CCR landfill. The commenter explained that the conversion construction schedule has been designed to coincide with already scheduled periodic unit outages and has been coordinated with the Midwest Independent System Operator so as to maintain grid stability and electrical reliability.[17] The commenter stated that for plants such as Monroe that have multiple generating units, outages for those units are seldom concurrent. Therefore, the commenter explained that the schedule for the dry ash handling conversions are coordinated into a series of sequential generating unit outages that adds to the required time to install and start up the systems.

After considering the comments submitted by DTE Energy, EPA is not using its project information in the final rule calculation of the amount of time needed to convert all four of its boilers to dry fly ash handling. DTE Energy explained in its comments that two of its boiler units currently have a dual ash handling system that allows fly ash generated from these boilers to be handled dry or wet. The

[17] The Federal Energy Regulatory Commission (FERC) defines an Independent System Operator as an independent, federally regulated entity established to coordinate regional transmission in a non-discriminatory manner and ensure the safety and reliability of the electric system.

commenter further explained that a portion of the fly ash generated from these two boilers is transported dry (e.g., collected fly ash is conveyed to storage silos using air pressure) and sold for beneficial use, while the remaining portion of fly ash not sold for beneficial use is wet sluiced to its unlined CCR surface impoundment. The commenter further explained that fly ash generated by the other two boilers is currently wet sluiced to the same impoundment. As explained earlier, the project timeline to convert all four boilers to dry handling is estimated to take 57 months; however, the commenter does not explain why closure of the unlined surface impoundment could not be initiated sooner than 57 months given that two boilers are already currently configured to dry handle fly ash. Nor is the project timeline sufficiently detailed for the Agency to discern whether alternative capacity could be obtained sooner than projected.

*Non-CCR wastestream basins*. The second technology approach for alternative capacity proposed by the Agency was construction of a new wastewater basin for non-CCR wastestreams. A new wastewater basin could be needed in a situation where one or more non-CCR wastestreams are managed in an existing unlined CCR surface impoundment subject to closure. EPA proposed that the average amount of time needed to construct a new basin for non-CCR wastestreams was 21 months, but also explained that available data showed that permitting of the unit can greatly impact the amount of time needed to complete the new capacity. The data in the proposal showed new capacity could be obtained in a range of 18 to 41 months. EPA further explained that when removing the variable permitting component from consideration, the average time to plan and design, procure, and construct and commission the new basin was 21 months. 84 FR 65947.

In response to the proposed rule, several commenters stated that obtaining permits is a necessary component of the process to construct a non-CCR wastestream basin and provided examples of the types of permits, licenses or approvals that may be needed. These commenters argued that EPA must include

some time for obtaining permits for this alternative capacity method. The Agency also received new project information from several entities regarding construction of a new wastewater basin for non-CCR wastestreams. However, these projects were done as part of a larger multiple technology system effort. These multiple technology system projects included the construction of non-CCR wastewater basins or storage in conjunction with either dry ash handling conversions or development of other alternative capacity at the New Madrid Power Plant, Thomas Hill Energy Center, Salt River Project, and the Boswell Energy Center. Those project descriptions are not included in the capacity analysis for non-CCR wastestream basins, but are discussed in the "Multiple technology systems" section of this preamble. The Agency did not receive any new project information from commenters documenting the time needed to construct a new non-CCR wastewater basin when such project was not part of a multiple technology system.

After considering comments, EPA is adjusting the approach used in the proposed rule to determine the time needed to obtain alternative capacity with a non-CCR wastewater basin. Several commenters were critical of the proposed approach because it removed permitting timeframes considerations from the estimation. The Agency agrees with commenters that obtaining a permit (e.g., the time needed to modify a National Pollutant Discharge Elimination System permit) is a necessary component to putting in place a new non-CCR wastewater capacity. EPA re-evaluated the project schedule associated with the high-end estimate of 41 months considered in the proposed rule. This review determined that the design and permitting phase of the project—18 months of the project duration—includes environmental reviews required under the National Environmental Policy Act (NEPA). As noted in the submission, the NEPA review process "can take up to a year or longer depending on the level of review" required. The Agency also reviewed other documents associated with

the NEPA review for this non-CCR wastewater basin and found that the process well exceeded a year to complete.[18] But because the majority of facilities are not subject to NEPA, EPA considers this situation to be an outlier that is more appropriately accounted for and, if necessary, addressed under the alternative closure process in § 257.103. Because the NEPA review process overlaps with other project tasks, such as detailed engineering design and preparing permit applications, EPA adjusted the estimate to remove 12 of the 18 months associated with the NEPA review process, rather than deleting the entire 18 months. The resulting six-month time frame is consistent with the estimate provided by other facilities for the engineering design phase. Therefore, for purposes of the final rule alternative capacity analysis EPA will use an adjusted estimate of 29 months (41 minus 12 months) to complete the construction of the non-CCR wastewater basin.

EPA is using the estimate to construct a new non-CCR wastewater basin provided by Southern Company in the final rule alternative capacity analysis. This information was considered in the proposed rule and describes a project estimated to take 18 months. Table 3 in unit V.B.3.a of this preamble shows the information used in the final rule alternative capacity analysis for this approach.

*Wastewater treatment facility*. The third technology approach considered by EPA at proposal was to build a new wastewater treatment facility (or system) for CCR and/or non-CCR wastestreams. A wastewater treatment system can take different forms, as explained in the proposed rule. For example, a chemical precipitation wastewater treatment system is a system where chemicals are added to the wastewater to alter the physical state of dissolved and suspended solids to facilitate settling and removal

[18] 83 FR 54162 (October 26, 2018). "Shawnee Fossil Plant Coal Combustion Residual Management; Issuance of Record of Decision." The draft Environmental Impact Statement was released on June 8, 2017, and the final Record of Decision was published on October 26, 2018.

of solids. Other systems, such as settling ponds, are designed to remove particulates from wastewater by means of gravity. EPA proposed that the average amount of time needed to construct a wastewater treatment system is 16 to 21 months based on information obtained for a related rulemaking for the Steam Electric Power Generating Effluent Guidelines and Standards (Steam Electric ELG). The Agency also presented an example of a concrete treatment tank system being considered by an electricity producer that estimated the time to obtain alternative capacity to be 27 months. 84 FR 65948.

In response to the proposed rule, several commenters stated that information available in the rulemaking docket estimates significantly longer timeframes to obtain capacity with a wastewater treatment system than EPA's proposed time. These commenters pointed to information in the docket from Arizona Public Service stating that it will require approximately 27 months to complete construction of the wastewater treatment facility.[19] The commenters also identified new information contained in a comment by Southern Company in the Steam Electric rulemaking docket, stating that a complex wastewater treatment project at a plant with over 50 wastestreams can take up to 52 months to implement.[20] The commenters further stated that EPA's proposal fails to consider the time needed to obtain or modify National Pollutant Discharge Elimination System (NPDES) permits, which is a crucial aspect of the process of constructing and implementing a wastewater treatment facility. Therefore, these commenters argued that the Agency should include the time required to obtain or modify NPDES permits in its calculation of the time it takes to implement a wastewater treatment facility as a method of alternative capacity.

The Agency also received new project information from several entities regarding construction

[19] See docket item EPA-HQ-OLEM-2019-0172-0008.
[20] See docket item EPA-HQ-OW-2009-0819-8457.

of a new wastewater treatment facility. However, these projects were done as part of a larger multiple technology system effort. These multiple technology system projects included the construction of wastewater treatment capacity in conjunction with either dry ash handling conversions or other alternative capacity additions at the New Madrid Power Plant, Thomas Hill Energy Center, and the Leland Olds Station. Those projects are not included in the wastewater treatment system analysis and are discussed in the "Multiple technology systems" section of this preamble.

As discussed earlier for the approach for non-CCR waste basins, the Agency agrees with commenters that obtaining or modifying a NPDES permit is a necessary component to establishing new capacity with a wastewater treatment facility. To better capture the range of times needed to obtain or modify a NPDES permit, the final rule is supplementing the Steam Electric ELG information used at proposal with the project information from Arizona Public Service, which shows alternative capacity will be in place within approximately 26 months.[21] In addition, the Steam Electric ELG timeframes were presented as ranging from 16 to 21 months in the proposed rule. For reasons discussed in unit V.B.3 of this preamble, the Agency is representing this information as a mean of the range (i.e., 18.5 months) so as to not overrepresent this information relative to other data. However, EPA is not including in the alternative capacity calculation the information characterized as a "complex wastewater treatment project at a plant with over 50 wastestreams" that can take up to 52 months to implement (these comments were also submitted as comments in response to a separate Steam Electric ELG proposed rule). This information is not being included in the calculation because the Agency was unable to determine whether this project at an unspecified facility involved unique or unusually complex site-

[21] EPA re-examined the APS schedule to complete construction of the wastewater treatment facility and determined that the project would take 26 months versus the 27 months presented in the proposed rule.

specific circumstances that would be better addressed through the alternative closure provisions discussed in unit V.C of this preamble. Table 3 in unit V.B.3.a of this preamble shows the information used in the final rule alternative capacity analysis for this technology approach.

*New CCR surface impoundment*. The fourth technology approach considered by EPA at proposal was to build a new CCR surface impoundment to replace the impoundment subject to closure for cause. Such a unit could be used for CCR alone or could also be used to manage non-CCR wastestreams. EPA proposed that the average length of time needed to build a new CCR surface impoundment is 27 months. 84 FR 65949. As explained in the proposed rule, this average time was developed from available information submitted by three facilities—Xcel Energy, Arizona Public Service, and Southern Company.[22] The proposed 27-month average was comprised of six months for planning and design, six months for permitting (though the preamble presented a range of six to 18 months and acknowledged that the permitting phase can take longer than this range), 14 months for material procurement and construction, and one month for capacity commissioning.

In response to the proposed rule, several commenters stated that EPA must fully consider the additional time required to apply for and obtain the necessary permits when estimating the timeframe for constructing a new CCR surface impoundment. These commenters argued that EPA inappropriately selected the low end of the range needed for permitting (i.e., six months), despite the record showing that it is not a rare occurrence when more time is needed for permitting. These commenters stated that the timeframes must also account for the time needed to install a groundwater monitoring system for the new impoundment given that the federal CCR regulations require that the new impoundment must be in

[22] See docket items EPA-HQ-OLEM-2019-0172-0007, 0008, and 0011, respectively.

compliance with groundwater monitoring requirements prior to initial receipt of CCR. These CCR requirements include, for example, installing the groundwater monitoring system and developing a groundwater sampling and analysis program.

EPA also received new project information regarding the construction of new CCR surface impoundments from a number of companies, including Xcel Energy (Xcel), Great River Energy (Great River), and CPS Energy.[23] The information provided by each is briefly summarized below.

Xcel submitted detailed project information for a new CCR surface impoundment that is currently under construction to replace an existing 18-acre CCR surface impoundment. That impoundment is used for the temporary storage of bottom ash prior to its excavation and beneficial use or disposal elsewhere. The commenter explained that the existing impoundment at the Sherburne County Generating Plant (Sherburne) in Minnesota is currently considered unlined pursuant to the CCR regulations and that the unit was not subject to closure for cause until the 2018 *USWAG* decision. At proposal, EPA relied on information provided by Xcel in an earlier submission specific to this new CCR surface impoundment. Xcel stated in its comments that even with the benefit of work completed prior to the *USWAG* decision, it does not anticipate that alternative capacity (the new impoundment) will be available until mid-October 2020. The commenter explained that EPA's time estimate at proposal for the new Sherburne impoundment did not include already completed essential tasks related to the new impoundment, including an assessment of options for alternative capacity, and preliminary design, permitting and project planning. Xcel further explained that the actual timeline since project initiation in January 2014 to completion in October 2020 would not be consistent with the standard in the proposed

[23] See docket items EPA-HQ-OLEM-2019-0172-0067, 0076, and 0070, respectively.

rule to obtain alternative capacity "as soon as technically feasible," because there has not been a continuous and sustained effort to obtain the alternative capacity. Therefore, Xcel reconstructed the activities completed prior to the *USWAG* decision and developed a hypothetical project schedule reflecting a project start date of October 15, 2018 (i.e., the *USWAG* mandate). The commenter stated that expedited durations were used where feasible and provided examples. The commenter further stated that constructing the new CCR surface impoundment would take a minimum of 34 months, which would equate to mid-August 2021 under this hypothetical schedule. Xcel's comments included a narrative description explaining all phases of the entire project and a detailed project schedule, both for the actual and hypothetical cases.

Great River submitted detailed project information for a new CCR surface impoundment at its Coal Creek Station in North Dakota. The commenter stated that the new 66-acre impoundment will replace two existing CCR surface impoundments that receive fly ash, bottom ash, and flue gas desulfurization materials. The existing impoundments are approximately 75 and 100 acres in size, according to the closure plans posted on the plant's CCR compliance website. The commenter also explained that the two existing surface impoundments were considered lined units pursuant to the CCR regulations prior to the 2018 *USWAG* decision. The commenter further stated that Coal Creek Station initiated efforts to obtain alternative disposal capacity immediately following the *USWAG* decision and that constructing the new CCR surface impoundment will take approximately 59.5 months. However, the commenter explained that the future location of the new CCR surface impoundment is currently occupied by two existing, state-regulated non-CCR surface impoundments. The commenter further explained that the proposed plan is for the two non-CCR surface impoundments to be combined into one CCR surface impoundment, and to expedite availability, construction efforts will focus on conversion of

only one non-CCR surface impoundment at a time. Great River's comments included a detailed project schedule and a technical memorandum from its engineering consultant explaining the steps of the project in detail from start to finish.

CPS Energy submitted information for a new two-acre CCR surface impoundment at its Calaveras Power Station in Texas. The commenter stated that the new impoundment will replace two existing CCR surface impoundments that receive CCR sludge from the air pollution control equipment. The existing impoundments are each approximately 1.5 acres in size, according to the closure plan posted on the plant's publicly accessible CCR Internet site. CPS Energy stated in its comments that constructing the new CCR surface impoundment will take approximately 30 months. While the commenter provided summary information on the amount of time needed to construct the new unit, neither a detailed narrative description nor a detailed project schedule explaining all phases of the project was submitted with the comments.

After evaluating the comments that provided new information, EPA is including the 34-month timeframe for the Xcel project in its final rule calculation of the amount of time needed to put in place new CCR surface impoundment capacity. This commenter provided a detailed narrative description and project schedule explaining all phases of the project that allowed EPA to evaluate the reasonableness of the estimates. EPA is not including, however, the summary information for the new impoundment planned at Coal Creek Station because of the unique real estate challenges at the site. As discussed earlier in this section, construction of the new impoundment cannot commence until one of the former non-CCR surface impoundments is dewatered and cleaned out. According to the commenter's project schedule, these tasks are anticipated to consume at least one of the three construction seasons dedicated to the construction of the new impoundment. Given that the facility is located in North Dakota, an area

of the country that has shorter construction seasons, the decision to build the new impoundment at a site occupied by two state-regulated non-CCR surface impoundments affects the project duration by at least one year. While the Agency recognizes that some facilities have legitimate real estate constraints and limitations, EPA considers these situations to be outliers and more appropriately accounted for and addressed, if necessary, under the alternative closure provisions under § 257.103 (see section V.C of this preamble).

The Agency is also not including the summary information provided by CPS Energy in the final rule calculation because the commenter did not provide sufficient detail on its planned alternative capacity project to allow the Agency to evaluate whether the project could have been concluded more quickly.

EPA is using the 28-month estimate to construct a new seven-acre impoundment provided by Arizona Public Service (APS FCPP) for the Four Corners Power Plant in New Mexico in the final rule alternative capacity analysis. The APS FCPP information was considered in the proposed rule and describes the project schedule from start to completion. EPA has included in its calculations the time required to obtain necessary permits and to install a groundwater monitoring system for the new impoundment. The data used in the final rule alternative capacity analysis represent the amount of time to obtain capacity from start to completion, including these permitting and regulatory project elements. Table 3 in unit V.B.3.a of this preamble shows the information used in the final rule alternative capacity analysis for this technology approach.

*Retrofit of a CCR surface impoundment*. The fifth technology approach considered by EPA at proposal was to retrofit a CCR surface impoundment to meet the requirements specified in the CCR regulations for a new impoundment. Such a unit could be used for both CCR and non-CCR

wastestreams. EPA proposed that the time to retrofit a large surface impoundment (approximately 50 acres) was 31.5 months. 84 FR 65950. The 31.5-month timeframe was based on information provided by Vistra Energy for the Martin Lake Power Plant (Martin Lake) in Texas.[24] While the Martin Lake timeline pertains to a larger retrofit project of four surface impoundments, EPA used it to determine the time needed to retrofit a single impoundment. The Agency also proposed that a small CCR surface impoundment could be retrofitted in four to 12 months. The small impoundment time estimate was based on information extracted from rule information posted on publicly accessible CCR Internet sites for three facilities (i.e., written retrofit plans required by § 257.102(k)(2)), including Keystone Generating Station, Weston Generating Station, and Mount Storm Power Station.

In response to the proposed rule, several commenters stated that it was not appropriate for EPA to discount the need for sequential retrofitting of impoundments at the Martin Lake facility and use 31.5 months as the average time to retrofit. Given that Vistra Energy's submission makes clear that retrofitting must occur sequentially in order for the plant to continue operating and generating electricity during the retrofit work, the commenters argued that the final rule should consider the full time to retrofit its impoundments. These commenters also objected to the proposed rule averaging methodology stating that EPA both overrepresented the impoundment retrofit technology approach (i.e., three of the ten data points used to calculate the proposed 22.5-month average time to obtain alternative disposal capacity were derived from impoundment retrofit information), and inappropriately skewed the retrofit time average to small units. The commenters further contended that approximately 68 percent of CCR surface impoundments are larger than 10 acres and more weight should be given to the actual

[24] See docket item EPA-HQ-OLEM-2019-0172-0005.

timeframes experienced by facilities in retrofitting these larger impoundments. These commenters also argued that the timeframes must account for situations where the waste boundary of the unit changes during the retrofit to provide the time needed to install a groundwater monitoring system for the retrofitted impoundment, given that the federal CCR regulations require that the impoundment must be in compliance with groundwater monitoring requirements prior to initial receipt of CCR.

The Agency disagrees with commenters that it was inappropriate to discount the need for sequential retrofitting of Martin Lake's four impoundments and instead used the time to retrofit a single impoundment. The Agency is using the Martin Lake information to determine the time to retrofit a single impoundment. The Martin Lake circumstances are unique in that the facility plans to retrofit four impoundments, and each retrofit must occur sequentially because the facility requires a minimum of three impoundments to be operating at any one time in order for the plant to operate. To use the Martin Lake information, the Agency adjusted the total retrofit time so that it is on the same scale as other facilities (i.e., construction times normalized for a single impoundment retrofit). The proposed rule estimated it would take Martin Lake 31.5 months to retrofit a single impoundment.[25] EPA continues to believe that the 31.5-month estimate is appropriate and is using this data point in its final rule alternative capacity analysis to determine the time needed to retrofit of a CCR surface impoundment. Finally, the Agency intends for unique circumstances like Martin Lake to be addressed through the alternative closure provisions of the final rule.

EPA also received new project information regarding the amount of time needed to retrofit a

[25] See docket item EPA-HQ-OLEM-2019-0172-0005. EPA subtracted off 27 months for the retrofit of the remaining three impoundments and the six months for contingencies built into the schedule to obtain 31.5 months to retrofit a single impoundment.

CCR surface impoundment in comments from Arizona Electric Power Cooperative (AEPCO). AEPCO submitted project information for a surface impoundment retrofit project at its Apache Generating Station in Arizona. The commenter stated that this plant has four CCR ash impoundments, which also manage non-CCR wastestreams, and a scrubber sludge impoundment subject to the CCR regulations. The commenter explained that it will need to retrofit one of the ash impoundments and the scrubber sludge impoundment before it can cease placement of CCR in the units at the plant. The existing ash and scrubber sludge impoundments are approximately 33 acres and 42 acres in size, respectively, according to the closure plans posted on the facility's publicly accessible CCR Internet site.[26] The commenter noted that these existing surface impoundments were not subject to closure for cause under the CCR regulations prior to the 2018 *USWAG* decision. The commenter further explained that after conducting preliminary design work for evaluating potential alternative capacity, AEPCO decided to retrofit the existing impoundments, which involves removal of approximately 900,000 cubic yards of solids from the existing impoundments. The commenter estimated that it will take approximately 47 months to complete the retrofit of the scrubber sludge impoundment and 55 months to retrofit one ash impoundment; however, both impoundment retrofits, which will be conducted concurrently, must be completed before the facility can cease using the existing impoundments. AEPCO must first obtain Board approval of an initial scoping of the project and initiate project financing activities. The commenter explained that many electric cooperatives finance large projects through the U.S. Department of Agriculture's Rural Utilities Service (RUS) because RUS can offer low-interest federal

[26] "Closure Plan – Revision No. 1, Apache Generating Station, Arizona Electric Power Cooperative, Inc., Cochise County, Arizona", October 13, 2016.

loans. RUS funding can require an environmental review under the National Environmental Policy Act before funds will be released by RUS to the cooperative. The commenter's project schedule included approximately 16 months for obtaining internal approval of the project, initiating RUS financing, and completing preliminary design work. AEPCO's comments included a narrative description explaining all phases of the project and a detailed project schedule, including an estimate of the impact of pursuing RUS funding for these retrofits.

After evaluating AEPCO's comments, EPA is incorporating the impoundment retrofit projects at Apache Generating Station into the final rule alternative capacity analysis. However, the Agency is adjusting the project timeframes used in the capacity analysis for this facility for reasons discussed below. As discussed earlier, this commenter explained that the project schedule includes 16 months for Board approval activities and initiating a process to obtain lower-cost financing through the RUS program. The environmental review process required by RUS can be a lengthy process—longer than a year in some cases—as noted by this and other commenters.[27] These commenters further explained that borrowers must wait for the conclusion of RUS's environmental review before taking any action on projects that could have an environmental impact or otherwise limit or affect the USDA's final decision.

As EPA explained elsewhere in this preamble, the goal of the Agency's alternative capacity analysis is to identify capacity that can be obtained in the shortest feasible time. A schedule based on a lengthy decision-making and administrative process is not consistent with this goal, especially when other faster financing options are available and within the facility's control. The length of time it takes to make a decision is also within the facility's control and can be expedited as necessary. Therefore, EPA

[27] See docket items EPA-HQ-OLEM-2019-0172-0086 and -0102.

evaluated the timeline to determine the extent that the lengthy decision-making and financing approach impacted the project's schedule. As a result, the Agency is reducing the initial 16-month decision-making and financing activities by nine months. This adjustment would retain seven months for the planning and initial design phase of the project that would occur within the initial 16-month period. The seven-month period is the same amount of time identified for this project phase at proposal. Therefore, for purposes of the final rule alternative capacity analysis EPA will use an adjusted estimate of 38 months (47 minus nine months) to complete the retrofit of the scrubber sludge impoundment and 46 months (55 minus nine months) to retrofit one ash impoundment. Finally, given that the retrofits of the scrubber sludge and ash impoundments were concurrent activities (i.e., the retrofit construction began at the same time), EPA views this as one retrofit project and is including the longer retrofit estimate of 46 months in its alternative capacity analysis because the impoundment retrofits would be completed within this 46-month period.

As discussed elsewhere in this preamble, EPA also received comments that the proposed alternative capacity technology approaches are missing key components of the project planning process (e.g., the time needed to obtain required permits). These commenters stated that EPA must account for any missing components when determining the time needed to obtain alternative capacity. EPA re-evaluated the information available in the three retrofit reports for small impoundment retrofits that supported the proposed rule. Weston Generating Station (Weston) located in Wisconsin operates two sets of bottom ash dewatering and settlement basins (each set is approximately three acres in size). The two sets are operated in parallel thus allowing one set of basins to be taken offline while the second set remains in use. Thus, only one set of basins must be in operation in order for the plant to operate. The schedule provided in its retrofit plan includes time estimates for all project components, including the

phases of planning and design, procurement, permitting, construction, and capacity commissioning.[28] This report shows that it will take approximately 12 months to complete the retrofit of the first series of dewatering and settlement basins and an additional three months to complete the retrofit construction of the second series of basins. Weston posted a construction certification at the end of November 2017 documenting the completion of the retrofit project[29] confirming that the actual time needed to complete the retrofit project was consistent with the project schedule considered by EPA in the proposed rule. Therefore, EPA continues to believe that 12 months accurately reflects the amount of time the commenter needs to retrofit a single surface impoundment and is including this data point in the final rule alternative capacity analysis.

Regarding the surface impoundment retrofits at Keystone Generating Station in Pennsylvania and Mount Storm Power Station in West Virginia, EPA's re-evaluation found that the retrofit reports for both plants lack information on the phases of planning and design, procurement and permitting. The Agency was unable to obtain additional information for these retrofit projects. As a result, EPA is no longer considering these retrofit reports as part of the final rule alternative capacity analysis.

Finally, as a result of including new retrofit information from commenters and of the Agency's re-evaluation of information used in the proposed rule, two thirds of the data used in final rule alternative capacity analysis for the impoundment retrofit method is associated with impoundments greater than ten acres. EPA believes this addresses the comment that the retrofit alternative capacity analysis was overrepresented by information from small units under ten acres in size. Table 3 in unit

[28] See docket item EPA-HQ-OLEM-2019-0172-0004.
[29] "Construction Certification for the Weston Units 3 & 4 Ash Basins Liner Retrofit, Wisconsin Public Service Corporation, Weston Generating Station, Rothschild, Wisconsin", November 29, 2017.

V.B.3.a of this preamble shows the information used in the final rule alternative capacity analysis for this technology approach.

*Multiple technology system.* The final technology approach considered in the proposed rule was utilizing a combination of technologies that together could provide alternative capacity. An example is a utility that decides to end wet sluicing of bottom ash to a CCR surface impoundment by making modifications to the boiler so that the bottom ash can be handled dry, thereby allowing its unlined CCR surface impoundment to be closed or retrofitted. If, in this example, the existing unlined impoundment was also used to manage non-CCR wastestreams, then the utility would also need to obtain alternative capacity for its non-CCR wastestreams (e.g., a wastewater treatment system). Thus, the combination of a dry ash handling system and wastewater treatment system is an example of a multiple technology system.

EPA proposed that the average amount of time needed to obtain alternative capacity with a multiple technology system was 21 to 36 months, although the Agency generally lacked detailed information on the engineering, design and permitting phases of the underlying projects. In the proposed rule, EPA estimated the time needed for the engineering and design phase and assumed that permitting occurs concurrently with other project steps. The Agency also acknowledged in the proposed rule that the time needed to construct a multiple technology system is highly dependent on the alternative capacity approaches selected and that more time may be needed for planning and design because these systems can be more complex. 84 FR 65950.

In response to the proposed rule, several commenters stated that permitting considerations were omitted from the proposed timelines because permitting was assumed to occur concurrently with other project steps, such as construction. These commenters further stated that this assumption is not

supported by the information in the record which demonstrates that permitting is a necessary and key component of the process of developing alternative capacity and that construction work rarely can proceed until all the necessary permits are obtained. Therefore, they argued that the final rule should include some time for obtaining permits. Commenters also stated that the proposed rule approach does not contemplate multiple technology systems when they must be implemented sequentially. An example presented was for a facility that implements a dry ash handling conversion; once the large-volume sluice flows are removed from the impoundment, the facility begins a partial retrofit within that impoundment footprint for other non-CCR wastestreams. The commenters explained that this could be the case when the facility has real estate constraints that prevent construction from beginning until after the sluice flows are removed. Impoundment closure could not begin until after the partial retrofit is completed and the non-CCR wastestreams relocated. Other commenters stated that schedules based on completed projects, such as those of Duke Energy, did not provide enough details to understand whether the facility acted as expeditiously as possible or whether tasks were conducted sequentially or with some overlap.

EPA also received project information from several entities regarding multiple technology systems, including from Associated Electric Cooperative, Inc. (AECI), Minnesota Power, American Electric Power (AEP), Salt River Project Agricultural Improvement and Power District (Salt River Project), and Basin Electric Power Cooperative (Basin Electric).[30] The information provided by each is briefly summarized below.

AECI submitted project timelines and related information for its two CCR-generating facilities in Missouri: New Madrid Power Plant (New Madrid) and Thomas Hill Energy Center (Thomas Hill). The

[30] See docket items EPA-HQ-OLEM-2019-0172-0087, 0075, 0077, 0079, and 0069, respectively.

commenter described ongoing efforts at both facilities to put in place new alternative capacity using multiple technology systems. The commenter further explained that both facilities are subject to the CCR rules and the Steam Electric ELG rules. The project timelines provided include six projects required to comply with the CCR and Steam Electric ELG rules. The commenter stated that the proposed rule does not account for several integral steps in the process of obtaining alternative capacity. For example, they contend that EPA's proposal did not fully consider the interactive relationship between multiple technology systems that require iterative engineering design and construction sequencing to accommodate complex system development and functionality, such as a new wastewater treatment facility that will discharge into a non-CCR surface impoundment. The commenter also stated that the proposal did not fully consider the commissioning and start-up testing phase for multiple technology systems. The commenter's experience is that more complex systems with multiple and varying water streams will take more time to allow for start-up of equipment before becoming fully operational. For example, elements such as seasonality, varying plant operating conditions, periodic activities (e.g., boiler washes), and inconsistent flow rates require extensive post-construction operational configuring and calibration of pumps, treatment dosing, and effluent monitoring. In addition, initial design activities, such as feasibility studies and alternatives analyses, are more complex for multiple technology systems, which they argued are not properly accounted for in the proposed rule. The commenter stated that the capacity timelines must account for the inherent complexities with multiple technology systems due to the iterative nature of the process.

Of the six projects AECI described, four are underway at the New Madrid facility, including two separate conversions to dry handling (a dry light ash handling conversion and a dry boiler slag handling conversion); construction of a non-CCR wastestream basin for coal pile runoff and process water; and

construction of a new water treatment facility for other wastestreams. According to information provided by the commenter, the dry light ash handling conversion was initiated in April 2015 and is expected to be completed by February 2021, a duration of approximately 71 months. The dry boiler slag handing conversion, which includes conversions for two boilers, also began in April 2015 and is estimated to be completed by August 2023, a duration of approximately 102 months.

The final two projects at the New Madrid facility were initiated in October 2018 following the *USWAG* decision. According to information provided by the commenter, they are planned for completion in November 2021, a duration of approximately 37.5 months. The two projects at the Thomas Hill facility include plans to construct a wastewater treatment facility and non-CCR wastestream basins. The specific projects include constructing a concrete dewatering tank to handle boiler slag wastewaters, a new coal pile runoff pond, and other process water ponds. According to information provided by the commenter, these projects would take approximately 37.5 months to complete.

Minnesota Power also submitted project timelines and related information for its Boswell Energy Center (Boswell) in Minnesota describing ongoing efforts to put in place new alternative capacity using multiple technology systems. The commenter stated that it has two CCR surface impoundments that are subject to closure for cause. The first impoundment receives bottom ash and non-CCR wastestreams and the second impoundment receives flue gas desulfurization (FGD) materials, as well as bottom ash dredge materials from the first impoundment. The commenter stated that a multiple technology system for alternative capacity is being pursued at Boswell that will convert the bottom ash handling systems for two boilers to dry systems and install an FGD dewatering system on one of the boiler systems. In addition, a new wastewater storage unit will be constructed for non-CCR wastestreams. The commenter

stated that completion of these projects will allow CCR to be managed at its on-site CCR landfill, allowing for the closure of the two CCR surface impoundments. The project timelines submitted by the commenter show that both dry handling conversions will be completed early in 2023, with one conversion taking 40 months to complete and the other one 52 months. The construction of the non-CCR storage unit is planned to be finished in 34 months.

The commenter stated that the proposed rule timelines were deficient in that they did not adequately address the role and extent to which existing economic regulation requires coordinated decision-making for electric utility investments. These regulations include requirements for review and approval of investments to comply with state and federal environmental requirements, which would apply to the dry handling conversions being implemented. The commenter explained its requirements under the Minnesota statute and argued that the proposal would create an environmental regulatory approach that contradicts the economic regulatory approach under which Minnesota Power must make its decisions. The commenter also stated that the proposal did not allow adequate time for state permitting for dry conversion or solid waste management, which, they contended, can be the longest and most uncertain part of the entire dry conversion process. The commenter explained that construction of conversion activities cannot commence until the permits for those changes are issued by the appropriate state or federal regulatory agency. A dry handling conversion will require a major Title V Permit amendment, due to increased air emissions that will result from the conversion from wet to dry. The commenter also stated that it is projected to take between nine and 21.5 months to receive final permits, and the commenter provided a letter from the Minnesota Pollution Control Agency indicating that this is a reasonable estimate for its conversion project.

AEP also submitted project planning information regarding timeframes to convert to dry bottom

ash and fly ash handling and to develop alternative disposal capacity for non-CCR wastewater streams. AEP explained its methodology for performing engineering design, planning and construction of all construction projects, but that it has not previously converted any of its facilities to a dry bottom ash handling system, nor has it developed alternative storage or treatment options for non-CCR wastewater streams. The commenter presented a typical timeline for obtaining such alternative capacity that indicates that it could take 62 months to complete a new non-CCR wastestream basin and 51 months to complete the dry ash handling conversion. These timeframes appear to be based on a scenario where the non-CCR wastestream basin would be constructed on top of a closing CCR surface impoundment. The commenter notes on its timeline that the impoundment would be closed in phases, so that new alternative disposal capacity can be built in the existing footprint of the impoundment.

Salt River Project also submitted detailed project information for a new CCR surface impoundment and non-CCR wastewater impoundment to replace an existing 330-acre CCR surface impoundment used primarily for the disposal of flue gas desulfurization materials and other non-CCR wastestreams. The commenter stated that the existing impoundment at the Coronado Generating Station in Arizona is currently considered unlined under the CCR regulations and that the unit was not subject to closure for cause until the 2018 *USWAG* decision. The commenter stated that it immediately began a preliminary analysis of compliance options under the CCR rule after the *USWAG* decision and began to evaluate options for developing alternative disposal capacity. The commenter further explained that the facility plans to obtain alternative capacity using a collection of modular surface impoundments for CCR and non-CCR wastestreams having an aggregate surface area of approximately 100 acres. Salt River Project stated that it selected a staged pond construction project approach, which will establish initial alternative capacity for both CCR and non-CCR wastestreams in separate impoundments and allow

additional ponds to be constructed as needed in the future. Salt River Project stated it will take approximately 55 months to replace the existing unlined impoundment with the new CCR and non-CCR impoundments. Salt River Project's comments included a narrative description explaining all phases of the entire project and a detailed project schedule.

Basin Electric submitted information for a multiple technology system involving dry bottom ash conversion and construction of a process water treatment system at its Leland Olds Station in North Dakota. The commenter stated that the project took approximately 40 months from start to completion, beginning in January 2016 and ending in the spring of 2019. While the commenter provided summary information on the amount of time needed to construct the new unit, neither a detailed narrative description nor a detailed project schedule explaining all phases of the project were submitted with the comments.

After evaluating the comments that provided new project information, EPA is including the information from Thomas Hill, Boswell Energy Center, Salt River Project, and Leland Olds, as well as an average time derived from the Duke Energy data described in the proposed rule (the Duke Energy data are discussed further in the next paragraph), in its final rule alternative capacity calculation for multiple technology systems. The Agency is not including the information for the New Madrid facility in the final rule calculation. The New Madrid information shows that the engineering design and procurement phases last approximately three years for each boiler's dry handling conversion (the timeline calls for two boilers to be converted sequentially). The commenter did not provide sufficient details for EPA to understand why these timeframes are substantially longer than other dry handling conversions. As a result, the Agency attributes these longer timelines to unique or unusually complex site-specific circumstances that would be better addressed through the alternative closure provisions

discussed in unit V.C of this preamble.

EPA is also not including the new information provided by AEP in its final rule alternative capacity calculation for multiple technology systems. As discussed in its comments, the commenter's estimate of 62 months to obtain alternative capacity is governed by the amount of time to construct a non-CCR wastestream basin, which in turn cannot be constructed until real estate becomes available by closing part of a CCR surface impoundment. While the Agency recognizes that some facilities may be constrained by available real estate, the commenter did not provide any design information or site-specific circumstances supporting this construction approach. EPA has not received information from the utility sector stating that it will be commonplace and necessary to build new alternative capacity on top of existing disposal units that first need to be closed. For these reasons, the Agency is not using this new information in the final capacity calculation.

The Agency included information submitted by Duke Energy regarding various multiple technology system projects that have been completed at nine Duke Energy plants in Indiana, Kentucky and North Carolina at proposal. The projects varied at each facility, but they generally involved converting to dry ash handling and construction of non-CCR wastestream basins and/or wastewater treatment facilities. While the submission includes detailed information on the time needed to complete the construction and capacity commissioning phases of the project, less information is available on the project phases prior to construction, such as planning and design, procurement, and permitting. However, because the data reflect completed projects, EPA considers the data are sufficiently reliable to include in its estimate. The commenter provides the total time for all project phases to develop alternative capacity at these nine facilities, which ranged from 30 to 42 months, including the time to obtain necessary permits. However, the commenter did not provide specific timeframes for each of the

nine facilities, and because the projects were initiated before the *USWAG* decision, they may not represent expedited timeframes. Even though these timeframes are considered to be the outer bounds of the time necessary to complete these projects, the Agency considers these timeframes persuasive because they provide some guarantee that other facilities can replicate them. Consequently, the Agency is using the average time of the range–36 months–that it took Duke Energy to obtain alternative capacity. Nevertheless, because the timeframe for Duke Energy represents nine facilities, EPA considers this to represent nine data points. When taken with the data from the four other facilities discussed above, EPA has 13 data points to factor into its final alternative capacity calculation.

Regarding commenters stating that the capacity timelines must account for the inherent complexities with multiple technology systems, and the permitting of such systems, the Agency believes this issue is addressed in the final rule by incorporating actual timelines from four additional multiple technology system projects. Table 3 in unit V.B.3.a of this preamble shows the information used in the final rule alternative capacity analysis for this technology approach.

b) Response to Comments on Other Types of Technology Approaches That Commenters Believe EPA Should Have Considered

Several commenters stated the proposed rule should have addressed additional options for obtaining alternative capacity. For each of these approaches, the commenters argued that alternative capacity could be obtained faster as compared to EPA's proposed timeframes. First, commenters stated that the proposed rule should have considered staged construction. The comments described "staged construction" as quickly building some capacity initially followed by the building of additional capacity that will be needed for the long term. A second approach identified by commenters was described as preventing the commingling of stormwater with non-CCR wastestreams which can allow the faster

development of alternative capacity. The commenters explained that the quantities of non-CCR wastestreams are magnified because low volume non-CCR wastestreams generated at the facility are allowed to commingle with stormwater. Third, commenters stated that the installation of temporary tanks to manage non-CCR wastes should have been considered in the proposal. The commenters claimed that an approach using temporary tanks would allow the facility to avoid siting-related delays typically associated with in-ground options such as wastewater treatment plants and impoundments. One of these commenters was a vendor of mobile wastewater treatment systems, which can support the dewatering of CCR surface impoundments and the treatment of non-CCR wastestreams. The commenter stated that such mobile treatment systems are commercially proven at full-scale, including at utilities, available on demand, and can be put in place in less time than any of EPA's proposed technology approaches.

EPA disagrees with commenters that "staged construction" should be considered as an additional alternative capacity approach on par with the six technology approaches considered. The Agency does not view staged construction as a separate, standalone technology comparable to the existing categories, but instead as a technique that could be employed to expedite a project when feasible. The commenter neither described how the Agency could incorporate staged construction as a separate technology into the final rule alternative capacity analysis, nor identified any source of data or information that could be used. While the commenter identified an example where staged construction was used, EPA notes that there are several other examples where this technique is incorporated in projects supporting the final rule alternative capacity analysis. This suggests that the final rule approach already includes elements of staged construction in the analyses when it was feasible, so it does not merit consideration as a separate approach. In one example, a utility pursuing construction of a new CCR surface impoundment selected a

"staged pond construction project approach, with the first few ponds being constructed for initial commissioning and remaining ponds constructed as needed for future use."[31] Another example involved the retrofit of a set of dewatering and settlement basins subsequently followed by the retrofit of a second set of basins.[32] In this example, the facility was able to cease use of the unlined impoundments after the first set of basins were retrofitted, which was the time used in the final rule capacity analysis. A final example of staged construction considered by EPA was a facility planning to build a new CCR surface impoundment in a location currently occupied by two existing, state-regulated non-CCR surface impoundments.[33] The commenter explained that the plan is for the two non-CCR surface impoundments to be combined into one CCR surface impoundment, but to expedite availability, construction efforts will focus on conversion of only one non-CCR surface impoundment at a time.

EPA disagrees with commenters that preventing the commingling of stormwater with non-CCR wastestreams would have had a material effect on the timeframes to obtain alternative capacity. The Agency reviewed the CCR surface impoundment projects included in the final rule alternative capacity analysis and available information indicates that stormwater is not commingled with other wastes. Therefore, the design and size of the new impoundments were not impacted by commingling of stormwater.

The Agency agrees with commenters that temporary tanks could serve as alternative capacity to manage non-CCR wastestreams for either storage or treatment. EPA also agrees that such storage or treatment capacity may likely be implemented on a faster timeframe at some facilities. However, EPA

[31] See docket item EPA-HQ-OLEM-2019-0172-0079.
[32] See docket item EPA-HQ-OLEM-2019-0172-0004.
[33] See docket item EPA-HQ-OLEM-2019-0172-0076.

does not have detailed project information covering the entire process of obtaining alternative capacity through this method. For some project phases, such as planning and design, EPA would expect the timeframes to obtain capacity through temporary tanks to be comparable to the technology approaches considered in the final rule. For other project phases, such as procurement and construction, the timeframes to secure alternative capacity may be shorter. Without such detailed information, EPA cannot include the suggested approach in its analysis. Under the alternative closure procedures discussed in unit V.C.3.a of this preamble, the Agency is requiring owners to evaluate the viability of obtaining temporary storage or treatment capacity while other permanent capacity is developed.

3. Establishing the Revised Deadline for Affected Units to Cease Receipt of Waste

For all unlined CCR surface impoundments, EPA proposed to revise the deadline to cease receipt of waste under § 257.101(a)(1) from October 31, 2020, to August 31, 2020, based on the Agency's analysis of the average time needed to obtain alternative disposal capacity. 84 FR 65951. This preamble section explains how EPA calculated the average length of time needed to obtain alternative disposal capacity, how the Agency determined the deadline, key changes that EPA is making in response to comments submitted on the proposed rule, and our responses to many of the comments received. A full response to comments is provided in the response to comments document available in the docket to this rulemaking.

a) Average Length of Time Needed to Obtain Alternative Disposal Capacity

EPA proposed that the average length of time needed to obtain alternative disposal capacity for an unlined CCR surface impoundment was 22.5 months. 84 FR 65951 (December 2, 2019). The Agency calculated this average time by summing the ten estimates for the six technology approaches shown in Table 2 of this preamble and dividing by the number of estimates shown in Table 2. The proposal stated

that 22.5 months, although an average, would appear to provide enough time for a substantial proportion of facilities to put in place alternative disposal capacity. In addition, EPA explained that 22.5 months would be a sufficient amount of time to retrofit all but the largest surface impoundments, and smaller surface impoundments with unique design situations. *Id*. The proposal stated that these outliers should not be the basis to extend the time for all facilities beyond 22.5 months because such action would not be consistent with ensuring that the development of alternative disposal capacity occurs as quickly as technically feasible; outliers can be accommodated by the proposed alternative closure provisions.[34]

The proposed rule also discussed why the Agency chose to rely on a single average time (i.e., the average of the average times associated with the six technology approaches) to establish a single new deadline to cease receipt of waste. First, the proposal stated that 22.5 months would provide sufficient (but not excessive) time for a substantial proportion of facilities, under a variety of approaches. Second, the proposal explained that some facilities will need less than the average amount of time to obtain the alternative capacity and some will need more. Each of the averages summarized in Table 2 reflects ranges of estimated times to develop alternative capacity, which can vary depending on site conditions and the specific facility operations. The Agency explained in the proposal that to reliably determine which facilities need less time, EPA would need to make individual facility-specific determinations and that trying to craft individualized time frames could ultimately result in longer delays in the initiation of closure for a greater number of facilities than would potentially be caused by reliance on an overall average that most facilities can meet.

Recognizing that a single deadline is necessarily less precise and that some facilities may in fact

[34] The alternative closure provisions are discussed in section V.C of this preamble.

be able to construct alternative capacity more quickly than EPA's proposed deadline, the Agency also solicited comment on an alternative approach under which the deadline would vary according to the technology adopted. For example, a facility that chose to install a non-CCR wastewater basin would have a different deadline than a facility that constructed a new wastewater treatment facility. 84 FR 65951. In this scenario, the timeframes for each approach could be based on the averages presented in Table 2 of this preamble. The proposal discussed EPA's concern that this option could be challenging to implement and to track compliance. In addition, EPA expressed concern that this approach may not result in measurably shorter time frames for most facilities, given the range of time estimates, and could lead to a greater number of variance requests under the alternative closure provisions. The proposal sought comment on this approach, including, for example, whether this more complicated regulatory approach would result in measurably shorter time frames for most facilities.

Several commenters stated that the Agency's methodology used to calculate the 22.5-month time frame is flawed. These commenters argued that EPA did not calculate a true average of the data points used in the proposal (see Table 2 of this preamble) because the Agency used more than one data point for a single method when calculating the average, which had the effect of overrepresenting that method in the calculated average.[35] In doing so, the commenters explained that EPA has skewed the data by overrepresenting certain technology approaches compared to other approaches with fewer data points, and stated that EPA did not provide a rationale for giving more weight to certain technologies.

[35] For example, the "wastewater treatment facility", "retrofit of a CCR surface impoundment", and "multiple technology system" technology approaches include two, three and two data points, respectively, while the remaining three approaches each include one data point.

Accordingly, these commenters urged the Agency to recalculate the average time needed to obtain alternative capacity so that alternative capacity technologies are equally represented.

EPA agrees that the proposed methodology to calculate the average time needed to obtain alternative capacity overrepresented certain technology approaches over others (e.g., the retrofit of a CCR surface impoundment was overrepresented relative to constructing a new CCR surface impoundment). In the final rule, each technology approach is represented by a single average, which is calculated as the arithmetic mean of the individual data points for the specific technology. Thus, the final rule methodology ensures that none of the six technologies is overrepresented compared to another technology.

As discussed in unit V.B.2.a of this preamble, several commenters stated that the estimated timeframes to obtain alternative capacity overlooked key project components that must be completed in order to construct and bring online each of the proposed alternative capacity approaches. As an example, these commenters explained that the proposed time estimates fail to account for the time that is actually needed by regulatory agencies to complete permit reviews and obtain the necessary permits required for construction of alternative capacity. These commenters further explained that the proposed time estimates fail to factor in the additional time needed to accommodate site-specific circumstances such as plant size, the number of boilers at the plant, location of the plant, and the number and volume of wastestreams affected by the conversion.

The Agency also agrees with commenters stating that certain project components (e.g., time to obtain a permit) were missing from the calculations for some technology approaches in the proposed rule. In response to this comment, EPA's final rule calculation relies on information that covers the entire process of obtaining alternative capacity, from the start of the project to its completion, including

the general project phases of planning and design, procurement, permitting, and construction and capacity commissioning. For those data used in the proposed rule that were missing a project component, the Agency removed them from the final rule calculation if the missing information could not be located. An example of where the Agency removed a data source from the final rule calculation is the surface impoundment retrofits at Keystone Generating Station in Pennsylvania. As discussed in the "Retrofit of a CCR surface impoundment" section of the preamble, EPA's re-evaluation of the retrofit report considered at proposal contained missing components of the project planning process. Because the Agency was unable to obtain additional information for this retrofit project, it was not used as part of the final rule alternative capacity analysis. Individual data handling decisions are discussed further in unit V.B.2.a of this preamble.

For each of the technology approaches evaluated, Table 3 summarizes the individual time estimates to obtain such capacity, as well as average timeframe for each technology. As discussed earlier in unit V.B.2.a of this preamble, the Agency supplemented the data set used in the proposed rule with additional project timeframes submitted by commenters. These new timeframes were not simply incorporated into the alternative capacity analysis. Instead, each submission was examined thoroughly, and, in some cases, portions of the estimated time were reduced where EPA determined that those portions were not appropriate for the analysis.

TABLE 3—SUMMARY OF DATA USED IN FINAL RULE ALTERNATIVE CAPACITY ANALYSIS

| Alternative Capacity Technology | Data Used in Final Rule Analysis (Months) | Average (Months) |
|---|---|---|

| | | |
|---|---|---|
| Conversion to dry handling…… | 33.5, 34 | 33.8 |
| Non-CCR wastestream basin……. | 18, 29 | 23.5 |
| Wastewater treatment facility……. | 18.5, 26 | 22.3 |
| New CCR surface impoundment…… | 28, 34 | 31.0 |
| Retrofit of a CCR surface impoundment…… | 12, 31.5, 46 | 29.8 |
| Multiple technology system…… | 36, 36, 36, 36, 36, 36, 36, 36, 36, 37.5, 40, 52, 55 | 39.1 |
| AVERAGE | | 29.9 |

b) Deadline to Cease Receipt of Waste for Unlined CCR Surface Impoundments

EPA proposed to revise the deadline for unlined CCR surface impoundments under § 257.101(a)(1) from October 31, 2020, to August 31, 2020. 84 FR 65951. The proposed rule explained that this revised deadline would apply to both CCR and non-CCR wastestreams. The proposal also explained that the August 31, 2020 deadline was derived by adding 22.5 months (i.e., the average length of time needed to obtain alternative disposal capacity) to October 15, 2018, which is the date of the issuance of the court's mandate for the *USWAG* decision. The proposal explained that the language of the *USWAG* decision was clear that all units that do not have a composite liner or alternative composite liner (see § 257.71(a)(1)(ii) and (iii)) will be required to cease receiving waste and close. The proposal further explained EPA's belief that owners and operators of unlined CCR surface impoundments would have started preparing to close such units upon issuance of the mandate on October 15, 2018.

Many commenters criticized EPA's proposal to rely on the date of the *USWAG* mandate as the starting point to calculate the deadline for initiating closure. These commenters argued that the *USWAG*

decision did not set a new deadline or other requirements regarding the mandatory closure of CCR surface impoundments. Rather, the *USWAG* court vacated the mandatory closure provisions in § 257.101(a) that allowed unlined surface impoundments to continue to operate even when they are not leaking, and the relevant provisions in § 257.71(a)(1) for "clay-lined" impoundments, based on the rulemaking record before the court at the time of ruling, which was August 21, 2018. These commenters also noted that the court did not prohibit the Agency from developing future regulations that might allow some unlined and "clay-lined" impoundments to continue to operate if EPA determines that those impoundments do not pose a risk to human health and environment, but left open this issue for EPA to address in future rulemakings in response to the court's remand of the case.

Another commenter argued that EPA has issued no formal guidance on the impact of the *USWAG* vacatur or how EPA intends to address the court decision. This commenter stated that the commenter was hesitant to make significant investments involving advanced engineering design, state permitting, and equipment procurement before receiving further guidance on whether and to what extent its "clay-lined" impoundments would be affected. This commenter further stated that regulatory uncertainty still persists due to ongoing EPA rulemakings and, as a result, the commenter argued that it was not provided adequate notice required under administrative law that its "clay-lined" impoundments would be re-classified as "unlined" until EPA issued the December 2, 2019 proposed rule. Therefore, the commenter contended that the date of the *USWAG* decision is not appropriate. Another commenter further argued that "any effort by the Agency to impose a closure deadline with a start date tied to issuance date of the *USWAG* mandate would have the effect of imposing a retroactive legislative regulation that is impermissible under the RCRA statutory scheme."

Other commenters stated that EPA's proposal to use the date of the *USWAG* mandate (i.e.,

October 15, 2018) represents an unlawful deadline extension. With one exception, these commenters argued that the proposed *USWAG* starting point provides owners and operators of unlined CCR surface impoundments with additional time to begin closing impoundments that they would have otherwise been prepared to close consistent with the requirements of the 2015 CCR Rule.[36] These commenters stated that the one exception would be for CCR surface impoundments that did not face closure deadlines but will now have to close following the *USWAG* decision.

The commenters also stated that the proposed deadline of August 31, 2020 represents an unjustified extension of the 2015 CCR Rule requirements for CCR surface impoundments that leak or fail the aquifer location restriction, which were the minimum standard necessary to ensure no reasonable probability of adverse effect on human health and the environment for these types of CCR units. The commenters further explained that neither the current proposal nor the July 30, 2018 final rule[37] provide any evidence showing that a later deadline (than the deadlines finalized in the 2015 CCR Rule) meets RCRA's protectiveness standard. The commenters also argued that the proposed deadline is inconsistent with the *USWAG* decision. The commenters stated that the current proposal and the July 30, 2018 final rule are based on impermissible considerations of cost and ignore evidence of widespread contamination caused by leaking impoundments.

Finally, these commenters criticized the proposal for failing to actually require facilities to close

[36] The 2015 CCR Rule required owners and operators of an existing unlined CCR surface impoundment to cease placing CCR and non-CCR wastestreams into such CCR surface impoundment and either retrofit or close the CCR unit within six months of making a determination that the concentrations of one or more constituents listed in Appendix IV to this part are detected at statistically significant levels above the groundwater protection standard established under §257.95(h).

[37] 83 FR 36435. In this final rule EPA extended the deadline to October 31, 2020 by which facilities must cease the placement of waste in CCR units closing for cause in the situations where the facility has detected a statistically significant increase above a groundwater protection standard and where the impoundment is unable to comply with the aquifer location restriction.

as soon as feasible. According to these commenters, because it would establish a single deadline, the proposal would effectively grant additional time to units that could in fact close more quickly. The commenters explained that an industry average violates RCRA's protectiveness standard by basing regulatory requirements on what is convenient or most affordable for facilities, rather than the most expeditious schedule that is technically feasible. The commenters also stated that the rulemaking record was lacking in that the proposal did not include a determination about whether the projects reflected in the industry submissions supporting the alternative capacity analyses are representative of conditions at CCR impoundments across the country, whether the projects were completed expeditiously, or whether the facilities picked among the various options based on the need for timely compliance with the CCR rule or on the relative costs of the options.

Finally, many of these commenters stated that the CCR Part A proposed rule failed to meet the RCRA 4004(a) protectiveness standard because EPA failed to consider the risks associated with new groundwater monitoring data, violations of location standards, extensions of the operating life of unlined surface impoundments and known compliance issues with groundwater monitoring, annual inspection and liner requirements.

Other commenters suggested that deadlines be extended a specific amount of time following the publication of the final rule or to specific dates. These commenters recommended that the proposed deadline to cease receipt of waste be pushed back by six months to February 2021. This deadline would provide facilities the time needed to understand their obligations and comply with the new regulations, the commenters argued.

The commenters have misunderstood the basis for EPA's proposal. EPA proposed to start the clock on October 15, 2018 because on that date, all unlined surface impoundments, including those that

are "clay-lined," were required to cease receipt of waste and initiate closure no later than October 31, 2020. In other words, EPA's proposal merely reflected the state of the law as it existed on that date.

The court ordered that "the final rule be vacated and remanded with respect to the provisions that permit unlined impoundments to continue receiving coal ash unless they leak." 901 F.3d at 431-432. As explained in the proposal, EPA interprets the court as having vacated only the following phrase in § 257.101(a)(1): "if at any time after October 19, 2015, an owner or operator of an existing unlined CCR surface impoundment determines in any sampling event that the concentrations of one or more constituents listed in Appendix IV of this part are detected at statistically significant levels above the groundwater protection standard established under §257.95(h) for such CCR unit…." The court further ordered that "the Final Rule be vacated and remanded with respect to the provisions that…classify "clay-lined" impoundments as lined, see 40 C.F.R. § 257.71(a)(1)(i)…." *Id*. Once the mandate issued on October 15, 2018, the vacatur became effective, and with the deletion of those phrases the regulation in fact required all unlined and "clay-lined" CCR surface impoundments to cease receipt of waste no later than October 31, 2020. It is for this reason that EPA believes facilities began to plan for closure on that date--a belief confirmed by several commenters who acknowledged that they began planning to close their impoundments as of this date.

For the same reason, EPA disagrees that any facility lacked notice that "clay-lined" units would be required to close. And while it is true that the court did not preclude EPA from developing a record to support a new rule, any such future actions would be purely speculative. EPA does not believe that it would be reasonable for facilities to have relied on the mere potential that EPA might adopt some other requirement in the future.

EPA also disagrees that its proposal to rely on the date of the court's mandate would constitute a

retroactive application of law. For a regulation to be retroactive, it must change the prior legal status or consequences of past behavior. See *Landgraf v. USI Film Products,* 511 U.S. 244, 269, n.4 (1994) (A rule "is not made retroactive merely because it draws upon antecedent facts for its operation."). *Treasure State Resource Industry Ass'n v. E.P.A.*, 805 F.3d 300, 305 (D.C. Cir. 2015). By contrast, here EPA has merely relied on a past fact to support future requirements.

As a result, the Agency is finalizing an amended version of the approach presented in the proposed rule to determine the deadline for unlined CCR surface impoundments to cease receipt of waste. Specifically, the deadline to cease receipt of waste in the final rule is based on adding the average time to obtain alternative capacity to October 15, 2018, which is the date of the issuance of the court's mandate for the *USWAG* decision. As discussed in unit V.B.3.a of this preamble, EPA determined the average time to obtain alternative capacity to be 29.9 months (or 29 months, 27 days). Adding 29.9 months to October 15, 2018, results in a deadline to cease receipt of waste and to initiate closure of April 11, 2021, which is the new deadline being codified in § 257.101(a)(1). This deadline applies to all unlined CCR surface impoundments, including "clay-lined" impoundments. Note that this deadline also applies to any unlined inactive CCR surface impoundments, pursuant to § 257.100(a), which provides that all requirements applicable to existing impoundments apply also to inactive impoundments. An inactive unit is one that has ceased receipt of CCR. Section 257.53. Although these units have already ceased receipt of CCR, some facilities continue to use the unit to manage other non-CCR wastes. Irrespective of whether the unit continues to receive non-CCR waste or has ceased receipt of all waste, they must now initiate closure by the new deadline.

EPA acknowledges that it was unable to conduct a new risk assessment to support this rulemaking in the timeframe that was available. Nevertheless, this rule is consistent with the decisions

from the D.C. Circuit. As explained previously, EPA considers that requiring facilities to cease receipt of waste as soon as is technically feasible necessarily meets the RCRA 4004(a) standard, as EPA cannot impose more stringent requirements than those that can be successfully implemented by at least some entities.

Moreover, although the D.C. Circuit determined that EPA lacked the record to authorize the unlimited operation of unlined CCR surface impoundments—and consequently mandated their closure—neither the *USWAG* nor the *Waterkeeper* decision addressed the timing of such actions or what kind of process would be appropriate or necessary. Rather, both the relevant portion of the 2015 CCR rule and the July 18, 2018 rule were remanded back to EPA to allow the Agency to determine the further actions necessary to be consistent with the decision. As part of this rulemaking, EPA is mandating the closure of all unlined impoundments, which is fully consistent with the holding in *USWAG* that the closure of these units is warranted based on the record before the Agency. This rule merely creates an orderly process for ensuring that this occurs.

EPA further disagrees that the use of an average effectively based the requirements on what is convenient or that the Agency failed to evaluate whether the industry estimates represented expeditious time frames. As discussed previously, EPA expressly recognized that in many cases the schedules presented did not reflect an expedited timeline and therefore considered those time frames to reflect the upper bound of the amount of time necessary to complete construction. EPA also discounted estimates that were inconsistent with timeframes presented in submissions from commenters describing completed projects, or were based on factors unique to that site that are unlikely to be relevant to other facilities nationwide. EPA also reduced some portions of estimates to account for overlapping tasks.

EPA also disagrees that the final deadline fails to account for representative conditions across the

country. Approximately 85 percent of CCR facilities are located in three geographic regions of the US: the Midwest (41 percent), the Southeast (34 percent), and the Southwest (10 percent). The facilities represented in the final rule alternative capacity analysis include multiple facilities in each of these three geographic regions. The final rule analysis includes facilities located in regions with shorter construction seasons due to frigid winters (Minnesota, Wisconsin, North Dakota), as well as regions with the generally mild winters with longer construction seasons (New Mexico, Arizona, Texas). The analysis also includes facilities located in semiarid regions that receive 10 to 20 inches of rain per year (New Mexico and Arizona), as well as subtropical regions that annually receive 40 to 60 inches of precipitation (North Carolina, Kentucky, Louisiana). As a consequence, the data on which EPA relied to develop the final deadline included data from construction projects located in a wide range of geographic and climactic conditions. The Agency also believes the final rule deadline is representative regarding impoundment size, using surface area acreage of the unit as the surrogate of size. The facilities represented in the final rule alternative capacity analysis include a wide range of unit sizes, including units ranging from less than 10 acres to over 100 acres. As a whole EPA considers these to be representative of the range of conditions at CCR surface impoundments across the country.

EPA acknowledges that one approach would have been to calculate a timeframe based on a single technology method to developing alternative capacity—e.g., selecting a single "best" or fastest approach, such as converting to dry handling or constructing a wastewater treatment plant. However, EPA disagrees that this would be appropriate; there are many technical reasons that a facility might select one approach over another that have nothing to do with cost or convenience. For example, the facility might not have sufficient available real estate to construct the alternative capacity, and so might need to retrofit their existing surface impoundment so that they can continue to use a single unit to

manage all of their wastes.[38] Similarly, if a facility is trying to comply with multiple EPA regulations or moving away from the commingling of CCR and non-CCR wastestreams, adopting a multiple technology approach may ultimately result in faster compliance overall, even if individual components could theoretically be adopted sooner. Another example could be a facility that sluices bottom ash (or fly ash) to a zero-discharge unlined impoundment where construction of a wastewater treatment facility would not be a viable disposal substitute. In addition, EPA currently lacks the technical record to determine that mandating the single fastest technology for constructing alternative capacity can effectively be implemented by all facilities.

EPA agrees that facilities that can cease receipt of waste more quickly than April 11, 2021 must do so. To address the concern that the new deadline would improperly grant more time to facilities that could close more quickly, EPA has revised the regulation to require that facilities close their unlined impoundments "as soon as technically feasible, but no later than April 11, 2021." See § 257.101(a)(1).

EPA further disagrees that the approach in this rule fails to adequately address the risks. As explained in the proposal, EPA lacked the data to develop a revised nationwide risk assessment to support this rulemaking. Although the commenters are correct that facilities have posted substantial amounts of groundwater monitoring data, as EPA explained, this information could not be easily or readily incorporated into a nationwide risk assessment. EPA estimates that it could have taken as long as one year to develop a revised risk assessment even assuming the Agency could obtain the necessary data. This would have further extended this rulemaking process, which EPA had originally hoped to complete in nine months. A delay in the rulemaking would effectively grant facilities additional time to

[38] See docket item EPA-HQ-OLEM-2019-0172-0005 for an example of real estate constraints.

continue operating these units. Ultimately, the approach that the Agency has taken will result in the initiation of closure—with all the risk reduction that entails—much sooner.

In addition, EPA considers that the approach taken in this rule effectively addresses the risk from these facilities. EPA is requiring facilities to close as soon as it is technically feasible to do so. The final rule defines technical feasibility to mean "possible to do in a way that would likely be successful." As EPA has explained, this standard effectively addresses the risk because it is not possible to impose more protective measures than those that can actually be implemented.

As further measures to address the risk from continued operation of these units, the Agency is requiring all surface impoundments that seek additional time to be in compliance with all applicable requirements in 40 CFR Part 257, Subpart D. And for those facilities seeking an extension under § 257.103(f)(2) the owner or operator must develop a risk mitigation plan for that surface impoundment. If EPA determines that further measures are needed to address the risk during its review of the § 257.103(f)(2) extension request, EPA will require those measures as a condition of its approval. These provisions are discussed in more detail in subsequent Units of this preamble.

Finally, EPA believes that the revised deadline of April 11, 2021 to cease placing waste into the impoundment provides facilities with adequate time to understand and comply with their obligations under the final rule.

c) Deadline to Cease Receipt of Waste for CCR Surface Impoundments that Failed the Aquifer Location Restriction

The proposed rule explained that the October 31, 2020 cease receipt of waste date applied not only to the unlined leaking CCR surface impoundments subject to § 257.101(a), but also to the units that failed the minimum depth to aquifer location restriction standard subject to §257.101(b)(1)(i). 84 FR

65951 (December 2, 2019). Therefore, EPA proposed that the deadline to cease receipt of CCR and non-CCR wastestreams for these CCR units also be amended to August 31, 2020.

This proposed rule discussed that the new date was selected based on the same rationale explained for unlined CCR surface impoundments. The proposal stated that these units are similarly situated in that these facilities need additional time to develop alternative capacity to transition away from their surface impoundments. As previously discussed, based on the data received from stakeholders, EPA calculated that the average amount of time to take the necessary steps to cease placement of waste into a surface impoundment was approximately 22.5 months. In addition, based on the data on facilities' publicly accessible CCR Internet site regarding compliance with the location restriction standards, the majority of the units that failed the aquifer location restriction are also unlined and must close under § 257.101(a). The proposed rule explained that it is therefore logical to establish the same deadline to cease receipt of waste for units that failed the minimum depth to aquifer location restriction standard. The proposal also stated EPA's belief that it is technically infeasible for a majority of these units to be able to cease receipt of waste prior to August 31, 2020 due to the lack of alternative capacities. EPA further raised the concern that requiring the immediate initiation of closure could disrupt operations at the power plants. Therefore, EPA proposed the date of August 31, 2020 for the deadline to cease placement of waste for § 257.101(b)(1)(i) to replace the date of October 31, 2020, which was established in the July 30, 2018 Final Rule.

This final rule uses the same approach as for unlined and "clay-lined" units to establish the cease receipt of waste date to April 11, 2021 for CCR surface impoundments that failed to meet the aquifer location restriction.

d) Revisions to the Groundwater Monitoring and Corrective Action Requirements in § 257.91(d) and § 257.95(g)(5)

The CCR regulations require each CCR unit to have its own groundwater monitoring system, unless the owner or operator chooses to install a multiunit groundwater monitoring system. If a multiunit groundwater monitoring system is installed, the CCR regulations state that the system must be based on the consideration of several factors that are specified in § 257.91(d)(1). Furthermore, the regulations currently provide under § 257.91(d)(2) that if a multiunit groundwater monitoring system includes at least one unlined CCR surface impoundment, and the concentrations of one or more constituents listed in Appendix IV to this part are detected at statistically significant levels above the groundwater protection standard for the multiunit system, then all unlined CCR surface impoundments comprising the multiunit groundwater monitoring system are subject to the requirements under § 257.101(a) to retrofit or close. In addition, under the assessment monitoring provisions in § 257.95(g), owners and operators of all CCR units are required to take certain actions when one or more constituents listed in Appendix IV of part 257 are detected at statistically significant levels above the groundwater protection standard. Section 257.95(g)(5) specifies that existing unlined CCR surface impoundments are subject to the closure requirements under § 257.101(a) if an assessment of corrective measures is required under § 257.96. Another requirement of § 257.95(g) is that the owner and operator must also prepare a notification stating that an assessment of corrective measures has been initiated.

In the December 2, 2019 rule, the Agency proposed to delete the multiunit system requirements under § 257.91(d)(2) because the provision is no longer relevant, as all unlined CCR surface impoundments are required to retrofit or close. 84 FR 65952. EPA received no comments on this proposed action and the Agency is therefore removing and reserving § 257.91(d)(2) in this action. EPA

is also revising § 257.95(g)(5) to remove the requirement specifying that existing unlined CCR surface impoundments are subject to the closure requirements under § 257.101(a) if an assessment of corrective measures is required under § 257.96. The Agency is finalizing this revision because it is redundant to the requirement codified in § 257.101(a) for unlined CCR surface impoundments, which requires all unlined impoundments to close or retrofit. However, the Agency is retaining the other requirement of § 257.95(g)(5) that specifies an owner or operator must prepare a notification stating that an assessment of corrective measures has been initiated.

C. *Revisions to The Alternative Closure Standards (§ 257.103)*

In the December 2, 2019 proposal, EPA proposed three new alternative closure provisions. As explained in the proposal, these provisions were intended to create procedures by which a CCR surface impoundment could obtain additional time to cease the receipt of waste and initiate closure. The original provisions in the 2015 rule, § 257.103(a) and (b), only allow the continued placement of CCR; both exclude the placement of non-CCR wastestreams. EPA proposed to allow a facility to temporarily continue to manage both the CCR and non-CCR wastestreams currently being managed in the CCR surface impoundment. EPA proposed three new alternative closure standards: 1) a short term alternative to initiation of closure (§ 257.103(e)), 2) a site-specific alternative to initiation of closure due to lack of capacity (§ 257.103(f)(1)), and 3) a site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain (§ 257.103(f)(2)). As explained in the proposal, most of these provisions rely on determinations of how quickly it is feasible for the facility to cease receipt of waste, rather than a determination that continued operation will result in acceptable levels of risk. The exception is that the extension under § 257.103(f)(2) is based on a qualitative risk-risk tradeoff (the increased risk of continuing to operate the unit is offset by the decreased risk of the expedited closure)

and a site-specific risk mitigation plan. For all of these, EPA believed it was important to require facilities to submit demonstrations to EPA for approval. This was a significant change from the existing provisions which are self-implementing. Finally, EPA proposed conforming changes to have the existing alternative closure provisions in the 2015 rule, § 257.103(a) and (b), only apply to landfills. The new provisions at § 257.103(f) would then apply only to CCR surface impoundments.

1. Short Term Alternative Deadline to Cease Receipt of Waste (§ 257.103(e))

In the December 2, 2019 proposal, EPA proposed a self-implementing short term alternative to the cease receipt of waste deadline. This alternative was designed for those facilities that need only a little more time to complete development of an alternative capacity technology. EPA proposed that facilities demonstrate and certify that additional time is needed for it to be technically feasible to cease receipt of waste and initiate closure. The provision would have allowed for no more than a three-month extension from the deadlines in § 257.101(a) and (b)(1)(i). The proposal was an acknowledgement that events can occur which are completely out of the facility's control, such as extreme weather or a delay in material fabrication. In essence, this would have been a limited "force majeure" provision. EPA proposed requirements of the certification mirroring those in the current requirements of § 257.103(a). 84 FR 65953. EPA proposed that the owner or operator would have to certify the following: 1) no alternative disposal capacity is available on or off-site (an increase in costs or inconvenience is not sufficient support); 2) the owner or operator has made and continues to make efforts to obtain additional capacity; and 3) the owner or operator is (and must remain) in compliance with all other requirements of part 257. EPA proposed that a brief narrative of each component of the certification would be required to explain why a three-month extension is necessary. EPA proposed that the certification to be placed in the facility's operating record, placed on the facility's publicly accessible CCR Internet site, and

submitted to EPA as a notification of the facility's intent to comply with the alternative deadline under this provision.

EPA received several comments from environmental groups stating concerns that EPA's proposal failed to establish strict criteria that would actually ensure that this extension would only be used in true "force majeure" situations. They additionally commented that the demonstration requirements failed to meet the protectiveness standard of RCRA § 4004(a) because it allowed facilities to consider costs or practicable capability.

Industry groups provided comments that supported this proposal on the grounds that events do happen that are out of the facility's control, such as extreme weather, that have a high impact on their construction schedule. They supported this provision being self-implementing. A few industry groups did comment that the short-term alternative and the site-specific longer alternatives should not be mutually exclusive options. They further commented that because the proposed deadline to cease receipt of waste fell in the middle of construction season it was unlikely for facilities to be able to accurately gauge if they could complete development in three months or if they would need longer depending on the severity of the event.

After evaluating the comments, EPA is not finalizing this provision. As discussed in unit V.B.3, EPA has recalculated the deadline by which facilities must cease receipt of waste based on data received in comments; the new deadline is April 11, 2021. As a consequence, EPA considers that this proposal is no longer necessary. In part, the proposal was intended to account for the short interval between the proposed deadline to cease receipt of waste (August 31, 2020) and the expected promulgation of the final rule (July 2020). Such an interval would be too short for a facility to accommodate unforeseen events that impact the construction schedule. This is no longer the case with the revised deadline.

Facilities will have several months between promulgation of the final rule and the date by which they must cease receiving waste, and thus should be able to accommodate the circumstances that would have been addressed by the three-month extension. As a further consideration, because the final deadline was calculated with more data than was available for the proposal, EPA has greater confidence that most facilities will be able to meet the deadline.

EPA is reserving paragraph (e) of § 257.103, where the short-term extension was proposed, rather than renumbering the proposed regulation to avoid confusion.

2. Issues Applicable to both § 257.103(f)(1) and (f)(2)

a) Scope of waste that may continue to be managed in the surface impoundment.

In the December 2, 2019 proposal EPA proposed to allow facilities under the new alternative closure provisions to obtain approval to continue to place CCR and/or non-CCR wastestreams. The existing alternative closure provisions § 257.103(a) and (b) only allow the continued disposal of CCR. EPA sought comment on whether the proposed site-specific alternative closure provisions should only apply to non-CCR wastestreams. Under such an approach, facilities could continue to dispose of CCR pursuant to the existing provisions § 257.103(a) and (b). As explained in the proposal, in the record before the Agency many facilities highlighted that not having capacity for non-CCR wastestreams is a critical issue that places the operation of the facility at risk. Evidence suggests that the average time to develop alternative capacity for non-CCR wastestreams is often the primary driver of determining a technically feasible timeframe for being able to initiate the closure of surface impoundments that comingle CCR and non-CCR wastestreams.

EPA received several comments from industry groups stating that they believe the existing alternative closure provisions, § 257.103(a) and (b), do not prohibit the continued placement of non-

CCR wastestreams. Some commented that facilities should be able to continue to use the existing provisions for continued CCR disposal, and only be required to submit applications under the new provisions if they lack capacity for both CCR and non-CCR wastestreams or for non-CCR wastestreams. They claimed that it was burdensome to submit the demonstrations and they believe the self-implementing extensions are sufficient for CCR wastestreams.

EPA received comments from environmental groups stating that non-CCR wastestreams may be subject to hazardous waste regulations when not co-disposed with CCR in surface impoundments. They argued that owners and operators must determine whether the non-CCR wastestreams are listed wastes or whether they exhibit any of the characteristics of a hazardous waste. They further stated that the December 2019 proposed rule did not identify what constitutes a non-CCR wastestream nor any requirements to evaluate different non-CCR wastestreams to determine whether they contain listed hazardous wastes or display hazardous waste characteristics. Lastly, they stated EPA must evaluate the full nature and extent of the risk before allowing disposal of non-CCR wastestreams without adequate safeguards.

After reviewing the public comments, EPA is maintaining its proposed approach that the new site-specific alternative closure provisions will, upon successful demonstration, allow certain CCR surface impoundments to receive CCR wastestreams, or non-CCR wastestreams, or a combination of both. No commenter provided any information rebutting the Agency's conclusion that the need to find alternative capacity for non-CCR wastestream is often the most critical factor in determining the amount of time needed to initiate closure of the unit.

Moreover, if the new provisions applied exclusively to non-CCR wastestreams there would be two sets of regulatory requirements with different criteria applicable to the same surface impoundment.

This would create unnecessary complications in implementing and enforcing the provisions. Nor does it make sense for the more stringent requirements in the new provisions to apply exclusively to the non-CCR wastestreams when the vast majority of hazardous constituents are found in the CCR wastestream. EPA understands the concerns that the demonstrations require a new effort by the facilities. However, these considerations are offset by the benefits that come with the enhanced regulatory oversight of the new provisions and having all wastestreams managed in the disposal unit under a single set of regulatory requirements.

EPA disagrees that the proposed rule should have defined non-CCR wastestreams. The regulations already define CCR; therefore, a non-CCR wastestream is any other nonexempt waste managed in the impoundment. See 40 CFR 257.53 and 261.4(b)(4). EPA agrees that some non-CCR wastestreams are not Bevill-exempt and consequently they remain subject to all requirements applicable to solid waste, and if they meet the criteria, the requirements applicable to hazardous waste. This includes the requirement to determine whether the waste is hazardous based on either the generator's knowledge or testing. If the waste is hazardous it must be managed according to the requirements of RCRA subtitle C; when going to an impoundment, the impoundment must meet subtitle C requirements. Mixtures of hazardous waste and Bevill exempt wastes are not exempt unless the only hazardous constituents in the mixture are those that are found in the Bevill exempt waste. In addition, mixing a hazardous waste with a Bevill exempt waste may be considered treatment in some circumstances, which would itself require a permit. However, EPA has no data to indicate that non-CCR wastestreams are characteristically hazardous. Given the existing requirements that currently apply to these wastestreams, EPA disagrees that additional requirements are needed or should have been proposed. Finally, EPA explains below, in unit V.2.d, the reasons that these revisions rely primarily on feasibility rather than

risk considerations.

b) Units Potentially Eligible for Alternative Closure Timeframes

In the December 2, 2019 proposal, EPA discussed several options as to the CCR surface impoundments that would be eligible for the new alternative closure provisions. EPA proposed to allow all CCR surface impoundments to be eligible to submit demonstrations for the new alternative closure provisions. This included surface impoundments that failed one or more location restrictions other than the depth to aquifer location restriction. EPA recognized that these units were not included in the July 2018 final rule that established the October 31, 2020 deadline to cease receipt of waste, and consequently their deadline to cease receipt of waste was April 2019. However, EPA proposed to include them in this new approach to create a consistent regulatory system. 84 FR 65,953. EPA also sought comment on whether the proposed site-specific alternatives to initiation of closure provisions should only apply to the CCR surface impoundments forced into closure by the *USWAG* decision (now defined as "eligible unlined CCR surface impoundments"—i.e., units that were certified as "clay-lined" or units that are unlined but not leaking, compliant with all location standards and compliant with structural stability).

Several utility companies provided comments that surface impoundments closing due to § 257.101(b)(1)(ii) should be able to apply for the new alternatives. They further stated that those who had filed a notification of intent to close pursuant to §§ 257.103(a) or (b) should be grandfathered into the new alternatives. Environmental groups stated that this group of units should not be eligible for the new alternative closure provisions because they should have initiated closure in April 2019 and because it would violate the RCRA 4004(a) protectiveness standard.

Industry groups commented that the alternative closure provisions should not be limited to the

eligible unlined CCR surface impoundments. They elaborated that lack of capacity for CCR and/or non-CCR wastestreams is not limited to the facilities recently forced into closure but most facilities. By contrast, environmental groups stated that many facilities have been on notice that they would be required to close and should have prepared for that in advance, and so EPA should not grant them even further time. However, even these commenters acknowledged that the surface impoundments that are unlined, not leaking, and passed all location restrictions were forced into closure unexpectedly, and so may need additional time to initiate closure.

Consistent with the proposal, under the final rule all CCR surface impoundments will be subject to the new provisions in § 257.103. EPA continues to believe there is value in subjecting CCR surface impoundments to a common regulatory system. A common regulatory system for CCR surface impoundments requiring the use of § 257.103 will move these units to initiate closure as quickly as possible and decrease any confusion to the public. The new alternative closure provisions will grant facilities no more than the specific amount of time required for them to cease receipt of waste as fast as technically feasible. EPA cannot compel facilities to do the impossible; therefore, these new provisions will ensure facilities cease receipt of waste as fast as technically feasible.

EPA agrees that the eligible unlined CCR surface impoundments should be eligible to apply for the new alternative closure provisions. The owners and operators of these units had no expectation that they would need to close these units in the near future and so would not have begun planning for such an event. They may, therefore, need more time to construct the alternative capacity necessary to allow them to cease receipt of waste.

However, EPA no longer believes that all surface impoundments should be eligible to apply for all of the new alternative closure provisions. Consequently, the final rule provides that only CCR surface

impoundments closing pursuant to § 257.101(a) and § 257.101(b)(1)(i) may apply for the new alternative closure provisions under § 257.103(f)(1) and (f)(2) for CCR and/or non-CCR wastestreams. As previously stated, the surface impoundments that failed a non-aquifer location restriction or multiple location restrictions were triggered into closure under § 257.101(b)(1)(ii) and were to initiate closure in April 2019. The only exception would be for the facilities that posted a notification of intent to close pursuant to § 257.103(a) or (b) based on a lack of capacity for only CCR, as those provisions only authorized continued receipt of CCR. EPA agrees with commenters that no one has presented a factual basis for allowing these units to commence or resume the receipt of wastes (i.e., non-CCR wastestreams) two years after they were required to have ceased. This stands in direct contrast to the units subject to the October 31, 2020 deadline, which currently are authorized to continue receiving both CCR and non-CCR wastestreams. Moreover, the purpose of this rulemaking was to reconsider the closure deadlines in the July 2018 final rule in light of the decision in *USWAG*. What matters in this context is how, if at all, EPA should revise the regulatory status quo based on the direction from the D.C. Circuit. The closure deadlines for impoundments closing in accordance with § 257.101(b)(1)(ii) were not affected by either the *USWAG* decision or the July 2018 rule. EPA does not intend in this rulemaking to revisit closure provisions that were unaffected by either of these things, contrary to the commenter who contended that EPA was relying on the decision and its reconsideration to provide a clean slate to recalculate all deadlines.

Therefore, this final rule allows CCR surface impoundments closing due to § 257.101(b)(1)(ii) that have posted a notification pursuant to § 257.103(a) or (b) to apply to be transitioned to the new alternative closure provisions under § 257.103(f)(1) and (f)(2) for CCR wastestreams only.

c) Transition for surface impoundments operating under § 257.103(a) and (b)

In the December 2, 2019 proposal, EPA sought comment on how to transition the facilities that have posted notifications pursuant to § 257.103(a) or (b) due to forced closure under § 257.101(b)(1)(ii) to the new alternative closure provisions. Several utility companies commented that these facilities should be grandfathered into the new provisions without submitting demonstrations to EPA for approval. These commenters additionally stated that these units should be allowed to continue to operate for the amount of time authorized under the existing regulations, which potentially authorize continued operation for as long as 5 years from the notification date. They further stated that the demonstration requirements would add unnecessary burden to the facilities currently closing pursuant to § 257.103(a) and (b).

EPA acknowledges the concern that the demonstrations will add burden to the facilities currently operating under § 257.103(a) and (b). However, the commenters have not provided a compelling rationale for creating two distinct regulatory frameworks for units that are essentially identical. There is substantial value in creating a consistent regulatory framework for all CCR surface impoundments requiring more time to cease receiving waste. As part of that framework, EPA has concluded that closer regulatory oversight is necessary to ensure that facilities initiate closure as soon as technically feasible. EPA has come to this decision based on an evaluation of the current status of compliance of the facilities operating under the self-implementing provisions of § 257.103(a) and (b). For example, notifications and progress reports on facilities' publicly accessible CCR Internet sites do not contain all of the information required under § 257.103(a), (b), and (c). Some of these documents do not include the method by which the facility is obtaining alternative capacity, the date by which alternative capacity will

be obtained, or a clear demonstration that no other disposal capacity is available on or off-site[39]. Based on this record, it is clear that these provisions require the closer regulatory oversight that comes with requiring prior EPA approval. Consequently, EPA will not grandfather in the facilities that have filed notifications and will require all facilities to submit demonstrations to EPA for approval under the new site-specific alternative closure provisions in order to continue operating that surface impoundment.

Any facility that currently has posted on its publicly accessible CCR Internet site a notification to close a CCR surface impoundment pursuant to § 257.103(a) or (b) must submit a demonstration for EPA approval that meets the requirements under § 257.103(f)(1) or (f)(2) in order to continue operating that unit. Therefore, if a facility has a notification posted and is currently operating under § 257.103(a) or (b) due to closure under § 257.101(b)(1)(ii) and does not submit a demonstration to EPA by November 30, 2020, then the facility must cease the receipt of waste into the unit no later than April 11, 2021 and initiate closure.

d) Consistency with statutory standard and *USWAG*.

EPA received comments from environmental groups that the December 2, 2019 proposal with the addition of the new alternative closure provision is inconsistent with the statutory standard and the *USWAG* decision. These commenters stated that the alternative closure provisions allowed unlined CCR surface impoundments to continue to operate when the *USWAG* decision mandated that these units present a risk to human health and the environment and must close. Additionally, they stated that the new alternative closure provisions do not address the risks posed by the continued operation of the surface impoundment, and that as a consequence, the proposed demonstration requirements fail to meet

[39] Compiled reports from the facilities utilizing the alternative closure provisions.

the RCRA protectiveness standard.

EPA disagrees with commenters that these provisions fail to meet the statutory standard as interpreted by the court in *USWAG*. It is true that EPA was unable to conduct a nationwide risk assessment to document that all facilities that obtain an extension under one of the alternative closure provisions will meet the statutory standard; however, both subsections (f)(1) and (f)(2) include conditions designed to address the risks. Both provisions require facilities to affirmatively demonstrate that they are in compliance with all the requirements of part 257, and therefore meet the baseline level of acceptable risk. In addition, as explained in more detail below, subsection (f)(2) requires the submission of a risk mitigation plan as part as a condition of obtaining the extension.

Moreover, with regard to the extensions pursuant to § 257.103(f)(1), as explained in the proposal, EPA considers that requiring facilities to cease receipt of waste as quickly as is feasible necessarily meets the standard in RCRA 4004(a) as it is not possible under this provision to require more stringent--or more protective--measures than can be implemented by at least some facilities. EPA has ensured that the statutory standard has been met by requiring facilities to affirmatively demonstrate to EPA the infeasibility of ceasing receipt of waste by April 11, 2021 and by requiring prior EPA approval of any requested extension, allowing EPA to ensure that units stop receipt of waste as soon as feasible.

EPA also considers that the provisions authorizing extensions pursuant to § 257.103(f)(2) meet the statutory standard. Although facilities are not required to demonstrate that they will cease receipt of waste as soon as feasible under this section, they will be required to expedite the closure of the surface impoundment. Not only will this reduce the risks over the long term, the deadlines will ensure that continued operation of the unit will be limited. Moreover, as discussed at greater length in unit V.C.4,

EPA is requiring submission of a risk mitigation plan to address any increased risk from continued operation of the surface impoundment, which EPA will review as part of determining whether to grant the extension. If additional measures to mitigate the risk are necessary to ensure that the statutory standard is met, EPA will require those as a condition of granting the extension.

3. Requirements for Development of Alternative Capacity Infeasible (§ 257.103(f)(1))

In the December 2, 2019 proposal, EPA proposed that a facility can obtain a site-specific deadline to cease receipt of waste by submitting a demonstration that development of alternative capacity for CCR and/or non-CCR wastestreams cannot be completed prior to November 30, 2020 (the end date of the short term alternative) to EPA or the Participating State Director for approval. The owner or operator would be required to demonstrate that it is not technically feasible to complete the development/installation of alternative capacity prior to the deadline to cease receipt of waste. In this demonstration, the facility would need to present in detail the specifics of the process they are undertaking to develop alternative capacities for the necessary CCR and/or non-CCR wastestreams to support the claim that additional time is necessary.

a) Criteria and documentation

In order to obtain the § 257.103(f)(1) extension, EPA proposed the owner or operator must meet and maintain the criteria listed in the provision. EPA proposed to require that the demonstration for each surface impoundment document or provide evidence for all of the following: 1) That there is no alternative capacity available on or off-site; 2) That CCR and/or non-CCR wastestreams must continue to be managed in the CCR surface impoundment due to the technical infeasibility of obtaining alternative capacity prior to the deadline to cease receipt of waste; as part of this demonstration the facility was required to include an analysis of the adverse impact to plant operations if the CCR surface

impoundment in question were to no longer be available for use; 3) a detailed workplan on obtaining alternative capacity for CCR and/or non-CCR wastestreams; and 4) a narrative of how the owner or operator will continue to maintain compliance with all other aspects of the CCR rule (including ongoing groundwater monitoring and corrective action requirements). Additionally, EPA proposed that this showing must be made for each wastestream that would continue to be managed in the unit and the owner or operator would be required to cease receipt of each wastestream when alternative capacity for each wastestream becomes available. Finally, EPA proposed the time to develop the alternative capacity could not extend beyond October 15, 2023, and that the owner or operator must remain in compliance with all the applicable requirements of this subpart.

*No alternative capacity on or off-site.* The first criterion EPA proposed is generally the same that is required in § 257.103(a)(1)(i). The owner or operator must demonstrate the lack of alternative capacity available on or off-site to manage the waste. EPA also proposed that an increase in costs or inconvenience would not be sufficient to support qualification under this section.

EPA received no comments opposing the inclusion of this requirement in the final rule. One commenter, who believed that costs should not be considered as part of this determination, raised the concern that the regulatory text would not preclude consideration of cost as part of this determination. EPA disagrees that the regulatory text is ambiguous on this point. EPA proposed to include the same provisions currently found at § 257.103(a) and (b); these provisions were challenged on the grounds that the regulation precluded the consideration of costs in making this exact showing. See *USWAG*, 901 F.3d at 448-449. Therefore, EPA considers the regulatory text to be clear on this point and is finalizing the proposed requirement without revision.

*Documentation requirements of no alternative capacity on or off-site.* EPA proposed to require

facilities to provide documentation that no alternative capacity exists on or off-site of the facility that could be used to manage their waste as part of their submission.

EPA received comments from utilities requesting clarification on the acceptable measures for determining lack of off-site alternative disposal capacity. For example, the comments contended that if the facility sluices CCR to their surface impoundment, their off-site disposal options are significantly limited. However, the disposal options greatly increase for dry handled CCR and the off-site capacity evaluation could then be more extensive. EPA received comments from environmental groups stating that EPA should require the facility to demonstrate the lack of alternative capacity for each wastestream. Some commenters also raised concern that some of the proposed regulatory text could be construed to permit a facility to continue disposing CCR into surface impoundments, even when there is alternative capacity of CCR, due to the lack of alternative disposal capacity for the non-CCR wastestreams. Specifically they pointed to changes to the introductory language of § 257.103 that they believed would allow owners or operators of CCR units that are subject to closure to continue receiving CCR in those units even if alternative disposal capacity for CCR is available, as long as they demonstrate that they lack alternative disposal capacity for non-CCR wastestreams.

EPA agrees that the disposal options for sluiced or wet handled CCR are greatly limited compared to the options available for dry handled CCR. However as discussed below there are disposal options even for sluiced or wet handled CCR, and consistent with the proposal the final rule requires owners or operators to document that no options other than the CCR surface impoundment are available on or off-site to manage these wastes.

EPA also agrees that the owner or operator needs to document the lack of alternative capacity both on and off-site for each wastestream they wish to continue placing into the CCR surface

impoundment after the April 11, 2021 deadline. As these commenters pointed out, the justification for continuing to use an unlined or leaking unit based on a lack of capacity for one waste does not extend to any other waste for which there is capacity. It was for this reason that EPA proposed to require documentation of the lack of capacity both on and off-site for each individual wastestream, and that the facility cease receipt of any waste for which capacity becomes available. Accordingly, the final rule requires owners and operators to cease using the CCR surface impoundment as soon as feasible, to document the lack of both on and off-site capacity for each individual wastestream, and expressly requires that as capacity for an individual wastestream becomes available, owners or operators are required to use that capacity, which will slowly decrease the amount of waste being disposed in the unit. EPA has also revised the introductory text at § 257.103 to be consistent with these provisions. Specifically, the text now states that the facility may continue only to receive the wastes specified in either paragraph (a), (b), (f)(1), or (f)(2) in the unit provided the owner or operator meets all of the requirements contained in the respective paragraph.

For sluiced CCR and non-CCR wastestreams, EPA expects the owner or operator to evaluate the viability of other wet temporary storage, such as tanks, to use in lieu of the CCR surface impoundment while permanent capacity is developed. Some of these wastestreams can be very large, and therefore tanks may not be a viable or realistic option to handle such volumes; however, tanks could be a viable option for small volume wastestreams. For dry CCR, EPA expects the owner or operator to evaluate the option of transporting the CCR to landfills. The owner or operator must provide documentation of this evaluation of on and off-site capacity for each wastestream. Additionally, the owner or operator must cease receipt of each wastestream when alternative capacity for each wastestream becomes available. This documentation requirement has been incorporated into the requirements of section one of the

workplan. The other requirements for the workplan are discussed later in this preamble. This documentation requirement is at § 257.103(f)(1)(iv)(A).

Consistent with the proposal, the costs or the inconvenience of existing capacity will not be considered as part of determining whether the facility qualifies for this alternative. As discussed in unit IV, EPA lacks the authority to include such considerations in this regulation. See USWAG, 901 F.3d at 448-449.

*Need to continue using the CCR surface impoundment.* EPA proposed that the owner or operator must demonstrate that CCR and/or non-CCR wastestreams must continue to be managed in the CCR surface impoundment due to the technical infeasibility of alternative capacity being available sooner than November 30, 2020.

EPA received one comment about the inclusion of this requirement, on the grounds that the word feasibility could be construed to permit the consideration of cost. According to the commenter, one dictionary defines the word feasibility to mean "not possible to do easily or conveniently; impracticable," and criticized EPA for failing to include a regulatory definition of feasibility. As an initial matter, EPA notes that other dictionaries define feasible to mean "capable of being done or carried out" (Merriam Website (https://www.merriam-webster.com/dictionary/feasible)) and "possible to do and likely to be successful" (Cambridge English Dictionary (https://dictionary.cambridge.org/us/dictionary/english/feasible)). EPA also disagrees that the proposed rule was unclear on whether cost could be considered as part of this determination. EPA proposed explicit language that clearly stated that costs were not relevant. Nevertheless, to avoid any potential ambiguity EPA will include regulatory definitions of technically feasible and technically infeasible. Specifically, the final rule defines technically feasible to mean "possible to do in a way that would likely

be successful," and technically infeasible to mean "not possible to do in a way that would likely be successful." These definitions clearly exclude those circumstances in which a facility could have completed construction but chose not to do so in order to save money, while capturing the full range of force majeure situations in which circumstances beyond a facility's control cause delays. For example, this definition would allow a facility to obtain an extension in response to delays in obtaining a permit as a result of State furloughs or resulting from the COVID-19 public health emergency. However, it would not allow a facility to obtain an extension where the delays were caused by mismanagement or could be overcome by the expenditure of additional resources; for example, where the facility delayed ordering geomembrane, and as a consequence it arrived too close to the end of the construction season.

EPA received no other substantive comments raising concern about the inclusion of this criterion. Therefore, EPA is finalizing this requirement with one minor revision to the regulatory text. As discussed in unit V.B.3, the deadline to cease receipt of waste is now April 11, 2021, so the deadline in § 257.103(f)(1)(ii) will be updated accordingly.

*Documentation requirements of need to continue using the CCR surface impoundment.* This line of evidence must include an analysis of the adverse impact to plant operations if the CCR surface impoundment in question were to no longer be available for use.

EPA received comments stating that EPA failed to identify any evidence that the lack of capacity alternative closure provision is necessary. They stated that EPA claimed that the 2015 CCR Rule would cause potentially significant disruptions to plant operations and thus the provision of electricity to customers; however, EPA failed to identify any evidence of such risks or identify a single power plant in the country that would be at risk of shutdown if its non-CCR wastestreams could no longer be disposed of in the CCR surface impoundments.

Other commenters stated that the inclusion of an analysis of the adverse impact to plant operations if the CCR surface impoundment in question were to no longer be available for use is a very important factor in the evaluation of a facility's extension request. They stated that the rulemaking record makes clear that their ability to continue providing power to the public could be impacted if facilities are unable to use these surface impoundments (for CCR and/or non-CCR waste management) before they have time to develop alternative disposal capacity.

EPA disagrees that there is no evidence that power plants could be affected if they were forced to prematurely stop using their CCR surface impoundments before alternative capacity is available. The rulemaking record contains submissions from numerous utilities documenting the potential effects of such premature closures. Moreover, EPA proposed to require facilities to include an analysis of the adverse impact to plant operations if the CCR surface impoundment in question were to no longer be available for use. Therefore, each individual demonstration would include the evidence of the adverse impact to each plant's operations, which is the exact evidence the commenters assert is lacking. EPA continues to believe that an analysis of the adverse impact to plant operations if the CCR surface impoundment were to no longer be available for use is directly relevant to the question of whether the facility actually needs to continue using the unit. As a consequence, EPA is retaining this requirement in the final rule without revision.

This documentation requirement has been incorporated into section one of the workplan. The other requirements for the workplan are discussed later in this preamble. This documentation requirement is represented in § 257.103(f)(1)(iv)(A).

*Compliance certification and documentation requirements.* In the proposal, EPA discussed compliance in three separate places in the regulatory text but only one section in the preamble. In the

regulatory text EPA required a certificate of compliance, a narrative compliance strategy and that the owner or operator remain in compliance with the applicable requirements of subpart D of part 257 at all times. Furthermore, the proposed fourth line of evidence of the § 257.103(f)(1) demonstration reiterated the requirement for a narrative compliance strategy for the CCR surface impoundment. The preamble laid out some specific information that EPA believed was critical to determine if the facility was in compliance. EPA proposed that the compliance strategy must discuss the most recent groundwater monitoring data results, the statistical analyses conducted to obtain the results, and the next steps for the groundwater monitoring. EPA also proposed that if the unit has exceeded any of the Appendix IV groundwater protection standards, the owner or operator must provide a copy of any assessment of corrective measures conducted to date. The current regulations require facilities to conduct an assessment of corrective measures followed by selection of a remedy as soon as is feasible, and thus do not permit waiting to implement a remedy until initiation of closure of the unit. As such, if the facility is in the process of remedy selection, a thorough discussion of the evaluation of possible remedies for corrective action must be included in the compliance strategy. The proposal also stated that the facility's publicly accessible CCR Internet site must be completely up-to-date and contain all the necessary postings.

Several commenters agreed that compliance with the CCR rule should be a prerequisite to obtain approval for an alternative closure deadline. Others disagreed stating that being in compliance with the CCR rule should not be a prerequisite. EPA continues to believe that compliance should be a prerequisite.

Some commenters expressed concern that some facilities acting in good faith could be found non-compliant by EPA. Specifically, USWAG raised concerns that since the rule is self-implementing

and some regulatory text lacks specificity and/or may be ambiguous, there could be differences in opinion on what constitutes compliance. Therefore, USWAG believes that differences in interpretation should be discussed during EPA's review process and any non-compliance issues be addressed as part of a facility's completion of its demonstration. Talen Energy echoed this sentiment stating that there should be a mechanism in place to assist facilities to come into compliance after the alternative closure extension was granted. Finally, USWAG commented that past non-compliance that has been corrected should not penalize a facility in their demonstration process and that, therefore, the compliance status should be as of the date of the demonstration's submission. These comments are also addressed in unit V.C.5 since these comments discuss the process in which to resolve any possible questions of compliance.

Some commenters stated that EPA has known that facilities are violating the groundwater monitoring requirements because the use of intrawell statistical analysis violates the plain language of the CCR rule and is therefore impermissible. They also raised other allegations of non-compliance such as violations of location restrictions, non-compliant liner determinations, violations of annual inspection requirements and various groundwater monitoring requirements or associated posting requirements. The commenters went on to say that EPA's failure to evaluate existing non-compliance with the CCR rule increases the risk to health and the environment and that the Part A proposal does not effectively require owners and operators receiving extensions to comply fully with the CCR rule. Finally, some commenters stated that since the alternative closure extensions fail to address non-compliance, the extensions are arbitrary and capricious and fail to meet the RCRA protectiveness standard.

EPA does not agree that intrawell statistical analysis is per se prohibited by the CCR regulations. The regulations at § 257.93(f) and (g) establish the allowable statistical approaches and the performance

standards that must be met. There are some circumstances in which intra-well comparison can meet these requirements. Additional information about these approaches may be found in the Unified Guidance, which EPA relied upon, as well as 40 CFR 258, in crafting these regulations (see 80 FR 21402). The Unified Guidance at page 1-4 contains procedures for both the intrawell and interwell methods: "Groundwater detection monitoring involves either a comparison between different monitoring stations (*i.e.*, downgradient compliance wells *vs.* upgradient wells) or a contrast between past and present data within a given station (*i.e.*, intrawell comparisons)." The Unified Guidance further identifies specific circumstances in which intrawell comparison may be the *preferred* method, for example; evidence of spatial variation should drive the selection of an intrawell statistical approach if observed among wells known to be uncontaminated (e.g., among a group of upgradient background locations) (page 5-6). The Unified Guidance says intrawell comparison can also be used when the groundwater flow gradient is uncertain or unstable (page 8-3). EPA has also found that unique hydrogeological conditions at some sites preclude meaningful interwell comparison—for example where the uppermost aquifer is spatially limited and is absent upgradient of the CCR unit. Therefore, simply using intrawell analysis does not mean a facility is out of compliance.

However, if a facility is using intrawell analysis in an inappropriate scenario, the facility would be out of compliance with the CCR rule. For example, see the Unified Guidance at page 5-6: "Intrawell background measurements should be selected from the available historical samples at each compliance well and should include only those observations thought to be uncontaminated."

EPA continues to believe that requiring facilities to document compliance with the subpart D of part 257 requirements is an important part of the demonstration. Compliance with the rule provides some guarantee that the risks at the facility are properly managed and adequately mitigated. For

example, if a facility has placed or constructed groundwater monitoring wells incorrectly it is quite possible that contamination could go undetected. By contrast, if a facility is properly pursuing corrective action remedies and their wells have been properly placed and constructed, EPA expects the overall risk at the facility will be appropriately managed. Consequently, this determination provides critical support for a decision to allow continued operation of the unlined impoundment. This means that EPA must be able to affirmatively conclude that the facility meets this criterion prior to authorizing any continued operation of the unlined impoundment. It also means that EPA cannot grant facilities additional time to cure any noncompliance. However, EPA's determination will be prospective only; accordingly, EPA is only interested in the state of a facility's current compliance rather than any instances of historic non-compliance.

In response to commenters who requested that EPA provide greater specificity about what constitutes a complete submission, EPA has revised the proposal to identify specific documents that facilities must provide to demonstrate their current compliance with the requirements of part 257. These documents should already exist because they are required to have been developed under the existing regulations.

First, EPA will review a facility's current compliance with the requirements governing groundwater monitoring systems. In order to conduct this review, the Agency will need copies of the following documents: (1) Map(s) of groundwater monitoring well locations (these maps should identify the CCR units as well); (2) Well construction diagrams and drilling logs for all groundwater monitoring wells; (3) Maps that characterize the direction of groundwater flow accounting for seasonal variation; (4) Constituent concentrations, summarized in table form, at each groundwater monitoring well monitored during each sampling event; and (5) Description of site hydrogeology including stratigraphic

cross-sections.

Second, EPA will also require and examine a facility's corrective action documentation, structural stability documents and other pertinent compliance information. A facility must submit the following documentation: the corrective measures assessment required at § 257.96, progress reports on remedy selection and design; the report of final remedy selection required at § 257.97(a); the most recent structural stability assessment required at § 257.73(d), and; the most recent safety factor assessment required at § 257.73(e). EPA's intention to review these items was discussed in the proposed rule when discussing the types of information to be included in the facility's compliance strategy. See FR 84 65955-56. EPA will document the results of its review and that record will be available for public comment with the rest of the alternative closure demonstration materials, consistent with the procedures applicable to this review discussed in unit V.C.5.

Therefore, based on comments, EPA has decided that the certification of compliance and the requirement to remain in compliance with the regulations are necessary in this final rule. This approach will prevent non-compliant unlined surface impoundments from operating for an extended period of time into the future. Requiring that only compliant surface impoundments can be approved for an alternative closure deadline provides additional support for EPA's conclusion that this final rule meeting the statutory standard.

In light of the requirement to submit the specific compliance documentation noted above, EPA is not including the proposed compliance narrative that was proposed as the fourth line of evidence for a demonstration, in the final rule.

The compliance certification and documentation requirements are represented in § 257.103(f)(1)(iv)(B). The requirement to remain in compliance with RCRA subpart D is represented in §

257.103(f)(1)(viii).

*Workplan Criteria*. EPA proposed owner or operators submit a detailed workplan explaining how alternative capacity is being developed and the amount of time required. EPA proposed to require the submission of a workplan that contains four elements: 1) a narrative discussion of the steps and process that remain necessary to complete development of alternative capacity for the wastestream(s); 2) a visual timeline depicting the remaining steps needed to obtain alternative capacity; 3) a discussion of the timeline and the processes that occur during each step; and 4) a discussion of the steps already taken to achieve alternative capacity, including what steps have been completed and what steps remain. EPA sought comment on whether the proposed elements of the workplan were sufficient or if more evidence was necessary in order for EPA to determine the correct amount of time the facility will need to obtain alternative capacity.

EPA received several comments that the proposed workplan elements should provide EPA with ample information to issue a decision on the extension request. They further stated that the information would allow EPA to determine whether the demonstration represented the shortest technically feasible amount of time required for the facility to cease receipt of the waste and to complete the development of alternative disposal capacity.

EPA agrees with the commenters that the elements proposed in the workplan provide the necessary information and are sufficient for its intended purpose. Therefore, EPA is finalizing the proposed workplan elements without revision from the proposal at § 257.103(f)(1)(iv)(A).

*Workplan Documentation*

As previously mentioned, EPA proposed the workplan containing four sections. Below is a detailed discussion of what EPA proposed for each section to contain.

*Section One:* The narrative discussion of the workplan was designed to explain precisely how alternative capacity will be developed, along with an explanation as to why that method was chosen. EPA has not required the owner or operator to choose any particular means of obtaining alternative capacity, such as building a new disposal unit, construction of a wastewater treatment facility, converting to dry handling, etc. However, EPA is requiring that the narrative describe each option that was considered, the timeframe under which each could be implemented, and why the facility selected the option that it did. The discussion must include an in-depth analysis of the site and any site-specific conditions that led to the decision to implement the selected alternative capacity. Inclusion of visuals such as a facility map, facility process flow diagram, the design of the new capacity, etc. would be beneficial to any discussion on the new capacity and of the facility as a whole. The narrative must also provide a detailed explanation and justification for the amount of time being requested and how it is the fastest feasible time to complete the development of the alternative capacity.

*Section Two:* The second section of the workplan is a visual timeline, such as a Gantt chart, depicting the necessary steps required to obtain the alternative capacity discussed in the narrative. The visual timeline must clearly indicate how each phase and the steps within that phase interact with or are dependent on each other and the other phases. It must also include any possible overlap of the steps and phases that can be completed concurrently. This timeline must show the total time needed to obtain the alternative capacity and how long each phase and step is expected to take. Such phases must at a minimum include: engineering and design, contractor selection, equipment fabrication and delivery, construction, and start up and implementation. Within each phase, the time to complete each step must also be broken out. For example, if the engineering and design phase is 4 months, the following steps to complete the phase should be shown: site selection and survey, design of the impoundment, process

flow diagram edits, and piping design then the time each of those steps take should be represented on the timeline. This level of detail is expected for each phase and each step of each phase in obtaining the alternative capacity. The timeline also acts as a visual assistant to the third section of the work plan, a narrative of the timeline.

*Section Three:* The third section for the workplan is a detailed narrative of the schedule and the timeline discussing all the necessary phases and steps in the workplan, in addition to the overall timeframe that will be required to obtain capacity and cease receipt of waste. This section of the workplan must discuss why the length of time for each phase and step is needed, including a discussion of the tasks that occur during the specific stage of obtaining alternative capacity. It must also discuss the tasks that occur during each of the steps within the phase. For example, rather than simply stating an individual step as "order and fabrication of impoundment liner," this section is required to explain what material must be ordered, where the fabrication takes place, and how long it takes to fabricate and deliver the new liner material. The workplan must explain why each phase and step shown on the chart must happen in the order it is occurring and include a justification for the overall length of the phase. Other major discussion items required on the overall time of the schedule include anticipated worker schedule, and any anticipated areas for which the schedule could slip. The anticipated areas of delays could include items outside of the facility's control, such as severe weather events or delays in fabrication of materials. For example, if the facility is commonly impacted by hurricanes or flooding, the discussion should indicate what month(s) of the schedule that is most likely to disrupt. The schedule must also indicate the time limiting factors in completing the plan, such as having to take boilers off-line or if a certain step can only happen during a specific time of year. This overall discussion of the schedule assists EPA in understanding why the time requested is accurate.

*Section Four:* The fourth section of the workplan contains a narrative of the steps the facility has already taken to initiate closure and develop alternative capacity for CCR and/or non-CCR wastestreams. This section must discuss all of the steps taken, starting from when the owner or operator initiated the design phase all the way up to the current steps occurring while the workplan is being drafted. In addition, this discussion must indicate where the facility currently is on the timeline and the processes that are currently being undertaken at the facility to develop alternative capacity. This section of the workplan and the level of detail required is necessary for EPA to determine whether the submitted schedule for obtaining alternative capacity is accurate.

*Comments on workplan documentation requirements.* EPA received several comments from utilities stating concerns that the level of detail proposed to be included in the workplan is unnecessary and in some areas excessive. Some utilities viewed the workplan as overly burdensome and some parts as unnecessary. Some commenters found the proposed narrative discussion of the workplan invasive of the utility's decision-making process. They further commented that EPA should respect the facility's business decisions and that this information could show that the facility is taking cost into consideration. The commenters stated that the discussion should focus on how the facility selected the most appropriate technically feasible alternative capacity for the site, even though it may not be theoretically the fastest feasible to implement. They stated that the work plan should only focus on the engineering and construction elements of obtaining alternative capacity rather than being concerned with reasons for why the capacity was selected. These commenters additionally stated that this type of discussion and many of the work plan elements would contain Confidential Business Information (CBI) related to why a particular approach for developing alternative capacity was selected and therefore requested the opportunity to be able designate and withhold the CBI from the posting on their publicly accessible CCR

Internet site.

EPA disagrees with the comments that the workplan requirements are invasive of the utility's decision-making process and should only focus on engineering and construction. While the workplan should provide engineering and construction information to explain how long the alternative capacity will take to develop; it is equally important for EPA to understand why that method of alternative capacity was selected. EPA recognizes there are several factors that go into selecting the method for alternative capacity, and that the decision is not solely based on whether the method is theoretically the fastest feasible to implement. Many of those factors are based on what can be technically implemented based on site-specific conditions at the facility, and how the facility plans on maintaining compliance with various state and federal regulations. These are the factors the facility should focus on in their discussion. EPA understands that not every method of alternative capacity is a viable option for a given facility, but the facility will need to explain to EPA how and what site-specific factors affected the selection of the option chosen, or that led the facility to eliminate particular options from consideration. Accordingly, EPA continues to believe that these workplan elements are necessary in order to fully understand the effort to obtain alternative capacity and maintain compliance for the facility as a whole. EPA understands that some of the pieces of the workplan may be considered CBI. However, utilities must have a CBI free version of the workplan that they are able to post to their publicly accessible CCR Internet site and to be put out for public comment. EPA has revised the regulations to specify that when a workplan contains some CBI, utilities must submit both the CBI-free version of the workplan and a full version of the workplan that contains the CBI. All information submitted to EPA pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to Agency policies set forth in 40 CFR part 2, subpart B.

For the reasons described above, EPA is finalizing the requirements on the workplan as described above with minor clarifying modifications. As previously discussed, EPA is incorporating the documentation requirements for the lack of alternative capacity on or off-site and the need to continue using the CCR surface impoundment into section one of the workplan. Thus, the first section of the workplan must include the discussion on the lack of alternative capacity on or off-site for each wastestream, the technical infeasibility of alternative capacity being available prior to April 11, 2021, as well as the narrative discussed above in section one (the discussion of how the alternative capacity will be developed and the discussion of how the capacity was selected).

The other change that EPA is making from proposed to final is in section three, the narrative discussion of the timeline. EPA will not require the inclusion of anticipated areas of where the schedule could slip. EPA is not taking final action on this requirement because it is not critical information for EPA to evaluate and issue a determination on the demonstration.

The workplan documentation requirements are at § 257.103(f)(1)(iv)(A).

*Maximum Time Allowed.* EPA proposed that a maximum of 5 years from the *USWAG* mandate could be granted under this alternative closure provision; therefore, no extension would extend past October 15, 2023. EPA selected 5 years in the proposal since it is currently the time allowed under § 257.103(a).

EPA received comments that extensions should not be limited to October 15, 2023. Commenters stated that a maximum time is unnecessary because the facility is required to submit a workplan showing the time they need, and EPA should accept that as the time that is needed. Therefore, the commenters asserted, establishing a maximum amount of time sooner than a facility demonstrates is technically feasible requires the impossible. They claimed that the data used in the rule making record does not

support limiting the extension to no later than October 15, 2023 and is two years shorter than the current deadline in §§ 257.103(a) and (b) of October 31, 2025. Commenters stated that if EPA does establish a maximum amount of time, then EPA should establish the time that is currently allowed which is October 31, 2025.

Environmental groups stated that the maximum amount of time, until October 15, 2023, is not protective of human health and the environment because it delays the closure of the CCR surface impoundments.

EPA disagrees with these commenters. EPA believes there should be a maximum amount of time for the alternative closure provision, if only to ensure that facilities understand that operation of the unit may not continue indefinitely. With one exception, EPA believes that the proposed date of October 15, 2023 is a reasonable deadline for all facilities to achieve. EPA did not receive and does not have any evidence that facilities will require until October 2025 to complete development of alternative capacity. Accordingly, EPA does not believe facilities need the same five-year deadline in§ 257.103(a) Additionally, this deadline will encourage facilities to move expeditiously.

EPA received several comments from industry stakeholders stating that the eligible unlined CCR surface impoundments triggered into closure due to the *USWAG* decision could need more time than other unlined surface impoundments to develop alternative capacity. Data submitted by several owners and operators of eligible unlined CCR surface impoundments showed that the fastest they could cease receipt of all wastes extends into 2024.

After reviewing these comments and the data submitted by utility companies, EPA agrees that it is possible that some eligible unlined CCR surface impoundments that were forced into closure unexpectedly by the *USWAG* decision could need additional time beyond October 15, 2023 to complete

the development of alternative capacity. Therefore, in this final rule EPA is providing that eligible unlined CCR surface impoundments can request an alternative compliance deadline no later than October 15, 2024. This does not mean that all eligible unlined CCR surface impoundments can continue to operate until October 15, 2024; each unit must still cease receipt of waste as soon as feasible, and may only have the amount of time they can demonstrate is genuinely necessary. A facility claiming to have an eligible unlined CCR surface impoundment and requesting time beyond October 15, 2023 must demonstrate that they were not forced into closure for any reason other than the *USWAG* decision. This maximum timeframe is represented in § 257.103(f)(1)(vi).

*Extensions of Alternative Compliance Deadlines.* EPA proposed to allow a facility to request an extension to a deadline approved under the site-specific alternative under § 257.103(f)(1). If at any point a facility becomes aware that they cannot meet the approved alternative deadline, they would need to notify EPA or the Participating State Director as soon as possible. Depending on the nature and severity of the event, additional time may be granted provided it would not extend past October 15, 2023. EPA proposed that the facility must submit updated demonstration materials to EPA or the Participating State Director with a detailed discussion of why an extension is necessary. The owner or operator must also discuss the measures taken to limit the additional amount of time needed. An explanation of any problems that caused this delay would be further discussed in the semi-annual progress report as described in the next section.

EPA received no comments regarding this provision in the proposal. Therefore, EPA is finalizing this provision without substantive revision. EPA will not grant an extension longer than the maximum amount of time allowed either October 15, 2023 or October 15, 2024. This provision is represented in § 257.103(f)(1)(vii).

b) Semi-annual progress report.

To provide transparency to the public, EPA proposed to require posting of semi-annual progress reports on the facility's publicly accessible CCR Internet site. The proposed reports would contain two main sections: 1) discussion on progress toward obtaining alternative capacity and 2) discussion of any planned operational changes at the facility. EPA believed that since these units could be operating and receiving waste for a few additional years, it would be important to keep EPA and the public aware of the facility's progress on obtaining alternative capacity and if facilities are on track to meet their new alternative compliance deadline. Currently in § 257.103(c) there is the requirement for annual progress reports for the units that have certified for alternative deadlines under § 257.103(a) and (b). EPA believed that for the site-specific alternative deadline, semi-annual rather than annual progress reports are more appropriate. The time allowed under this new alternative closure provision, will vary site to site and could be shorter than the deadline alternative granted for § 257.103(a) and (b). Therefore, EPA proposed a new semi-annual progress report requirement for the units that successfully demonstrate and are approved for the site-specific alternative to cease receipt of waste deadline.

EPA proposed for the semi-annual progress report to heavily rely on the workplan and the timeline submitted with the workplan. The first section of the report would discuss the progress the facility has made since the previous report or since approval of the alternative compliance deadline if it is the first report. It would be required to discuss the following: 1) the current stage of obtaining alternative capacity in reference to the timeline required in the workplan; 2) whether the owner or operator is on schedule for obtaining alternative capacity; 3) any problems encountered and a description of the actions taken to resolve the problems; and 4) the goals and major milestones to be achieved for the next 6 months.

EPA proposed the second section of the progress reports would discuss any planned operational changes at the facility. It is possible while the facility is working to achieve alternative capacity, a decision is made to either permanently shut down the plant or switch to an alternate fuel source such as natural gas or biomass. Any such decisions or other changes that could impact the schedule or closure would be indicated in this section of the semi-annual progress report.

EPA proposed that the semi-annual reports be completed and placed in the facility's operating record and posted on the facility's publicly accessible CCR Internet site on April 1st and October 1st of each year until the alternative compliance deadline. The first report would be due on whichever posting deadline is soonest after approval of the alternative compliance deadline by EPA.

EPA sought comment regarding whether a facility that is fully on schedule or ahead of schedule with their approved timeline and had no significant problems or changes in operational status, should be afforded a relaxation of the reporting requirements in the first two subsections of the first section. This would allow a report for a facility on schedule or ahead of schedule to be significantly more condensed than the full reporting requirements.

EPA received comments from industry stating that facilities should be focusing on obtaining alternative capacity rather than completing progress reports. Furthermore, they support that if a facility is on or ahead of schedule for developing alternative capacity, they should be able to complete a condensed version of the semi-annual progress reports. Industry additionally commented that the progress reports should be annual for facilities with an alternative deadline longer than two years past the deadlines in § 257.101(a) and (b). Industry groups additionally commented that they do not oppose the semi-annual submission dates of April 1 and October 1, with the first submission being due on whichever posting deadline is soonest after approval of the alternative compliance deadline. However,

they did indicate that a facility should not have to complete a report until they have a minimum of six months of progress from approval to report.

EPA agrees with the commenters that facilities should be focusing on obtaining alternative capacity. However, it is also important to update EPA or the Participating State Director on their progress for obtaining alternative capacity. EPA disagrees that the progress reports should be annual for the facilities with a longer alternative deadline. Facilities with a longer deadline have more progress to make and therefore may have a greater change of experiencing delays. Frequent progress reports are all the more useful in these circumstances. EPA further agrees that it is important that the first report be properly timed so that the facility has progress to report.

EPA received comments from environmental groups supporting the progress reports. They commented that there should be the additional requirement of certifying the facility is in compliance with all other aspects of the CCR rule in each progress report.

EPA has decided that additional certifications of compliance would not provide any added benefit. The final rule already requires the facility to remain in compliance with all the requirements of this subpart as a condition of the extension, and expressly provides that failure to do so will result in automatic revocation of the extension. Moreover, as previously discussed, EPA is requiring a more in-depth compliance certification in the demonstration in order to obtain approval. Finally, under the existing regulations the facility is required to post several items throughout the year including the annual groundwater monitoring and corrective action report, notifications for changes in groundwater monitoring, and semiannual reports on selection of remedy. EPA considers that the combination of all these requirements is more than sufficient to ensure a facility remains in compliance without the need for a further certification.

After reviewing the public comments EPA believes it is important to maintain public transparency and for facilities to focus on completing the development of alternative disposal capacity. Therefore, EPA is finalizing the requirement for progress reports to be completed on a semi-annual basis and to allow those facilities that are on or ahead of schedule to complete a condensed progress report. As such EPA is finalizing the semi-annual progress report requirements with only the revision that facilities on or ahead of schedule may complete a condensed and more streamlined progress report.

Facilities on or ahead of schedule, in relation to their approved timeline, will need to complete only the first two subsections within the first section. Therefore, the first section of the reports will only need to contain: 1) the current stage of obtaining alternative capacity in reference to the timeline required in the workplan; 2) whether the owner or operator is on schedule for obtaining alternative capacity.

All facilities must still complete the second section of the progress reports, discussing any planned operational changes of the facility. If there is nothing for the facility to report in this section, then the facility should simply state “No planned operational changes”.

The semi-annual progress reports are to be completed on April 30 and October 31 of each year for the duration of the approved alternative initiation of closure deadline. EPA has selected these months because they correlate to when the facility was supposed to cease receipt of waste. Therefore, the facility should have at least six months of progress to report since applying for an alternative compliance deadline. The facility then has 30 days to place the report in their operating record and to their publicly accessible CCR Internet site. The requirements for the semi-annual progress reports are shown in § 257.103(f)(1)(x).

4. Requirements for Permanent Cessation of Coal-Fired Boiler(s) by a Date Certain (§ 257.103(f)(2)).

In the December 2, 2019 proposal EPA proposed to adopt a comparable version of § 257.103(b). This proposed provision allows facilities permanently ceasing operation of coal-fired boiler(s) to continue to receive both CCR and/or non-CCR wastestreams, upon a showing of a continued need to use the surface impoundment due to lack of capacity. Consistent with the existing provision § 257.103(b), EPA proposed to provide that an increase in costs or the inconvenience of existing capacity would not support qualification under this section. A further requirement EPA proposed, that is not in § 257.103(b), is a risk mitigation plan, in which the owner or operator would describe how the facility planned to mitigate any potential risks from the continued operation of the CCR surface impoundment This proposal would have allowed the unit to continue receiving CCR and/or non-CCR wastestreams, provided the facility completed closure of the unit by the dates specified: October 17, 2023 or October 17, 2028 for surface impoundments 40 acres and smaller or more than 40 acres, respectively. In contrast to the provision under § 257.103(f)(1), the owner or operator does not need to develop alternative capacity because of the impending closure of the coal fired boiler. Since the coal-fired boiler will shortly cease power generation, it would be illogical to require these facilities to construct new capacity to manage CCR and non-CCR wastestreams. Additionally, the groundwater monitoring and corrective action requirements remain in place. EPA proposed that facilities would need to submit a demonstration to EPA or the Participating State Director for approval. The majority of the proposed demonstration requirements are generally the same as are currently required under § 257.103(b), including the annual progress report and other recordkeeping requirements. The demonstration and criteria are described below.

EPA received comments requesting clarification on whether a facility could use the provision if they are converting their boilers to natural gas or a different fuel source. EPA believes facilities that are converting their boilers to natural gas or a different fuel source (non-coal) are eligible for the provision.

a) Criteria and documentation

EPA proposed that in order to obtain the § 257.103(f)(2) extension, the owner or operator needs to meet and maintain all of the following criteria: 1) That no alternative disposal capacity is available on or off-site, 2) the facility must submit a risk mitigation plan to show that potential risks to human health and the environment from the continued operation of the CCR surface impoundment have been adequately mitigated, 3) the facility is in compliance with all other requirements of this subpart and, 4) closure of the impoundment will be completed within the dates specified: October 17, 2023 or October 17, 2028 for surface impoundments 40 acres or smaller or more than 40 acres, respectively. As discussed in more detail below, EPA is adopting the same criteria in the final rule without significant revision. Further discussion on each criterion is below.

*No alternative capacity on or off-site*. The first line of evidence EPA proposed is the same that was required in § 257.103(b) and § 257.103(f)(1). The owner or operator must demonstrate the lack of alternative capacity available on or off-site.

EPA received no substantive comments on the inclusion of this requirement. Therefore, EPA has included this provision in the final rule without revision.

*Documentation requirements of no alternative capacity on or off-site.* The first demonstration requirement is to show that the facility does not have any other disposal capacity available either on or off-site. Consistent with the proposal, the fact that a potential alternative result in an increase in cost or inconvenience is not sufficient to meet this requirement. This requirement is the same as the requirement

as described previously for the demonstration requirements in § 257.103(f)(1). This documentation requirement is represented in § 257.103(f)(2)(v)(A).

*Risk mitigation plan*. The second line of evidence EPA proposed to include in this demonstration was a risk mitigation plan. This proposed requirement was not previously required under § 257.103(b). EPA added this requirement in the proposal to address the potential risks of continued operation of the CCR surface impoundment while the facility moves towards closure of their coal-fired boiler(s), to be consistent with the court's holding in *USWAG* that RCRA requires EPA to set minimum criteria for sanitary landfills that prevent harm to either human health or the environment. 42 USC 6944(a). 901 F.3d at 430.

EPA received comments stating that the provision violates RCRA because it relies on owners and operators to submit a risk mitigation plan. They explained that this requirement violates the RCRA protectiveness standard because it acknowledges that there is risk present from the unit and RCRA is structured to prevent risk. Therefore, a risk mitigation plan admits that there is risk to human health and the environment and makes the unit an open dump.

EPA disagrees with the suggestion that reliance on the submission of a risk mitigation plan violates RCRA. Contrary to the commenter’s view, section 4004(a) does not require the elimination of all risk. Rather the provision expressly contemplates the potential for there to be some risk, requiring EPA to determine there “is no reasonable probability of adverse effects.” 42 USC 6944(a). Or in other words, EPA must determine that the facility’s solid waste management present only reasonable risks, which EPA has long interpreted to be risks ranging from $1x10^{-4}$ and $1x10^{-6}$. Submission of the plan as part of the package for EPA approval will allow the agency to ensure that risks at the facility remain within these acceptable levels.

Some groups commented that facilities should not be required to submit a risk mitigation plan for approval in their demonstration, especially for the surface impoundments closing due to the *USWAG* decision. They believe that eligible unlined CCR surface impoundments do not pose a potential risk to human health or the environment and should not be required to prepare a plan to mitigate potential risks that do not exist. They view this requirement as an unnecessary paperwork burden.

EPA disagrees that the risk mitigation plan is unnecessary, even for units closing in response to the *USWAG* decision. Although it is true these units may not be currently leaking, that means only that they are not currently causing harm. But that does not mean that they do not pose any risk nor that continued operation of the unit necessarily meets the section 4004(a) standard. *See*, 901 F.3d at 427-430. As the court noted, "It is inadequate under RCRA for the EPA to conclude that a major category of impoundments that the Agency's own data show are prone to leak pose 'no reasonable probability of adverse effects on health or the environment,' 42 U.S.C. 6944(a), simply because they do not already leak." *Id*. The risk mitigation plan will provide critical information to address the risks of continued operation of the unit, prior to the initiation of unit closure. This will provide a significant supplement to the Agency's qualitative assessment that the risks of continued operation will be outweighed by the risk mitigation from the expedited closure of the unit.

For example, for units that are not leaking the facility could begin identification of remedial technologies that would potentially be appropriate based on site data, including groundwater chemistry, groundwater elevation and flow rates, and the presence of surface water features that would influence rate and direction of contamination movement in the event of a leak. Gathering this information and beginning an assessment of technology options if a leak should occur will expedite any corrective action that subsequently becomes necessary. The plan could also address any interim measures that the facility

would take to remediate contamination or to achieve source control in the event of a leak, which was one issue that the court faulted EPA for failing to adequately consider. By expediting the cleanup, EPA will also ensure that facility addresses the risk during the expedited closure.

EPA has concluded that the risk mitigation plan is a necessary requirement for this demonstration. Therefore, EPA is finalizing that facilities will be required to submit a risk mitigation plan as part of their demonstration.

*Risk mitigation plan documentation*. EPA proposed that the risk mitigation plan explain actions the facility may take to mitigate any potential risks to human health or the environment from the CCR surface impoundment. EPA also sought comment on whether the owner or operator should be required to submit a more in-depth site-specific risk assessment of the CCR surface impoundment as part of their plan to mitigate the risk from continued operation of the unit.

EPA received comments from industry groups that they view the information requested to be included in the plan redundant of information required in other reports and therefore find the risk mitigation plan as an unnecessary paperwork burden. They contend that all the information requested is already being compiled by the facility in other reports, so it is readily available on the publicly accessible CCR Internet sites and additionally must demonstrate that the facility is in compliance with the other parts of the CCR rule. Therefore, the commenter finds this requirement redundant. These groups commented further stating that if EPA decides to finalize the risk mitigation plan, the suggested requirements for the risk mitigation plan are sufficient and a more in-depth risk analysis is not necessary.

EPA also received comments from the National Ground Water Association on what should be included in the risk mitigation plan. They provided a list of 12 items that they viewed as important to

include in the plan. EPA found that all of the suggested items from the National Ground Water Association were already included in the items proposed or in other reports required by the CCR rule.

EPA disagrees that this plan is merely an unnecessary paperwork burden for the reasons discussed previously. Facilities in full compliance with all aspects of the regulations that have not initiated corrective action can still develop a plan that will expedite the implementation of corrective action, in the event it become necessary. EPA considers this to provide a substantial complement to the record supporting continued operation of the unit.

In response to the comments, requesting greater specificity about what would constitute an adequate submission, the final rule requires that the risk mitigation plan include three pieces of information. First, a discussion of any physical or chemical measures a facility can take to limit any future releases to groundwater during operation. This might include stabilization of waste prior to disposition in the impoundment or adjusting the pH of the impoundment waters to minimize solubility of contaminants. This discussion should take into account the potential impacts of these measures on Appendix IV constituents.

Second, a discussion of the surface impoundment's groundwater monitoring data and any found exceedances; the delineation of the plume (if necessary based on the groundwater monitoring data); identification of any nearby receptors that might be exposed, to current or future groundwater contamination; and how such exposures could be promptly mitigated.

And finally, a plan to expedite and maintain the containment of any contaminant plume that is either present or identified during continued operation of the unit. The purpose of this plan is to demonstrate that a plume can be fully contained and to define how this could be accomplished in the most accelerated timeframe feasible to prevent further spread and eliminate any potential for exposures.

This plan will be based on relevant site data, which may include groundwater chemistry, the variability of local hydrogeology, groundwater elevation and flow rates, and the presence of any surface water features that would influence rate and direction of contamination movement. For example, based on the rate and direction of groundwater flow and potential for diffusion of the plume, this plan could identify the design and spacing of extraction wells necessary to prevent further downgradient migration of contaminated groundwater.

If additional mitigation measures are necessary to ensure the statutory standard is met, EPA will require those as a condition of granting the extension. The risk mitigation plan documentation requirement is at § 257.103(f)(2)(v)(B).

*Compliance certification and narrative.* EPA proposed that the owner or operator must certify that it remains in compliance with all other requirements of this subpart including corrective action. EPA is finalizing the same compliance certification and documentation as that in § 257.103(f)(1). The compliance documentation requirement is at § 257.103(f)(2)(v)(C). The requirement to remain in compliance with subpart D is represented in § 257.103(f)(2)(vi).

*Maximum time to complete closure.* EPA proposed that the facility must complete closure of the CCR surface impoundment, and the coal-fired boiler must cease operation no later than October 17, 2023 for surface impoundments 40 acres or smaller and October 17, 2028 for surface impoundments larger than 40 acres. These are the same deadlines as required in § 257.103(b).

EPA received comments from environmental groups stating that since EPA does not establish a set deadline for these units to cease receipt of waste and initiate closure the provision is unlawful. Some further elaborated that this provision would delay the initiation and completion of closure of these units for several years. These commenters further stated that developing alternative disposal capacity is not as

complex as the proposed rule made it seem and believe that it is possible for facilities to obtain alternative capacity in a few weeks and therefore cease receipt of waste much earlier. The commenters additionally stated that EPA did not provide rationale for why this provision is protective of human health and the environment.

Industry groups commented that this provision provides important environmental benefits by requiring closure far earlier than would be otherwise required. They agree that the expedited closure of these units addresses the *USWAG* court decision by addressing the potential risks from unlined CCR surface impoundments during closure. A few utility companies commented that the deadlines for closure should not depend on the size of the CCR surface impoundment. Rather all CCR surface impoundments should be eligible for the October 2028 deadline. They also explained that having the size distinction has no environment benefit because it forces facilities to develop new disposal capacity. They acknowledged EPA's rationale that smaller surface impoundments are able to close faster but contended that smaller surface impoundments represent smaller risk. One utility company stated that the CCR surface impoundment may be less than 40 acres, but the site has unique characteristics that makes closure more complex and the surface impoundment is of unusual shape causing the closure time to be just as long as a larger surface impoundment. Another utility company commented that if a facility had multiple surface impoundments under 40 acres, they should be able to aggregate the acreage of the surface impoundments to qualify for the later deadline of 2028. One other utility commented that the deadlines should be delayed a few years because the original deadlines were established in 2015 for § 257.103(b), therefore there was more time to complete closure under the original provision. One other utility commented that it is possible that they may be directed to cease their coal fired boiler in 2023 or 2024 which would make the alternative closure provision unusable for them.

Several commenters misunderstood EPA's proposal and commented that this provision significantly delays closure by allowing facilities to operate their CCR surface impoundments until 2028. The proposed regulation does not authorize continued operation until 2023 or 2028; rather it requires the *completion of closure* by those dates. These represent substantially more expedited time frames to complete closure of the unit, and in order to meet those timeframes facilities will need to stop receiving waste into the unit much sooner than those dates. In order to meet these timeframes, EPA expects that many facilities closing pursuant to this provision will need to cease receiving CCR and non-CCR wastestreams sooner than they would under the maximum amount of time in the site-specific alternative closure provision in § 257.103(f)(1). Consequently, the overall risk will be lower. As a consequence, EPA decided that it was not necessary to specify a particular deadline by which facilities must cease receiving waste into the unit. As a practical matter the length of time the unit can continue to operate will necessarily be limited by the amount of time needed to ensure that all closure activities are completed by the deadline. Instead the provision provides facilities with the flexibility to determine precisely when they will need to stop operation in order to achieve expedited closure deadlines.

EPA is not modifying the proposed closure deadlines to allow the extended operation of units 40 acres and smaller. As explained in the proposed rule, EPA relied upon a risk-risk tradeoff to support this provision. Specifically, EPA acknowledged there could be greater risk in the short term because this provision allows a longer period for unlined impoundments to operate; however, over the long-term EPA estimated that the risks would be lower because the final closure of the unit will be expedited. Under the commenters' suggested approaches there is nothing against which to balance the risks from the extended operation of the unit. The commenters provided no data to support their contentions or on which EPA could rely to model the risks associated with allowing impoundments less than 40 acres to

continue to operate for the amount of time they are proposing. EPA proposed multiple options for facilities to address the variety of circumstances presented by these kinds of sites. Not all of them will be appropriate for every site. This provision was designed to address a very specific set of circumstances in which a facility knows it will be closing by a date certain and as a consequence can expedite its closure of the unit. Finally, EPA disagrees that there would be no environmental benefit in the provision as structured. There is a significant environmental benefit in requiring the expedited closure of unlined surface impoundments, and in requiring facilities to expedite corrective action. As the record from the 2015 rule and the results of the groundwater monitoring data from numerous facilities demonstrate, operation of these units presents significant risks.

The commenters did not provide a compelling argument for changing the deadlines from the proposal. Therefore, EPA is finalizing the deadlines as proposed.

*Maximum Time Documentation*. EPA did not receive substantive comments on the documentation necessary to demonstrate that the deadlines will be met. EPA is finalizing that in the demonstration submitted for approval the facility will need to specify and justify the date by which they intend to cease receipt of waste into the unit. If the amount of time the facility is seeking to operate the unit is disproportionate to the amount of time needed for closure of the unit, such that it appears unlikely the facility could meet the closure deadlines, EPA will deny the request. Additionally, facilities are required to amend their closure plan whenever there is a change in the operation of the CCR unit that would substantially affect the written closure plan or before or after closure actives have commenced as required by § 257.102(b)(3). As such, a facility should update their closure plan when applying for this extension. The documentation requirements for meeting the time requirements are represented § 257.103(f)(2)(iv)(D)

b) Annual closure progress reports.

EPA proposed maintaining the annual progress report requirement that is currently required under § 257.103(b). EPA proposed that the owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the closure of the CCR surface impoundment.

EPA received no substantive comments concerning this requirement in the documentation for a site-specific alternative for cessation of coal-fired boiler(s).

EPA concluded from the lack of comments, to finalize the requirement. Therefore, owners or operators must prepare and place an annual progress report documenting the continued lack of alternative capacity and the progress towards the closure of the CCR surface impoundment. This progress report must include any delays in the anticipated cease receipt of waste date and closure completion date that was submitted in the demonstration materials. This requirement is found in § 257.103(f)(2)(x) of the regulation.

5. Procedures for Approval and Denial of Alternative Compliance Deadlines

EPA proposed to require that the demonstrations for an alternative compliance deadline under § 257.103(f)(1) ("development of alternative capacity infeasible") or under § 257.103(f)(2) ("permanent cessation of coal-fired boiler(s) by a date certain") be submitted to EPA or the Participating State Director for approval no later than two months prior to the facility's deadline to cease receiving waste. EPA believed that two months should normally provide sufficient time for EPA to evaluate the request and complete its review process. Although two months prior to the current deadline is the latest date to submit a request, EPA encouraged submissions at the earliest point at which the facility knows further time to complete its arrangements is needed.

EPA proposed that upon receiving the demonstration for an alternative compliance deadline, EPA or the Participating State Director would evaluate the demonstration and could ask for additional information to complete its review and/or discuss the demonstration with the facility. Submission of a complete demonstration would toll the facility's deadline to cease receipt of waste until issuance of a final decision. This ensures that a facility that has submitted a package in good faith would not be penalized by any inadvertent administrative delays. However, EPA proposed that incomplete submissions would not toll the facility's deadline.

EPA proposed that when the owner or operator submits the demonstration to EPA or the Participating State Director for approval, the owner or operator must prepare and place into the facility's operating record and on their publicly accessible CCR Internet site a notification that the facility has applied for a site-specific alternative deadline to cease receipt of waste. EPA would then post a proposed decision to grant or deny the request in whole or in part on EPA's website for public notice and comment. EPA proposed that the public will have 15 days to comment on the proposed decision. If the demonstration is particularly complex, EPA would provide a longer comment period of 20 to 30 days. EPA proposed that it would evaluate the comments, amend its decision if appropriate, and post the final decision on the demonstrations on EPA's website. EPA proposed that the agency would finalize the decision on the alternative compliance deadline no later than 4 months after receiving a complete demonstration. If no substantive comments are received on a proposed decision, EPA proposed that it would become effective 5 days from the close of the comment period. Alternatively, EPA proposed that if a facility develops or identifies the necessary alternative capacity prior to approval from EPA, then the facility should notify EPA and withdraw their demonstration. Lastly, EPA proposed that the facility must post an approved or denied demonstration and the alternative compliance deadline decision on the

facility's publicly accessible CCR Internet site. EPA sought comment on whether a Participating State Director (i.e., a state director with an approved State CCR Permit Program) should also have the authority to grant approvals.

EPA received numerous comments on the time frames in the proposed process. Some commenters stated that the proposed demonstration deadlines of May 15, 2020 for the cessation of boiler alternative and June 30, 2020 for the lack of alternative capacity are unreasonable. Specifically, these commenters were concerned that as a final rule will not be issued before May 2020 it will be impossible to comply with the May 15, 2020 deadline. They further stated that there should be an option for submitting the demonstrations for the cessation of boiler alternative later and not on a set date. A facility may not know they will be shutting down their coal fired boilers until later but will still be able to meet the compliance deadlines in the proposed provision for that alternative. They further stated that it will take facilities three months to successfully compile all the required elements for the demonstration. Therefore, the commenters believe that EPA needs to factor in this three-month timeframe prior to the deadline to submit the demonstrations to EPA (which was proposed to be two months prior to the deadline to cease receipt of waste). They additionally state that facilities should be able to switch between the two alternative deadline extensions. A facility should be able to submit an initial demonstration and receive approval for an extension under lack of capacity and then at a later date should be able to submit a demonstration and switch to a cessation of boiler extension if it is shutting down its coal-fired boilers and can achieve the deadlines. Additionally, it should be able to switch from a cessation of boiler extension to a lack of capacity demonstration if it is no longer going to be shutting down their boilers. These commenters also stated that the demonstration submission deadlines should be flexible enough to allow facilities to transition between the extensions provided in § 257.103(f)(1) and

(f)(2).

EPA also received comments on the tolling of the deadline to cease receipt of waste while the demonstration for an alternative deadline is under review. All commenters supported the proposal that tolling of the deadline only occurs after a demonstration is determined to be complete. However, some commenters requested that EPA revise the proposed regulatory text to clearly provide what will constitute a complete demonstration to avoid any misunderstandings. Several commenters raised concern that, as the proposed regulations were drafted, a facility could get a free four-month extension during the tolling of the deadline after a complete demonstration is received. According to these commenters, a facility could submit a complete demonstration despite having the ability to cease receipt of waste and continue to operate while it is being reviewed because the demonstration completion determination does not depend on showing infeasibility.

Some commenters believe that the proposed review period is overly ambitious and requested that EPA clarify that after four months and no final determination is made, that the deadline continues to toll for the facility.

EPA also received comments on issues relating to the situations in which an extension request is denied by EPA. Some commenters claimed that EPA did not discuss what would occur if a facility's request was denied. These commenters state that EPA needs to establish a uniform timeframe for those facilities whose complete demonstration request is denied by EPA to cease receipt of waste and initiate closure. They explained that as the deadline for this facility is tolling, it would be unreasonable for EPA to expect that the facility can immediately cease receipt of waste. They believe that this timeframe should not be less than six months as that was the timeframe originally established in the CCR rule.

Industry groups supported the proposal that a Participating State Director should have the

authority to grant extensions in an approved state program.

Additionally, several groups commented that the public comment period on the demonstrations is too short for the public to be able to review, evaluate, and provide meaningful input on the decision. These commenters also raised concern that EPA fails to define what it considers a substantive versus non-substantive comment and makes no provision to consider comments received after this 15-day window. These commenters claimed that this short period fails to provide 30-day notice and does not give interested parties sufficient time to consider EPA's decision, or to collect and submit written data, views, or arguments, and therefore violates RCRA and the Administrative Procedure Act (APA).

EPA is adopting procedures that largely track the procedures laid out in the proposed rule.

a) Deadline for submissions.

Demonstrations for an alternative compliance deadline under § 257.103(f)(1) (development of alternative capacity infeasible) must be submitted to EPA for approval no later than November 30, 2020. This deadline should provide EPA with sufficient time to review the submission and determine whether it is complete prior to the April 11, 2021 deadline to cease receipt of waste. Moreover, this submission deadline is more than adequate for facilities to compile the necessary documentation, even assuming the commenters are correct that it would take three months to compile all the necessary documents. Although November 30, 2020 is the latest date to submit a request, EPA encourages submissions at the earliest point at which the facility knows further time to complete its arrangements is needed. This requirement is found at § 257.103(f)(3)(i)(A).

An owner or operator that seeks an extension to an approved alternative closure deadline must submit a new demonstration to EPA within fourteen days of determining that they no longer will meet the approved cease receipt of waste deadline. This requirement is found at § 257.103(f)(3)(i)(B).

Requests for additional time to operate a CCR surface impoundment under § 257.103(f)(2) ("permanent cessation of coal-fired boiler(s) by a date certain") must be submitted to EPA for approval no later than November 30, 2020. EPA has received numerous submissions from utilities stating that the decision to shut down a boiler is not reached quickly and can require approvals from (or at least coordination with) state regulatory officials, among others. EPA, therefore, expects that facilities know now (or will decide shortly) whether they will seek to rely upon these provisions. This requirement is found at § 257.103(f)(3)(i)(C).

EPA also received comments from Luminant Generating Company LLC (EPA-HQ-OLEM-2019-0172-0098) requesting clarification on whether an owner or operator may apply to use both § 257.103(f)(1) and (f)(2) at one site for different impoundments based on site-specific constraints. The commenter stated this would apply, for example, to a facility that has determined it will retire its coal-fired boilers by October 17, 2028, but has multiple small impoundments (40 acres or less) that would be retrofitted by October 15, 2023, under § 257.103(f)(1) and one large impoundment (larger than 40 acres) that would close by October 17, 2028, under § 257.103(f)(2). If the smaller impoundments were subject to the closure deadlines provided under § 257.103(f)(2) for cessation of coal fired boilers, the ponds would be required to close (not retrofit) by October 17, 2023. EPA agrees with the commenter and believes that this situation is possible. EPA will allow an owner or operator to apply for both alternative deadlines if they can demonstrate that it is necessary. This explanation must be incorporated into the narrative required at § 257.103(f)(1)(iv)(A). The facility should submit the application for each alternative together as one application. EPA strongly discourages a facility to submit applications for both § 257.103(f)(1) and (f)(2) if they do not intend to use both provisions.

The proposal did not clearly indicate whether a facility that had been approved under one extension provision could seek to subsequently obtain approval to operate under an alternative extension. EPA agrees that if the facility meets the criteria for either extension, there is no reason that they should be precluded from seeking to change the alternative under which they operate. The procedures for this are described in more detail below.

b) EPA review and decision.

Upon receiving the demonstration for an alternative compliance deadline, EPA will evaluate the demonstration to determine whether it is complete. EPA may request additional, clarifying information to complete its review and/or discuss the demonstration with the facility. Submission of a demonstration will toll the facility's deadline to cease receipt of waste until issuance of one of the decisions described below. This ensures that a facility that has submitted a package in good faith is not penalized by any inadvertent administrative delays. EPA is committed to processing submissions as expeditiously as possible.

Consistent with the proposed rule, submissions that EPA determines to be incomplete will be rejected without further process, at which point any tolling of the facility's deadline will end. (EPA anticipates that the question of tolling for incomplete submissions should not generally arise, as the agency anticipates making these determinations before April 11, 2021). No commenter disagreed that this was appropriate. As described in more detail below, incomplete submissions include both the situation in which the submission does not include all of the required material, and the situation in which EPA is unable to determine from the submission whether the facility or the unit meets the criteria for the extension.

EPA received several comments on its proposal that submission of a complete application would

toll a facility's deadline. Some commenters raised concern that the review period is overly ambitious and requested that EPA clarify that if, after four months, no final determination has been made, the deadline would continue to be tolled for the facility. These commenters also requested that EPA revise the proposed regulatory text to clearly provide what will constitute a complete demonstration to avoid any misunderstandings. Other commenters raised concern that as a consequence of the decision to toll deadlines during the review period, and because, in their view, the proposed process would not weed out non-compliant facilities, the four-month time frame effectively creates a four-month extension for all facilities.

EPA agrees that the time frames are ambitious but continues to believe that they can be met. As discussed in more detail below, the Agency has limited the issues to be resolved during this process, and, as requested by commenters, has amended the proposed regulation to specify in detail the information needed for a submission to be considered complete. Consequently, EPA anticipates it will be able to make most decisions without further requests for information. Nevertheless, to avoid penalizing a facility that has submitted a demonstration in good faith, the final rule provides that the deadline to cease receipt of waste will be tolled until the Agency determines that the submission is incomplete or reaches a final decision on whether the facility meets the criteria for the extension, even if it takes longer than four months. EPA disagrees that this will in essence grant all submitters a de facto four-month extension. The new deadline for submission is over four months in advance of the deadline to cease receipt of waste, and EPA anticipates being able to evaluate submissions prior to this deadline.

Once the owner or operator submits the demonstration to EPA for approval, the owner or operator must place a copy into the facility's operating record and on its publicly accessible CCR Internet site. EPA will also post who has submitted a demonstration on EPA's website. After reviewing

the submission, EPA will either post a determination that the submission is incomplete on EPA's website or a proposed decision to grant or to deny the request in whole or in part on www.regulations.gov for public notice and comment.

Consistent with the proposal, the public will have at least 15 days to comment on the proposed decision. If the demonstration is particularly complex, EPA would provide a longer comment period of 20 to 30 days. EPA will evaluate the comments received and amend its decision as warranted. EPA will post all decisions on its website, in the relevant docket and notify the facility. EPA proposed that decisions would become automatically effective 5 days from the close of the comment period if EPA received no substantive comments. EPA is not finalizing this approach because it would be too difficult to implement.

EPA acknowledges that the public comment periods are short but disagrees with the suggestion that they will be too short to be meaningful. EPA is requiring facilities to post all submissions on their publicly accessible CCR Internet site at the same time they submit them to EPA. The public can start their review at the same time as EPA and begin to gather information and prepare their comments. In most cases, the issues to be resolved will be limited largely to whether the deadlines proposed to complete all activities are supported by the available information, and whether the facility remains in compliance with the regulations. EPA disagrees with the proposition that a 15- to 30-day comment period violates either section 7004(b) of RCRA or the APA. This process is not a rulemaking, but an informal adjudication. Such adjudications do not typically include an opportunity for public comment and therefore the provision of a 15 to 30-day comment period meets the mandate in RCRA section 7004(b) to promote public participation. Moreover, the APA imposes neither a requirement to provide an opportunity for public comment nor any minimum time for a comment period for such procedures.

Finally, EPA notes that the same commenters requesting longer comment periods have also raised concern that the process grants facilities too much additional time to continue operating. EPA is also interested in not granting undue amounts of additional time for facilities to continue operating and is expediting all aspects of this process, including the comment period.

EPA will post all final decisions on EPA's website and in the appropriate docket. The decision will specify the facility's deadline to cease receipt of waste; for example, a decision rejecting a submission as incomplete prior to April 11, 2021 will specify that the deadline remains April 11, 2021. The facility must post, along with a copy of its demonstration, the Agency's final decision on the facility's publicly accessible CCR Internet site. EPA intends to reach a final decision no later than four months after receiving a complete demonstration. If at any point in this process, a facility no longer needs an extension—e.g., because it has completed construction of alternative capacity prior to approval from EPA—the facility must notify EPA and withdraw its demonstration.

Some commenters raised concern that EPA had neglected to propose the procedures associated with denial of extension requests and requested that EPA elaborate on these procedures in the final rule. EPA disagrees that the procedures in the proposed rule apply exclusively to situations in which EPA grants the request. While EPA anticipates there will be several possible responses to a request for an extension, the procedures associated with each are the same procedures that were outlined in the proposal.

One possible outcome is that EPA will grant the requested extension. In this case the procedure will follow the process outlined in the proposed rule and discussed above. EPA will post a proposed decision on www.regulations.gov for at least a 15-day comment period and will subsequently publish its final decision on EPA's website and in the relevant docket.

Another potential outcome is that no extension is granted. Some commenters requested that if EPA denies a request, the facility be granted an additional six months in which to continue receiving waste. EPA envisions that the circumstances under which a request is entirely denied will be limited and disagrees that it would be appropriate to universally grant a further six months in these situations. The most likely situation in which an extension is not granted will be where EPA rejects the submission as incomplete or determines that one or more of the criteria for the extension have not been met. In neither situation would authorizing additional time for the facility to operate be warranted.

As explained previously, EPA will reject incomplete submissions without further process. This could include situations in which EPA cannot determine from the submission whether the criteria have been met (e.g., the submitted information does not clearly address whether the downgradient monitoring system has been installed at the waste boundary or whether alternative capacity is available). No commenter disagreed that this was appropriate, and EPA continues to believe that in the absence of any showing that all regulatory criteria have been met no additional time could-and should-- be authorized.

Another possibility is that EPA will propose to deny the application on the grounds that one or more of the criteria have not been met. For example, EPA may determine that the amount of time that the facility requested to complete the construction of the alternative capacity is not supported by the record. In this case all of the procedures described previously with respect to approvals will apply. And in this circumstance the amount of time that will be granted to the facility will be determined by the factual record that has been developed through this process. Whatever additional amount of time is determined to be appropriate based on the factual record before the agency at the time- which may be none-- will necessarily be more appropriate than the commenter's proposed six-month period. For example, if a facility requests two additional years of operation and EPA determines that the submission

only supports one year of continued operation, a six-month timeframe would be too short. Similarly, in some situations the facts may demonstrate that six months is too long. As another example, EPA may determine alternative capacity exists and can be feasibly utilized. EPA recognizes that the mere fact that disposal capacity exists somewhere does not necessarily constitute feasibility for purposes of this analysis. Nevertheless, there may be instances where disposal capacity is available off-site and within a reasonable distance. In this circumstance, as well, a six-month period of continued operation would be equally inappropriate.

Some commenters raised the argument that because part 257 is self-implementing and because certain regulatory provisions might be viewed as ambiguous, there could be differences in opinion on what constitutes compliance. These commenters felt that differences in interpretation should be discussed during EPA's review process and corrected as warranted as part of a facility's completion of its demonstration.

EPA is establishing an expedited process to resolve requests for continued operation under § 257.103; in order to meet these time frames EPA has limited the issues to be resolved in this proceeding. Thus, under the two new alternatives in § 257.103, in many cases one of the primary issues to be resolved will be whether the facility is in compliance with the regulations. Although EPA does not agree that the regulations are ambiguous, EPA may be able to engage in a limited amount of discussion with a facility before the submission deadline. To address concerns raised by commenters that the tolling period would grant de facto extensions for all facilities, such discussions would need to occur before the deadline for final submission of the request to avoid extending the tolling period. In addition, as explained previously, documentation that a facility remains in compliance with the requirements of subpart D provides critical support for a decision to allow continued operation of the unlined

impoundment. This means that EPA must be able to affirmatively conclude that the facility meets this criterion prior to authorizing any continued operation of the unlined impoundment. As a consequence, any opportunity to correct the demonstration is limited to the period before the deadline for submission. Given that the final rule has been published well in advance of the deadline to cease receipt of waste, facilities will have sufficient time to raise these issues to the Agency in advance of submitting their application.

Finally, note that any determinations made in evaluating compliance aspects of submitted demonstrations will be made solely for the purpose of determining whether an extension of the deadline to cease receipt of waste is warranted. In making these determinations the Agency generally expects to consider and rely on the information in a submission, information contained in submitted comments to a proposed decision and any other information the Agency has at the time of the determination. These determinations may not be applicable or relevant in any other context. Should the facility's compliance status be considered outside of this context in the future, the Agency may reach a contrary conclusion based, for example, on new information or information that was not considered as part of this process.

c) Transferring between site-specific alternatives (§ 257.103(f)(1) and (f)(2))

In the December 2019 proposal, EPA proposed that a facility could not utilize both the short-term extension § 257.103(e) and the site-specific longer extensions § 257.103(f). However, in the proposal EPA did not discuss whether a facility could switch between the site-specific extensions. Several comments discussed this issue explaining the importance of being able to switch between the lack of alternative capacity extension in § 257.103(f)(1) and the cessation of coal-fired boiler(s) in § 257.103(f)(2) and vice versa.

Several of these commenters stated that it is possible for a utility to determine that they will shut

down their coal-fired boiler(s) after being approved under § 257.103(f)(1) and still be able to meet the deadlines under § 257.103(f)(2). They continued on to state that were this to happen a facility should be able to subsequently make the demonstration and switch extensions. Commenters also pointed out that allowing facilities to switch from § 257.103(f)(1) to § 257.103(f)(2) would expedite the closure of the CCR surface impoundment in question and also reduce the overall risk, consistent with subtitle D protectiveness standard.

These commenters additionally stated that the opposite is also possible where a facility will learn that they are unable to retire their coal-fired boilers and will need to develop alternative capacity. As such a facility should be able to make the demonstration and switch extensions. Therefore, EPA should provide a process for owners and operators to exercise this flexibility.

EPA agrees with the commenters that a situation may arise where a facility needs to change course due to unexpected business decisions and that there should be a process for a facility to switch between the site-specific alternative closure provisions. Therefore, EPA is adding regulations at § 257.103(f)(4) to allow the transfer between site-specific alternatives. The process of obtaining approval will be the same as it would be under the initial application for approval.

6. Conforming Amendments to § 257.103(a), (b), (c) and (d)

To conform with the new provisions for CCR surface impoundments, EPA proposed a series of amendments to the § 257.103 introductory paragraph and at § 257.103(a), (b), and (c). Additionally, EPA proposed amending § 257.103(a) and (b) to only be applicable to CCR landfills.

a) Amendments to § 257.103(a) and (b)

EPA proposed to revise the introductory paragraph to § 257.103 to add the phrase “and/or non-CCR wastestreams” and to add references to the proposed new paragraphs (e) and (f) to § 257.103 for

the short-term alternative and the alternative compliance deadlines respectively. EPA also proposed conforming revisions to § 257.103(a) and (b) to reflect the proposed alternative closure deadlines for surface impoundments. The current § 257.103(a) and (b) apply to both CCR landfills and CCR surface impoundments undergoing closure under § 257.101 that need additional time to find alternative capacity for only CCR wastestreams. To be consistent with the proposals, EPA proposed amending § 257.103(a) and (b) to only apply to CCR landfills.

Consistent with the decisions discussed previously, EPA has decided to finalize the proposed conforming amendments to § 257.103(a) and (b) so that those provisions only apply to CCR landfills. In addition, to address the concerns that proposed revisions to the introductory paragraph could be read to authorize all units to receive non-CCR wastestreams, EPA is revising the introductory paragraph to § 257.103 to provide that the owner or operator may continue to receive the waste specified in paragraphs (a), (b) or (f). Additionally, the references to § 257.101(a) and (b)(1) are being removed from § 257.103(a) and (b), as those sections apply only to CCR surface impoundments. EPA is also revising the term "CCR unit" to "CCR landfill" to ensure clarity that § 257.103(a) and (b) apply only to CCR landfills.

b) Amendments to § 257.103(c) and (d)

In the December 2, 2019 proposal, EPA proposed to amend § 257.103(c) to make conforming changes to the notification requirements. When EPA amended the cease receipt of waste date in the July 2018 rule in § 257.101(a) and (b)(1), EPA neglected to make the conforming changes to the notification requirements in § 257.103(c). EPA proposed to amend § 257.103(c)(1) by adding new paragraphs (i) through (iii) for CCR units closing pursuant to § 257.101(a), (b)(1), and (d), respectively. Each respective subparagraph then requires the owner or operator to prepare the notification no later than the

cease receipt of waste date according to § 257.101(a), (b)(1), and (d). The current text of § 257.103(c)(1) requires the owner or operator to prepare a notification within six months of becoming subject to closure pursuant to § 257.101(a), (b)(1), or (d). In light of the *USWAG* decision and the revisions adopted in this rule, this language no longer makes sense.

EPA received very few comments related to this section. Most comments stated generic support or disagreement for amending § 257.103(a) and (b) to only apply to landfills. There were no specific comments on the proposed modifications to the regulatory text in § 257.103(c).

In the December 2, 2019 proposal EPA did not make the correct conforming changes to § 257.103(c). EPA did not need to add the new notification deadlines for the units closing pursuant to § 257.101(a) and (b)(1) because of the restructuring of § 257.103(a) and (b). As § 257.103(a) and (b) will now only apply to CCR landfills, § 257.103(c) only needs to contain the notification date associated with CCR landfills closing pursuant to § 257.101(d). Therefore, EPA will not be finalizing the proposed amendments to § 257.103(c)(1) by adding new paragraphs (i), (ii), and (iii). Rather, EPA is amending the regulatory text of § 257.103(c)(1) by removing the citations for § 257.101(a) and (b)(1). This amendment to the regulatory text clarifies the notification requirements for § 257.103(a) and (b). Additionally, EPA is replacing the term "CCR unit" with "CCR landfill" throughout § 257.103(c) to add clarity that the provision only applies to CCR landfills. This change is represented in § 257.103(c).

EPA is also replacing the term "CCR unit" with "CCR landfill" in § 257.103(d). EPA did not propose this amendment however EPA believes it adds further clarity to the regulation. This change is represented in § 257.103(d).

## VI. What Final Action is EPA Taking on the August 14, 2019 Proposal?

### A. *Revisions to the Annual Groundwater Monitoring and Corrective Action Report Requirements.*

Currently, § 257.90(e) requires owners and operators of CCR units to prepare an annual groundwater monitoring and corrective action report ("annual report"). This annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. The CCR regulations also specify the minimum information that must be included in the annual report. For example, one of the current requirements is to provide all the monitoring data obtained under the groundwater monitoring and corrective action program for the year covered by the report. The CCR regulations further require the owner or operator to include a data summary in the report with information such as the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the samples were required by the detection monitoring or assessment monitoring programs. See, § 257.90(e)(3). Except for certain inactive CCR surface impoundments, owners and operators must prepare the initial annual report no later than January 31, 2018 and post the report to its publicly accessible CCR Internet site within 30 days of preparing the report. See, §§ 257.90(e) and 257.107(d). For eligible inactive CCR surface impoundments[40], the deadline to prepare the initial annual report is August 1, 2019. See, § 257.100(e)(5)(ii).

The Agency reviewed the annual reports available on facilities' publicly accessible CCR Internet sites that were due by January 31, 2018 and January 31, 2019 and observed that some facilities did not

[40] For more information on eligible inactive CCR surface impoundments, see the preamble to the direct final rule published on August 5, 2016 (81 FR 51802).

provide groundwater monitoring data in formats that were clear and easy for the public to understand. EPA found instances where it was difficult to determine whether the analytical results corresponded to background or downgradient wells, whether the CCR unit was operating under the detection or assessment monitoring program, when the assessment monitoring program was initiated for the CCR unit, or whether the facility had initiated corrective action for the unit. In addition, several facilities only provided hundreds or thousands of pages of laboratory printouts of the data, making it difficult for the public and other stakeholders to put the results into context within the overall groundwater monitoring program.

The purpose of requiring posting of the annual reports is to allow the public, states and EPA to easily see and understand the groundwater monitoring data. To accomplish this purpose, the Agency is finalizing one revision to the annual groundwater monitoring and corrective action reporting requirements and providing more explanation of another revision included in the preamble of the August 2019 proposed rule. See 84 FR 40365-40366.

First, EPA is amending § 257.90 by adding new paragraph (e)(6) requiring a summary to be included at the beginning of the annual report. EPA received many comments on this proposal, most of which were supportive of the addition of the proposed provisions at § 257.90(e)(6).

Environmental groups and most private citizens who commented supported the inclusion of an upfront summary because a summary would be helpful for the public to understand the reports. They also said the summaries should include and not misrepresent or gloss over the conclusions based on the data. Specifically Earthjustice et al. commented that proper oversight and enforcement of the CCR regulations can only happen if owners and operators include a clear summary of the status of groundwater monitoring and corrective action, each statistically significant increase (SSI) over

background levels (for Appendix III constituents) or groundwater protection standards (for Appendix IV constituents). They further commented that the report should include the dates when assessment monitoring was initiated, when an assessment of corrective measures was initiated, when an assessment of corrective measures was completed, and when a remedy was selected, where applicable. Earthjustice et al. also commented that clear summaries of all groundwater monitoring data are necessary, not just the data associated with an SSI.

Multiple states commented on this issue. The Alabama Department of Environmental Management commented that the report should include whether a facility began or ended the reporting cycle in detection or assessment monitoring (as well as provide the dates for the transition), and specify if and when a facility has moved to the corrective action stage of the groundwater monitoring program. The Virginia Department of Environmental Quality also supported the minimum set of requirements included in the proposal.

Many industry stakeholder and electric utility commenters supported the inclusion of an upfront summary setting forth certain information to help readers understand the data contained in the report and to provide more specificity and transparency as to what the report contains. Some industry group commenters did not support repeating information in the annual reports that is already required by the groundwater sampling and analysis plan at § 257.93. Some industry commenters wanted clarification that these requirements would not apply retroactively to past annual reports.

In light of these comments, the Agency is finalizing the new requirements at § 257.90(e)(6). This new provision establishes a minimum set of requirements to be addressed in the summary discussion of the status of the groundwater monitoring and corrective action programs for the CCR unit at the beginning of the annual report (e.g., as part of the report's executive summary). The minimum

requirements for this summary include stating whether the CCR unit was operating pursuant to the detection monitoring program under § 257.94 or the assessment monitoring program under § 257.95; identifying those constituents and the corresponding wells, if any, for which the facility had determined that there is a statistically significant increase over background levels for constituents listed in Appendix III (or if operating under the assessment monitoring program, constituents in Appendix IV that were detected at statistically significant levels above the groundwater protection standard); the date when the assessment monitoring program was initiated for the CCR unit; and a description and the dates of any corrective measures initiated or completed, including the remedy, during the annual reporting period. These requirements will only apply to future annual reports, starting with the next report completed after the effective date of this final rule. EPA believes the elements finalized are sufficient to give a snapshot of the groundwater monitoring and corrective action activities in the previous year but are not repetitive with other rule requirements.

Second, the Agency solicited comment on whether to amend § 257.90 to require the groundwater monitoring analytical results and related information to be presented in a standardized format, such as multiple tables, in the annual report. Possible examples of standard formats are available for review in the docket of the August 2019 proposal.[41] The Agency also requested comment on formats that could be used.

Information about the groundwater wells was proposed to include the following data elements: well identification number, sampling date, latitude and longitude in decimal degrees, groundwater elevation including well depth to groundwater and total depth of groundwater, and whether the

[41] See EPA memorandum titled "Annual Groundwater Monitoring Report Data Examples"; dated July 1, 2019. (EPA-HQ-OLEM-2018-0524-0013)

groundwater well is upgradient or downgradient of the CCR unit. This information is already collected and reported in the groundwater sampling and analysis plan under § 257.93 and so the information is readily available to the facility.

Sample information was proposed to be provided in a table that contains fields including sampling date, sampling time, sampling phase (i.e., background, detection monitoring, assessment monitoring, corrective action), whether the groundwater well is upgradient or downgradient of the CCR unit, and analytical methods listed separately for every method used to analyze the constituent concentrations. Data for Appendix III to Part 257- Constituents for Detection Monitoring was proposed to contain concentrations in milligrams per liter (unless otherwise specified) of the following: boron, calcium, chloride, fluoride, pH (standard units), sulfate, and total dissolved solids (TDS). Data for Appendix IV to part 257- Constituents for Assessment Monitoring was proposed to contain concentrations in milligrams per liter (unless otherwise specified) of the following: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, mercury, molybdenum, radium 226-228 combined (pCi/L), selenium, and thallium. It was proposed that each constituent concentration identify the detection limit for the analytical method used with data qualifiers specified for non-detect samples.

EPA believed that a required standardized format would increase transparency and enable the general public, as well as Federal, state, and local officials, to more easily understand the groundwater monitoring data and thus plan for and evaluate the appropriate next steps to protect public health and the environment.

The Agency received many comments on the groundwater monitoring data standardized format. In general, environmental organizations and citizens supported the inclusion of data in a standardized format for ease of understanding and for the reasons included in the proposal. Many commenters

requested the data to be presented in a machine-readable and preferably spreadsheet format. Some commenters, including Earthjustice, said EPA should require elements beyond those included in the proposal to satisfy the RCRA section 4004 protectiveness standard, and include the location of the groundwater well, groundwater elevation, and whether each well is upgradient, downgradient, sidegradient, or something else. These comments also said that access to the full data set should be included without having to wade through thousands of pages of laboratory reports to provide the public, state and Federal agencies with an opportunity to independently evaluate the data. Some commenters recommended that a summary of historical detections would also be helpful, especially if groundwater protection standards are established based on background concentrations at a given site.

While state commenters were generally supportive of requiring groundwater monitoring analytical results in a standardized format, the Agency received comment from only two states on this issue. Alabama Department of Environmental Management supported the requirement that groundwater analytical results for each sampling event be summarized, preferably in tabular format, for ease of the reader. The state found it has been extremely difficult, even for a trained individual, to review groundwater monitoring reports given the complex nature of the sites and the magnitude of data being presented. The state recommended a summary of historical detections would also be helpful, especially if groundwater protection standards are established based on background concentrations at a given site. The Virginia Department of Environmental Quality (VDEQ) generally supported the inclusion of a minimum set of requirements in a summary of the groundwater monitoring and corrective action programs. However, VDEQ stated that the standardized format and elements should only be a minimum standard so that states may require additional elements or information in state reporting without requiring separate reports to be generated.

Overall, industry commenters did not support the addition of standardized formats for groundwater monitoring data and analytical results. Industry commenters did support EPA's desire to make information decipherable to the public but believe the regulations should maintain flexibility for states and for facilities to determine how best to present the data. Some said a standardized format could be problematic in that certain facilities may not be able to display site-specific well networks sufficiently to meet the requirements of the CCR regulations. Other industry commenters said EPA should not require additional information beyond what is currently required by § 257.90(e) for the annual reports. Many industry commenters expressed concern about requiring information about groundwater wells including latitude and longitude of the wells in decimal degrees. These commenters said such information poses a security concern for the facility. They believe that providing a map of the monitoring wells is sufficient to be in compliance with the CCR regulations.

After considering the comments, EPA is not finalizing a requirement for owners and operators of CCR units to present groundwater monitoring analytical results in a standardized format. EPA is not convinced that such a requirement is necessary to serve the purposes of ensuring greater transparency. The Agency is also concerned about prescribing a standardized format which may not be consistent with existing state reporting requirements, especially given that only two states provided comments on this issue. The new requirement for a summary will ensure that the critical information is presented up front in the report, where it can be readily accessed by the public. EPA believes the current groundwater monitoring requirements of § 257.90 are sufficient as a minimum set of criteria to show the groundwater monitoring activities of the previous year. EPA also agrees with the commenters that allowing states the flexibility in requiring certain data elements and formats because of the use of certain software or what is required by the state regulations for consistency is important. Additionally, EPA is maintaining

flexibility for facilities to report groundwater monitoring data in ways that are publicly accessible for all stakeholders. If, however, it becomes clear that the summaries are insufficient to ensure that the annual reports provide the public with useful information EPA will revisit this issue.

In this regard, it should be noted, however, that the annual reports should not only contain thousands of pages of groundwater monitoring data directly from the laboratory. Many commenters said this data is difficult to sift through, even for trained environmental specialists. That format is not easy to understand for the public, either. Data should be presented in a way that clearly communicates the required information to the general public in order to ensure proper oversight and enforcement of the CCR regulations by the public, states, and Federal agencies. The data could be presented in a tabular format, include historical detections, or include elements in the proposal that are not being finalized in this action.

B. *Revisions to the Publicly Accessible CCR Internet Site Requirements.*

In the 2015 CCR rule, pursuant to RCRA section 7004(b)(2), the Agency promulgated a requirement for owners and operators of any CCR unit to establish and maintain a publicly accessible Internet site, titled "CCR Rule Compliance Data and Information." Section 7004(b)(3) directs EPA to provide for, encourage, and assist "[p]ublic participation in the development, revision, implementation, and enforcement of any regulation, guideline, information, or program under this chapter." To achieve these ends, internet postings are required for various elements identified in the following sections of the CCR regulations: Location restrictions; design criteria; operating criteria; groundwater monitoring and corrective action; and closure and post closure care. Consistent with the statutory directive, the websites are important to make the notices and relevant information required by the regulations available to the public in a manner that will encourage and assist public participation in the implementation of the

regulations. This means, for example, that the posted documents must be clearly identifiable as documents, reports, demonstrations, etc., to those attempting to access them. The Internet is a widely accessible and effective means for gathering and disseminating information to the public and the states.

EPA has observed that some of the publicly accessible Internet sites that owners and operators of CCR facilities have established in response to the CCR regulations, fail to make the posted documents publicly accessible. For example, a number of publicly accessible CCR Internet sites require either some sort of registration whereby personal information identifying the user must be provided before members of the public are granted "access" to the website. Other websites require a user to submit a request for each document individually and the requested document is subsequently emailed to the user. Still other websites have been designed such that the posted documents cannot be downloaded or printed from the website. EPA does not consider these kinds of practices to be consistent with the requirement that the information be made publicly available. EPA acknowledges that the current regulation does not define the term "publicly available," or contain detailed requirements that such websites must meet, nor are the practices described above explicitly prohibited. To avoid any further confusion, EPA proposed to amend the current regulation to clearly specify that facilities must ensure that all information required to be on the websites must be made available to any member of the public, including through printing and downloading, without any requirement that the public wait to be "approved", or provide information in order to access the website.

States, industry and environmental groups submitted comments that agreed with this proposal. Specifically, the states of Alabama and Virginia commented that they agreed with this proposed requirement. Earthjustice, Arizona Electric Power Cooperative Incorporated, the American Public Power Association, Labadie Environmental Organization, Sierra Club and the Blue Ridge

Environmental Defense Fund also submitted comments stating that they agreed with the proposed requirement to make information and documents on the publicly accessible CCR Internet site immediately accessible (including downloading and printing). One commenter said that EPA should not completely prohibit registration features on CCR websites because those features can alert the companies that users are having trouble accessing the data and allows the facility to contact those individuals to assist them. The Agency believes that requiring some sort of mechanism for users to contact the facility if there are issues with accessing the information on the site is a more effective mechanism to address those types of problems. Another company commented that EPA should not view these security approaches as inappropriately limiting access to utilities' publicly available CCR sites, as they are needed to protect the security interests of the utilities. This commenter did not provide details on how or why these practices are needed to address security concerns. In the absence of any explanation of the commenter's concerns and given that the vast majority of publicly accessible CCR Internet sites do not require registration or permission to access the information, EPA does not believe this is enough justification to limit or restrict access to the information. Therefore, EPA is finalizing this revision to the regulations as proposed.

Another issue EPA has noticed is that the Internet addresses for many of the publicly accessible CCR Internet sites have changed; for some sites, more than once. It is very difficult for the public, states, and EPA to access the information required to be posted on these websites if the URLs change without notice. In response, the Agency proposed to amend the regulations to require that facilities notify EPA within 14 days of changing their publicly accessible CCR Internet site address, to allow EPA to update the Agency's website with the correct URL address. Commenters generally agreed with this requirement and one commenter suggested that facilities also notify the state director when the URL for the facility's

website changes. EPA agrees with this suggestion and is finalizing the requirement that when a facility changes the URL for its publicly accessible CCR Internet site, they must notify EPA and the state director within 14 days of the new website address.

Another issue EPA has noted is that when there is a question or problem with a publicly accessible CCR Internet site, such as a broken link or a document that will not download, it can be difficult to reach the appropriate contact at the facility in order to gain access to the information. Therefore, the Agency requested comment on whether each publicly accessible CCR Internet site should be required to have a mechanism (e.g., a "contact us" electronic form on the CCR website) for the public to contact the facility about issues of information accessibility. Commenters generally agreed with the idea of having some way for the public to easily contact the correct person to report problems with the website. One commenter said that EPA should require owners and operators to post a contact email address rather than a contact form. Several commenters suggested that the specific mechanism for the public to bring issues of information accessibility to the facility should be left up to the facility. EPA agrees that some sort of "contact us" mechanism is warranted; for example this could include either a "contact us" form much like the one EPA uses on the EPA CCR website or an email address for a specific contact at the facility who can address issues related to the accessibility on the website. The Agency is adding this requirement to the regulations in § 257.107(a).

One commenter also mentioned that even though § 257.107(c) requires that the information posted to the website must be made available to the public for at least five years, some documents are being removed from the websites after they are posted. EPA would like to reiterate that the regulations require that posted documents remain on the websites for at least five years. Section 257.107(c). If the documents are revised or updated, the original documents must still remain on the website. The same

requirement exists if a unit is closed or consolidated with another unit; the original documents that were required for that unit must remain on the website for at least five years.

## VII. Rationale for 30-Day Effective Date

The effective date of this rule is 30 days after publication in the Federal Register. The Administrative Procedure Act (APA) provides that publication of a substantive rule shall be made not less than 30 days before its effective date and that this provision applies in the absence of a specific statutory provision establishing an effective date. See 5 U.S.C. 553(d) and 559. EPA has determined there is no specific provision of RCRA addressing the effective date of regulations that would apply here, and thus the APA's 30-day effective date applies.

EPA has previously interpreted section 4004(c) of RCRA to generally establish a six-month effective date for rules issued under subtitle D. See 80 FR 37988, 37990 (July 2, 2015). After further consideration, EPA interprets section 4004(c) to establish an effective date solely for the regulations that were required to be promulgated under subsection (a). Section 4004(c) is silent as to subsequent revisions to those regulations; EPA therefore believes section 4004(c) is ambiguous.

Section 4004(c) states that the prohibition in subsection (b) shall take effect six months after promulgation of regulations under subsection (a). Subsection (a), in turn provides that ''[n]ot later than one year after October 21, 1976 . . . [EPA] shall promulgate regulations containing criteria for determining which facilities shall be classified as sanitary landfills and which shall be classified as open dumps within the meaning of this chapter.'' As noted, section 4004(c) is silent as to revisions to those regulations.

In response to Congress's mandate in section 4004(a), EPA promulgated regulations on September 13, 1979. 44 FR 53438. EPA interprets section 4004(c) to establish an effective date

applicable only to that action, and not to future regulations the Agency might issue under this section. In the absence of a specific statutory provision establishing an effective date for this rule, APA section 553(d) applies.

EPA considers that its interpretation is reasonable because there is no indication in RCRA or its legislative history that Congress intended for the agency to have less discretion under RCRA subtitle D than it would have under the APA to establish a suitable effective date for subsequent rules issued under section 4004(c). Consistent with EPA's interpretation of the express language of section 4004, EPA interprets statements in the legislative history, explaining that section 4004(c) provides that the effective date is to be 6 months after the date of promulgation of regulations, as referring to the initial set of regulations required by Congress to be promulgated not later than 1 year after October 21, 1976. These statements do not mandate a 6 month effective date for every regulatory action that EPA takes under this section. This rule contains specific, targeted revisions to the 2015 rule and the legislative history regarding section 4004 speaks only to these initial 1976 mandated regulations.

This reading allows the Agency to establish an effective date appropriate for the nature of the regulation promulgated, which is what EPA believes Congress intended. EPA further considers that the minimum 30-day effective date under the APA is reasonable in this circumstance where none of the provisions being finalized require an extended period of time for regulated entities to comply.

## VIII. State CCR Programs

### A. *Effect on this Final Rule on States with Approved CCR Programs*

This final rule has impacts on states with an approved program. The effects depend on whether the state has received approval for the provisions that have been amended in this rule. As of this final rule, EPA has granted approvals to the states of Oklahoma and Georgia.

On June 28, 2018, EPA granted Oklahoma full program approval. However, on April 15, 2020, the US District Court for the District of Columbia vacated part of that approval. Waterkeeper Alliance Inc. v. Wheeler, No. 18-02230, 2020 WL 1873564 (D.D.C. Apr. 15, 2020). Specifically, the court vacated those portions of the Oklahoma program approval that mirrored those portions of the federal program that had been vacated by the D.C. Circuit in *USWAG*—i.e., the provisions that allowed unlined impoundments to continue to operate until they leak; the provisions that treated "clay-lined" units as lined units; and the provisions that excluded legacy units. As a consequence, the federal requirements that correspond to those provisions will now apply in Oklahoma. Two of these provisions have been revised in this rulemaking, and those revisions will take effect in Oklahoma because these federal requirements continue to operate. These are the revisions to 40 CFR section 257.101(a) and section 257.71(a)(1)(i).

However, Oklahoma was granted approval for § 257.103, and their regulations continue to operate without change in lieu of the federal program. In essence this means that the revisions promulgated in this rule making will not take effect in Oklahoma until such time as Oklahoma revises the program to adopt them. However, Oklahoma must revise its CCR regulations within three years of any revisions to the federal regulations that are more stringent, in order to maintain their program approval. See, RCRA section 4005(d)(1)(D)(i)(II). EPA determined that parts of the amendments to § 257.103 are more stringent than the previous regulations. The modifications that allow the continued disposal of non-CCR wastestreams are arguably less stringent; however, the maximum amount of time allowed under the new provisions in § 257.103 is less than that allowed under the previous regulations and therefore these revisions are considered to be more stringent.

The same is true with respect to the amendments to the annual groundwater monitoring and

corrective action report and to the publicly accessible CCR Internet sites requirements in §§ 257. 90 and 257.107. EPA considers these revisions to be more stringent because they impose new substantive requirements. However, because the state provisions that correspond to these federal requirements have been approved the federal revisions will not take effect unless the state adopts the revisions.

To maintain their program approval, Oklahoma will have to update its state CCR regulations and submit the modified portions for EPA approval. The process for approving Oklahoma's modifications is the same as for the initial program approval: EPA will propose to approve or deny the program modification and hold a public hearing during the comment period. EPA will then issue the final program determination within 180 days of determining that the state's submission is complete.

Similarly, Georgia did not apply for approval of four provisions in their permit program; as a consequence, the federal requirements that correspond to those four provisions continue to apply in Georgia. Two of these four provisions have been revised in this rulemaking, and those revisions will take effect in Georgia because these federal requirements continue to operate. These are the revisions to §§ 257.101(a) and 257.71(a)(1)(i). For the same reason, the state is not required to modify these parts of their program within the three years in order to maintain program approval. However, Georgia was granted approval for §§ 257.90, 257.103, 257. 107, and because the state regulations operate in lieu of the federal regulations the revisions made to these provisions in this rule will not take effect in Georgia unless the state amends its regulations to adopt them.

As discussed above, because the amended provisions are more stringent than the previous regulations, Georgia will need to amend its regulations to incorporate the new timeframes within three years of the effective date of this final rule and submit a program modification to EPA for approval.

## IX. Economic Impacts of this Action

### A. *Introduction*

EPA estimated the costs and benefits of this action in a Regulatory Impact Analysis (RIA), which is available in the docket for this action. The RIA estimates the incremental costs and cost savings attributable to the provisions of this action against the baseline costs and practices in place as a result of the 2015 CCR final rule, and the 2018 CCR Phase One final rule.

EPA updated the 2015 CCR final rule baseline to account for the 2018 Phase One final rule and also to account for two developments. These are the availability of publicly accessible universe data and the effect of the 2018 court decisions. These updates increase the baseline costs estimated for the CCR program against which the RIA estimates the incremental effects of this final rulemaking action.

The RIA estimates that the net annualized impact of this final regulation will be annual cost savings of $26.1 million. at 7 percent or an estimated annualized net cost savings of $16.7 million per year when discounting at 3 percent. This action is not considered an economically significant action under Executive Order 12866.

### B. *Affected Universe*

This final rulemaking action affects coal fired electric utility plants (assigned to the utility sector North American Industry Classification System (NAICS) code 22). The rule is estimated to potentially impact 523 surface impoundments at 229 facilities.

### C. *Costs, Cost Savings, and Benefits of the Final Rule*

The costs attributable to this final rule arise from the reporting and documentation that must be completed by regulated entities and submitted to EPA in order to qualify for some of the closure deadline extension provisions of the rule as well as other reporting requirements related to the annual

groundwater monitoring and corrective action reports, publicly accessible CCR Internet sites, and the closure of CCR units. These costs are estimated to amount to an annualized $0.2 million per year when discounting at 7 percent and an annualized $0.02 million per year when discounting at 3 percent.

The cost savings attributable to this final rule include cost savings from extending the deadlines by which units must cease receiving waste and initiate closure. Cost savings also follow from the avoided cost of new unit construction for CCR units associated with qualified coal fired boilers which are closing by 2023 or 2028. Overall, the final rule is expected to result in net cost savings of an annualized $26.1 million when discounting at 7 percent or an estimated annualized net cost savings of $16.7 million per year when discounting at 3 percent.

The RIA accompanying the 2015 CCR Rule monetized 11 categories of benefits attributable to the national minimum criteria. EPA expects to retain the vast majority of these monetized benefits under the provisions of the Part A rule. Some benefit categories, such as reduced future CCR impoundment releases, are unaffected by the provisions of the Part A rule. Other benefit categories, such as reduced groundwater contamination and other human health and environmental benefits should be largely retained because EPA is requiring units that take advantage of the alternative closure provisions in §257.103(f)(1) and §257.103(f)(2) to certify to EPA that they are in full compliance with the 2015 CCR rule. Units unable to make this certification must instead close by the earliest possible date, which EPA identifies as April 11, 2021. A discussion of the impact to each category of monetized benefits is available in Section 3.4 of the Part A RIA.

## X. Statutory and Executive Order (EO) Reviews

Additional information about these statutes and Executive Orders can be found at http://www2.epa.gov/laws-regulations/laws-and-executive-orders.

A. *Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

This is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review because it raises novel legal or policy issues. Any changes made in response to OMB recommendations have been documented in the docket. EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis is available in the docket and is summarized in section IX of this preamble.

B. *Executive Order 13771: Reducing Regulation and Controlling Regulatory Costs*

This action is considered an Executive Order 13771 deregulatory action. Details on the estimated costs of this final rule can be found in EPA's analysis of the potential costs and benefits associated with this action.

C. *Paperwork Reduction Act (PRA)*

The information collection activities in this final rule have been submitted for approval to the Office of Management and Budget (OMB) under the PRA. The Information Collection Request (ICR) document that EPA prepared has been assigned EPA ICR number 1189.32. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The information to be collected as a part of this rule includes demonstrations that must be made to EPA by owners and operators of units that seek to obtain a § 257.103(f)(1) extension. These demonstrations will show that the unit in question meets the necessary criteria to receive the extension. Units that operate under this extension will also be required to publish semi-annual progress reports on their publicly accessible CCR Internet sites to keep EPA and the public appraised of their progress and any operational changes at the facility. Similarly, units that seek to obtain a § 257.103(f)(2) extension

must demonstrate to EPA that they meet the necessary criteria to receive the extension. The criteria are generally the same as the criteria for § 257.103(f)(1) with the addition of a risk mitigation plan. Units that obtain an extension under § 257.103(f)(2) must publish annual progress reports on their publicly accessible CCR Internet sites.

Information to be collected also include the addition of a summary at the beginning of the required annual groundwater monitoring and corrective action reports. These summaries will make the information in the reports more easily accessible to the public.

EPA is also revising the requirements for publicly accessible CCR Internet sites to ensure that all information required to be on the websites be made available to any member of the public in multiple formats, in a timely way, and not requiring any information be submitted in exchange for access.

*Respondents/affected entities*: Coal-fired electric utility plants that will be affected by the rule.

*Respondent's obligation to respond*: The recordkeeping, notification, and posting are mandatory as part of the minimum national criteria being promulgated under Sections 1008, 4004, and 4005(a) of RCRA

*Estimated number of respondents*: 299.

*Frequency of response*: The frequency of response varies.

*Total estimated burden*: EPA estimates the total annual burden to respondents to be an increase in burden of approximately 9,820 hours from the currently approved burden. Burden is defined at 5 CFR 1320.3(b).

*Total estimated cost*: $722,000 (per year), includes $0 annualized capital or operation & maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

D. *Regulatory Flexibility Act (RFA)*

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, EPA believes that the impact of concern is any significant adverse economic impact on small entities, and that an agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule. The rule is estimated to potentially impact 77 facilities that are considered small.

This action is expected to result in net cost savings of an annualized $26.1 million per year. These cost savings will accrue to all regulated entities. We have therefore concluded that this action will relieve regulatory burden for all directly regulated small entities.

E. *Unfunded Mandates Reform Act (UMRA)*

This action does not contain any unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531-1538, and does not significantly or uniquely affect small governments. This action imposes no enforceable duty on any state, local or tribal governments or the private sector.

F. *Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

G. *Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

This action does not have tribal implications as specified in Executive Order 13175. For the "Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities" published April 17, 2015 (80 FR 21302), EPA identified three of the 414 coal-fired electric utility plants (in operation as of 2012) as being located on tribal lands. However, this action does not impose substantial direct compliance costs or otherwise have a substantial direct effect on one or more Indian tribes, to the best of EPA's knowledge. Neither will it have substantial direct effects on the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes. Thus, Executive Order 13175 does not apply to this action.

H. *Executive Order 13045: Protection of Children From Environmental Health Risk and Safety Risks*

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because EPA does not believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in the document titled "Human and Ecological Risk Assessment of Coal Combustion Residuals," which is available in the docket for the final rule as docket item EPA-HQ-RCRA-2009-0640-11993.

As ordered by E.O. 13045 Section 1-101(a), for the "Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities" published April 17, 2015 (80 FR 21302), EPA identified and assessed environmental health risks and safety risks that may disproportionately affect children in the revised risk assessment. The results of the screening assessment found that risks fell below the criteria when wetting and run-on/runoff controls required by the rule are considered. Under the full probabilistic analysis, composite liners required by the rule for

new waste management units showed the ability to reduce the 90th percentile child cancer and non-cancer risks for the groundwater to drinking water pathway to well below EPA's criteria. Additionally, the groundwater monitoring and corrective action required by the rule reduced risks from current waste management units. This action does not adversely affect these requirements and EPA believes that this rule will be protective of children's health.

I. *Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use*

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. For the 2015 CCR rule, EPA analyzed the potential impact on electricity prices relative to the "in excess of one percent" threshold. Using the Integrated Planning Model (IPM), EPA concluded that the 2015 CCR Rule may increase the weighted average nationwide wholesale price of electricity between 0.18 percent and 0.19 percent in the years 2020 and 2030, respectively. As the proposed rule represents a cost savings rule relative to the 2015 CCR rule, this analysis concludes that any potential impact on wholesale electricity prices will be lower than the potential impact estimated of the 2015 CCR rule; therefore, this proposed rule is not expected to meet the criteria of a "significant adverse effect" on the electricity markets as defined by Executive Order 13211.

J. *National Technology Transfer and Advancement Act (NTTAA)*

This rulemaking does not involve technical standards.

K. *Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). The documentation for this decision is contained in EPA's Regulatory Impact Analysis (RIA) for the CCR rule which is available in the docket for the 2015 CCR final rule as docket item EPA-HQ-RCRA-2009-0640-12034.

EPA's risk assessment did not separately evaluate either minority or low-income populations. However, to evaluate the demographic characteristics of communities that may be affected by the CCR rule, the RIA for the 2015 CCR Rule compares the demographic characteristics of populations surrounding coal-fired electric utility plants with broader population data for two geographic areas: (1) One-mile radius from CCR management units (i.e., landfills and impoundments) likely to be affected by groundwater releases from both landfills and impoundments; and (2) watershed catchment areas downstream of surface impoundments that receive surface water run-off and releases from CCR impoundments and are at risk of being contaminated from CCR impoundment discharges (e.g., unintentional overflows, structural failures, and intentional periodic discharges).

For the population as a whole 24.8 percent belong to a minority group and 11.3 percent falls below the Federal Poverty Level. For the population living within one mile of plants with surface impoundments 16.1 percent belong to a minority group and 13.2 percent live below the Federal Poverty Level. These minority and low-income populations are not disproportionately high compared to the general population. The percentage of minority residents of the entire population living within the catchment areas downstream of surface impoundments is disproportionately high relative to the general population, i.e., 28.7 percent, versus 24.8 percent for the national population. Also, the percentage of the population within the catchment areas of surface impoundments that is below the Federal Poverty Level

is disproportionately high compared with the general population, i.e., 18.6 percent versus 11.3 percent nationally.

L. *Congressional Review Act (CRA)*

This action is subject to the CRA, and EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

**List of Subjects in 40 CFR Part 257**

Environmental protection, Beneficial use, Coal combustion products, Coal combustion residuals, Coal combustion waste, Disposal, Hazardous waste, Landfill, Surface impoundment.

_____

Andrew Wheeler,

Administrator.

For the reasons set out in the preamble, EPA amends title 40, chapter I, of the Code of Federal Regulations as follows:

**PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES**

1. The authority citation for part 257 is revised to read as follows:

Authority: 42 U.S.C. 6907(a)(3), 6912(a)(1), 6944, 6945(a) and (d); 33 U.S.C. 1345(d) and (e).

2. Amend § 257.53 by adding the definitions of "Eligible unlined CCR surface impoundment," "Technically feasible," and "Technically infeasible" to read as follows:

**§ 257.53 Definitions.**

* * * * *

*Eligible unlined CCR surface impoundment* means an existing CCR surface impoundment that meets all of the following conditions:

(1) The owner or operator has documented that the CCR unit is in compliance with the location restrictions specified under §§ 257.60 through 257.64;

(2) The owner or operator has documented that the CCR unit is in compliance with the periodic safety factor assessment requirements under § 257.73(e) and (f); and

(3) No constituent listed in Appendix IV to this part has been detected at a statistically significant level exceeding a groundwater protection standard defined under § 257.95(h).

* * * * *

*Technically feasible* means possible to do in a way that would likely be successful.

*Technically infeasible* means not possible to do in a way that would likely be successful.

* * * * *

3. Amend § 257.71 by:

a. Removing and reserving paragraph (a)(1)(i); and

b. Revising paragraphs (a)(3)(i) and (ii).

The revisions read as follows:

**§ 257.71 Liner design criteria for existing CCR surface impoundments.**

(a) * * *

(3) * * *

(i) The owner or operator of the CCR unit determines that the CCR unit is not constructed with a liner that meets the requirements of paragraphs (a)(1)(ii) or (iii) of this section; or

(ii) The owner or operator of the CCR unit fails to document whether the CCR unit was constructed with a liner that meets the requirements of paragraphs (a)(1)(ii) or (iii) of this section.

* * * * *

4. Amend § 257.90 by adding paragraph (e)(6) to read as follows:

**§ 257.90 Applicability.**

* * * * *

(e) * * *

(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:

(i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;

(ii) At the end of the current annual reporting period, whether the CCR unit was operating under

the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;

(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III to this part pursuant to § 257.94(e):

(A) Identify those constituents listed in Appendix III to this part and the names of the monitoring wells associated with such an increase; and

(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.

(iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in Appendix IV to this part pursuant to § 257.95(g) include all of the following:

(A) Identify those constituents listed in Appendix IV to this part and the names of the monitoring wells associated with such an increase;

(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;

(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and

(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.

(v) Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and

(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.

* * * * *

5. Amend § 257.91 by removing and reserving paragraph (d)(2).

**§ 257.91 [Amended]**

6. Amend § 257.95 by revising paragraph (g)(5) to read as follows:

**§ 257.95 Assessment monitoring program.**

* * * * *

(g) * * *

(5) The owner or operator must prepare a notification stating that an assessment of corrective measures has been initiated.

* * * * *

7. Amend § 257.101 by revising paragraphs (a)(1) and (b)(1) to read as follows:

**§ 257.101 Closure or retrofit of CCR units.**

(a) * * *

(1) Except as provided by paragraph (a)(3) of this section, as soon as technically feasible, but not later than April 11, 2021, an owner or operator of an existing unlined CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR surface impoundment and either retrofit or close the CCR unit in accordance with the requirements of §257.102.

* * * * *

(b) * * *

(1)(i) *Location standard under §257.60.* Except as provided by paragraph (b)(4) of this section, the owner or operator of an existing CCR surface impoundment that has not demonstrated compliance with the location standard specified in §257.60(a) must cease placing CCR and non-CCR wastestreams into such CCR unit as soon as technically feasible, but no later than April 11, 2021, and close the CCR unit in accordance with the requirements of §257.102.

* * * * *

8. Revise § 257.103 to read as follows:

**§ 257.103. Alternative closure requirements.**

The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is subject to closure pursuant to § 257.101(a), (b)(1), or (d) may nevertheless continue to receive the wastes specified in either paragraph (a), (b), (f)(1), or (f)(2) of this section in the unit provided the owner or operator meets all of the requirements contained in the respective paragraph.

(a) *CCR landfills*. (1) *No alternative CCR disposal capacity*. Notwithstanding the provisions of § 257.101(d), a CCR landfill may continue to recieve CCR if the owner or operator of the CCR landfill certifies that the CCR must continue to be managed in that CCR landfill due to the absence of alternative disposal capacity both on and off-site of the facility. To qualify under this paragraph, the owner or operator of the CCR landfill must document that all of the following conditions have been met:

(i) No alternative disposal capacity is available on or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section;

(ii) The owner or operator has made, and continues to make, efforts to obtain additional capacity. Qualification under this paragraph (a) lasts only as long as no alternative capacity is available. Once alternative capacity is identified, the owner or operator must arrange to use such capacity as soon as feasible;

(iii) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action; and

(iv) The owner or operator must prepare the annual progress report specified in paragraph (c) of this section documenting the continued lack of alternative capacity and the progress towards the development of alternative CCR disposal capacity.

(2) Once alternative capacity is available, the CCR landfill must cease receiving CCR and initiate closure following the timeframes in § 257.102(e).

(3) If no alternative capacity is identified within five years after the initial certification, the CCR landfill must cease receiving CCR and close in accordance with the timeframes in § 257.102(e) and (f).

(b) *CCR landfills*. (1) *Permanent cessation of a coal-fired boiler(s) by a date certain.* Notwithstanding the provisions of § 257.101(d), a CCR landfill may continue to receive CCR if the owner or operator certifies that the facility will cease operation of the coal-fired boilers within the timeframe specified in paragraph (b)(4) of this section, but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR landfill due to the absence of alternative disposal capacity both on and off-site of the facility. To qualify under this paragraph, the owner or operator of the CCR landfill must document that all of the following conditions have been met:

(i) No alternative disposal capacity is available on or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section.

(ii) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action; and

(iii) The owner or operator must prepare the annual progress report specified in paragraph (c) of this section documenting the continued lack of alternative capacity and the progress towards the closure of the coal-fired boiler.

(2) [Reserved]

(3) [Reserved]

(4) For a CCR landfill, the coal-fired boiler must cease operation, and the CCR landfill must complete closure no later than April 19, 2021.

(c) *Required notices and progress reports for CCR landfills*. An owner or operator of a CCR landfill that closes in accordance with paragraph (a) or (b) of this section must complete the notices and progress reports specified in paragraphs (c)(1) through (3) of this section.

(1) Within six months of becoming subject to closure pursuant to § 257.101(d), the owner or operator must prepare and place in the facility's operating record a notification of intent to comply with the alternative closure requirements of this section. The notification must describe why the CCR landfill qualifies for the alternative closure provisions under either paragraph (a) or (b) of this section, in addition to providing the documentation and certifications required by paragraph (a) or (b) of this section.

(2) The owner or operator must prepare the periodic progress reports required by paragraph (a)(1)(iv) or (b)(1)(iii) of this section, in addition to describing any problems encountered and a description of the actions taken to resolve the problems. The annual progress reports must be completed according to the following schedule:

(i) The first annual progress report must be prepared no later than 13 months after completing the notification of intent to comply with the alternative closure requirements required by paragraph (c)(1) of this section.

(ii) The second annual progress report must be prepared no later than 12 months after completing the first annual progress report. Subsequent annual progress reports must be prepared within 12 months of completing the previous annual progress report.

(iii) The owner or operator has completed the progress reports specified in paragraph (c)(2) of this section when the reports are placed in the facility's operating record as required by § 257.105(i)(11).

(3) An owner or operator of a CCR landfill must also prepare the notification of intent to close a CCR landfill as required by § 257.102(g).

(d) The owner or operator of the CCR landfill must comply with the recordkeeping requirements specified in § 257.105(i), the notification requirements specified in § 257.106(i), and the Internet requirements specified in § 257.107(i).

(e) [Reserved]

(f) *Site-specific alternative deadlines to initiate closure of CCR surface impoundments.* Notwithstanding the provisions of § 257.101(a) and (b)(1), a CCR surface impoundment may continue to receive the waste specified in paragraphs (f)(1) or (f)(2) of this section, provided the owner or operator submits a demonstration that the criteria in either paragraph (f)(1) or (f)(2) of this section have been met. The demonstration must be submitted to the Administrator or the Participating State Director no later than the relevant deadline in paragraph (f)(3) of this section. The Administrator or the Participating State Director will act on the submission in accordance with the procedures in paragraph (f)(3) of this section.

(1) *Development of Alternative Capacity is Technically Infeasible.* Notwithstanding the provisions of § 257.101(a) and (b)(1), a CCR surface impoundment may continue to receive the waste specified in paragraph (f)(1)(ii)(A) or (B) of this section, provided the owner or operator demonstrates the wastestream(s) must continue to be managed in that CCR surface impoundment because it was technically infeasible to complete the measures necessary to provide alternative disposal capacity on or

off-site of the facility by April 11, 2021. To obtain approval under this paragraph all of the following criteria must be met:

(i) No alternative disposal capacity is available on or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section;

(ii) (A) For units closing pursuant to § 257.101(a) and (b)(1)(i), CCR and/or non-CCR wastestreams must continue to be managed in that CCR surface impoundment because it was technically infeasible to complete the measures necessary to obtain alternative disposal capacity either on or off-site of the facility by April 11, 2021.

(B) For units closing pursuant to § 257.101(b)(1)(ii), CCR must continue to be managed in that CCR surface impoundment because it was technically infeasible to complete the measures necessary to obtain alternative disposal capacity either on or off-site of the facility by April 11, 2021.

(iii) The facility is in compliance with all of the requirements of this subpart.

(iv) The owner or operator of the CCR surface impoundment must submit documentation that the criteria in paragraphs (f)(1)(i) through (iii) of this section have been met by submitting to the Administrator or the Participating State Director all of the following:

(A) To demonstrate that the criteria in paragraphs (f)(1)(i) and (ii) of this section have been met the owner or operator must submit a workplan that contains all of the following elements:

(*1*) A written narrative discussing the options considered both on and off-site to obtain alternative capacity for each CCR and/or non-CCR wastestreams, the technical infeasibility of obtaining alternative capacity prior to April 11, 2021, and the option selected and justification for the alternative capacity selected. The narrative must also include all of the following:

(*i)* An in-depth analysis of the site and any site-specific conditions that led to the decision to select the alternative capacity being developed;

(*ii*) An analysis of the adverse impact to plant operations if the CCR surface impoundment in question were to no longer be available for use; and

(*iii*) A detailed explanation and justification for the amount of time being requested and how it is the fastest technically feasible time to complete the development of the alternative capacity;

(*2*) A detailed schedule of the fastest technically feasible time to complete the measures necessary for alternative capacity to be available including a visual timeline representation. The visual timeline must clearly show all of the following:

(*i*) How each phase and the steps within that phase interact with or are dependent on each other and the other phases;

(*ii*) All of the steps and phases that can be completed concurrently;

(*iii*) The total time needed to obtain the alternative capacity and how long each phase and step within each phase will take; and

(*iv*) At a minimum, the following phases: engineering and design, contractor selection, equipment fabrication and delivery, construction, and start up and implementation.;

(*3*) A narrative discussion of the schedule and visual timeline representation, which must discuss all of the following:

(*i*) Why the length of time for each phase and step is needed and a discussion of the tasks that occur during the specific step;

(*ii*) Why each phase and step shown on the chart must happen in the order it is occurring;

(*iii*) The tasks that occur during each of the steps within the phase; and

(*iv*) Anticipated worker schedules; and

(*4*) A narrative discussion of the progress the owner or operator has made to obtain alternative capacity for the CCR and/or non-CCR wastestreams. The narrative must discuss all the steps taken, starting from when the owner or operator initiated the design phase up to the steps occurring when the demonstration is being compiled. It must discuss where the facility currently is on the timeline and the efforts that are currently being undertaken to develop alternative capacity.

(B) To demonstrate that the criteria in paragraph (f)(1)(iii) of this section have been met, the owner or operator must submit all of the following:

(*1*) A certification signed by the owner or operator that the facility is in compliance with all of the requirements of this subpart;

(*2*) Visual representation of hydrogeologic information at and around the CCR unit(s) that supports the design, construction and installation of the groundwater monitoring system. This includes all of the following:

(*i*) Map(s) of groundwater monitoring well locations in relation to the CCR unit(s);

(*ii*) Well construction diagrams and drilling logs for all groundwater monitoring wells; and

(*iii*) Maps that characterize the direction of groundwater flow accounting for seasonal variations;

(*3*) Constituent concentrations, summarized in table form, at each groundwater monitoring well monitored during each sampling event;

(*4*) A description of site hydrogeology including stratigraphic cross-sections;

(*5*) Any corrective measures assessment conducted as required at § 257.96;

(*6*) Any progress reports on corrective action remedy selection and design and the report of final remedy selection required at § 257.97(a);

(*7*) The most recent structural stability assessment required at § 257.73(d); and

(*8*) The most recent safety factor assessment required at § 257.73(e).

(v) As soon as alternative capacity for any CCR or non-CCR wastestream is available, the CCR surface impoundment must cease receiving that CCR or non-CCR wastestream. Once the CCR surface impoundment ceases receipt of all CCR and/or non-CCR wastestreams, the CCR surface impoundment must initiate closure following the timeframes in § 257.102(e) and (f).

(vi) *Maximum time frames.* All CCR surface impoundments covered by this section must cease receiving waste by the deadlines specified in paragraphs (f)(1)(vi)(A) and (B) of this section and close in accordance with the timeframes in § 257.102(e) and (f).

(A) Except as provided by paragraph (f)(1)(vi)(B) of this section, no later than October 15, 2023.

(B) An eligible unlined CCR surface impoundment must cease receiving CCR and/or non-CCR wastestreams no later than October 15, 2024. In order to continue to operate until October 15, 2024, the owner or operator must demonstrate that the unit meets the definition of an eligible unlined CCR surface impoundment.

(vii) An owner or operator may seek additional time beyond the time granted in the initial approval by making the showing in paragraphs (f)(1)(i) through (iv) of this section, provided that no facility may be granted time to operate the impoundment beyond the maximum allowable time frames provided in § 257.103(f)(1)(vi).

(viii) The owner or operator at all times bears responsibility for demonstrating qualification under this section. Failure to remain in compliance with any of the requirements of this subpart will result in the automatic loss of authorization under this section.

(ix) The owner or operator must:

(A) Upon submission of the demonstration to the Administrator or the Participating State Director, prepare and place in the facility's operating record a notification that it has submitted the demonstration, along with a copy of the demonstration. An owner or operator that claims CBI in the demonstration may post a redacted version of the demonstration to its publicly accessible CCR Internet site provided that it contains sufficient detail so that the public can meaningfully comment on the demonstration.

(B) Upon receipt of a decision pursuant to paragraph (f)(3) of this section, must prepare and place in the facility's operating record a copy of the decision.

(C) If an extension of an approved deadline pursuant to paragraph (f)(1)(vii) of this section has been requested, place a copy of the request submitted to the Administrator or the Participating State Director in the facility's operating record.

(x) The owner or operator must prepare semi-annual progress reports. The semi-annual progress reports must contain all of the following elements:

(A) Discussion of the progress made to date in obtaining alternative capacity, including:

(*1*) Discussion of the current stage of obtaining the capacity in reference to the timeline required under paragraph (f)(1)(iv)(A) of this section;

(*2*) Discussion of whether the owner or operator is on schedule for obtaining alternative capacity;

(*3*) If the owner or operator is not on or ahead of schedule for obtaining alternative capacity, the following must be included:

(*i)* Discussion of any problems encountered, and a description of the actions taken or planned to resolve the problems and get back on schedule; and

(*ii*) Discussion of the goals for the next six months and major milestones to be achieved for obtaining alternative capacity; and

(B) Discussion of any planned operational changes at the facility.

(xi) The progress reports must be completed according to the following schedule:

(A) The semi-annual progress reports must be prepared no later than April 30 and October 31 of each year for the duration of the alternative cease receipt of waste deadline.

(B) The first semi-annual progress report must be prepared by whichever date, April 30 or October 31, is soonest after receiving approval from the Administrator or the Participating State Director; and

(C) The owner or operator has completed the progress reports specified in paragraph (f)(1)(x) of this section when the reports have been placed in the facility's operating record as required by § 257.105(i)(17).

(xii) The owner or operator must prepare the notification of intent to close a CCR surface impoundment as required by § 257.102(g).

(xiii) The owner or operator must comply with the recordkeeping requirements specified in § 257.105(i), the notification requirements specified in § 257.106(i), and the Internet posting requirements in § 257.107(i).

(2) *Permanent cessation of a coal-fired boiler(s) by a date certain.* Notwithstanding the provisions of § 257.101(a), and (b)(1), a CCR surface impoundment may continue to receive CCR and/or non-CCR wastestreams if the facility will cease operation of the coal-fired boiler(s) and complete closure of the impoundment within the timeframes specified in paragraphs (f)(2)(iv) of this section, but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR

surface impoundment due to the absence of alternative disposal capacity both on and off-site of the facility. To qualify under this paragraph all of the following criteria must be met:

(i) No alternative disposal capacity is available on or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section.

(ii) Potential risks to human health and the environment from the continued operation of the CCR surface impoundment have been adequately mitigated;

(iii) The facility is in compliance with all other requirements of this subpart, including the requirememnt to conduct any necessary corrective action; and

(iv) The coal-fired boilers must cease operation and closure of the impoundment must be completed within the following timeframes:

(A) For a CCR surface impoundment that is 40 acres or smaller, the coal-fired boiler(s) must cease operation and the CCR surface impoundment must complete closure no later than October 17, 2023.

(B) For a CCR surface impoundment that is larger than 40 acres, the coal-fired boiler(s) must cease operation, and the CCR surface impoundment must complete closure no later than October 17, 2028.

(v) The owner or operator of the CCR surface impoundment must submit the following documentation that the criteria in paragraphs (f)(2)(i) through (iv) of this section have been met as specified in paragraphs (f)(2)(v)(A) through (D) of this section.

(A) To demonstrate that the criteria in paragraph (f)(2)(i) of this section have been met the owner or operator must submit a narrative that explains the options considered to obtain alternative capacity for CCR and/or non-CCR wastestreams both on and off-site.

(B) To demonstrate that the criteria in paragraph (f)(2)(ii) of this section have been met the owner or operator must submit a risk mitigation plan describing the measures that will be taken to expedite any required corrective action, and that contains all of the following elements:

(*1*) A discussion of any physical or chemical measures a facility can take to limit any future releases to groundwater during operation.

(*2*) A discussion of the surface impoundment's groundwater monitoring data and any found exceedances; the delineation of the plume (if necessary based on the groundwater monitoring data); identification of any nearby receptors that might be exposed to current or future groundwater contamination; and how such exposures could be promptly mitigated.

(*3*) A plan to expedite and maintain the containment of any contaminant plume that is either present or identified during continued operation of the unit.

(C) To demonstrate that the criteria in paragraph (f)(2)(iii) of this section have been met, the owner or operator must submit all of the following:

(*1*) A certification signed by the owner or operator that the facility is in compliance with all of the requirements of this subpart;

(*2*) Visual representation of hydrogeologic information at and around the CCR unit(s) that supports the design, construction and installation of the groundwater monitoring system. This includes all of the following:

(*i*) Map(s) of groundwater monitoring well locations in relation to the CCR unit;

(*ii*) Well construction diagrams and drilling logs for all groundwater monitoring wells; and

(*iii*) Maps that characterize the direction of groundwater flow accounting for seasonal variations;

(*3*) Constituent concentrations, summarized in table form, at each groundwater monitoring well monitored during each sampling event;

(*4*) Description of site hydrogeology including stratigraphic cross-sections;

(*5*) Any corrective measures assessment required at § 257.96;

(*6*) Any progress reports on remedy selection and design and the report of final remedy selection required at § 257.97(a);

(*7*) The most recent structural stability assessment required at § 257.73(d); and

(*8*) The most recent safety factor assessment required at § 257.73(e).

(D) To demonstrate that the criteria in paragraph (f)(2)(iv) of this section have been met, the owner or operator must submit the closure plan required by § 257.102(b) and a narrative that specifies and justifies the date by which they intend to cease receipt of waste into the unit in order to meet the closure deadlines.

(vi) The owner or operator at all times bears responsibility for demonstrating qualification for authorization under this section. Failure to remain in compliance with any of the requirements of this subpart will result in the automatic loss of authorization under this section.

(vii) The owner or operator must comply with the recordkeeping requirements specified in § 257.105(i), the notification requirements specified in § 257.106(i), and the Internet posting requirements in § 257.107(i).

(viii) Upon submission of the demonstration to the Administrator or the Participating State Director the owner or operator must prepare and place in the facility’s operating record and on its publicly accessible CCR Internet site a notification that is has submitted a demonstration along with a copy of the demonstration.

(ix) Upon receipt of a decision pursuant to paragraph (f)(3) of this section, the owner or operator must place a copy of the decision in the facility's operating record and on the facility's publicly accessible CCR Internet site.

(x) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the closure of the CCR surface impoundment. The owner or operator has completed the progress report when the report has been placed in the facility's operating record as required by § 257.105(i)(20).

(3) *Process to Obtain Authorization.* (i) *Deadlines for Submission.* (A) The owner or operator must submit the demonstration required under paragraph (f)(1)(iv) of this section, for an alternative cease receipt of waste deadline for a CCR surface impoundment pursuant to paragraph (f)(1) of this section, to the Administrator or the Participating State Director for approval no later than November 30, 2020.

(B) An owner or operator may seek additional time beyond the time granted in the initial approval, in accordance with paragraph (f)(1)(i)(D) of this section, by submitting a new demonstration, as required under paragraph (f)(1)(iv) of this section, to the Administrator or the Participating State Director for approval, no later than fourteen days from determining that the cease receipt of waste deadline will not be met.

(C) The owner or operator must submit the demonstration required under paragraph (f)(2)(v) of this section to the Administrator for approval no later than November 30, 2020.

(ii) EPA will evaluate the demonstration and may request additional information to complete its review. Submission of a complete demonstration will toll the facility's deadline to cease receipt of waste until issuance of a decision under paragraph (f)(3)(iv) of this section. Incomplete submissions will not

toll the facility's deadline and will be rejected without further process. All decisions issued under this paragraph or paragraph (f)(3)(iv) of this section will contain the facility's deadline to cease receipt of waste.

(iii) EPA will publish its proposed decision on a complete demonstration in a docket on www.regulations.gov for a 15-day comment period. If the demonstration is particularly complex, EPA will provide a comment period of 20 to 30 days.

(iv) After consideration of the comments, EPA will issue its decision on the alternative compliance deadline within four months of receiving a complete demonstration.

(4) *Transferring between site-specific alternatives*. An owner or operator authorized to continue operating a CCR surface impoundment under this section may at any time request authorization to continue operating the impoundment pursuant to another paragraph of subsection (f), by submitting the information in paragraph (f)(4)(i) or (ii) of this section.

(i) *Transfer from § 257.103(f)(1) to § 257.103(f)(2).* The owner or operator of a surface impoundment authorized to operate pursuant to paragraph (f)(1) of this section may request authorization to instead operate the surface impoundment in accordance with the requirements of paragraph (f)(2) of this section, by submitting a new demonstration that meets the requirements of paragraph (f)(2)(v) of this section to the Administrator or the Participating State Director. EPA will approve the request only upon determining that the criteria at paragraphs (f)(2)(i) through (iv) have been met.

(ii) *Transfer from § 257.103(f)(2) to § 257.103(f)(1).* The owner or operator of a surface impoundment authorized to operate pursuant to paragraph (f)(2) of this section may request authorization to instead operate the surface impoundment in accordance with the requirements of

paragraph (f)(1) of this section, by submitting a new demonstration that meets the requirements of paragraph (f)(1)(iv) of this section to the Administrator or the Participating State Director. EPA will approve the request only upon determining that the criteria at paragraphs (f)(1)(i) through (iii) and (vi) of this section have been met.

(iii) The procedures in paragraph (f)(3) of this section will apply to all requests for transfer under this paragraph.

9. Amend § 257.105 by adding paragraphs (i)(14) through (20) to read as follows:

**§ 257.105 Recordkeeping requirements.**

***  *  *  *  ***

(i)  *  *  *

(14) The notification of intent to comply with the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as required by § 257.103(f)(1)(ix).

(15) The approved or denied demonstration for the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as required by § 257.103(f)(1)(ix).

(16) The notification for requesting additional time to the alternative cease receipt of waste deadline as required by § 257.103(f)(1)(ix).

(17) The semi-annual progress reports for the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as required by § 257.103(f)(1)(xi).

(18) The notification of intent to comply with the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by § 257.103(f)(2)(viii).

(19) The approved or denied demonstration for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by § 257.103(f)(2)(ix).

(20) The annual progress report for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by § 257.103(f)(2)(x).

* * * * *

10. Amend § 257.106 by adding paragraphs (i)(14) through (20).

**§ 257.106 Notification requirements.**

* * * * *

(i) * * *

(14) Provide the notification of intent to comply with the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as specified under § 257.105(i)(14).

(15) Provide the approved or denied demonstration for the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as required by as specified under § 257.105(i)(15).

(16) Provide the notification for requesting additional time to the alternative cease receipt of waste deadline as required by § 257.1035(i)(16).

(17) The semi-annual progress reports for the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as specified under § 257.105(i)(17).

(18) Provide the notification of intent to comply with the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as specified under § 257.105(i)(18).

(19) Provide the approved or denied demonstration for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by § 257.105(i)(19).

(20) The annual progress report for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by § 257.105(i)(20).

* * * * *

11. Amend § 257.107 by:

a. Revising paragraph (a); and

b. Adding paragraphs (i)(14) through (20).

The additions and revisions read as follows:

**§ 257.107 Publicly accessible internet site requirements.**

(a) Each owner or operator of a CCR unit subject to the requirements of this subpart must maintain a publicly accessible Internet site (CCR Web site) containing the information specified in this section. The owner or operator's Web site must be titled "CCR Rule Compliance Data and Information." The Web site must ensure that all information required to be posted is immediately available to anyone visiting the site, without requiring any prerequisite, such as registration or a requirement to submit a document request. All required information must be clearly identifiable and must be able to be immediately printed and downloaded by anyone accessing the site. If the owner/operator changes the web address (i.e., Uniform Resource Locator (URL)) at any point, they must notify EPA via the "contact us" form on EPA's CCR Web site and the state director within 14 days of making the change. The facility's CCR Web site must also have a "contact us" form or a specific email address posted on the website for the public to use to submit questions and issues relating to the availability of information on the website.

* * * * *

(i) * * *

(14) The notification of intent to comply with the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as specified under § 257.105(i)(14).

(15) The approved or denied demonstration for the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as required by as specified under § 257.105(i)(15).

(16) The notification for requesting additional time to the alternative cease receipt of waste deadline as required by § 257.1035(i)(16).

(17) The semi-annual progress reports for the site-specific alternative to initiation of closure due to development of alternative capacity infeasible as specified under § 257.105(i)(17).

(18) The notification of intent to comply with the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as specified under § 257.105(i)(18).

(19) The approved or denied demonstration for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by § 257.105(i)(19).

(20) The annual progress report for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by § 257.105(i)(20).

* * * * *

# Dynegy's First Hearing
# Exhibit 3

ILLINOIS POLLUTION CONTROL BOARD
January 20, 2011

| | | |
|---|---|---|
| IN THE MATTER OF: | ) | |
| | ) | |
| AMEREN ASH POND CLOSURE RULES | ) | R09-21 |
| (HUTSONVILLE POWER STATION): | ) | (Rulemaking - Land) |
| PROPOSED 35 ILL. ADM. CODE PART | ) | |
| 840.101 THROUGH 840.152 | ) | |

Adopted Rule. Final Opinion and Order.

OPINION AND ORDER OF THE BOARD (by A.S. Moore):

The Baord today adopts rules establishing standards under which Ameren Energy Generating Company (Ameren) can close Ash Pond D, a surface impoundment managing coal combustion waste at Ameren's Hutsonville Power Station (Station) near Hutsonville, Crawford County. Ameren originally filed a proposal for a site-specific rule with the Board on May 19, 2009. After the Illinois Environmental Protection Agency (Agency or IEPA) responded to that filing by proposing various revisions to it, Ameren and the Agency on September 22, 2009, submitted a joint rulemaking proposal.

In an order dated October 7, 2010, the Board submitted the joint proposal without significant substantive amendments to first notice publication in the *Illinois Register*. *See* 34 Ill. Reg. 16188 (Oct. 22, 2010). During the 45-day comment period (*see* 5 ILCS 100/5-40(b) (2008)), the Board received two comments, one from the Agency and one from Ameren. Both comments supported the Board's first-notice proposal, and neither proposed any further amendment to it. The Baord adopted its second-notice proposal in an opinion and order dated December 16, 2010. At its meeting on January 11, 2011, the Joint Committee on Administrative Rules (JCAR) recommended a limited number of technical changes, the nature of which does not merit discussion in this opinion, and issued its certificate of no objection.

In this opinion and order, the Board first provides at pages 1-4 the procedural history before addressing its first-notice opinion and order at page 4. The Board then addresses at pages 4-6 the issues of economic reasonableness and technical feasibility. Next, on a section-by-section basis at pages 6-53, the Board summarizes the development of the record for its second-notice proposal. Next, the Board at page 53 directs the Clerk to submit the adopted regulations to the Secretary of State for publication in the *Illinois Register*. The proposal itself appears in the Board's order following the opinion at pages 53-80.

## PROCEDURAL HISTORY

On May 19, 2009, Ameren filed its original proposal for site-specific regulation (Orig. Prop.) addressing the closure of Ash Pond D at the Station. Both a Statement of Reasons (SR) and a Technical Support Document (TSD) accompanied the original proposal. Also on May 19, 2009, Ameren filed a motion to waive signature requirements and a motion for expedited review. On June 1, 2009, the Agency filed its response opposing Ameren's motion for expedited review.

On June 3, 2009, Ameren filed a motion for leave to file a reply in support of its motion for expedited review, accompanied by its reply. In an order dated June 18, 2009, the Board accepted Ameren's proposal for hearing, granted Ameren's motion to waive signature requirements, granted Ameren's motion for leave to file a reply, and denied Ameren's motion for expedited review.

In a letter dated June 30, 2009, the Board requested that the Department of Commerce and Economic Opportunity (DCEO) conduct an economic impact study of Ameren's site-specific rulemaking proposal. *See* 415 ILCS 5/27(b) (2008). DCEO has not responded to this request.

In an order dated June 30, 2009, the hearing officer scheduled a hearing beginning September 29, 2009, in Robinson, Crawford County. The order also set deadlines of August 18, 2009, for pre-filing testimony; September 1, 2009, for pre-filing questions; and September 15, 2009, for pre-filing answers to those questions. On August 18, 2009, Ameren pre-filed the testimony of Mr. Michael F. Bollinger (Bollinger Test.).

On August 18, 2009, the Agency pre-filed its proposed amendments to Ameren's proposed regulations (Agency Prop.) and testimony by Mr. William E. Buscher (Buscher Test.), Mr. Lynn E. Dunaway (Dunaway Test.), Mr. Richard P. Cobb (Cobb Test.), Mr. Christian J. Liebman (Liebman Test.), and Mr. Stephen F. Nightingale (Nightingale Test.). On the same date, the Agency filed a motion for waiver of filing requirements, which the Board granted on October 1, 2009.

On September 1, 2009, Prairie Rivers Network (PRN) pre-filed questions (PRN Questions) addressed separately to Ameren with regard to its Statement of Reasons, to Mr. Bollinger specifically with regard to his pre-filed testimony, to the Agency generally with regard to its pre-filed proposed amendments, and to Mr. Nightingale specifically with regard to his pre-filed testimony. Also on September 1, 2009, Ameren filed a motion for extension of time to pre-file questions and answers. In an order dated September 10, 2009, the hearing officer granted Ameren's motion for an extension, extending the deadline to pre-file questions to September 15, 2009, and the deadline to pre-file answers to September 22, 2009.

On September 22, 2009, the Agency and Ameren filed a joint rulemaking proposal (Joint Prop.) accompanied by a joint statement (Joint Statement). Also on September 22, 2009, the Board received responses to the questions pre-filed by PRN from both the Agency (Agency Resp.) and Ameren (Ameren Resp.).

The hearing took place as scheduled on September 29, 2009. The Board received the transcript of the hearing (Tr.) on October 9, 2009. During the hearing, the hearing officer admitted eights exhibits into the record:

Pre-Filed Testimony of Michael Bollinger (Exh.1);
Pre-Filed Testimony of Richard P. Cobb, P.G., on Ameren's Proposal and the Agency's Proposed Amendments to Sections 840.116 and 840.118 (Exh. 2);

Pre-Filed Testimony of Stephen F. Nightingale on Ameren's Proposal, the Agency's Proposed Amendment at Section 840.152, and Request to Board to Consider Temporary Moratorium on Additional Site-Specific Rules for Closure of Coal Combustion Waste Surface Impoundments (Exh. 3);
Pre-Filed Testimony of Christian J. Liebman on Ameren's Proposal and the Agency's Proposed Amendments to Sections 840.124 through 840.130, 840.134, 840.136 and 840.146 (Exh. 4);
Pre-Filed Testimony of William E. Buscher, P.G., on Ameren's Proposal and the Agency's Proposed Amendments to Sections 840.100 through 840.106, 840.120 through 840.122, 840.132, and 840.138 through 840.150 (Exh. 5);
Pre-Filed Testimony of Lynn E. Dunaway, P.G., on Ameren's Proposal and the Agency's Proposed Amendments to Sections 840.110 through 840.114 (Exh. 6);
Joint Statement in Support of Proposed Revisions (Exh. 7); and
Joint Revisions to Proposed Part 840 (Exh. 8). *See* Tr. at 18, 20.

On October 23, 2009, the Board received post-hearing comments from the Agency (PC 2). On October 30, 2009, the Board received post-hearing comments from PRN (PC 3) and from Ameren (PC 4).

On November 10, 2009, Ameren filed a motion for leave to file additional comment accompanied by its additional post-hearing comment (PC 5). In an order dated November 13, 2009, the hearing officer granted Ameren's motion. The order allowed any participant to file a response to the post-hearing comments filed during the period ending October 30, 2009, or to the additional comment allowed in the order by November 30, 2009. On November 30, 2009, PRN filed additional comments (PC 6).

In an order dated January 7, 2010, the Board addressed issues raised in those post-hearing comments and directed Ameren to submit additional information. The Board directed Ameren as the original proponent to submit both specified groundwater quality monitoring data and an environmental impact assessment of the proposed discharge into the Wabash River. On February 22, 2010, Ameren filed its response to the Board's request for more information (Ameren Info.). On February 26, 2010, Ameren filed a supplemental response (Ameren Supp. Info.) On March 9, 2010, the Agency filed a motion for leave to file a response to the Board's order of January 7, 2010 (Mot. Leave), accompanied by its response to that order (Agency Info.).

On July 6, 2010, the Board received a public comment on coal ash from Mr. Peter Illyn, Executive Director of Restoring Eden, and Mr. James Ennis, Executive Director of the National Catholic Rural Life Conference (PC 7).

On July 28, 2010, Ameren filed motion to adopt the joint proposal for first notice (Mot. Adopt).

On October 7, 2010, the Board adopted its first-notice opinion and order. *See* 34 Ill. Reg. 16188 (Oct. 22, 2010). On December 6, 2010, the Board received comments from the Agency (PC 8) and from Ameren (PC 9).

On December 16, 2010, the Board adopted its second-notice opinion and order. At its meeting on January 11, 2011, JCAR issued its certificate of no objection to the Board's proposal.

## FIRST-NOTICE OPINION AND ORDER

In proceeding to first notice on October 7, 2010, the Board adopted a 113-page opinion followed by a 27-page order. The Board's second-notice opinion and order noted that the record had grown only to the extent of two public comments and did not significantly amend the first-notice proposal. This order adopting regulations does not significantly amend the Board's second-notice proposal. Accordingly, substantial portions of the Board's first-notice opinion, including its review of the record and its conclusions on contested issues, support the Board's adoption of regulations in this order. Accordingly, the Board has not duplicated here today various sections of its first-notice opinion and instead refers the reader to it with regard to various issues. The full text of the opinion and order is available from the Clerk's Office On-Line, or COOL, through the Board's Web site at www.ipcb.state.il.us.

Specifically, the Board's first-notice opinion and order summarized the background of the Hutsonville Station, including its history and operation, site geology, groundwater flow, existing groundwater monitoring network, groundwater impacts, groundwater use at and near the Station, groundwater modeling, surface water, and regulation of coal combustion waste surface impoundments. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 7-16 (Oct. 7, 2010). The Board also addressed various closure options for Ash Pond D, including their projected costs and environmental impacts. *Id*. at 16-33. Next, the Board summarized its January 7, 2010 order requesting more information and the responses to that order filed by Ameren and the Agency. *Id*. at 33-45. The Board then discussed contested issues, including the description of the area affected, the projected environmental impact of the joint proposal, requirements of federal law, the Agency's request for a temporary moratorium on additional site-specific rules of this nature, and the technical feasibility and economic reasonableness of closure alternatives. *Id*. at 45-70. The Board then provided a section-by-section summary of the Board's first-notice proposal. *Id*. at 70-113.

## TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

In a letter dated June 30, 2009, the Board requested that DCEO conduct an economic impact study of the rulemaking proposal in this docket. *See* 415 ILCS 5/27(b) (2008). DCEO has not responded to this request. Although the hearing officer during the hearing sought testimony on the Board's request to DCEO, no participant offered such testimony. *See* Tr. at 110-11.

As noted in the Board's first-notice opinion and order, Ameren evaluated several alternatives to meet the closure objectives of preventing off-site migration of contaminated groundwater, minimizing infiltration of precipitation through the ash pond, and protecting human health and the environment. *See* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 16-33 (Oct. 7, 2010). These alternatives addressed the management of impacted groundwater, ash removal and on- or

off-site treatment and disposal, and placement of final cover. Regarding groundwater management, Ameren evaluated "no action" with groundwater monitoring, placement of a low permeability vertical barrier, and a groundwater collection trench. *Id*. at 17-22; *see* TSD at 22, 73. Ameren found the installation of groundwater trench to be technically feasible and economically reasonable to address the impacted groundwater. The other alternatives were found to be technically infeasible for achieving the closure objectives. In its first-notice opinion and order, he Board agreed with Ameren's conclusions, as "no action" and a vertical barrier may not prevent the off-site migration of contaminated groundwater. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 69 (Oct. 7, 2010).

With regard to ash removal and disposal, Ameren asserted that removing the entire volume of waste and disposing of the ash off-site or in a newly constructed on-site landfill are not feasible options because of the exorbitant costs associated with those options. Ameren estimated the excavation and off-site disposal cost to be approximately $34 million. TSD at 73. For on-site disposal, in addition to waste excavation cost, Ameren noted that there would be a very high capital cost of reconstructing the landfill. Ameren contended that the ash removal options are economically unreasonable. *Id.* Also, Ameren stated that the ash removal options also pose technical concerns regarding dewatering and storage of the waste. The Agency also expressed concerns regarding the implications of excavating ash in a steady state condition in terms of geochemistry and equilibrium with the site hydrogeologic conditions. Tr. at 66-76. In light of the issues highlighted by Ameren and the Agency, the Board agreed that excavation and disposal of ash from Ash Pond D, whether on-site or off-site, is not a viable option. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 69 (Oct. 7, 2010).

Finally, with regard to the final cover alternatives, the Board found that the proposed final cover consisting of a geomembrane with a 3-foot thick protective soil layer to be technically feasible and economically reasonable. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 69 (Oct. 7, 2010). The Board noted that the proposed final cover is similar to those required for landfills under the Board's landfill regulations at 35 Ill. Adm. Code 811.314. *Id*. As noted by Ameren, the effectiveness of the geomembrane to minimize infiltration and leachate generation is comparable to the other options considered by Ameren, including compacted clay and pozzolonic fly ash. Regarding the cost of the proposed closure alternative, Ameren expected that "capital costs associated with the selected closure scenario could range from $3 to $4 million dollars, excluding engineering design." SR at 21, citing TSD at 73-74; *see* TSD at 27, Bollinger Test. at 15. Ameren has also estimated that its "[a]nnual operating and maintenance costs associated with the trench and final cover system are expected to be around $50,000." SR at 21, citing TSD at 73-74; *see* TSD at 27, Bollinger Test. at 15. In its analysis of economic and budgetary effects submitted with its original proposal, Ameren indicated that its costs as owner of the Station were "undetermined," but it projected capital and operating costs consistent with these figures.

Regarding PRN's position that treatment of contaminated groundwater collected from the groundwater trench should considered in this rulemaking, the Board noted the proposed rules

require Ameren to discharge groundwater collected in the groundwater trench in accordance with its NPDES permit or an option approved by the Agency. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 70 (Oct. 7, 2010); *see* Joint Prop. at 17 (proposed Section 840.122). The Board expected any treatment issues concerning groundwater from the collection trench to be fully addressed during the Agency's permitting process. *Id.*

In adopting its first-notice opinion and order, the Board concluded on the basis of the record before it that Ameren has undertaken an appropriate review of closure alternatives. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 70 (Oct. 7, 2010). The Board also concluded that the record supported the conclusion that the joint proposal is economically reasonable and technically feasible. *Id.* Accordingly, the Board proceeded to adopt the joint proposal without significant substantive amendment for first-notice publication in the *Illinois Register*. *Id.*

Since adoption of the first-notice opinion and order, the record in this proceeding has grown only to the extent of two first-notice comments. Both comments support the Board's action in proceeding to first notice and request that the Board proceed to Second Notice with its proposal as expeditiously as possible. PC 8 at 5, PC 9 at 5. Neither comment cast doubt on the Board's findings and conclusions regarding the technical feasibility or economic reasonableness of the first-notice proposal, and the Board proceeded to second notice without significantly amending it. In the absence of any contrary arguments, the Board concludes that its adopted regulations are technically feasible and economically reasonable and below directs the Clerk to file them with the Secretary of State for publication in the *Illinois Register*.

## SECTION-BY-SECTION SUMMARY OF ADOPTED RULES

In the following subsections of its opinion, the Board on a section-by-section basis summarizes the development of the record in support of the adopted rules.

### Section 840.100: Purpose

As originally proposed by Ameren, this Section provided in its entirety that "[t]his Subpart [A] provides for the closure of Ash Pond D at the Hutsonville Power Station, 15142 East 1900 Avenue, Hutsonville, Crawford County, Illinois." Orig. Prop. at 2. Ameren stated that this proposed language intends "to identify that Subpart A specifically addresses the closure of Ash Pond D. . . ." SR at 24. In his pre-filed testimony, Mr. Buscher stated that "[t]he purpose Section of Ameren's proposed rule was not changed" by the Agency's subsequent proposal. Buscher Test. at 2; *see* Agency Prop. at 2, Joint Prop. at 2.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 70, 114 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.102: Applicability**

As originally proposed by Ameren, this Section provided in its entirety that "[t]his Subpart [A] exclusively applies to the closure of Ash Pond D, located at the Hutsonville Power Station, and particularly, no other Part of Subtitle G applies to the closure of Ash Pond D." Orig. Prop. at 2; *see* 35 Ill. Adm. Code 700.101-888.140 (Subpart G). Ameren stated that this proposed language

> sets forth the entirety of the requirements that apply to the closure of Ash Pond D, including the site-specific groundwater quality standards applicable to the site and the portion of the neighboring property where groundwater has been impacted by Ash Pond D. No other provisions of the Board's rules would apply to Ash Pond D and its closure upon adoption of this proposed site-specific rule. SR at 24-25.

In his pre-filed testimony, Mr. Buscher stated that, in Ameren's proposed language,

> the term "closure" is used somewhat ambiguously to refer at times to the entire set of procedures and requirements set forth in Subpart A and at other times to refer to the planning and construction stage preceding the post-closure care period in which the structures and devices put in place during the closure period combine to become the operational corrective action activities. Buscher Test. at 2.

Accordingly, he stated that the Agency proposed to add the phrase "and post-closure care" in order to clarify the definition "by maintaining the distinction between closure and post-closure care, both of which are required by this [proposed] Subpart." *Id*., *see* Agency Prop. at 2.

Mr. Buscher also addressed the final portion of Ameren's proposed applicability language. He stated that the Agency proposed to strike "the language excluding the closure of Ash Pond D from all other requirements under Subtitle G because the Agency simply was unwilling at this point to accept on its face such a broad assertion." Buscher Test. at 2. He elaborated that "Subpart G covers a range of issues, and the nature and extent of future modifications to Subpart G is uncertain." *Id*.; *see* Agency Prop. at 2. The subsequent joint proposal incorporated these amendments offered by Mr. Buscher. *See* Joint Prop. at 2. As proposed by Ameren and the Agency, Section 840.102 would provide in its entirety that "[t]his Subpart exclusively applies to the closure and post-closure care of Ash Pond D, located at the Hutsonville Power Station."

In its first-notice opinion, the Board stated that Mr. Buscher's testimony reflected the Agency's reluctance to exclude Ash Pond D from other authorities that may now or in the future apply to it. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 71 (Oct. 7, 2010). Reflecting this reluctance, the Board proposed to amend this section of the joint proposal. The Board stated that the phrase "[t]his Subpart exclusively applies" may be interpreted to provide that Ash Pond D is subject to no other regulatory requirements. *Id*. Seeking to clarify that the proposal would apply to no other site, the Board proposed that this section provide in its entirety as follows: "[t]his

Subpart applies exclusively to the closure and post-closure care of Ash Pond D, located at the Hutsonville Power Station." *Id.*

The Agency stated that it "supports this revision" (PC 8 at 3), and Ameren indicated that it did not object to it (PC 9 at 4). Accordingly, the Board adopts this language without further amendment.

**Section 840.104: Definitions**

Proposed Section 840.104 stated that, unless otherwise specified, the Act's definitions apply to Subpart A. Orig. Prop. at 2; *see generally id*. (proposing single Subpart A to 35 Ill. Adm. Code 840). Ameren stated that "[t]his Section sets forth the definitions applicable to Subpart A." SR at 25. The Board separately addresses the proposed definitions in the following subsections.

"**Agency".** Ameren stated that, "[f]or purposes of clarity and consistency with other Board rules, the definition of 'Agency,' the Illinois Environmental Protection Agency, was included in the definitions." SR at 25; *see* Orig. Prop. at 2, Agency Prop. at 2, Joint Prop. at 2; *see also, e.g.*, 35 Ill. Adm. Code 301.215 (defining "Agency" identically in water pollution regulations).

**"Aquifer".** Ameren stated that "[t]he definition of "aquifer" was taken from Section 3(b) of the Illinois Groundwater Protection Act." SR at 25, citing 415 ILCS 55/3(b) (2008). In its entirety, the proposed definition stated that "'[a]quifer' means saturated (with groundwater) soils and geologic materials which are sufficiently permeable to readily yield economically useful quantities of water to wells, springs, or streams under ordinary hydraulic gradients." Orig. Prop. at 2, Agency Prop. at 2, Joint Prop. at 2.

"**Ash Pond D".** Ameren stated that "[t]he definition of 'Ash Pond D' was derived from the designation used by Ameren and referenced in various permits issued by the Agency to describe the surface impoundment at the Hutsonville Power Station that is subject to the proposed rule." SR at 25. In its entirety, the proposed definition stated that "'Ash Pond D' means the surface impoundment designated as Ash Pond D, located at the Hutsonville Power Station, 15142 East 1900 Avenue, Hutsonville, Crawford County, Illinois." Orig. Prop. at 2, Agency Prop. at 2, Joint Prop. at 2-3.

"**Board".** Ameren stated that, "[f]or purposes of clarity and consistency with other Board rules, the definition of 'Board,' the Illinois Pollution Control Board, was included in the definitions." SR at 25; *see* Orig. Prop. at 2, Agency Prop. at 2, Joint Prop. at 3; *see also, e.g.*, 35 Ill. Adm. Code 301.235 (defining "Board" identically in water pollution regulations).

"**Contaminant".** In his pre-filed testimony, Mr. Buscher stated that, "because the term is used repeatedly throughout Subpart A," the Agency proposed to add a definition of "contaminant" to Ameren's proposal. Buscher Test. at 3. In its entirety, the proposed definition provided that "'[c]ontaminant' means any solid, liquid or gaseous matter, any odor, or any form of energy, from whatever source." Agency Prop. at 3. Mr. Buscher stated that the proposed

definition is drawn from the Act. Buscher Test. at 3, citing 415 ILCS 5/3.165 (2008) (defining "contaminant" identically). The subsequent joint proposal did not amend the Agency's proposed definition. *See* Joint Prop. at 3.

"**Hutsonville Power Station" or "Hutsonville site".** In its original proposal, Ameren stated that, "for purposes of clarity," it included a definition of the term "Hutsonville Power Station." SR at 25. Specifically, Ameren defined the term as "the electric generating station located at 15142 East 1900 Avenue, Hutsonville, Crawford County, Illinois." Orig. Prop. at 3. In its proposal, the Agency sought to provide that Ameren's proposed definition also applied to the term "Hutsonville site." Agency Prop. at 3. The subsequent joint proposal did not amend the Agency's proposed definition. *See* Joint Prop. at 3.

"**Lower zone of underlying aquifer".** In their joint statement, Ameren and the Agency stated that they agreed to strike Ameren's original designations of "Zone A" and "Zone B" and to use this term proposed by the Agency "with respect to applicable groundwater standards that will apply both on-site and off-site as set forth in [proposed] Section 840.116." Joint Statement at 4. Ameren and the Agency stated that "[t]he Agency's approach provides a more straightforward framework for determining compliance obligations and relies largely on standards and requirements previously promulgated by the Board . . . ." *Id*.; *see* 35 Ill. Adm. Code 620 (Groundwater Quality). In its entirety, the definition provided that "'[l]ower zone of underlying aquifer' means the sands and gravels beneath the fine-grained surficial alluvium within the Wabash River bedrock valley." Joint. Prop. at 3.

"**Off-site".** In his pre-filed testimony, Mr. Buscher stated that, "to identify property that is, or is not, part of the Hutsonville Power Station," the Agency proposed to add a definition of "off-site." Buscher Test. at 3. Mr. Buscher further stated that the concept appears in a number of proposed sections and is "used as a basis for the Agency's proposed groundwater quality standards for the site and demonstrations of compliance." *Id*., citing Agency Prop. at 7-10 (proposed Section 810.114 Groundwater Monitoring Program). In its entirety, the proposed definition provided that "'[o]ff-site' means any property that is not part of the Hutsonville Power Station." Agency Prop. at 3. The subsequent joint proposal did not amend the Agency's proposed definition. *See* Joint Prop. at 3.

"**On-site".** In his pre-filed testimony, Mr. Buscher stated that, "to identify property that is, or is not, part of the Hutsonville Power Station," the Agency proposed to add a definition of "on-site." Buscher Test. at 3. Mr. Buscher further stated that the concept appears in a number of proposed sections and is "used as a basis for the Agency's proposed groundwater quality standards for the site and demonstrations of compliance." *Id*., citing Agency Prop. at 7-10 (proposed Section 810.114 Groundwater Monitoring Program). In its entirety, the proposed definition provided that "'[o]n-site' means the same or geographically contiguous property constituting the Hutsonville Power Station." Agency Prop. at 3. The subsequent joint proposal did not amend the Agency's proposed definition. *See* Joint Prop. at 3.

"**Operator".** In its original proposal, Ameren stated that it offered this definition in order to "describe the persons responsible for various requirements of the proposed rule and clarify that they are the owner or operator of Ash Pond D only." SR at 25. In its entirety, the proposed

definition provided that "'[o]perator' means the person responsible for the operation of Ash Pond D." Orig. Prop. at 3, Agency Prop. at 3, Joint Prop. at 3.

"**Owner".** In its original proposal, Ameren stated that it offered this definition in order to "describe the persons responsible for various requirements of the proposed rule and clarify that they are the owner or operator of Ash Pond D only." SR at 25. In its entirety, the proposed definition provided that "'[o]wner' means the person who owns Ash Pond D." Orig. Prop. at 3, Agency Prop. at 3, Joint Prop. at 3.

"**Person".** In his pre-filed testimony, Mr. Buscher stated that, "because the term is used in other definitions," the Agency sought to define "person." Buscher Test. at 3. In its entirety, the proposed definition provided that "'person' is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, state agency, or any other legal entity, or their legal representative, agent or assigns." Agency Prop. at 3. Mr. Buscher stated that the proposed definition is drawn from the Act. *Id*., citing 415 ILCS 5/3.315 (2008) (defining "person" identically). The subsequent joint proposal did not amend the Agency's proposed definition. *See* Joint Prop. at 3.

"**Professional engineer".** In its original proposal, Ameren sought to add a definition of "professional engineer." SR at 25. In its entirety, the definition provided that "'[p]rofessional engineer' means a person who has registered and obtained a seal pursuant to the Professional Engineering Practice Act of 1989." Orig. Prop. at 3, Agency Prop. at 3, Joint Prop. at 3. Ameren stated that this definition is based upon that statute. SR at 25, citing 225 ILCS 325 (2008).

"**Professional Geologist".** In its original proposal, Ameren sought to add a definition of "professional geologist." SR at 25. In its entirety, the definition provided that "'[p]rofessional geologist' means a person licensed under the laws of the State of Illinois to practice as a professional geologist." Orig. Prop. at 3, Agency Prop. at 3, Joint Prop. at 3. Ameren stated that this definition is based upon Section 58.2 of the Environmental Protection Act (Act). SR at 25, citing 415 ILCS 5/58.2 (2008) (defining "licensed professional geologist" under Site Remediation Program).

"**Site".** In its proposal, the Agency sought to add a definition of "site." Agency Prop. at 3. In its entirety, the proposed definition provided that "'[s]ite' means any location, place, tract of land, and facilities, including but not limited to buildings and improvements used for purposes subject to regulation or control by this act or regulations thereunder." *Id*. This definition is based upon Section 3.460 of the Act. *See* 415 ILCS 5/3.460 (2008) (defining "site" identically). The subsequent joint proposal did not amend the Agency's proposed definition. *See* Joint Prop. at 3.

"**Statistically significant".** In their joint statement, Ameren and the Agency stated that they seek to define this term because it "is used in several sections of the [proposed] site-specific rule." Joint Statement at 4. In its entirety, the definition provided that "'[s]tatistically significant' means the application of a Mann-Kendall analysis performed at 95 percent

confidence to determine whether consecutive groundwater sampling data showing greater or lesser concentrations of constituents is statistically significant." Joint Prop. at 3-4.

"**Upper zone of underlying aquifer".** In their joint statement, Ameren and the Agency stated that they agree to strike Ameren's original designation of "Zone A" and "Zone B" and to use this term proposed by the Agency "with respect to applicable groundwater standards that will apply both on-site and off-site as set forth in [proposed] Section 840.116." Joint Statement at 4. Ameren and the Agency stated that "[t]he Agency's approach provides a more straightforward framework for determining compliance obligations and relies largely on standards and requirements previously promulgated by the Board. . . . *Id*.; *see* 35 Ill. Adm. Code 620 (Groundwater Quality). In its entirety, the proposed definition provided that "'[u]pper zone of underlying aquifer' means surficial sands and sandstones overlying shale west of the Wabash River bedrock valley, and sand lenses within the surficial fine-grained alluvium." Joint. Prop. at 4.

**Summary of Section 840.104.** In its first-notice opinion, the Board did not substantively amend any of the definitions in this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 71-74, 114-16 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts these definitions without substantive amendment.

**Section 840.106: Abbreviations and Acronyms**

In its original proposal, Ameren stated that this language identifies five abbreviations and acronyms used in the proposed Subpart A. SR at 26; *see* Orig. Prop. at 4. In his pre-filed testimony, Mr. Buscher proposed to add the acronym "GMZ," representing "groundwater management zone" and based upon provisions of the Board's current groundwater quality standards. Buscher Test. at 4, citing 35 Ill. Adm. Code 620.250; *see* Agency Prop. at 4. The subsequent joint proposal incorporated the Agency's additional acronym. *See* Joint Prop. at 4-5.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 75, 116 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.108: Incorporations by Reference**

In its proposal, the Agency sought to add incorporations by reference to Ameren's original proposal and then to renumber subsequent sections. *See* Agency Prop. at 4-5. Specifically, the Agency proposed in subsection (a) to incorporate seven sets of materials from the National Technical Information Service and a single set of materials from the United States Geological Survey (USGS). *Id*. The Agency also proposed in subsection (b) that "[t]his Section incorporates no later edition or amendments." *Id*. at 5. The subsequent joint proposal included the additional language offered by the Agency. *See* Joint Prop. at 5-6.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 75, 116-17 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.110: Hydrogeologic Site Investigation**

In its original proposal, Ameren obligated the owner or operator of Ash Pond D to "design and implement a hydrogeologic site investigation of Ash Pond D to develop information" for three specific uses. Orig. Prop. at 4; *see* SR at 26. Specifically, proposed subsection (a) provided that the required investigation shall be used "[t]o provide information to define hydrogeology and to assess the groundwater impacts associated with Ash Pond D." Orig. Prop. at 4; *see* SR at 26. Proposed subsection (b) required the investigation to be used "[t]o provide information to perform a model to assess the groundwater impacts associated with closure of Ash Pond D." Orig. Prop. at 4; *see* SR at 26. Finally, proposed subsection (c) required it to be used "[t]o provide information to establish a groundwater monitoring system." Orig. Prop. at 4; *see* SR at 26.

Ameren's proposal also provided that "[i]nformation from any hydrogeologic site investigation performed since 1999 may be used to satisfy the requirements of this Section." Orig. Prop. at 4; *see* SR at 26. Ameren stated that it "performed such an investigation in 1999. The information that Ameren collected at that time continues to be valid; therefore, the rule provides that Ameren may use that data rather than conducting a new hydrogeologic site investigation." SR at 26. Ameren further stated that its proposal included this requirement "for purposes of completeness." *Id*.

In his pre-filed testimony, Mr. Dunaway sought to amend Ameren's proposal with three changes he described as "interrelated." Dunaway Test. at 3. First, he noted that Ameren's original language did not provide for prior Agency review of the hydrogeologic site investigation. *Id*. Claiming that Ameren's proposal would render the Agency merely a "passive recipient of plans, reports, and related modifications," he characterized such prior Agency review as "essential." *Id*. He proposed that the investigation "be reviewed and approved by the Agency as part of the closure plan." *Id*. at 2; *see* Agency Prop. at 5. Mr. Dunaway claimed that "the better approach in the case of the closure of a coal ash impoundment with off-site groundwater contamination is for the Agency to be involved in an administrative oversight capacity during the design, construction and implementation of closure and post-closure activities that are likely to continue over several years." Dunaway Test. at 3. He continued by arguing that "[t]his is consistent with the Agency's obligation to assure compliance with the Act and rules adopted under the Act." *Id*.; *see also* Agency Prop. at 28-33 (proposing Agency review, approval, and modification of closure and post-closure plans in additional Sections 840.148 and 840.150), Buscher Test. at 7-10 (addressing proposed Sections 840.148 and 840.150).

Second, Mr. Dunaway sought to strike "Ameren's proposed language to allow the use of any hydrogeologic site assessment performed since 1999." Dunaway Test. at 3; *see* Agency Prop. at 5-6. He stated that, "[w]hile the Agency is not opposed to the use of hydrogeologic data

gathered since 1999, the Agency should be able to review and approve the appropriateness of the data's inclusion in a current assessment." Dunaway Test. at 3. He argued that Ameren's original language would allow data to satisfy this requirement even if it no longer remained valid. *Id*.

Third, Mr. Dunaway "proposed language intended to focus the hydrogeologic assessment on the nature and extent of contaminants originating from Ash Pond D." Dunaway Test. at 3; *see* Agency Prop. at 5-6.

Ultimately, the joint proposal reflected these Agency amendments by offering the following language:

> [t]he owner or operator of Ash Pond D must design and implement a hydrogeologic site investigation to determine the nature and extent of contamination originating from Ash Pond D and to develop hydrogeologic information for the uses set forth below. If approved in the closure plan, any information from any hydrogeologic site investigation performed since 1999 may be used to satisfy the requirements of this Section. Joint Prop. at 6

The joint proposal then listed three uses of the investigation with only grammatical changes from the language originally proposed by Ameren. *Id*.; *see* Orig. Prop. at 4.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 75-76, 117 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.112: Groundwater Monitoring System**

In its original proposal, Ameren obligated the owner or operator of Ash Pond D "to design and install a groundwater monitoring system that is sufficient to evaluate post-closure groundwater quality and trends." SR at 26; *see* Orig. Prop. at 4-5 (proposed Section 840.110). Ameren stated that, after conducting a hydrogeologic site investigation in 1999, it designed and installed such a system. SR at 26; *see generally* TSD at 542-45 (Technical Memorandum addressing Preliminary Groundwater Monitoring Plan). Ameren further stated that it "proposes to continue using components of that system pursuant to this [proposed] rule" and offered language regarding that system "[f]or purposes of completeness." SR at 26-27.

Ameren's proposed subsection (a) provided specific "[s]tandards for monitoring well construction and design." Orig. Prop. at 4. As originally proposed, subsection (a)(2) provided in its entirety that "[w]ells must be screened to allow sampling only at the desired interval." Orig. Prop. at 5. In its subsequent proposal, the Agency amended Ameren's language to provide that "[w]ells must be screened to allow sampling only at the specified ~~desired~~ interval." Agency Prop. at 6. The joint proposal maintained this amendment. Joint Prop. at 7. At the hearing, Mr. Cobb indicated that, although the Agency would review these intervals as elements of the monitoring system, the Agency has received data of good quality from Ameren's wells. Tr. at

106. He stated that this proposed revision intends primarily to allow the Agency flexibility to address matters that cannot be addressed by those data. *Id*.

As proposed by Ameren, subsection (b) established "[s]tandards for the location of monitoring points," and proposed subsection (c) addressed "sample collection and analysis." Orig. Prop. at 4-5. Ameren stated that '[t]he proposed standards are consistent with protocols and practices utilized by the Company in submitting monitoring data to the Agency as part of its ongoing compliance obligations with respect to the Station's Water Pollution Control and NPDES permits." SR at 27.

In his pre-filed testimony, Mr. Dunaway proposed substantive amendments to Ameren's original proposal. First, he offered "[a] requirement for Agency review and approval of the planning for the groundwater monitoring system," which Ameren had not included. Dunaway Test. at 4. He stated that "[t]his change is proposed to assure that the groundwater monitoring system will be capable of providing the Agency with data adequate to perform its oversight duties." *Id*.; *see* Agency Prop. at 6. Mr. Dunaway further stated that, "[t]o expedite the review and approval process, the Agency has proposed to incorporate the design of the groundwater monitoring system as part of the closure plan rather than making it a separate submittal." Dunaway Test. at 4.

Second, the Agency proposed a new subsection (b) addressing the number, installation, and depth of monitoring wells. Dunaway Test. at 4. Mr. Dunaway stated that this language is based on the Agency's belief that "the monitoring system's functionality should not be limited by including only the existing monitoring system." *Id*. The proposed new subsection intended to allow "the option of expanding the monitoring system that currently exists at appropriate locations, if required, to demonstrate compliance with applicable groundwater standards under this [proposed] rule." *Id*.; *see* Agency Prop. at 6-7. The Agency stated that it does not seek to eliminate wells operating since 1999 but intends to ensure that the system collects data necessary for demonstrating compliance without generating unnecessary costs. Dunaway Test. at 4.

Third, the Agency proposed to strike Ameren's proposed subsection (c) addressing sample collection and analysis. Dunaway Test. at 4; *see* Orig. Prop. at 5, Agency Prop. at 7. Noting that Ameren's original proposal addressed sample collection and analysis in this subsection (c), the Agency expressed the view that "discussion of the Groundwater Monitoring System should be limited to monitoring well characteristics, such as the number of wells, construction details and placement." Dunaway Test. at 4-5. Mr. Dunaway stated that the Agency has addressed the issues of sample collection, preservation, and analysis in a separate section of its own proposal. *Id*. at 5; *see* Agency Prop. at 7-10 (proposed Section 840.114 Groundwater Monitoring Program). The Agency sought to replace Ameren's original subsection with language requiring that "[t]he groundwater monitoring system approved in the closure plan must include a maintenance plan." Agency Prop. at 7. During the hearing, the Agency anticipated that that this maintenance plan would be submitted with the closure plan. Tr. at 106. In its post-hearing comment, the Agency proposed to amend Section 840.130(f) to require a maintenance plan as an element of a closure plan. PC 2 at 2, citing Tr. at 106-07.

The joint proposal generally reflected the substantive amendments proposed by the Agency. *See* Joint Prop. at 6-8, Agency Prop. at 6-7.

In its first-notice comment, the Agency noted that the Board's first-notice opinion "discusses a revision proposed at Section 840.130(f) to include a requirement to submit a maintenance plan for the groundwater monitoring system (Section 840.112) along with the closure plan." PC 8 at 3, citing Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 78, 98, 99-100 (Oct. 7, 2010). The Agency indicated that "this issue was raised at hearing by the Board and appropriate language was submitted by the Agency in post-hearing comments, which the Board has adopted." PC 8 at 3. The Agency stated that it "affirms its support for this revision (*id*.), and Ameren's first-notice comment does not specifically address Section 840.112 (*see* PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.114: Groundwater Monitoring Program**

In its original proposal, Ameren required the owner or operator of Ash Pond D "to develop a groundwater monitoring program, the frequency of monitoring, and the constituents to be monitored at each well installed. . . ." SR at 27; *see* Orig. Prop. at 5-7. In its opening paragraph, the proposed section provided among other requirements that "[t]he owner or operator must begin the groundwater monitoring program upon completion of the final cover installation." Orig. Prop. at 5.

Ameren's proposed subsection (a) specifically provided that the owner or operator of Pond D must monitor each well on a quarterly basis for five years after closure for the following constituents: boron, iron, manganese, pH, sulfate, and TDS [total dissolved solids]. Orig. Prop. at 5. Ameren stated that it "chose to monitor for the specified constituents set forth in subsection (a) of this Section because they are consistent with parameters required in the Station's NPDES Permit. . . ." SR at 27. Ameren added that "boron and sulfate are indicator parameters of coal ash leachate and are very mobile." *Id*. Proposed subsection (a) also obligated the owner or operator to monitor for specific conductance, groundwater elevation, and monitoring well depth. Orig. Prop. at 5-6.

In addition, proposed subsection (a) addressed frequency of monitoring beyond the first five years after closure. *See* Orig. Prop. at 6. Specifically, the proposal allowed the owner or operator to reduce the frequency to semi-annual upon determining that each of three conditions have been met: "that monitoring effectiveness will not be compromised by the reduced frequency;" that quarterly data have provided sufficient characterization of the groundwater; and that concentrations of monitored constituents "show no statistically significant increasing trends that can be attributed to Pond D." *Id*. Ameren argued that "[t]he monitoring frequency is similar to that prescribed in the Board's Landfill Regulations and will provide sufficient data to monitor the effectiveness of the proposed closure activities." SR at 27, citing 35 Ill. Adm. Code 811.319.

Ameren's proposed subsection (b) provided that the owner or operator of Pond D must monitor each well on an annual basis until monitoring is discontinued under subsection (a) for the following inorganic constituents: antimony, barium, beryllium, cadmium, chloride,

chromium, cobalt, copper, cyanide, fluoride, lead, mercury, nickel, nitrate as N, selenium, silver, thallium, and zinc. Orig. Prop. at 7. Ameren stated that, as a result of discussions with the Agency, it included monitoring for these additional inorganic constituents "to properly monitor the effectiveness of the proposed closure activities." SR at 27.

Finally, Ameren's proposed subsection (c) provided in its entirety that "[e]lements of the Groundwater Monitoring Program may be modified upon agreement with the Agency, so long as the modification is in accordance with the provisions of this Subpart." Orig. Prop. at 7.

In his pre-filed testimony, Mr. Dunaway proposed amending Ameren's original language to an extent he characterized as "significant." Dunaway Test. at 5. First, the Agency proposed to include the groundwater monitoring program in the closure plan, "just as it did with the hydrogeologic assessment and the groundwater monitoring system." *Id*.; *see* Agency Prop. at 7. The Agency argued that including the program in the closure plan will ensure that the program is consistent with various regulatory requirements. Dunaway Test. at 5. The Agency stated its "intent that once the closure plan has been approved, and the groundwater monitoring system installed as agreed, the monitoring plan will be implemented even if the rest of the closure construction activities have not been completed." *Id*. The Agency stated that it has amended the opening paragraph and subsection (a) to reflect these positions. *Id*; *see* Agency Prop. at 7.

The Agency also proposed to require quarterly monitoring for all contaminants listed in Section 620.410(a) and (d) of the Board's groundwater quality standards for Class I groundwater, except for radium 226 and radium 228. Dunaway Test. at 5, citing 35 Ill. Adm. Code 620.410(a) (inorganic chemicals), 620.410(d) (pH). In its pre-filed questions, PRN asked why the Agency's proposal excluded these two constituents. PRN Questions at 6 (¶ 11). In its pre-filed response, the Agency stated that USGS research found that "radium and other radioactive elements in coal ash are not significantly elevated above concentrations that occur in materials found naturally in the environment. The USGS also found that dissolved concentrations of these radioactive elements are below levels of health concern. Therefore, inclusion of Radium 226 and Radium 228 is not warranted." Agency Resp. at 1; *see id*., Att. 1 (Radioactive Elements in Coal and Fly Ash: Abundance, Forms, and Environmental Significance). Responding to a question at hearing, Mr. Bollinger addressed monitoring for organic chemicals by indicating that Ameren has "no reason to suspect that there would be organic contaminants present in pond D." Tr. at 107. In addition, Mr. Cobb indicated that Agency is not aware of issues involving organic contaminants in the Wabash River. *Id*.

The Agency acknowledged that both Ameren and the Agency have proposed to require monitoring for the same contaminants. Dunaway Test. at 5; *see* Agency Prop. at 7-8, Orig. Prop. at 5-7. However, the Agency noted that Ameren's proposed Section 840.112(b) had proposed annual monitoring for specific inorganic constituents. Dunaway Test. at 5; *see* Orig. Prop. at 7. The Agency stated that monitoring all contaminants on the same quarterly schedule effectively eliminates Ameren's proposed Section 840.112(b). Dunaway Test. at 5; *see* Orig. Prop. at 7, Agency Prop. at 7, 9-10.

The Agency acknowledged that Ameren's proposed Section 840.112(a) listed suitable parameters for indicating ash impacts on groundwater. Dunaway Test. at 5; *see* Orig. Prop. at 5.

Specifically, that provision required monitoring for boron, iron, manganese, pH, sulfate, and TDS. Orig. Prop. at 5. The Agency cited boron in particular as "an excellent contaminant for impact assessment" because it "is abundant in coal ash" and is "mobile in groundwater." Dunaway Test. at 5. However, the Agency argued that there is "no dispute that an impact exists" and that contaminants "other than the indicator contaminants could have impacted groundwater." *Id*. at 5, 6. The Agency supported its own proposed monitoring program by stating that a "full assessment of contaminants that may be present in groundwater is needed to adequately characterize and protect the resource." *Id*. at 6.

The Agency also proposed to allow Ameren to discontinue monitoring any contaminant other than six indicator contaminants (boron, iron, manganese, sulfate, TDS, and pH) after one year if the concentration of the contaminant has been below the detection limit in downgradient wells for four consecutive quarters or is not statistically greater than the background concentration detected in upgradient wells for four consecutive quarters. Dunaway Test. at 6; Agency Prop. at 7. The Agency stated it proposed a minimum of four quarters of monitoring "to account for seasonal variation in groundwater quality." Dunaway Test. at 6. The Agency indicated that Ameren may use the first annual report filed under proposed Section 840.144 to suggest eliminating monitoring contaminants with concentrations below detection limits. *Id*., *see* Agency Prop. at 24-25 (proposed Section 840.144 Recordkeeping and Reporting Requirements). The Agency stated that, after one year of monitoring, Ameren will be required to monitor only indicator contaminants, contaminants that are impacting groundwater, and those that have the potential to do so. Dunaway Test. at 6.

The Agency noted that Ameren's original subsection (a)(1) provided conditions under which Ameren after five years might reduce its monitoring frequency to semi-annual. Dunaway Test. at 7; *see* Orig. Prop. at 6. The Agency reorganized this provision as subsection (b). Agency Prop. at 8. The Agency also added language reflecting its proposal to require "review and approval before implementation [of] or modification to the post-closure care plan." Dunaway Test. at 7.

The Agency also noted that Ameren's original subsection (a)(2) provided conditions under which Ameren might reduce its monitoring frequency to annual "[b]eginning fifteen years after closure, or five years after reducing the monitoring frequency to semi-annual. . . ." Orig. Prop. at 6; *see* Dunaway Test. at 7. The Agency reorganized this provision as subsection (c). Agency Prop. at 8. The Agency again added language reflecting its proposal to require review and approval before implementation [of] or modification to the post-closure care plan." Dunaway Test. at 7. In addition, the Agency proposed to limit the option of conducting annual monitoring after 15 years by requiring that Ameren meet conditions listed in the Agency's proposed subsection (b). *Id*., *see* Agency Prop. at 8. In support of this amendment, the Agency expressed its belief

> that the low permeability cover and the extraction trench proposed by Ameren will allow Ameren to successfully achieve the applicable groundwater standards at the Hutsonville site. However, if for some unforeseen reason Ash Pond D continues to cause statistically significant increases in groundwater contamination, in spite of implementation of the closure plan, quarterly or semi-

> annual monitoring pursuant to [proposed] Section 840.118, should continue as long as required to assure the protection of the off-site water resource. Dunaway Test. at 7.

The Agency also proposed to add a subsection (d). Dunaway Test. at 6; *see* Agency Prop. at 9. That proposed subsection provided in its entirety that "[s]ampling and analysis data from groundwater monitoring and decisions to drop any constituent from the monitoring program must be reported to the Agency no later than 30 days after the sampling and analysis have been completed as provided in Section 840.144(a) of this Part." Agency Prop. at 9. The Agency stated that this provision will "ensure that sampling and analysis data are provided to the Agency in a timely manner consistent with Ameren's proposed Section 840.142(a)." Dunaway Test. at 6; *see* Orig. Prop. at 15-16 (proposed Section 840.142 Recordkeeping and Reporting Requirements).

The Agency also proposed to add a subsection (e). Dunaway Test. at 7; Agency Prop. at 9. The Agency argued that Ameren's original proposal included "only general guidelines for appropriate sample collection and analytical procedures." Dunaway Test. at 7. The Agency stated that it seeks to provide more specific direction by proposing language based on the Board's groundwater quality standards. *Id*., citing 35 Ill. Adm. Code 620.510 (Monitoring and Analytical Requirements); *see* Agency Prop. at 9 (listing methods and procedures for monitoring and analysis). The Agency stated that its proposal lists methods and procedures that it seeks to incorporate by reference. Dunaway Test. at 7; *see* Agency Prop. at 4-5 (proposed Section 840.108).

Finally, the Agency also sought to add to Ameren's proposal a subsection (f) requiring a quality assurance program as an element of the monitoring program. Dunaway Test. 7; *see* Agency Prop. at 9. Although the Agency acknowledged that Ameren's original proposal included such a requirement, the Agency sought to include it in this section, "as the Agency believes a quality assurance program for sample collection, preservation and analysis more directly relates to the Groundwater Monitoring Plan." Dunaway Test. at 7-8.

The joint proposal generally reflected the substantive amendments proposed by the Agency and summarized in the preceding paragraphs. *See* Joint Prop. at 8-11, Agency Prop. at 7-11. In their joint proposal, however, Ameren and the Agency stated that they added language to this proposed Section 840.114 in order "to clarify that the groundwater monitoring program for closure and post-closure of Ash Pond D ends once compliance is achieved at the property boundary." Joint Statement at 4, citing Joint Prop. at 12-17 (proposed Section 840.118 Demonstration of Compliance); *see* Joint Prop. at 8. Ameren and the Agency stated that "[t]he rule is drafted so that monitoring frequency may be gradually reduced over time unless there is a statistically significant increasing trend *that is attributable to Ash Pond D*. Attribution of statistically significant trends to Ash Pond D is a concept that carries over to the compliance determinations under [proposed] Section 840.118." Joint Statement at 4-5 (emphasis in original); *see* Joint Prop. at 8-9. The Joint Statement also noted that "[r]eporting requirements generally have been moved to [proposed] Section 840.144." Joint Statement at 5; *see* Joint Prop. at 9.

In its first-notice opinion, the Board noted that Section 840.114(a) of the joint proposal refers to "a concentration that is not statistically greater than the concentration detected in the upgradient wells. . . ." Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 81 (Oct. 7, 2010), citing Joint Prop. at 8. The Board further noted that the joint statement emphasized statistical significance as it pertains both to monitoring and compliance determinations. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 81 (Oct. 7, 2010), citing Joint Statement at 4. Because "statistically significant" is a term defined in the joint proposal, the Board employed it in subsection (a) for clarification and consistency. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 81-82, 119 (Oct. 7, 2010); citing Joint Prop. at 3-4 (definition).

The Agency stated that this revision "has improved the clarity and consistency of the provision," (PC 8 at 3), and Ameren indicated that it "does not object to any of the Board's changes" made to the joint proposal for first notice (PC 9 at 4). Accordingly, the Board adopts this language without further amendment.

**Section 840.116: Groundwater Quality Standards**

In its original proposal, Ameren noted that the operation of Ash Pond D has impacted groundwater and sought in a section entitled "Compliance Zones" to divide the impacted area into two sections. SR at 28. The first, Zone A, Ameren "defined as the upper migration zone underlying Pond D." *Id*.; *see* Orig. Prop. at 2 (definition in proposed Section 840.104). The second, Zone B, Ameren defined as "the upper migration zone located east of Pond D, extending 500 feet south onto the adjacent landowner's property, and running to the Wabash River." SR at 28; *see* Orig. Prop. at 2-3 (definition in proposed Section 840.104).

Ameren stated that, because of the recognized groundwater impacts, "compliance with Class I groundwater quality standards is not feasible and is not consistent with Board regulations pertaining to other pre-existing fill operations." SR at 28, citing 35 Ill. Adm. Code 811.320 (waste disposal). Ameren proposed "that concentrations of parameters as monitored are authorized and no groundwater quality standards shall apply within Zones A and B." SR at 28; *see* Orig. Prop. at 7; *see also* Cobb Test. at 3. Ameren also proposed that "the results of annual trend analysis will be used to determine compliance within Zone B." Orig. Prop. at 7; SR at 28; *see* Orig. Prop. at 8 (requiring annual trend analysis).

In his pre-filed testimony, Mr. Cobb stated that, under its original proposal, Ameren could achieve compliance at the downgradient boundaries of Zone B by meeting Class I groundwater quality standards with no increasing trend attributable to Ash Pond D. Cobb Test. at 3, citing Orig. Prop. at 6 (proposed Section 840.112(a)(3)). He indicated that, with compliance at such a point, "corrective action would be complete, and no groundwater quality standards would apply within Zones A and B . . . regardless of future occurrences or sources of contamination." Cobb Test. at 3-4. The Agency considered the Board's existing regulations for a groundwater management zone (GMZ) as a suitable approach for the Hutsonville site. *Id*. at 4, citing 35 Ill. Adm. Code 620. Off-site, the Agency favored greater consistency with the Board's

groundwater quality standards including nondegradation, "unless an off-site GMZ can be established. . . ." Cobb Test. at 4, citing 35 Ill. Adm. Code 620. Mr. Cobb viewed off-site compliance as "complicated," as the lower migration zone in the proposed Zone B has experienced contaminations at concentrations below numerical Class I groundwater quality standards but above Class I nondegradation standards. Cobb Test. at 4, citing 35 Ill. Adm. Code 620.401, 620.410, 620.Subpart C. He also noted that "the lower migration zone is a source of water for irrigation of crops while boron, one of the indicator contaminants, is known to be phyto-toxic at 2 milligrams per liter." Cobb Test. at 4. Consequently, in its Section 840.116, the Agency proposed "[g]roundwater quality standards for both on-site and off-site contamination that more consistently reflect the existing Board standards." *Id*. The Agency also proposed replacing Ameren's proposed Zones A and B with "the downgradient boundaries of the Hutsonville site as the compliance point for both on-site and off-site contamination." *Id*.

Specifically, in subsection (a), the Agency proposed, "because of the existing contamination, that the groundwater quality standards that apply on-site during closure and post-closure activities should be the existing concentrations as determined by groundwater monitoring for the contaminants that exceed the applicable Class I numeric groundwater quality standards." Cobb Test. at 5, citing 35 Ill. Adm. Code 620.420; *see* Agency Prop. at 10. The Agency recommended relying upon such existing concentrations, as confirmed through groundwater monitoring, "to prevent causing or allowing any further degradation to occur. . . ." Cobb Test. at 5, citing 415 ILCS 5/12(a) (2008). The Agency further proposed that, "[a]fter the completion of closure and post-closure, the on-site standard would be the monitored concentrations if the monitored concentrations are above the Class I numerical standards and if three conditions" are satisfied:

1) To the extent practicable, the exceedance has been minimized and beneficial use, as appropriate for the class of groundwater, has been returned;

2) Any threat to public health or the environment has been minimized; and

3) An institutional control prohibiting potable uses of groundwater is placed on the Hutsonville site in accordance with the Uniform Environmental Covenants Act (765 ILCS 122). Cobb Test. at 5, citing Agency Prop. at 10 (proposed Sections 840.116(a)(1) - (a)(3)).

Mr. Cobb's pre-filed testimony argued that these three conditions are similar to those that must be met in order to close a GMZ where corrective action does not attain full compliance. Cobb Test. at 5, citing 35 Ill. Adm. Code 620.450(a)(4); *see* Tr. at 70, 75-76.

In subsection (b), the Agency proposed that the Class I numerical and nondegradation standards apply off-site at all times. Cobb Test. at 5, citing 35 Ill. Adm. Code 620.401, 620.410, 620.Subpart C; *see* Agency Prop. at 11, Tr. at 70. Mr. Cobb's pre-filed testimony stated that the Agency "is not persuaded that the Hutsonville site should be treated as a special case for off-site groundwater contamination, especially considering this rule may become a template for the closure of a significant number of other ash impoundments." Cobb Test. at 5. The Agency

proposal provided "that the numerical standards for returning to compliance under this rule would be applicable only in the upper migration zone (in which numerical standards already have been exceeded) while the nondegradation standard would apply only in the lower migration zone (in which the nondegradation standard already has been exceeded)." Cobb Test. at 5; *see* Agency Prop. at 11. The Agency stated that it has not applied the nondegradation standard in the upper migration zone off-site in order to be consistent with Board regulations addressing the applicability of preventive notification and response activities. Cobb. Test. at 5-6, citing 35 Ill. Adm. Code 620.302(c). The Agency noted that Ameren's modeling shows that its proposed closure plan should achieve off-site compliance within approximately 25 years. Cobb Test. at 6, citing TSD at 534 (Figure 17D).

Mr. Cobb's pre-filed testimony stated that "[t]he issue of whether the upper and lower aquifers . . . should be considered to be one hydrologic unit is closely related to the Agency's proposal of separate groundwater quality standards for the off-site upper and lower migration zones and its proposed application of the nondegradation standards in the lower migration zone." Cobb Test. at 6; *see* Agency Prop. at 11. While noting that Ameren describes the upper and lower aquifers as separate units, the Agency cited the record to conclude that the two have hydraulic connection. Cobb Test. at 6-7, citing R. at 40, 51-52, 214. Based on this connection, the Agency claimed that "the uppermost aquifer must include the deep alluvial aquifer in relation to evaluating off-site impacts to the south and southeast of Ash Pond D." Cobb Test. at 7. Mr. Cobb's pre-filed testimony acknowledged, however, that "[t]his issue is not critical on-site." *Id*.

The Agency noted Ameren's indication that "it considers contaminant concentration in the lower part of the aquifer to be insignificant because the levels found did not exceed the numerical standards." Cobb Test. at 8, citing R. at 18 (Hydrogeology and Groundwater Quality). The Agency suggested that contamination in the lower zone may be "attributable to the radial gradient produced by mounding in Ash Pond D and seasonal pumping in the off-site irrigation well, which appears to eventually change the direction of the groundwater flow to southeast." Cobb Test. at 8, citing R. at 40. Also, noting that the "the irrigation well is screened in the lower zone of the aquifer," the Agency suggested that there may be "less impact to the lower part of the aquifer than to the upper part because of the transient nature of the cone of depression, produced by the seasonal use of the off-site irrigation well." Cobb Test. at 8.

Mr. Cobb's pre-filed testimony stressed the Agency's position that nondegradation requirements "apply to off-site groundwater downgradient of Ash Pond D in the lower cone of the unconsolidated aquifer." Cobb Test, at 8, citing 415 ILCS 5/12(a), (d), 35 Ill. Adm. Code 620.401, 620.Subpart C. Specifically, he reviewed various authorities to argue that these provisions prohibit "causing, threatening or allowing contamination of potable resource groundwater above what is not removed by ordinary treatment processes in a private drinking water system well." Cobb Test. at 9-11, citing Cent. Illinois Pub. Serv. Co. v. PCB, 116 Ill.2d 397, 409-10; Water Quality Standard for Intrastate Waters (SWB-14), R71-20; Water Quality Standards Revisions, R71-14. Mr. Cobb elaborated that "contaminants in off-site groundwater must not cause, threaten or allow contamination above existing concentrations," which "would constitute continuing degradation off-site." Cobb Test. at 12. He expressed the Agency's belief, however, that decreasing contaminant concentrations in the upper zone "will at least not

increase the concentration in the lower zone of the aquifer and probably will decrease it as shown in Ameren's modeling." *Id*, citing R. at 534.

In subsection (b), the Agency also proposed an alternative to strict compliance with numerical and antidegradation standards: establishing an off-site GMZ with written permission from the affected property owner(s). Cobb Test. at 6, citing 35 Ill. Adm. Code 620.250; *see* Agency Prop. at 11. Mr. Cobb's pre-filed testimony argued that this alternative "offers more flexibility because groundwater quality standards for the GMZ are as set forth in Section 620.450(a) for a variety of circumstances including the inability to achieve the numerical standards using the approved corrective action methods -- in this case, the final cover system, groundwater collection trench and groundwater discharge system." Cobb Test. at 6. Mr. Cobb's pre-filed testimony also stated that "the Agency has always required the written permission of affected property owners for the establishment of off-site GMZs, so the details of the GMZ off-site alternative would have to be worked out at a later time." *Id*.; *but see* 35 Ill. Adm. Code 620.250.

In their joint statement, Ameren and the Agency concurred that, "[w]ith respect to on-site conditions, the applicable groundwater quality standards shall be the numerical value established through the monitoring program and related requirements." Joint Statement at 5; *see* Joint Prop. at 11. In the proposed Section 840.116(a), the joint proposal sought to clarify this language by adding the term "on-site" and describing groundwater standards as "numeric." Joint Prop. at 11.

The joint proposal also modified subsection (a)(3) addressing institutional controls "to acknowledge that instruments other than the uniform environmental covenant may be available by the time the corrective action is completed." Joint Statement at 6. In the event that on-site contamination levels continue to exceed Class I numeric standards, the revised subsection allows an institutional control placed on the site through "an alternative instrument authorized for environmental uses under Illinois law and approved by the Agency." Joint Prop. at 11. In addition, the joint statement noted that "Ameren has on-site wells drawing both potable and process water from the lower zone of the underlying aquifer." Joint Statement at 6. The joint proposal further amended subsection (a)(3) by providing that "[e]xisting potable uses of groundwater may be preserved as long as such uses remain fit for human consumption in accordance with accepted water supply principles." Joint Prop. at 11, citing 415 ILCS 5/3.340 (defining "potable"). The joint statement indicated that "[i]nstitutional controls are not required for non-potable wells." Joint Statement at 6.

In their joint statement, Ameren and the Agency concurred that, "for the Ash Pond D site-specific rule and with respect to off-site groundwater quality, numeric Class I Groundwater Quality Standards will apply within the upper zone of the underlying aquifer and non-degradation standards will apply within the lower zone of the underlying aquifer." Joint Statement at 5. The joint statement also referred to the alternative of establishing an off-site GMZ. *Id*., citing 35 Ill. Adm. Code 620.450(a)(4). The joint proposal amended subsection (b) "to clarify that Ameren may propose and the Agency may approve a groundwater management zone not only in the closure and post-closure care plans, but also in subsequent modification of those plans." Joint Statement at 6; *see* Joint Prop. at 12.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 82-85, 120-21 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.118: Demonstration of Compliance**

In its original proposal, Ameren recognized that operating Ash Pond D had affected groundwater and relied upon "a trend analysis to ensure that the closure strategy is effectively reducing the level of constituents over time." SR at 28. First, Ameren's proposed subsection (a) provided in its entirety that "[t]he owner or operator of Ash Pond D must establish and identify in the closure plan and post-closure care plan no fewer than three downgradient monitoring wells located within Zone B for determining groundwater quality." Orig. Prop. at 7-8; *see* SR at 28. Ameren stated that, "[b]y identifying these wells in the closure and post closure care plans, the plans can be updated when necessary to account for new or replacement wells that will be used for monitoring and evaluating groundwater quality." SR at 29.

Ameren's proposed subsection (b) required that, for each of the downgradient monitoring wells situated in Zone B, the owner or operator of Ash Pond D must perform an annual trend analysis "for all constituents monitored in accordance with Section 840.112(a) . . . and for all constituents monitored in accordance with Section 840.112(b) that are above Class 1 groundwater quality standards. . . ." Orig. Prop. at 8; *see* SR at 29. If the results of this analysis reveal an increasing trend, subsection (b) also required further analysis "to determine whether the increasing trend is statistically significant." Orig. Prop. at 8.

Ameren's proposed subsection (c) provided that, if that further analysis reveals a statistically significant increasing trend, then the owner or operator of Ash Pond D must conduct an investigation to determine its cause. SR at 29; *see* Orig. Prop. at 8. Subsection (c) further provided that, "[i]f the statistically significant increasing trend occurs during post-closure care, such investigation must include more frequent inspection of the surface of the cover system and evaluation of the effectiveness of the groundwater collection trench. . . ." Orig. Prop. at 8.

Ameren's proposed subsection (c)(1) provided that, if the investigation of the statistically significant increasing trend attributes it to a cause other than Ash Pond D, then "the owner or operator of Ash Pond D must notify the Agency in writing, stating the cause of the increasing trend and providing the rationale used in such a determination." Orig. Prop. at 8; *see* SR at 29. Proposed subsection (c)(2) provided that, "[i]f the investigation determines that the increasing trend is a result of Ash Pond D and monitoring frequency has been reduced" to semi-annual or annual sampling, then the owner or operator must return to quarterly sampling. SR at 29; *see* Orig. Prop. at 8. The subsection further provided that, "[a]fter four consecutive quarterly samples show no statistically significant increasing trend, sampling frequency may return to either semi-annual or annual," whichever was conducted before returning to quarterly sampling. SR at 29; *see* Orig. Prop. at 8.

Ameren's proposed subsection (d) provided that, "[i]f a statistically significant increasing trend attributable to Ash Pond D continues over a period of two or more consecutive years, the owner or operator must perform additional investigations to determine the extent of the impact and the effectiveness of the closure activities." SR at 29; *see* Orig. Prop. at 8-9. Ameren indicated that such an "investigation may include more frequent inspections of the surface of the cover system, more frequent sampling of the monitoring wells, installation of additional wells, or one-time sampling of groundwater at other points." SR at 29; *see* Orig. Prop. at 9. Proposed subsection (e) provided that, based on the results of these additional investigations, "the owner or operator of Ash Pond D must take action to mitigate exceedances occurring at the outer edge of Zone B." Orig. Prop. at 9; *see* SR at 29.

Finally, Ameren's proposed subsection (e) required the owner or operator of Ash Pond D to file an annual report with the Agency. Orig. Prop. at 9. Specifically, the report was required to include results of trend analysis, discussion of any statistically significant increasing trends within Zone B, and notice regarding any superseding cause. *Id*.

In his pre-filed testimony on behalf of the Agency, Mr. Cobb summarized Ameren's proposal for demonstrating compliance: "compliance will be achieved and groundwater monitoring discontinued when 'no statistically significant increasing trend that can be attributed to Pond D is detected in the concentration of any such constituent at the downgradient monitoring wells inside Zone B for three consecutive years after changing to an annual monitoring frequency' and 'all concentrations of constituents monitored in accordance with Section 840.112 are at or below Class 1 groundwater quality standards for a period of five years." Cobb Test. at 13; *see* Orig. Prop. at 7-8. Mr. Cobb indicated that an approach similar to a GMZ may be appropriate for the site "but that off-site compliance should be more consistent with the Board's groundwater quality standards at Part 620 including the nondegradation standard unless an off-site GMZ can be established. . . ." Cobb Test. at 4; *see* 35 Ill. Adm. Code 620. Characterizing compliance with off-site standards as complicated, the Agency proposed to establish compliance points for both on-site and off-site contaminations and "appropriate methods of demonstrating compliance with the proposed standards at the proposed compliance points." Cobb Test. at 4; *see id*. at 13.

Specifically, the Agency first proposed to amend Ameren's proposal by eliminating the designations of Zones A and B and providing that the "property boundary downgradient of Ash Pond D is the applicable vertical plane of compliance for both on-site and off-site groundwater quality standards." Cobb Test. at 14; *see* Agency Prop. at 11-12. Mr. Cobb's pre-filed testimony noted that, "[e]ven though there are two sets of off-site standards in one aquifer for the upper and lower migration zones, nested wells can be used to monitor simultaneously at the upper and lower levels." Cobb Test. at 14. Mr. Cobb opined that Ameren's proposed final cover and groundwater collection trench appear to be "the appropriate remedy to decrease off-site contamination in the upper part of the aquifer, and to also subsequently prevent increases in concentrations in the lower zone of the aquifer off-site." *Id*.

The Agency proposed in its subsection (a)(1) that on-site compliance "will be achieved when monitoring at the downgradient boundaries of the Hutsonville site after a change to annual monitoring frequency shows no statistically significant increasing trend for four consecutive

years." Cobb Test. at 13; *see* Agency Prop. at 11-12. Based on its proposed monitoring frequencies, the Agency noted that Ameren could attain on-site compliance no sooner than fourteen years after beginning monitoring. Cobb Test. at 13; *see* Agency Prop. at 7-8 (monitoring frequency).

The Agency addressed off-site compliance in its proposed subsection (a)(2). The Agency stated that its proposal requires "a demonstration of off-site compliance by monitoring at the downgradient boundaries of the Hutsonville site for two conditions: 1) A statistically significant decreasing trend for four consecutive years after changing to an annual monitoring frequency, and 2) compliance with the upper and lower migration zone groundwater quality standards. . . ." Cobb Test. at 13-14; *see* Agency Prop. at 12; *see also id*. at 11 (off-site groundwater quality standards).

The Agency addressed demonstrating compliance in its proposed section (b). Subsection (b)(1) provided that on-site compliance "will be demonstrated using an annual trend analysis for each monitoring well at the downgradient boundaries of the Hutsonville site and each constituent that is above the Class 1 numerical standards of Section 620.410." Cobb Test. at 14; *see* Agency Prop. at 12-13; *see also* 35 Ill. Adm. Code 620.410. Mr. Cobb stated that "[a] trend is established with a minimum of four consecutive samples, and the absence of an increasing trend after changing to annual monitoring will demonstrate compliance. . . ." Cobb Test. at 14. Subsection (b)(2) addressed off-site compliance by requiring a trend analysis and monitoring data demonstrating compliance with the proposed groundwater quality standards. Agency Prop. at 13; *see* Cobb Test. at 14. Mr. Cobb's pre-filed testimony stressed that the Agency's proposed Section 840.116(b) "would enable Ameren and the Agency to develop alternative groundwater quality standards, compliance points and demonstration requirements as provided in 35 Ill. Adm. Code 620 and to the extent appropriate at this site." Cobb. Test. at 14-15; *see* Agency Prop. at 11 (allowing establishment of off-site GMZ).

The Agency modified Ameren's proposed subsection (c) specifically to address compliance with nondegradation standards during periods of closure and post-closure care. Agency Prop. at 14-15. Mr. Cobb's pre-filed testimony stated that this amended subsection relied on trend analyses. Cobb Test. at 15. He further testified that "[i]n effect, an increasing trend will indicate further degradation of the groundwater quality that will require additional investigation" and may require mitigating action. Cobb Test. at 15; *see* Agency Prop. at 14-15. Finally, the Agency also modified Ameren's proposed subsection (d) to require that annual reports to the Agency must also address "actions taken to mitigate increasing trends." *Id*. at 15; *see* Cobb. Test. at 15.

In their joint statement, Ameren and the Agency emphasized that "Ameren must demonstrate off-site compliance at the down-gradient property boundaries of the Hutsonville site with numeric Class 1 Groundwater Quality standards in the upper zone of the underlying aquifer and non-degradation standards in the lower zone of the underlying aquifer." Joint Statement at 6; *see* Joint Prop. at 12 (proposed Section 840.116(b)). The joint proposal amended subsections (a)(2)(A)(i) and (a)(2)(A)(ii) to account for the separate groundwater quality standards "and the ability to demonstrate that there is either no increasing trend or a decreasing trend, as applicable." Joint Statement at 7; *see* Joint Prop. at 13. Noting that operation of Ash Pond D has

affected groundwater quality in the lower zone at the downgradient property boundary, the joint statement indicated that Ameren will demonstrate compliance with the nondegradation standard when "there is no statistically significant increasing trend attributable to Ash Pond D and the actual concentrations are at or below the concentrations reflected in the sampling data provided in the TSD." Joint Statement at 6-7 (citing monitoring well 14); *see* Joint Prop. at 13; *see also* Tr. at 71-74, 79-80, 84-85.

In addition, the joint proposal amended subsection (b) by removing redundant language and by simply referring to other sections "for the applicable groundwater quality standards, list of constituents to monitor, and monitoring frequency." Joint Statement at 7; *see* Joint Prop. at 14-15. The joint proposal also amended subsection (c) to clarify "that the duty to investigate, notify the Agency, or take action to mitigate depends on the determination of a *statistically significant* increasing trend. . . ." Joint Statement at 7 (emphasis in original); *see* Joint Prop. at 15-16. Finally, the joint proposal struck the subsection (d) proposed by Ameren and amended by the Agency. Joint Prop. at 16-17; *see* Joint Statement at 7. The joint proposal incorporated those reporting requirements into the proposed Section 840.144. Joint Statement at 7; *see* Joint Prop. at 16-17, 26-28.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 85-88, 121-24 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.120: Groundwater Collection Trench**

In its original proposal, Ameren stated that it "has determined that it is appropriate to construct and operate a groundwater collection trench to address the impacts on groundwater emanating from Ash Pond D." SR at 30. As originally proposed by Ameren, this section provided in its entirety that

> [t]he owner or operator of Ash Pond D must design, install, and, consistent with wastewater discharge permit conditions, operate a groundwater collection trench along the south property boundary of the Hutsonville Power Station to prevent migration of groundwater impacted by Ash Pond D south of the property boundary. Upon completion of the post-closure care certification required by Section 840.140 of this Subpart, the owner or operator of Ash Pond D may discontinue operation of the groundwater collection trench. Orig. Prop. at 9.

Ameren elaborated that "[t]his trench will route groundwater collected to Ash Pond B, where it will be managed pursuant to Section 840.120 and discharged through the NPDES-permitted outfall from that pond." SR at 30.

In his pre-filed testimony on behalf of the Agency, Mr. Buscher elaborated upon Ameren's description of the proposed trench: "[t]he groundwater collection trench system is the engineered barrier which will be designed to prohibit contaminated groundwater from moving

off site and to capture contaminated groundwater which has already migrated offsite." Buscher Test. at 4. He also described the manner in which the Agency proposed to amend Ameren's original proposal. First, the Agency sought to add to this section language requiring that "[p]lans for the groundwater collection trench including, but not limited to, a plan for operation and maintenance, must be approved by the Agency in the closure plan." Agency Prop. at 15; *see* Buscher Test. at 4. Second, the Agency sought to amend this section by providing that "[t]he groundwater collection trench must be constructed according to a construction quality assurance program that meets the requirements of Section 840.146 of this Part." Agency Prop. at 15; *see* Buscher Test. at 4; *see also id*. at 25-28 (proposing new section 840.146 addressing construction quality assurance). Finally, the Agency also proposed that "Ameren may discontinue operation of the groundwater collection trench when the post-closure care certification . . . has been approved by the Agency." Buscher Test. at 4; *see* Agency Prop. at 15; *see also id*. at 23-24 (addressing post-closure certification in Section 840.142).

In their joint statement, Ameren and the Agency proposed to amend this section by providing that the owner or operator of Ash Pond D may discontinue operation of the trench "[o]nce compliance with the groundwater quality standards as set forth in Section 840.116 has been achieved in accordance with Section 840.118(a)." Joint Prop. at 17. The joint proposal also sought to add to this section the following language:

> [u]pon discontinuing operation of the groundwater collection trench, the owner or operator must perform four quarterly sampling of the groundwater system monitoring wells as identified in the post-closure care plan, or modification thereof, to ensure compliance with the applicable groundwater quality standards as set forth in Section 840.116. Results of the four quarterly sampling must be included in the post-closure report documentation. If compliance is not confirmed, operation of the groundwater collection trench and discharge must be resumed. *Id*., *see* Joint Statement at 7-8.

In the course of the hearing, the Board noted that this section of the joint proposal addressed requirements for the groundwater collection trench in a single lengthy paragraph. *See* Tr. at 107-08. The Board asked whether the section would be more comprehensible if separated into subsections. *Id*. at 108. In its post-hearing comments, the Agency stated that it had consulted with Ameren about this question and that they had agreed to reorganize this section into subsections. PC 2 at 2-3 (proposing reorganization). In its post-hearing comments, Ameren proposed the same reorganization. PC 4 at 10-11. In its first-notice opinion and order, the Board concluded that this reorganization improved the comprehensibility of these provisions and incorporated the participants' proposal. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 90 (Oct. 7, 2010).

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 88-90, 125 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.122: Groundwater Discharge System**

Ameren's original Section 840.120 provided in its entirety that

> [g]roundwater collected in the groundwater collection trench must be directed to Ash Pond B at the Hutsonville Power Station consistent with wastewater discharge permit conditions. Groundwater collected must be routed through the outfall from Ash Pond B as authorized by the Hutsonville Power Station's NPDES permit in compliance with applicable water quality standards for the Wabash River. Orig. Prop. at 9; *see* SR at 30.

Ameren noted that routing the collected groundwater in this manner "may require Ameren to amend its current NPDES permit." SR at 30. Ameren further noted that "segments of the Wabash River are impaired for PCBs and mercury but not for any of the constituents Ameren expects to discharge as a result of the management of groundwater via the groundwater collection trench and Ash Pond B's permitted NPDES-permitted outfall." *Id*. (referring to Agency listing of impaired waters).

In his pre-filed testimony on behalf of the Agency, Mr. Buscher claimed that Ameren will have to modify its current NPDES permit in order to discharge water from the groundwater collection trench and implement its proposed rule. Buscher Test. at 4-5. He stated, however, that "issuance of a NPDES permit is completely independent of this rule and is governed by the statutory rules pertaining to the NPDES permit process." *Id*. at 5.

In his pre-filed testimony, Mr. Buscher suggested that Ameren's original language was too restrictive in directing water from the collection trench specifically through Ash Pond B. *See* Buscher Test. at 4. He further stated that, in order to provide Ameren with other options for its discharge point, its amended proposal "requires Ameren to obtain the required NPDES permits to discharge water from the collection trench to the Wabash River and does not specify how the discharge is to be routed to the river or otherwise managed." *Id*. at 5. Mr. Buscher claimed that, "[w]hile the Agency has no objections to Ameren's preference to discharge through Ash Pond B, Ameren may need to utilize an alternate discharge point if there are problems with permitting the discharge through Ash Pond B." *Id*. at 4-5. Accordingly, the Agency's revised Section 820.122 provided in its entirety that

> [g]roundwater collected in the groundwater collection trench must be directed to an outfall for which the Hutsonville Power Station has NPDES authorization or to another option as approved by the Agency in the closure plan or post-closure care plan. Plans for the groundwater discharge system including, but not limited to, a plan for operation and maintenance, must be approved by the Agency in the closure plan. The groundwater collection trench must be constructed according to a construction quality assurance program that meets the requirements of Section 840.146 of this Part. Agency Prop. at 16.

The joint proposal incorporated the Agency's proposed language without significant change. *See* Joint Prop. at 17.

During the hearing, the Board noted that this section of the joint proposal addressed requirements for the groundwater discharge system in a single lengthy paragraph. *See* Tr. at 108. The Board asked whether the section would be more comprehensible if separated into subsections. *Id*. In its post-hearing comments, the Agency stated that it had consulted with Ameren about this question and that they had agreed to reorganize this section into three subsections. PC 2 at 2-4 (proposing specific reorganization). In its post-hearing comments, Ameren proposed the same reorganization. PC 4 at 10-11. Having reviewed this proposed reorganization, the Board concluded that it improved the comprehensibility of this section and incorporated it in its first-notice opinion and order. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 91, 125 (Oct. 7, 2010).

In its response to the Board's January 7, 2010 order, the Agency argued that "[t]he joint proposal is protective as proposed because all the available options for management of contaminated groundwater are regulated by existing and well-settled law subject to Agency administration." Agency Info. at 2. However, the Agency proposed one clarifying amendment "to make even clearer that these decisions will not be left unaddressed but are merely being deferred to other appropriate procedures." *Id*. at 20. Specifically, the Agency suggests adding the underlined language below to this proposed section:

> [g]roundwater collected in the groundwater collection trench must be directed to an outfall for which the Hutsonville Power Station has NPDES authorization or to another option as approved by the Agency in the closure plan or post-closure plan in accordance with applicable law, including, without limitation, permit requirements. Plans for the groundwater discharge system including, but not limited to, a plan for operation and maintenance, must be approved by the Agency in the closure plan. The groundwater discharge system must be constructed according to a construction quality assurance program that meets the requirements of Section 840.146 of this Subpart. *Id*.

The Agency stated that "Ameren's counsel has informed the Agency that Ameren does not object to the proposed amendment." *Id*. at 2, 20. The Board found that this amendment would clarify implementation of the proposed regulations and incorporated the amendment into its first-notice opinion and order with one modification. The Board replaced the phrase "without limitation" with the phrase "but not limited to" in order to provide greater clarity and be consistent with other Board regulations. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 91-92, 125 (Oct. 7, 2010).

In its first-notice comment, the Agency agreed that this reorganization adopted by the Board "improves comprehensibility of the Section." PC 8 at 3. In addition, the Agency's comment supported the Board's incorporation of language clarifying "that discharge of groundwater from the collection trench, whether to the Wabash River or another option, would

be allowed only as approved by the Agency subject to applicable laws." *Id*.; *see* Agency Info. at 20. No first-notice comment otherwise sought revision of this section (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.124: Final Slope and Stabilization**

In a subsequent section of its original proposal, Ameren required installation of a final cover over Ash Pond D. Orig. Prop. at 10-12 (proposing Section 840.124); *see* SR at 30-31. In this section, originally proposed as Section 840.122, Ameren required in subsections (a) and (b) "that all final slopes on that cover be designed and constructed to that they minimize erosion, support vegetation, and drain runoff." SR at 30; *see* Orig. Prop. at 10-11. In subsection (c), Ameren proposed that "Ash Pond D must meet the stability criteria of 35 Ill. Adm. Code 811.304" before installation of the final cover. Orig. Prop. at 11; SR at 30-31; *see* 35 Ill. Adm. Code 811.304 (Foundation and Mass Stability Analysis).

Proposed subsection (c) also originally provided that the owner or operator may use coal combustion waste (CCW) generated at the Hutsonville Power Station to establish the final grade and slope. SR at 31; *see* Orig. Prop. at 10. Ameren's original proposal elaborated that "[a]ny coal combustion waste used to establish the final grade and slope is considered coal combustion byproduct, and its use does not require any independent approval pursuant to 415 ILCS 5/3.135." Orig. Prop. at 10 (proposed Section 840.122); *see* SR at 31; *see also* 415 ILCS 5/3.135 (2008) (defining "coal combustion by-product" and providing for beneficial use determinations).

In his pre-filed testimony on behalf of the Agency, Mr. Liebman stated that "Section 840.124 describes how the final slopes of the coal combustion wastes should be contoured before final cover is applied to them and allows additional coal combustion waste, generated at the Hutsonville Power Station, to be used to help create the desired contours." Liebman Test. at 2. The Agency's proposal removed from subsection (c) language addressing the use of coal combustion waste in establishing the final grade and slope. Agency Prop. at 16; *see* Liebman Test. at 2. The Agency proposed to address that issue in a new subsection (d), which placed restrictions on use of that waste:

1) The earthen berms surrounding Pond D must be regraded to eliminate any freeboard between the top of the berm and the adjacent surface of the coal combustion waste;

2) Additional coal combustion waste only may be placed directly on top of coal combustion waste that is already in place;

3) The maximum final slope must be no greater than three (3) percent;

4) Any additional coal combustion waste used to establish the final grade and slope is considered coal combustion by-product, and its use does not require any independent approval pursuant to Section 3.135 of the Act (415 ILCS 5/3.135). Agency Prop at 16-17; *see* Liebman Test. at 2.

Mr. Liebman's pre-filed testimony stated that "[t]he coal combustion waste in Pond D has contaminated the groundwater and restricting the placement of additional coal combustion waste in Pond D will help limit the potential for further groundwater contamination." Liebman Test. at 2. During the hearing, Mr. Liebman testified that, in developing and reviewing these proposed regulations, the Agency had only considered the beneficial re-use of CCW at this site in "the final grading and sloping of the ash impoundment before the cap is placed on top." Tr. at 103.

In its question pre-filed for the hearing, PRN noted that Act provides that coal combustion by-product (CCB) "shall not exceed Class 1 Groundwater Standards for metals when tested utilizing test method ASTM D3987-85. The sample or samples tested shall be representative of the CCB being considered for use." PRN Questions at 2-3 (Question 12), *see* 415 ILCS 5/3.135(a-5)(B) (2008) (defining CCB). PRN first asked why the proposed Section 840.124 does not refer to this requirement. PRN Questions at 3. PRN also asked why the proposed use of additional CCB would not require independent approval. *Id*., citing Agency Prop. at 16-17 (proposed Section 840.124(d). The Agency responded to the two questions by claiming that the Act allows CCB

> to be used beneficially without meeting the metals standards established in Section 3.135(a-5)(B), if the applicant demonstrates to the Agency that three criteria will be met: 1) The use of the CCW will not cause, threaten or allow the discharge of any contaminant into the environment; 2) the use will otherwise protect human health and safety and the environment; and 3) the use constitutes a legitimate use of the CCW as a raw material that is an effective substitute for an analogous raw material." Agency Resp. at 1-2, citing 415 ILCS 5/3.135(b) (2008).

Answering a question at hearing, Mr. Liebman elaborated upon the Agency's response by explaining how an applicant meets the statutory criteria. He stated that the first of these criteria "will substantially be met by a combination of the final cover system and the groundwater trench." Tr. at 102. He suggested that the Agency continue examining this criterion when it reviews and approves any closure and post-closure care plans submitted by Ameren. *Id*. at 102-03. Addressing the second criterion, Mr. Liebman testified that "we think through the development of these proposed regulations and then Ameren's drafting the closure and post-closure care plan, our review of it and approval and their implementation of it will satisfy this criteria." *Id*. at 103. Regarding the third criterion, he stated that CCW is a legitimate and effective substitute for such raw material as clean soil or granular material such as sand or gravel. *Id*.

The Agency stated that it concurs with Ameren's general approach of making a beneficial use determination on a site-specific basis in this rulemaking. See Agency Resp. at 2; citing Orig. Prop. at 10 (proposed Section 840.122(c)), Agency Prop. at 16-17 (proposed Section 840.124(d)(4)). The Agency claimed that CCW is "an effective substitute for other fill material" in creating the slope for the final cover system. Agency Resp. at 2. First, the Agency argued that the slope is subject to stability criteria in the Board's regulations. *Id*., citing 35 Ill. Adm. Code 811.304 (Foundation and Mass Stability Analysis). Second, the Agency argued that

> [t]he use will not result in discharge of contaminants to the environment and will otherwise protect human health and safety because the material will be used in an engineered application in which it will be placed above the water table and beneath the final cover system consisting of a geosynthetic membrane and at least three feet of soil material." Agency Resp. at 2.

The Agency claimed that "[t]his exceeds the standard for CCB used as structural fill." *Id*., citing 415 ILCS 5/3.135(a)(8) (2008). The Agency also argued that "[o]nce construction is complete, vegetation must be established to stabilize the soil layer." Agency Resp. at 2. Finally, the Agency argued that the final cover system must follow inspection and maintenance requirements. *Id*.; *see* Agency Prop. at 21-22 (proposed Section 840.136). The Agency concluded that "the three statutory criteria will be satisfied" and that this approach substantially complies with the Act's requirements. Agency Resp. at 2; *see* 415 ILCS 5/3.135(b) (2008).

In their joint proposal, Ameren and the Agency incorporated the Agency's proposal but "set the maximum final grade and slope at five percent" instead of three percent. Joint Statement at 8; *see* Joint Prop. at 18. The joint statement indicated that "[a] five percent slope is consistent with prior Agency approvals with respect to the movement of ash for such purposes." Joint Statement at 8. The joint statement elaborated that, "[i]f coal combustion waste is not used to establish the final grade and slope, then the slope only has to be designed to support vegetation, minimize erosion, drain runoff away from the cover and to prevent ponding." *Id*.; *see* Joint Prop. at 18. It also emphasized that, "[u]nder all circumstances, Ameren will perform a stabilization analysis as part of its closure engineering and design activities." Joint Statement at 8; *see* Joint Prop. at 18.

In its first-notice opinion, the Board noted that proposed Section 840.124(d)(2) provides in its entirety that "[a]dditional coal combustion waste only may be placed directly on top of coal combustion waste that is already in place." Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 94, 125 (Oct. 7, 2010), citing Joint Prop. at 18. The Board also noted Mr. Liebman's testimony on limiting the placement of CCW in order to limit the risk of further groundwater contamination. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 94 (Oct. 7, 2010), citing Liebman Test. at 2. In light of this testimony, the Board stated that it understood subsection (d)(2) to limit the surface on which CCW may be placed and not to limit the material such as clean soil that may be used to establish the final grade and slope over Ash Pond D. Accordingly, the Board modified this language to provide that "[a]dditional coal combustion waste may be placed only directly on top of coal combustion waste that is already in place." Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 94, 125 (Oct. 7, 2010).

In its first-notice comment, the Agency agreed "that the Board's proposed revision clarifies that the intent of the provision is to limit the surface on which CCW may be placed and not to limit placement of clean soil or other clean material that might be used to establish the grade and slope." PC 8 at 4. Ameren indicated that it "does not object to any of the Board's

changes" made to the joint proposal for first notice (PC 9 at 4). Accordingly, the Board adopts this language without further amendment.

**Section 840.126: Final Cover System**

In its original proposal, Ameren sought to provide that "[t]he owner or operator of Ash Pond D must design and install a final cover system for Ash Pond D. The final cover system must consist of a low permeability layer and a final protective layer." Orig. Prop. at 10.

Ameren first proposed standards for a low permeability layer. Orig. Prop. at 10. Ameren stated that it had "considered a variety of cap alternatives such as compacted clays and pozzolonic materials but selected the geosynthetic membrane as it readily complies with existing landfill performance criteria, is commercially available and technologically known to the Company, and represents an economically viable alternative." SR at 31. Ameren further stated that "[s]uch a cover is consistent with those required by the Board's Landfill Regulations and will adequately minimize infiltration." *Id*. Specifically, Ameren's proposed subsection (a) provided that the low permeability layer must consist of a geosynthetic membrane and be constructed according to these standards: "must have a minimum thickness of 40 mil (0.04 inches) and a hydraulic conductivity of $1 \times 10^{-7}$ centimeters per second or less" and "must be placed over a prepared base free from sharp objects and other materials that may cause damage." Orig. Prop. at 10.

Ameren's proposed subsection (b) addressed standards for a final protective layer. Orig. Prop. at 10-11. Specifically, "[t]he final protective layer must cover all of the low permeability layer and be at least three feet thick or the thickness necessary to protect the low permeability layer from freezing and to minimize root penetration into the low permeability layer." SR at 31; *see* Orig. Prop. at 10-11 (proposed subsections (b)(1) - (3)). Ameren's proposed subsection (b)(4) requires that "[t]he final protective layer must be placed as soon as possible after placement of the geosynthetic membrane." Orig. Prop. at 11; *see* SR at 31. In addition, its proposed subsection (b)(5) provides that "[t]he final protective layer must be covered with vegetation to minimize wind and water erosion." Orig. Prop. at 11; *see* SR at 31.

In addition, Ameren's proposed subsection (c) required that "[t]he final cover system must be constructed according to a construction quality assurance program" meeting various requirements. Orig. Prop. at 11. First, subsection (c)(1) provides that "[t]he operator must designate a construction quality assurance ("CQA") officer." *Id*. In subsection (c)(2), Ameren proposed that,

> [a]t the end of each week of construction of the final cover system until construction is complete, a summary report must be either prepared by the CQA officer or under the supervision of the CQA officer. The report must include descriptions of the weather, locations where construction occurred during the previous week, material used, results of testing, inspection reports, and procedures used to perform the inspection. *Id*.

Ameren also proposed to require that the CQA officer certify these reports. *Id*. Specifically, Ameren's proposed subsection (c)(3) provided that

> [t]he CQA officer must exercise judgment to certify the following:
>
> A) That the bedding material contains no undesirable objects;
>
> B) That the closure plan has been followed;
>
> C) That the anchor trench and backfill are constructed to prevent damage to the geosynthetic membrane;
>
> D) That all tears, rips, punctures, and other damage are repaired; and
>
> E) That all geosynthetic membrane seams are properly constructed and tested in accordance with manufacturer's specifications. *Id*. at 11-12.

In his pre-filed testimony on behalf of the Agency, Mr. Liebman noted that subsection (a)(1) of Ameren's original proposal addressed specifications for the thickness and conductivity of the geosynthetic membrane forming the low permeability layer of the final cover system. Liebman Test. at 2; *see* Orig Prop. at 10. Mr. Liebman argued that,

> [a]s proposed by Ameren, the hydraulic conductivity specification is essentially meaningless. Virtually all geosynthetic membranes have hydraulic conductivities several orders of magnitude lower than $1 \times 10^{-7}$ centimeters/second and the amount of water that will pass through a geosynthetic membrane is determined, almost entirely, by the number of holes in it and its placement. Liebman Test. at 2.

The Agency proposed to modify subsection (a)(1) to make the "low permeability layer equivalent to that of a solid waste landfill subject to Part 811." *Id*.; *see* 35 Ill. Adm. Code 811. Specifically, the Agency sought to require that "[t]he geosynthetic membrane must have a minimum thickness of 40 mil (0.04 inches) and, in terms of hydraulic flux, be equivalent or superior to a three (3) foot layer of soil with a hydraulic conductivity of $1 \times 10^{-7}$ centimeters per second." Agency Prop. at 17. At hearing, Mr. Liebman agreed that this 40 mil thickness is typical of and common for the minimum requirements for geosynthetic cover systems at landfills or surface impoundments. Tr. at 108.

Mr. Liebman's pre-filed testimony also noted that Ameren's original proposal "requires the final cover system to be constructed according to a construction quality assurance (CQA) program." Liebman Test. at 2-3; *see* Orig. Prop. at 11-12. He added that "[t]he Agency is recommending the addition of an entire section (840.146), prescribing a more robust CQA program. . . ." Liebman Test. at 3; *see infra* at 47-48 (summarizing proposed Section 840.146). Accordingly, the Agency's proposal deleted "mention of the CQA officer's responsibilities

specific to the final cover system and simply references the CQA program required by 840.146." Liebman Test. at 3; *see* Agency Prop. at 17-18.

In their joint proposal, Ameren and the Agency incorporated the Agency's proposed language for this section without significantly amending it. *See* Joint Prop. at 18-20; Agency Prop. at 17-18.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 94-96, 126-27 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.128: Closure Plan**

In its original proposal, Ameren provided language regarding a plan to close Ash Pond D. Ameren's proposed subsection (a) provided in its entirety that, "[w]ithin 180 days after the effective date of this rule, the owner or operator of Ash Pond D must prepare and submit to the Agency a closure plan." Orig. Prop. at 12; *see* SR at 32. Proposed subsection (b) provided in its entirety that "[t]he owner or operator of Ash Pond D must maintain the closure plan onsite or at a location specified in the closure plan." Orig. Prop. at 12; *see* SR at 32.

In his pre-filed testimony on behalf of the Agency, Mr. Liebman stated that the Agency proposed to amend this section only to clarify "that submission of the plan to the Agency is for the purpose of review and approval. . . ." Liebman Test. at 3; *see* Agency Prop. at 18.

In their joint proposal, Ameren and the Agency incorporated the Agency's language without amendment. *See* Joint. Prop. at 20.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 96-97, 127 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.130: Contents of Closure Plan**

In its original proposal, Ameren specified the information required to be included in the closure plan. Subsection (a) required that the plan include a site map identifying "all pertinent features and buildings at the Hutsonville Power Station." Orig. Prop. at 12; *see* SR at 32. Specifically, the map must identify the following:

1) All of the surface impoundments located at the site;

2) All existing and proposed groundwater collection trenches associated with the operation or closure of Ash Pond D;

3) All existing and proposed groundwater monitoring wells; and

4) Diagrams depicting Zone A and Zone B. Orig. Prop. at 12; *see* SR at 32.

Subsection (b) required that the closure plan include a description of Ash Pond D including all of the following information:

1) A description of the contents of Ash Pond D;

2) The estimated volume of material contained in Ash Pond D; and

3) An analysis of the structural integrity of Ash Pond D. Orig. Prop. at 12; *see* SR at 32.

Subsection (c) required that the closure plan include "a description of the closure activities planned and already performed." SR at 32; *see* Orig. Prop. at 12-13. Subsection (d) required a description of the hydrogeologic site investigation addressed in Ameren's proposed Section 840.108. Orig. Prop. at 13; *see supra* at 12-13 (summarizing proposed Section 840.110). Subsection (e) required a description of the groundwater trend analysis addressed in Ameren's proposed Section 840.116. Orig. Prop. at 13; *see supra* at 23-26 (summarizing proposed Section 840.118). Subsection (f) required a description of the groundwater monitoring system addressed in Ameren's proposed Section 840.110. Orig. Prop. at 13; *see supra* at 13-15 (summarizing proposed Section 840.112). Subsection (g) required a description of the groundwater monitoring program addressed in Ameren's proposed Section 840.112. Orig. Prop. at 13; *see supra* at 15-19 (summarizing proposed Section 840.114). Subsection (h) required "identification of the monitoring wells where trend analysis is being performed, which would be one or more of the groundwater monitoring wells included under subsections (f) and (g)." SR at 32; *see* Orig. Prop. at 13. Subsection (i) required a description of the final cover system addressed in Ameren's proposed Section 840.124. Orig. Prop. at 13; *see supra* at 33-35 (summarizing proposed Section 840.126). Finally, subsection (j) required "[e]stimates of the amount of time to complete closure, the cost of closure, and the cost of post-closure care." Orig. Prop. at 13; *see* SR at 32.

In his pre-filed testimony on behalf of the Agency, Mr. Liebman noted that Ameren's proposal in this section "describes the information and documents that must be contained in the closure plan for Pond D." Liebman Test. at 3. On a subsection-by-subsection basis, he described the Agency's proposed amendments to Ameren's language. *See id*. at 3-4. He argued that these amendments "will result in a better, more detailed closure plan that covers all the steps integral to closing Pond D: creation of the final waste slopes, installation of the final cover system, establishment of a groundwater monitoring program, and implementation of groundwater corrective action, including construction of the necessary structures and installation of necessary devices." *Id*. at 5.

First, the Agency proposed to add to the introductory language a requirement that the closure plan must "at a minimum" contain the listed information or documents. Agency Prop. at 19. The Agency proposed in subsection (a)(4) to delete the requirement that the site map must

depict Zone A and Zone B. Liebman Test. at 3; *see* Agency Prop. at 19. Mr. Liebman argued that this deletion is consistent with the Agency's proposal to eliminate those terms. Liebman Test. at 3; *see* Cobb Test. at 4, 14, Buscher Test. at 3; *see also supra* at 19-26 (summarizing proposed Sections 840.116 and 840.118). The Agency also proposed to amend subsection (d) so that the closure plan must include both the description and results of the required hydrogeologic site investigation. Agency Prop. at 19.

In subsection (f) addressing the required groundwater monitoring system, the Agency proposed to replace the term "description" with "plans, specifications, and drawings." Agency Prop. at 19; *see* Liebman Test. at 3. Mr. Liebman argued that this replacement clarifies "the type of information needed to accurately depict the groundwater monitoring program." Liebman Test. at 3. During the hearing, the Board observed "that the joint proposal overlooks the inclusion of the groundwater monitoring system maintenance plan required by Section 840.112(d)." PC 2 at 2; see Tr. at 106, Joint Prop. at 8 (proposed Section 840.112(d)). In its post-hearing comments, the Agency noted this observation and proposed to amend subsection (f) of the joint proposal to provide in its entirety that the closure plan must include "[p]lans, specifications and drawings for the groundwater monitoring system required by Section 840.112 of this Subpart, including, but not limited to, a description of the maintenance plan required by Section 840.112(d)." PC 2 at 2. After reviewing this proposed language, the Board concluded that it clarifies this provision and adopted the Agency's proposed revision in its first-notice opinion and order. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 98, 127-28 (Oct. 7, 2010). In its first-notice comment, "[t]he Agency affirms its support for this revision." PC 8 at 3. Ameren indicates that it "does not object to any of the Board's changes" made to the joint proposal for first notice (PC 9 at 4).

In subsection (g) addressing the required groundwater monitoring program, the Agency proposed to add language providing that the description of the program must include, but not be limited to, "a description of the quality assurance program for sample collection, preservation and analysis." Agency Prop. at 19-20; *see* Liebman Test. at 4. Mr. Liebman argued that this addition is consistent with language originally proposed by Ameren and contained in Section 840.114(f) of the Agency's proposal. Liebman Test. at 4.

The Agency proposed to add a new subsection (i) providing in its entirety that the closure plan must include "[p]lans, specifications and drawings for the groundwater collection trench and discharge system set forth in Section 840.120 and 840.122." Agency Prop. at 20; *see* Liebman Test. at 4; *see also supra* at 26-30 (summarizing proposed Sections 840.120 and 840.122). The Agency also proposed to add a new subsection (j) providing in its entirety that the closure plan must include "[p]lans, specifications and drawings for the final slope design and construction and demonstration of compliance with the stability criteria required in Section 840.124." Agency Prop. at 20; *see* Liebman Test. at 4; *see also supra* at 30-33 (summarizing proposed Section 840.124). With the proposed addition of these two subsections, the Agency sought to re-designate Ameren's proposed subsection (i) as subsection (k). Agency Prop. at 20. In that re-designated subsection requiring the closure plan to address the final cover system, the Agency proposed to replace the term "description" with "plans, specifications, and drawings." *Id*.; *see* Liebman Test. at 4. Mr. Liebman argued that this replacement clarifies "the type of

information needed to accurately depict the groundwater monitoring program." Liebman Test. at 4. The Agency also sought to re-designate Ameren's proposed subsection (j) as subsection (l). Agency Prop. at 20. In that re-designated subsection requiring the closure plan to address the estimated amount of time to complete steps and the cost to do so, the Agency proposed to add the phrase "including an estimate of the time required for hydrostatic equilibrium of groundwater beneath Ash Pond D." *Id*.; *see* Liebman Test. at 4.

The Agency also sought to add four additional new subsections. Proposed subsection (m) provided in its entirety that the closure plan must contain "[a] proposal for a groundwater management zone as set forth in Section 840.116(b) of this Part, if applicable, and including, but not limited to, plans, specifications and drawings for any structures or devices that must be constructed." Agency Prop. at 20; *see* Liebman Test. at 4; *see also supra* at 19-23 (summarizing proposed Section 840.116). Proposed subsection (n) required a "[d]escription of the Construction Quality Assurance program required by Section 840.146 of this Part, including, but not limited to, the sampling programs required by Section 840.146(b)(7) of this Part." Agency Prop. at 20; *see* Liebman Test. at 4; *see also infra* at 47-48 (summarizing proposed Section 840.146). Proposed subsection (o) required a "[d]escription of actions proposed to mitigate increasing trends in accordance with Section 840.118(c) of this Part, if applicable, including, but not limited to, plans, specifications, and drawings for any structures or devices that must be constructed." Agency Prop. at 20; *see* Liebman Test. at 5; *see also supra* at 23-26 (summarizing Section 840.118). Finally, proposed subsection (p) required "[t]he signature and seal of the professional engineer supervising the preparation of the closure plan." Agency Prop. at 20; *see* Liebman Test. at 5.

In their joint proposal, Ameren and the Agency incorporated the Agency's language with one substantive amendment. Ameren and the Agency proposed to amend subsection (o) to provide that the closure plan must include a "[d]escription of actions proposed to mitigate statistically significant increasing trends. . . ." Joint Prop. at 22. The joint statement indicated that this revision intends "to ensure that the duty to mitigate depends on the determination of a *statistically significant* increasing trend as required by Section 840.118." Joint Statement at 8 (emphasis in original).

Except as noted above in addressing subsection (f), the Board's first-notice opinion did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 97-100, 127-28 (Oct. 7, 2010)), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.132: Modification of Existing Permits**

In its original proposal, Ameren provided language regarding modification of its existing permits. Its proposed Section 840.130 provided in its entirety that "[t]he owner or operator of Ash Pond D must timely submit to the Agency an application to revise any state operating permit or NPDES permit issued by the Agency as required by Section 840.118 of this Subpart." Orig. Prop. at 13; *see supra* at 28-30 (summarizing proposed Section 840.122 addressing groundwater discharge).

Ameren supported this provision by stating that "[t]he proposed rule requires that groundwater collected in the groundwater collection trench be routed to Ash Pond B for treatment and disposal." SR at 33; *see* Orig. Prop. at 9 (proposed Section 840.120). Ameren stated that, in 2005, it filed an application to renew the NPDES for Ash Pond B. SR at 33. Ameren further stated that, "at the time that Ameren applied for renewal of the NPDES permit, it did not know that groundwater collected in the groundwater collection trench for Ash Pond D would be routed to Ash Pond B for treatment and disposal." *Id*. Ameren committed to amend its application for the NPDES permit for Ash Pond B "within 180 days of the effective date of this rule." *Id*.; *but see* Orig. Prop. at 13 (requiring "timely" submission).

In his pre-filed testimony on behalf of the Agency, Mr. Buscher noted that the Agency's amended proposal requires Ameren to apply to revise any state operating permit or NPDES permit, as required by the Agency's amended Sections 840.120 and 840.122. Buscher Test. at 5; Agency Prop. at 20-21; *see supra* at 26-30 (summarizing proposed Sections 840.120, 840.122). He added that the Agency proposed to require that "[t]his application must be submitted to the Agency within six (6) months of the effective date of this site-specific rule." Buscher Test. at 5; Agency Prop. at 20; *see* Tr. at 97.

Mr. Buscher argued that "[i]t is important to understand the issuance of a NPDES permit is completely independent of this rule and is governed by the statutory rules pertaining to the permit process. The permit modification will require a public notice. A public hearing may be requested which could lengthen the time required to obtain a permit." Buscher Test. at 5; *see* Tr. at 97, 99-100.

In their joint proposal, Ameren and the Agency revised this section to provide in its entirety that "[w]ithin 180 days of the effective date of this Subpart A, the owner or operator of Ash Pond D must timely submit to the Agency an application to revise any state operating permit or NPDES permit issued by the Agency as required by Section 840.120 and 840.122 of this Subpart, if necessary." Joint Prop. at 22.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 100, 128-29 (Oct. 7, 2010)), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.134: Completion of Closure, Closure Report, and Certification of Completion of Closure**

In its original proposal, Ameren provided language addressing closure. Specifically, Ameren's Section 840.132 provided in its entirety that,

> [n]o later than 90 days after completion of all closure activities required by this Subpart, the owner or operator of Ash Pond D must prepare and submit to the Agency a closure report. The report must include certification by a professional

> engineer that Ash Pond D has been closed in accordance with the closure plan required by Section 840.126 of this Subpart and include all CQA reports required by Section 840.124(c)(2). Orig. Prop. at 13; *see* SR at 33.

In his pre-filed testimony on behalf of the Agency, Mr. Liebman noted that Ameren's proposed Section 840.132 addressed closure requirements. *See* Liebman Test. at 5. The Agency recommended three significant revisions to Ameren's original proposal. *See id.* at 5-6; Agency Prop. at 21. First, the Agency added a subsection (a) requiring that "[t]he owner or operator must complete closure of Ash Pond D within eighteen months after the Agency's approval of the closure plan." Agency Prop. at 21; Liebman Test. at 5. Mr. Liebman argued that this 18-month deadline "should provide sufficient time for Ameren to complete closure." Liebman Test. at 5. He further argued that "[c]ompleting closure, with the installation of the final cover system and implementation of groundwater corrective action, will be beneficial to the environment and a deadline will help ensure that closure is completed in a timely manner." *Id*.

Second, in the original language re-designated as subsection (b), the Agency revised Ameren's original proposal to provide that Agency must approve the closure plan and closure report. Agency Prop. at 21; *see* Liebman Test. at 5. Third, the Agency also proposed a revision specifying "the type of documentation that must be provided with the closure report." Liebman Test. at 5. Specifically, that documentation must include, but is not limited to,

> 1) Engineering and hydrogeology reports including, but not limited to, monitoring well completion reports and boring logs, all CQA reports, certifications, and designations of CQA officers-in-absentia required by Section 840.146 of this Part;
>
> 2) Photographs;
>
> 3) A written summary of closure requirements and activities as set forth in the closure plan and this Subpart A;
>
> 4) Any other information relied upon by the professional engineer in making the closure certification; and
>
> 5) The signature and seal of the professional engineer supervising the implementation of the closure plan, the preparation of the closure report, and making the certification of completion of closure. Agency Prop. at 21; *see* Liebman Test. at 5-6.

Mr. Liebman argued that these revisions "will help ensure that the closure activities are expeditiously carried out, in accordance with the closure plan, and that this conformance is adequately documented." *Id*. at 6.

In their joint proposal, Ameren and the Agency proposed to insert a new subsection (a) providing in its entirety that "[t]he owner or operator must complete engineering and design activities for the closure of Ash Pond D within 180 days after the effective date of this rule."

Joint Prop. at 22-23; *see* Joint Statement at 8. The joint proposal then re-designated subsection (a) as subsection (b) and revised it to provide in its entirety that "[t]he owner or operator must complete closure of Ash Pond D within 18 months after the Agency's approval of the closure plan, unless the Agency approves an alternative timeline." Joint. Prop. at 23. The joint statement claimed that these revisions "allow flexibility in the timeline subject to Agency approval." Joint Statement at 8. Finally, Ameren and the Agency also revised the re-designated subsection (c) to specify that the closure report include "[p]hotographs of the final cover system and groundwater collection trench and any other photographs relied upon to document construction activities." Joint Prop. at 23.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 101-02, 129 (Oct. 7, 2010)), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.136: Post-Closure Maintenance of Cover System**

In its original proposal, Ameren required the owner or operator of Ash Pond D to perform maintenance of the cover system. SR at 33; *see* Orig. Prop. at 13-14. Subsection (a) provided in its entirety that, "[a]fter closure and until completion of the post-closure care report, the owner or operator of Ash Pond D must conduct annual inspections of the cover system." Orig. Prop. at 14; *see* SR at 33. Subsection (b) provided in its entirety that "[t]he owner or operator of Ash Pond D must fill all rills, gullies, and crevices six inches or deeper identified during the inspection. Areas identified as particularly susceptible to erosion must be recontoured." Orig. Prop. at 14; *see* SR at 33. Subsection (c) provided in its entirety that "[t]he owner or operator of Ash Pond D must repair all eroded and scoured drainage channels identified during inspections and replace lining material, if necessary." Orig. Prop. at 14; *see* SR at 33. Subsection (d) provided in its entirety that "[t]he owner or operator of Ash Pond D must fill and recontour all holes and depressions created by settling so as to prevent standing water." Orig. Prop. at 14; *see* SR at 33. Subsection (e) provided in its entirety that "[t]he owner or operator of Ash Pond D must revegetate all areas in excess of 10 square feet, cumulative, with failed or eroded vegetation that had previously been vegetated." Orig. Prop. at 14; *see* SR at 33. Finally, subsection (f) provided in its entirety that "[t]he owner or operator of Ash Pond D must repair all tears, rips, punctures, and other damage to the geosynthetic membrane, if necessary." Orig. Prop. at 14; *see* SR at 33.

In his pre-filed testimony on behalf of the Agency, Mr. Liebman proposed a number of revisions to Ameren's original proposal. He claimed that these revisions "will result in better, more frequent final cover inspection and in a better maintained and more functional final cover system." Liebman Test. at 7. First, he stated that the Agency revised the introductory sentence to specify "that the final cover system must be maintained, beginning immediately after its construction, and continuing until certification of completion of post-closure care is approved by the Agency." *Id*. at 6; *see* Agency Prop. at 21. Second, the Agency modified subsection (a) to require that inspection of the final cover system occur "at the same time, and in the same frequency, that samples are collected for routine groundwater monitoring." Liebman Test. at 6;

*see* Agency Prop. at 22. Third, the Agency deleted the phrase "identified during the inspection" from subsection (b) in order to indicate "a continuing obligation" to fill specified rills, gullies, and crevices. Liebman Test. at 6; *see* Agency Prop. at 22.

Fourth, the Agency deleted the phrase "identified during inspections" from subsection (c) in order to indicate "a continuing obligation" to repair scoured and eroded drainage channels. Liebman Test. at 6; *see* Agency Prop. at 22. Fifth, the Agency deleted the phrase "that had previously been vegetated" from subsection (e) in order "to maintain consistency with Section 840.126(b)(5)." Liebman Test. at 6; *see* Agency Prop. at 22; *see also id*. at 17 (Section 840.126(b)(5)). Sixth, the Agency deleted the phrase "if necessary" from subsection (f) to indicate that specified repairs to the geosynthetic membrane "generally will be necessary." Liebman Test. at 6; *see* Agency Prop. at 22. Seventh, the Agency added a new subsection (g) providing in its entirety that "[t]he owner or operator must prevent the growth of woody species on the protective cover." Agency Prop. at 22; *see* Liebman Test. at 6

In their joint proposal, Ameren and the Agency adopted the Agency's revisions without substantial amendment. *See* Joint Prop. at 23-24.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 102-03, 130 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.138: Post-Closure Care Plan**

In its original proposal, Ameren provided language in Section 840.136 addressing a post-closure care plan. Orig. Prop. at 14. Subsection (a) provided in its entirety that "[t]he owner or operator of Ash Pond D must prepare and submit to the Agency a post-closure care plan." *Id*.; *see* SR at 34. Subsection (b) provided in its entirety that "[t]he owner or operator of Ash Pond D must maintain the post-closure care plan onsite or at a location specified in the post-closure care plan." Orig. Prop. at 14; *see* SR at 34.

In his pre-filed testimony on behalf of the Agency, Mr. Buscher stated that the Agency revised subsection (a) to require "Ameren to prepare and submit a post-closure care plan within 180 days after the effective date of this site-specific rule." Buscher Test. at 5; *see* Agency Prop. at 22.

In their joint proposal, Ameren and the Agency further amended subsection (a) to provide in its entirety that "[w]ithin 180 days after the effective date of this Subpart A, the owner or operator of Ash Pond D must prepare and submit to the Agency a post-closure care plan for review and approval." Joint Prop. at 24.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 103, 130 (Oct. 7, 2010), and no first-

notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.140: Contents of Post-Closure Care Plan**

In its original proposal, Ameren listed the required contents of a post-closure care plan. Orig. Prop. at 14-15; *see* SR at 34. Subsection (a) provided that the plan must include a description of required post-closure care activities. Orig. Prop. at 14; *see* SR at 34; *see also supra* at 41-42 (summarizing proposed Section 840.136). Subsection (b) required that the plan include a description of the required groundwater monitoring system. Orig. Prop. at 15; *see* SR at 34; *see also supra* at 13-15 (summarizing proposed Section 840.112). Subsection (c) provided that the plan must include a description of the required groundwater monitoring program. Orig. Prop. at 15; *see* SR at 34; *see also supra* at 15-19 (summarizing Section 840.114). Subsection (d) required that the plan include an identification of the location of the required monitoring wells used for trend analyses. Orig. Prop. at 15; *see* SR at 34; *see also supra* at 23-26 (summarizing Section 840.118). Finally, subsection (e) provided that the plan must include a copy of the required certification of closure. Orig. Prop. at 15; *see* SR at 34; *see also supra* at 39-41 (summarizing Section 840.134).

In his pre-filed testimony on behalf of the Agency, Mr. Buscher stated that the Agency sought to add "more detail to Ameren's post-closure care plan." Buscher Test. at 5. First, the Agency revised the introduction to provide that the plan must, at a minimum, include the specified elements. Agency Prop. at 22. Second, the Agency proposed to amend subsection (b) to require that the plan include "a description of the maintenance plan for the groundwater monitoring system." Agency Prop. at 23; *see* Buscher Test. at 5-6. Third, the Agency revised subsection (e) to require that the plan include a description of the plan for operation and maintenance of the groundwater collection trench and discharge system. Agency Prop. at 23; Buscher Test. at 6.

The Agency also proposed to add four new subsections. Subsection (f) provided that the post-closure care plan include a description of the required groundwater trend analysis. Agency Prop. at 23; Buscher Test. at 6; *see supra* at 23-26 (summarizing proposed Section 840.118). Subsection (g) required that the plan include, if applicable, a proposal for a GMZ. Agency Prop. at 23; Buscher Test. at 6; *see supra* at 19-23 (summarizing proposed Section 840.116(b)). Subsection (h) provided that the plan include, if applicable, a "[d]escription of action proposed to mitigate increasing trends . . . and the operation and maintenance of any structures or devices." Agency Prop. at 23; Buscher Test. at 6; *see supra* at 23-26 (summarizing proposed Section 840.118(c)). Finally, subsection (i) required that the plan include "[t]he signature and seal of the professional engineer supervising the preparation of the post-closure care plan." Agency Prop. at 23; *see* Buscher Test. at 6.

In their joint proposal, Ameren and the Agency revised the introduction to require that both the post-closure care plan and any modification to it must both include the specified elements. Joint Prop, at 24. Ameren and the Agency also proposed to amend subsection (h) to require that the plan include, if applicable, a description of actions proposed to mitigate statistically significant increasing trends and the operation and maintenance of any structures or

devices. *Id*. at 25. The joint proposal otherwise reflects the Agency's revisions without substantive amendment. *See id*. at 24-25.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 103-04, 130-31 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.142: Post-Closure Report and Certification of Completion of Post-Closure Care Plan**

In its original proposal, Ameren addressed the completion of post-closure care in proposed Section 840.140, which provided in its entirety that

> [t]he owner or operator of Ash Pond D must prepare and submit to the Agency a Post-Closure Report within 60 days after satisfying the requirements of Section 840.134 and 840.112(a) of this Subpart. The Post-Closure Report must include a certification by a professional engineer or professional geologist that the requirements of Section 840.134 and Section 840.112(a)(3) of this Subpart have been met. Orig. Prop. at 15; *see* SR at 34.

In his pre-filed testimony on behalf of the Agency, Mr. Buscher addressed the Agency's revisions to Ameren's language. First, the Agency added language requiring that "[p]ost-closure care must continue until a demonstration of compliance with the groundwater quality standards as set forth in Section 840.116 has been approved by the Agency." Agency Prop. at 23; *see* Buscher Test. at 6; *supra* at 19-23 (summarizing proposed Section 840.116). Second, the Agency amended Ameren's original proposal to require that the owner or operator must submit a post-closure report to the Agency "within 60 days after satisfying the requirements of the approved post-closure care plan and achieving the applicable groundwater quality standards as set forth in the plan and Sections 840.116 through 840.118 of this Part." Agency Prop. at 23; *see* Buscher Test. at 6; *supra* at 19-26 (summarizing proposed Sections 840.116 and 840.118). Third, the Agency proposed to revise Ameren's language regarding required certification of the post-closure report. *See* Agency Prop. at 23-24. Although this revision struck language allowing a professional geologist to certify the report, the Agency proposed language providing that "[a] professional geologist may supervise post-closure care activities as appropriate under the Professional Geologist Licensing Act (225 ILCS 745)." Agency Prop. at 24; *see* 225 ILCS 745/1 *et seq*. (2008).

The Agency also proposed language requiring that the post-closure report

"must contain supporting documentation including, but not limited to:

a) Engineering and hydrogeology reports including, but not limited to, documentation of compliance with the groundwater quality standards of this Subpart A;

b) Photographs;

c) A written summary of post-closure care requirements and activities as set forth in the post-closure care plan and this Subpart A and their completion;

d) Any other information relied upon by the professional engineer and professional geologist supervising the implementation of the post-closure care plan, and the signature and seal of the professional engineer supervising preparation of the post-closure report and making the certification of completion of the post-closure care plan. Agency Prop. at 24; *see* Buscher Test. at 6-7.

In their joint proposal, Ameren and the Agency proposed revisions to the Agency's language. First, the joint proposal adds language providing that the post-closure report must be submitted to the Agency "for review and approval." Joint Prop. at 25. Second, the joint proposal amended subsection (a) to require that engineering and hydrogeology reports include "results of the four quarterly sampling performed under Section 840.120 of this Subpart." *Id*. at 26. Third, the joint proposal also revised subsection (b) to specify that the report include photographs "of the final cover system and groundwater collection trench and any other photographs relied upon to document construction activities." *Id*.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 104-06, 131-32 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.144: Recordkeeping and Reporting Requirements**

In its original proposal, Ameren addressed recordkeeping in subsection (a) by requiring "[t]he owner or operator of Ash Pond D to file groundwater monitoring data electronically with the Agency no later than 30 days after the end of the sampling period. . . ." Orig. Prop. at 15; *see* SR at 34. In subsection (b), Ameren required the owner or operator to file "an annual report with the Agency no later than January 31 of each year during the closure and post-closure periods." SR at 34-35; *see* Orig. Prop. at 15. Subsection (b) also required the filing of these annual reports "until the owner or operator of Ash Pond D has complied with the requirements of Section 840.140." SR at 35; *see* Orig. Prop. at 15; *supra* at 43-44 (summarizing proposed Section 840.140).

In subsection (c), Ameren required that

[a]ll annual reports must contain the following information:

1) Trend analysis of all groundwater monitoring data generated by the groundwater monitoring program required by Section 840.112 of this Subpart during the preceding year;

2) The completed closure or post-closure activities performed during the preceding year; and

3) A summary of all modifications made to the closure plan or post-closure care plan during the preceding year and copies of the updated closure and post-closure plans reflecting any such modifications. Orig. Prop. at 16; *see* SR at 35.

Ameren's proposed subsection (d) provided in its entirety that "[t]he owner or operator of Ash Pond D must maintain on-site or at a location specified in the closure or post-closure care plan all monitoring data and trend analysis data for 10 years following generation of the data." Orig. Prop. at 16; *see* SR at 35. Proposed subsection (e) provided in its entirety that "[t]he owner or operator of Ash Pond D must maintain the closure plan until the end of the post-closure care period." Orig. Prop. at 16; *see* SR at 35. Ameren's proposed subsection (f) provided in its entirety that "[t]he owner or operator of Ash Pond D must maintain the post-closure care plan for 10 years following the certification of the Post Closure Report as required by Section 840.142." Orig. Prop. at 16; *see* SR at 35. Finally, proposed subsection (g) provided the Agency mailing address to which reports must be submitted and allows electronic submission "as authorized and directed by the Agency." Orig. Prop. at 16; *see* SR at 35.

In his pre-filed testimony on behalf of the Agency, Mr. Buscher proposed to combine Ameren's subsections (a) and (b) "because they appear to overlap." Buscher Test. at 7; *see* Agency Prop. at 24. He stated that

> [t]he Agency's amended subsection (a) requires the owner or operator to file an annual report with the Agency no later than January 31 of each year during the closure of Ash Pond D and for the entire post-closure care period. It also requires the owner or operator to submit groundwater sampling and analysis data no later than 30 days after the sampling and analysis have been completed, consistent with Ameren's original proposal. Buscher Test. at 7; *see* Agency Prop. at 24.

In the subsection re-designated from (c)(1) to (b)(1), the Agency required "reporting increasing trends, actions taken to mitigate increasing trends, and required notices as referenced in the amended Section 840.118(d)" in the annual report. Buscher Test. at 7; *see* Agency Prop. at 24-25; *supra* at 23-26 (summarizing proposed Section 840.118). The Agency also proposed to strike "Ameren's original subsection (c)(3) requiring Ameren to provide annual summaries of all modifications to the closure and post-closure care plans . . . because the Agency's proposal provides review and approval authority to the Agency for such changes." Buscher Test. at 7; *see* Agency Prop. at 25. Finally, in the subsection re-designated from (g) to (f), the Agency provided "updated Agency contact information for reporting purposes." Buscher Test. at 7; *see* Agency Prop. at 25.

In their joint proposal, Ameren and the Agency proposed additional changes to Section 840.144. First, the joint proposal amends subsection (a) to include "decisions to remove constituents from the monitoring program" in the information that must be submitted to the Agency within 30 days after completing sampling and analysis. Joint Prop. at 26-27. The joint proposal also amended subsection (b)(1) by clarifying that the annual report must include trend analyses "required by Section 840.118(b)." *Id*. at 27. The joint proposal further amended subsection (b)(1) by striking the reference to "any additional data or information required by Section 840.118(d) of this Part" as information that the annual report must contain. *Id*. at 27.

The joint proposal also added two new subsections. Proposed new subsection (b)(2) required that the annual report include "[a] copy of any notice to the Agency pursuant to Section 840.118(c)(1)(A)." Joint Prop. at 27; *see* at 23-26 (summarizing Section 840.118). Proposed new subsection (b)(3) required that the annual report include "[a] discussion of any statistically significant increasing trends and actions taken to mitigate such trends in accordance with Section 840.118(c)(3)." Joint Prop. at 27; *see supra* at 23-26 (summarizing Section 840.118). Finally, the joint proposal amended subsection (f) to provide for submission of plans and modifications to the Agency in addition to submission of reports and notifications. Joint Prop. at 27.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 106-07, 132-33 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.146: Construction Quality Assurance Program**

In his pre-filed testimony, Mr. Liebman stated that the Agency recommended adding this section, "which expands on the construction quality assurance (CQA) program proposed by Ameren in its section concerning the final cover system." Liebman Test. at 7; *see* Agency Prop. at 25-28; Orig. Prop. at 11-12 (CQA Program). Mr. Liebman further stated that this section "is modeled on 35 Ill. Adm. Code, Part 811, Subpart E, which outlines the minimum requirements for the CQA programs used in constructing solid waste landfills." Liebman Test. at 7; *see* 35 Ill. Adm. Code 811.501 - 811.509. He argued that, "[j]ust as the quality of solid waste landfills benefits from being constructed under comprehensive CQA programs, the quality of the Pond D waste disposal unit will benefit from being constructed under the CQA program required by Section 840.146." Liebman Test. at 7.

Mr. Liebman specified that the Agency's proposed CQA program "addresses installation of the groundwater collection trench and discharge system, compaction of the subgrade and foundation for the final cover system and construction of the surface water control structures." Liebman Test. at 7; *see* Agency Prop. at 25-26 (proposed subsection (a)). Proposed subsection (b) established various requirements that the CQA program must meet. Agency Prop. at 26-28. Proposed subsection (b)(1) required designation of an Illinois licensed professional engineer as CQA officer, and proposed subsections (b)(2) and (b)(3) required filing a weekly summary report certified by the CQA officer addressing specific matters. *Id*. at 26-27. Subsection (b)(4) and (b)(5) provided for the CQA officer's supervision of inspections and various closure

activities. *Id*. at 27. Subsection (b)(6) addressed the possible absence of the CQA officer, and subsection (b)(7) provided for implementation of a sampling program as part of the CQA plan for construction activities. *Id*. at 27-28.

In their joint proposal, Ameren and the Agency adopted the Agency's language in Section 840.146 regarding a CQA program without amendment.

In its first-notice opinion, the Board noted that the joint proposal did not provide for the maintenance, reporting, or filing with the Agency of certified weekly summary reports required by subsection (b)(2). Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 108 (Oct. 7, 2010). As the Board's other waste disposal regulations generally address this issue (*see, e.g.*, 35 Ill. Adm. Code 809.501(g), 811.505(d)), the Board added to the end of the proposed subsection (b)(2) the following requirement: "[t]he owner or operator of the Hutsonville Power Station shall retain all weekly summary reports certified by the CQA officer until the completion of the post-closure care period and must make those reports available at reasonable times for inspection and photocopying by the Agency." The Board invited comment from the participants on the addition of this language.

In its first-notice comment, the Agency noted that the Board had added to subsection (b)(2) the language in the preceding paragraph. PC 8 at 4. The Agency commented that it "notes that retention and inspection language should have been included with the original proposal and agrees with the Board's correction of this oversight." *Id*. Ameren's first-notice comment stated that it "does not object to any of the Board's changes." PC 9 at 4. Accordingly, the Board adopts this language without further amendment.

**Section 840.148: Review, Approval and Modification of Closure Plan and Post-Closure Care Plan**

In his pre-filed testimony on behalf of the Agency, Mr. Buscher noted that Ameren's original proposal did not include a provision for prior Agency review, approval, and modification of the closure and post-closure plans and various other documents and reports. Buscher Test. at 7. He argued that, without ability to review and approve such information, the Agency's only authority "would be to rely on enforcement for any violations after they occur." *Id*. at 8. He also expressed the "concern that Ameren's proposal might not be sufficiently prescriptive in some circumstances to support effective enforcement." *Id*.

The Agency thus proposed this new section "to provide for the review, approval and modification of closure and post-closure care plans." Buscher Test. at 7. Mr. Buscher's testimony argued that "the better approach in the case of the closure of a coal ash impoundment with off-site groundwater contamination is for the Agency to be involved in an administrative oversight capacity during the design, construction and implementation of closure and post-closure care activities that are likely to continue over several years." *Id*. at 8. He further argued that this authority "is consistent with the Agency's obligation to assure compliance with the Act and rules adopted thereunder." *Id*.

Specifically, the Agency's proposed subsection (a) required "the closure plan, post-closure care plan and any modification to these plans to be prepared and submitted to the Agency for review and approval." Buscher Test. at 8; Agency Prop. at 28. Subsection (a) further provided that "[t]he Agency will have 90 days from the receipt of a plan or proposed modification to conduct a review and make a final determination to approve or disapprove a plan or modification or to approve a plan or modification with conditions." Agency Prop. at 28; *see* Buscher Test. at 8. Subsection (a) also included a provision under which an owner or operator may waive the Agency's 90-day decision deadline. Agency Prop. at 28; Buscher Test. at 8.

Proposed subsection (b) provided in its entirety that

> [a] proposed modification to a closure plan or post-closure care plan must include the reason for the modification, all the information and supporting documentation that will be changed from or will supplement the information provided in the original or most recently approved plan, and the signature and seal of the professional engineer supervising the preparation of the proposed modification. Agency Prop. at 28-29; *see* Buscher Test. at 8.

Proposed subsections (c) and (d) proposed "standards for review of a closure plan, post-closure plan or a modification of either plan." Buscher Test. at 8; *see* Agency Prop. at 28-29. Under proposed subsection (e), "[t]he Agency must notify the owner or operator in writing of its final determination on the plan or proposed modification once the plan has been reviewed." Buscher Test. at 9; *see* Agency Prop. at 30. The subsection also provided that,

> [i]f the Agency disapproves a plan or modification or approves a plan or modification with conditions, the written notification must contain the following information, as applicable:
>
> 1) An explanation of the specific type of information or documentation, if any, that the Agency deems the owner or operator did not provide;
>
> 2) A list of the provisions of the Act, this Subpart A, or other applicable regulations that may be violated if the plan or modification is approved as submitted;
>
> 3) A statement of the specific reasons why the Act, this Subpart A, or other applicable regulations may be violated if the plan or modification is approved as submitted; and
>
> 4) A statement of the reasons for conditions if conditions are required. Agency Prop. at 20; *see* Buscher Test. at 9.

Finally, proposed subsection (f) allowed the owner or operator to file an appeal with the Board under Section 40 of the Act "[i]f the Agency disapproves a plan or modification, approves a plan

or modification with conditions, or fails to issue a final determination within the applicable review period." Agency Prop. at 30; *see* 415 ILCS 5/40 (2008).

In their joint proposal, Ameren and the Agency revised this section with the intent "to facilitate timely closure by allowing the owner or operator to appeal to the Board in the event the Agency fails to issue a final determination within the applicable review period." Joint Statement at 8. Specifically, revised subsection (f) provided in pertinent part that "[a]ppeals to the Board are subject to review under Section 40 of the Act." Joint Prop. at 33; *see* 415 ILCS 5/40 (2008). Ameren and the Agency argued that "[t]his approach is consistent with provisions for review of plans and reports in the Underground Storage Tank Rules and the Site Remediation Program." *Id*. at 8-9, citing 35 Ill. Adm. Code 732.306(a)(4)(B), 732.503(f), 734.450(a)(4)(B), 734.505(f), 740.505(h); *see* Joint Prop. at 33. In all other respects, the joint proposal adopted the Agency's Section 840.148 without substantive amendment.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 108-10, 135-38 (Oct. 7, 2010)), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.150: Review and Approval of Closure Report and Certification of Completion of Closure, Post-Closure Report and Certification of Completion of Post-Closure Care Plan**

In his pre-filed testimony on behalf of the Agency, Mr. Buscher stated that this proposed section, like proposed Section 840.148, is based on "the Agency's belief that administrative oversight is appropriate for this site as it proceeds through the closure process." Buscher Test. at 9. Accordingly, proposed subsection (a) required "a closure report and post-closure report prepared and submitted to the Agency . . . to be reviewed and approved by the Agency prior to the completion of closure or post-closure care." *Id*.; *see* Agency Prop. at 31. Subsection (b) provided that "[s]ubmission and review requirements and deadlines, notification requirements, and rights of appeal shall be the same as those set forth in Section 840.148. . . ." Agency Prop. at 31; *see* Buscher Test. at 9-10. Subsection (c) and (d) established standards for review of closure and post-closure reports, and each subsection lists nine criteria. Agency Prop. at 31-33; *see* Buscher Test. at 10.

In their joint proposal, Ameren and the Agency revised subsection (b) to provide that "[s]ubmission, review, and approval procedures and deadlines, notification requirements, and rights of appeal shall be the same as those set forth in Section 840.148. . . ." Joint Prop. at 33. Otherwise, the joint proposal adopts the Agency's language without substantive amendment.

In its first-notice opinion, the Board did not substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 110, 138-40 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

**Section 840.152: Resource Conservation and Recovery Act**

The Agency's proposal included a new Section 840.152, which provided in its entirety that

> [n]othing in this Subpart A shall be construed to be less stringent than or inconsistent with the provisions of the federal Resource Conservation and Recovery Act of 1976 (P.L. 94-480), as amended, or regulations adopted thereunder. Any rules adopted in this Subpart A that are less stringent than or inconsistent with such federal laws applicable to Ash Pond D or state laws adopted to obtain federal delegation, authorization or approval of a state program, administered pursuant to such federal laws are void by operation of law. Agency Prop. at 33.

In his pre-filed testimony on behalf of the Agency, Mr. Nightingale stated that USEPA is reviewing the management of coal combustion waste (CCW) and is considering promulgation of comprehensive federal rules under Subtitle C or D of RCRA. Nightingale Test. at 2. He argued that this proposed section addresses the possibility of this promulgation. Specifically, he noted that "[t]he Board has adopted, and the Agency administers, waste management rules in our delegated program under Subtitle C and approved program under Subtitle D." *Id*. at 3. He acknowledged that "it is unclear at this point whether federal rules proposed and adopted for CCW will address closure of CCW impoundments, and, if so, whether those rules will be applicable to Ash Pond D once it begins closure pursuant to proposed Subpart A. . . ." *Id*. at 3. He stated that, in order '[t]o maintain these delegated and approved programs, statutes and rules adopted in Illinois are required to be at least as stringent as, and not inconsistent with, those adopted at the federal level." *Id*.

Mr. Nightingale argued that the Agency's proposed Section 840.152 guides interpretation of Subpart A "to maintain consistency with any RCRA requirements applicable to Ash Pond D." Nightingale Test. at 2; *see* Agency Prop. at 33. He further argued that, "[i]f consistency could not be accomplished through interpretation, or, if rules clearly were less stringent than RCRA requirements applicable to Ash Pond D, then those rules would be void by operation of law." Nightingale Test. at 2; *see* Agency Prop. at 33. He claimed that "[t]his would apply for any state laws adopted to obtain or maintain federal delegation, authorization or approval of a state program based on RCRA or implementing regulations." Nightingale Test. at 2.

Mr. Nightingale argued that the Agency's proposed language reflects current provisions of the Act intended "to create or maintain consistency with federal requirements under RCRA." Nightingale Test. at 3, citing 415 ILCS 5/3.485, 3.500, 22.4(a), (b), (d), 35(a), 39(d), 39.2(i) (2008). He claimed that the Act states "the legislature's intent that federal approval for such program be secured and maintained." Nightingale Test. at 3, citing 415 ILCS 5/20(a)(5) - (a)(8), (a)(11) - (a)(14) (2008). Noting the resources necessary to amend Subpart A in the event that a conflict with federal rules arises, the Agency urged the Board "to consider adoption of proposed Section 840.152." Nightingale Test. at 4.

In their joint statement, Ameren and the Agency stressed that the substance of any federal CCW regulations is not now known and that it is unclear whether those rules would apply retroactively. Joint Statement at 9. They argued that, while the proposed Section 840.152 may ultimately be unnecessary, its inclusion "would not be disruptive to the operation of the rules." *Id*. Although they acknowledged that federal CCW regulations may require amending Subpart A, they claimed that the proposed Section 840.152 allows the Agency to argue "that it is unnecessary to amend potentially inconsistent rules prior to submitting an application to the USEPA for delegation, authorization or approval of state" CCW regulations. *Id*.

The joint proposal amended proposed Section 840.152 to provide in its entirety that

> [n]othing in this Subpart A shall be construed to be less stringent than or inconsistent with the provisions of the federal Resource Conservation and Recovery Act of 1976 (P.L. 94-480), as amended, or regulations adopted thereunder. To the extent that any rules adopted in this Subpart A are less stringent than or inconsistent with any such laws applicable to the closure of Ash Pond D, such law will prevail. Joint Prop. at 35-36.

In their joint statement, Ameren and the Agency stated that this revision clarifies "that RCRA does not govern the closure of Ash Pond D, but that in the event future federal regulations are deemed to govern the closure of Ash Pond D, and such future requirements are more stringent than, or inconsistent with, the proposed rule, RCRA would govern." Joint Statement at 9. They characterized the revised section as "a 'conflict of laws' provision providing guidance to the Board or the courts in the event an action concerning Ash Pond D comes before them in which a potential conflict with federal law is at issue." *Id*.

In a question pre-filed for hearing and directed to Mr. Nightingale, PRN asked, "[i]f USEPA redetermines coal combustion waste to be 'hazardous' in nature per RCRA, would subchapter c, Part 724 regulations governing standards for hazardous waste treatment, storage and disposal facilities be sufficient to govern the closure of Ameren's Hutsonville Pond D?" PRN Questions at 3 (¶15). The Agency responded that it has no knowledge that USEPA is considering such a redetermination and argued that the action "suggested by the question is beyond the scope of this proceeding." Agency Resp. at 4. The Agency stated that it expects USEPA to publish its proposal in the *Federal Register*, at which time it "will very likely perform an evaluation of the proposal" and offer comment upon it. *Id*.

In its response to PRN's question, Ameren noted that "this question appears to be directed to the Agency." Ameren Resp. at 8. Ameren nonetheless responded that, "[u]ntil USEPA proposes and enacts rules governing coal combustion waste, we do not know how such material will be characterized or whether such characterization and rules will be applicable to ash ponds similar to Ash Pond D." *Id*. Stating that adoption of such rules could take years, Ameren expresses the belief "that final closure of impoundments when they are no longer permitted as water treatment devices is both prudent and environmentally responsible." *Id*.

In its March 9, 2010 response to the Board's January 7, 2010 order, the Agency stated that this proposed section includes a typographical error. Agency Info. at 23. The Agency

indicated that "[t]he public law referenced for the Resource Conservation and Recovery Act of 1976 should be P.L. 94-580 instead of 94-480." *Id.* The Agency requested correction (*id.*), and the Board amended the statutory reference in its first-notice opinion and order. Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 113, 140 (Oct. 7, 2010).

In its first-notice comment, the Agency noted the Board's correction of this citation to the public law adopting the Resource Conservation and Recovery Act of 1976 and thanked the Board for making this correction. PC 8 at 4. In its first-notice opinion, the Board did not otherwise substantively amend this section of the joint proposal (*see* Ameren Ash Pond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21, slip op. at 113, 140 (Oct. 7, 2010), and no first-notice comment sought revision (*see* PC 8, PC 9). Accordingly, the Board adopts this language without substantive amendment.

## CONCLUSION

In its first-notice opinion and order, the Board submitted the joint proposal filed by Ameren and the Agency to first-notice publication without significantly amending it. The Board received two first-notice comments, both of which supported the proposal. On second-notice review, JCAR issued its certificate of no objection. The Board has again found that its proposal is both economically reasonable and technically feasible. Accordingly, the Board concludes to adopt its second-notice proposal without significant amendment. In the order below, the Board directs the Clerk to file the adopted rules with the Secretary of State for publication in the *Illinois Register*.

## ORDER

The Board directs the Clerk to file the following adopted rules with the Secretary of State for publication in the *Illinois Register*. Proposed additions are underlined, and proposed deletions appear stricken.

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE G: WASTE DISPOSAL
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER j: COAL COMBUSTION WASTE SURFACE IMPOUNDMENTS

PART 840
SITE-SPECIFIC CLOSURES OF COAL COMBUSTION WASTE SURFACE IMPOUNDMENTS

SUBPART A: CLOSURE OF ASH POND D, HUTSONVILLE POWER STATION

Section
840.100 Purpose
840.102 Applicability

AUTHORITY: Implementing Section 22 of the Environmental Protection Act [415 ILCS 5/22] and Section 8 of the Illinois Groundwater Protection Act [415 ILCS 55/8], and authorized by Sections 22, 27, and 28 of the Environmental Protection Act [415 ILCS 5/22, 27, and 28] and Section 8 of the Illinois Groundwater Protection Act [415 ILCS 55/8].

SOURCE: Adopted in R09-21 at 35 Ill. Reg. _____, effective _____.

SUBPART A: CLOSURE OF ASH POND D, HUTSONVILLE POWER STATION

**Section 840.100 Purpose**

This Subpart provides for the closure of Ash Pond D located at the Hutsonville Power Station, 15142 East 1900 Avenue, Hutsonville, Crawford County, Illinois.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.102 Applicability**

This Subpart applies exclusively to the closure and post-closure care of Ash Pond D, located at the Hutsonville Power Station.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.104 Definitions**

Unless otherwise specified, the definitions of the Environmental Protection Act (Act) [415 ILCS 5] apply to this Subpart. The following definitions also apply:

"Agency" means the Illinois Environmental Protection Agency.

*"Aquifer" means saturated (with groundwater) soils and geologic materials which are sufficiently permeable to readily yield economically useful quantities of water to wells, springs, or streams under ordinary hydraulic gradients.* [415 ILCS 55/3(b)]

"Ash Pond D" means the surface impoundment designated as Ash Pond D, located at the Hutsonville Power Station, 15142 East 1900 Avenue, Hutsonville, Crawford County, Illinois.

"Board" means the Illinois Pollution Control Board.

*"Contaminant" means any solid, liquid or gaseous matter, any odor, or any form of energy, from whatever source.* [415 ILCS 5/3.165]

"Hutsonville Power Station" or "Hutsonville site" means the electric generating station located at 15142 East 1900 Avenue, Hutsonville, Crawford County, Illinois.

"Lower zone of underlying aquifer" means the sands and gravels beneath the fine-grained surficial alluvium within the Wabash River bedrock valley.

"Off-site" means any property that is not part of the Hutsonville Power Station.

"On-site" means the same or geographically contiguous property constituting the Hutsonville Power Station.

"Operator" means the person responsible for the operation of Ash Pond D.

"Owner" means the person who owns Ash Pond D.

*"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, State agency, or any other legal entity, or their legal representative, agent or assigns.* [415 ILCS 5/3.315]

"Professional engineer" means a person who has registered and obtained a seal pursuant to the Professional Engineering Practice Act of 1989 [225 ILCS 325].

"Professional geologist" means a person licensed under the laws of the State of Illinois to practice as a professional geologist. [415 ILCS 5/57.2]

*"Site" means any location, place, tract of land and facilities, including but not limited to, buildings, and improvements used for purposes subject to regulation or control by the Act or regulations thereunder.* [415 ILCS 5/3.460]

"Statistically significant" means the application of a Mann-Kendall analysis performed at 95 percent confidence to determine whether consecutive groundwater sampling data showing greater or lesser concentrations of constituents is statistically significant.

"Upper zone of underlying aquifer" means surficial sands and sandstones overlying shale west of the Wabash River bedrock valley, and sand lenses within the surficial fine grained alluvium.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.106 Abbreviations and Acronyms**

| | |
|---|---|
| Agency | Illinois Environmental Protection Agency |
| CQA | Construction Quality Assurance |
| GMZ | Groundwater Management Zone |
| Mg\L | milligrams per liter |
| NPDES | National Pollutant Discharge Elimination System |
| TDS | total dissolved solids |

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.108 Incorporations by Reference**

a) The Board incorporates the following material by reference:

NTIS. National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 605-6000.

"Methods for Chemical Analysis of Water and Wastes," March 1983, Doc. No. PB84-128677. EPA 600/4-79-020 (available on-line at http://nepis.epa.gov/).

"Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, Doc. No. PB94-120821 (referred to as "USEPA Environmental Inorganic Methods"). EPA 600/R-93-100 (available online at http://nepis.epa.gov/).

"Methods for the Determination of Metals in Environmental Samples," June 1991, Doc. No. PB91-231498. EPA 600/4-91-010 (available on-line at http://nepis.epa.gov/).

"Methods for the Determination of Metals in Environmental Samples Supplement I," May 1994, Doc. No. PB95-125472. EPA 600/4-94-111 (available on-line at http://nepis.epa.gov).

"Methods for the Determination of Organic and Inorganic Compounds in Drinking Water: Volume I," EPA 815-R-00-014 (August 2000) (available on-line at http://nepis.epa.gov).

"Practical Guide for Ground-Water Sampling," EPA Publication No. EPA/600/2-85/104 (September 1985), Doc. No. PB 86-137304, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, USEPA Publication No. SW-846, as amended by Updates I, II, IIA, IIB, III, IIIA, and IIIB (Doc. No. 955-001-00000-1), (available on-line at http://www.epa.gov/epaoswer/hazwaste/test/main.htm).

USGS. United States Geological Survey, 1961 Stout St., Denver, CO 80294, (303) 844-4169.

"Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents," Book I, Chapter D2 (1976).

b) This Section incorporates no later editions or amendments.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.110 Hydrogeologic Site Investigation**

The owner or operator of Ash Pond D must design and implement a hydrogeologic site investigation to determine the nature and extent of contamination originating from Ash Pond D and to develop hydrogeologic information for the uses set forth in this Section. If approved in the closure plan, any information from any hydrogeologic site investigation performed since 1999 may be used to satisfy the requirements of this Section. The uses of the hydrogeologic site investigation shall include, but not be limited to:

a) Providing information to define hydrogeology and to assess the groundwater impacts associated with Ash Pond D;

b) Providing information to perform a model to assess the groundwater impacts associated with closure of Ash Pond D; and

c) Providing information to establish a groundwater monitoring system.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.112 Groundwater Monitoring System**

The owner or operator of Ash Pond D must design and install a groundwater monitoring system that enables it to monitor groundwater to evaluate post-closure groundwater quality and trends and to demonstrate compliance with the applicable groundwater quality standards at designated compliance points as set forth in Sections 840.116 and 840.118 of this Subpart. If approved in the closure plan, any groundwater monitoring well in operation since 1999 that complies with the requirements set forth in this Section may be used in satisfying the requirements of this Section.

a) Standards for monitoring well design and construction.

1) All monitoring wells must be cased in a manner that maintains the integrity of the bore holes.

2) Wells must be screened to allow sampling only at the specified interval.

3) All wells must be covered with vented caps, unless located in flood-prone areas, and equipped with devices to protect against tampering and damage.

b) The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples to:

1) Represent the quality of background water that has not been affected by contamination from Ash Pond D;

2) Represent the quality of groundwater at the compliance point or points; and

3) Determine compliance with Sections 840.116 and 840.118 of this Subpart.

c) Monitoring wells must be located in statigraphic horizons that could serve as contaminant pathways.

d) The groundwater monitoring system approved in the closure plan must include a maintenance plan.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.114 Groundwater Monitoring Program**

The owner or operator of Ash Pond D must develop a groundwater monitoring program that enables it to monitor groundwater to evaluate post-closure groundwater quality both on-site and off-site to demonstrate compliance with Sections 840.116 and 840.118 of this Subpart. The owner or operator must begin the groundwater monitoring program upon completion of the installation of the groundwater monitoring system in accordance with Section 840.112 of this Subpart and the approved closure plan. The groundwater monitoring program must comply with following requirements:

a) The owner or operator of Ash Pond D must monitor each well included in the groundwater monitoring system pursuant to Section 840.112 on a quarterly basis for the constituents identified in 35 Ill. Adm. Code 620.410(a) and (d) except radium-226 and radium-228. Any constituent that is not detectable in the down-gradient wells for four consecutive quarters or has a concentration that does not differ to a statistically significant degree from the concentration detected in the up-gradient wells for four consecutive quarters may be removed from the monitoring program in both the up-gradient and down-gradient wells with the exception of boron, iron, manganese, pH, sulfate, and TDS. The owner or operator must also monitor for the following: specific conductance, groundwater elevation, and monitoring well depth.

b) Five years after approval of the closure plan, the owner or operator of Ash Pond D may request modification of the post-closure care plan to reduce the frequency of groundwater monitoring to semi-annual sampling by demonstrating all of the following:

1) That monitoring effectiveness will not be compromised by the reduced frequency of monitoring;

2) That sufficient data has been collected to characterize groundwater; and

3) That concentrations of constituents monitored pursuant to subsection (a) of this Section at the down-gradient boundaries of the Hutsonville site show no statistically significant increasing trends that can be attributed to Ash Pond D.

c) If concentrations of constituents monitored pursuant to subsection (a) of this Section at the down-gradient boundaries of the Hutsonville site show no statistically significant increasing trends that can be attributed to Ash Pond D for the five years after reducing the monitoring frequency to semiannual, the owner or operator of Ash Pond D may request modification of the post-closure care plan to reduce monitoring frequency to annual sampling by demonstrating all of the factors set forth in subsections (b)(1) through (b)(3) of this Section.

d) The owner or operator of Ash Pond D may discontinue groundwater monitoring upon Agency approval of the certified post-closure care report required by Section 840.142.

e) Sampling and analysis data from groundwater monitoring and decisions to remove any constituent from the monitoring program must be reported to the Agency as provided in Section 840.144(a) of this Subpart.

f) Representative samples from the groundwater monitoring system must be collected and analyzed in accordance with the procedures for groundwater monitoring and analysis set forth in the following documents, incorporated by reference at Section 840.108 of this Subpart, or other procedures approved by the Agency in the closure plan or post-closure care plan:

1) "Methods for Chemical Analysis of Water and Wastes";

2) "Methods for the Determination of Inorganic Substances in Environmental Samples";

3) "Methods for the Determination of Metals in Environmental Samples";

4) "Methods for the Determination of Metals in Environmental Samples - Supplement I";

5) "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water: Volume I";

6) "Practical Guide for Ground-Water Sampling";

7) "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (SW-846), as amended by Updates I, II, IIA, IIB, III, IIIA, and IIIB;

8) "Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents."

g) The owner or operator of Ash Pond D must establish a groundwater monitoring quality assurance program for sample collection, preservation and analysis.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.116 Groundwater Quality Standards**

a) On-site, prior to the completion of the post-closure care period, the applicable groundwater quality standards at the Hutsonville site for concentrations of contaminants from Ash Pond D are the concentrations as determined by groundwater monitoring, if those concentrations exceed the numeric standards for Class I: Potable Resource Groundwater set forth in 35 Ill. Adm. Code 620.410. After completion of the post-closure care period, the on-site concentrations of

contaminants from Ash Pond D as determined by groundwater monitoring, if those concentrations exceed the numeric standards for Class I: Potable Resource Groundwater set forth in 35 Ill. Adm. Code 620.410, are the applicable groundwater standards at the Hutsonville site if:

1) To the extent practicable, the exceedence has been minimized and beneficial use, as appropriate for the class of groundwater, has been returned on-site;

2) Any threat to human health or the environment on-site has been minimized; and

3) An institutional control prohibiting potable uses of groundwater is placed on the Hutsonville site in accordance with the Uniform Environmental Covenants Act [765 ILCS 122] or an alternative instrument authorized for environmental uses under Illinois law and approved by the Agency. Existing potable uses of groundwater may be preserved as long as those uses remain fit for human consumption in accordance with accepted water supply principles.

b) Off-site, the applicable groundwater quality standards are the numeric standards for Class I: Potable Resource Groundwater set forth in 35 Ill. Adm. Code 620.410 in the upper zone of the underlying aquifer and the nondegradation standard of 35 Ill. Adm. Code 620.Subpart C in the lower zone of the underlying aquifer, unless a groundwater management zone (GMZ) has been established as provided in 35 Ill. Adm. Code 620.250 with the written permission of the affected owners for off-site or properties with groundwater contamination from Ash Pond D so that monitoring wells may be installed and other corrective actions designed and implemented as necessary to achieve compliance with 35 Ill. Adm. Code 620.

1) A GMZ for off-site properties with groundwater contamination from Ash Pond D and any related design and construction activities must be proposed and approved in the closure plan or post-closure care plan or any modification of those plans, as appropriate.

2) Groundwater quality standards for an off-site GMZ are set forth at 35 Ill. Adm. Code 620.450(a)(4).

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.118 Demonstration of Compliance**

a) Compliance with the on-site and off-site groundwater quality standards set forth in Sections 840.116(a) and (b) of this Subpart:

1) Compliance with on-site groundwater quality standards will be achieved when no statistically significant increasing trend that can be attributed to Ash Pond D is detected in the concentrations of all constituents monitored in accordance with Section 840.114 of this Subpart at the down-gradient boundaries of the Hutsonville site for four consecutive years after changing to an annual monitoring frequency pursuant to Section 840.114(c).

2) Compliance with off-site groundwater quality standards:

A) Compliance with off-site groundwater quality standards set forth in Section 840.116(b) of this Subpart will be achieved when:

i) A statistically significant decreasing trend in concentrations of constituents monitored in accordance with Section 840.114 of this Subpart in the upper zone of the underlying aquifer at the down-gradient boundaries of the Hutsonville site is detected in the concentrations of all constituents monitored for a period of four consecutive years after changing to an annual monitoring frequency pursuant to Section 840.114(c);

ii) No statistically significant increasing trend that can be attributed to Ash Pond D is detected in concentrations of constituents monitored in accordance with Section 840.114 of this Subpart in the lower zone of the underlying aquifer at the down-gradient boundaries of the Hutsonville site for four consecutive years after changing to an annual monitoring frequency pursuant to Section 840.114(c); and

iii) All concentrations of constituents monitored in accordance with Section 840.114 of this Subpart are at or below the applicable groundwater quality standards as provided in Section 840.116(b) of this Subpart at the down-gradient boundaries of the Hutsonville site.

B) If a groundwater management zone for off-site properties with groundwater contamination from Ash Pond D is established as provided in Section 840.116(b) of this Subpart, the compliance points will be determined as set forth in the GMZ approved in the closure plan or post-closure care plan, as appropriate.

b) For purposes of demonstrating compliance:

1) The owner or operator of Ash Pond D must perform an annual trend analysis for each monitoring well located at the down-gradient boundaries

of the Hutsonville site for all constituents monitored in accordance with Section 840.114 of this Subpart, based on a minimum of four consecutive samples, by applying Sen's Estimate of Slope.

2) If a groundwater management zone for off-site properties with groundwater contamination from Ash Pond D is established as provided in Section 840.116(b) of this Subpart, the demonstration of compliance will be determined as set forth in the GMZ approved in the closure plan or post-closure care plan, as appropriate.

c) Compliance with nondegradation standards during closure and post-closure care periods:

1) If the results of sampling and analysis show an increasing trend at any monitoring well located at the down-gradient boundaries of the Hutsonville site, a Mann-Kendall analysis must be performed at 95 percent confidence to determine whether the increasing trend is statistically significant. The owner or operator of Ash Pond D must investigate the cause of a statistically significant increasing trend as determined under subsection (b) of this Section. If the statistically significant increasing trend occurs during post-closure care, the investigation must include more frequent inspection of the surface of the cover system and evaluation of background concentrations and the effectiveness of the groundwater collection trench required by Section 840.120 of this Subpart.

A) If an investigation performed in accordance with subsection (c)(1) of this Section attributes a statistically significant increasing trend to a superseding cause, the owner or operator of Ash Pond D must notify the Agency in writing, stating the cause of the increasing trend and providing the rationale used in that determination.

B) If there is no superseding cause for the statistically significant increasing trend and sampling frequency has been reduced pursuant to Section 840.114(b) or (c) of this Subpart to semiannual or annual sampling, the owner or operator must return to a quarterly sampling schedule. After four consecutive quarterly samples show no statistically significant increasing trend, the frequency of groundwater monitoring may be returned to either semiannual or annual, whichever frequency was utilized prior to the return to quarterly sampling.

C) For purposes of this subsection (c)(1), notifications concerning statistically significant increasing trends and revisions of the sampling frequency must be reported to the Agency in writing

within 30 days after making the determinations, as provided in Section 840.144(f) of this Subpart.

2) If a statistically significant increasing trend is observed to continue over a period of two or more consecutive years and there are no superseding causes for the trend, the owner or operator must perform the following:

A) A hydrogeologic investigation; and

B) Additional site investigation, if necessary.

3) Based on the outcome of the activities required by subsection (c)(2) of this Section, the owner or operator of Ash Pond D must take action to mitigate statistically significant increasing trends that are causing, threatening or allowing exceedences of off-site groundwater quality standards as set forth in Section 840.116(b). These actions must be proposed as a modification to the post-closure care plan within 180 days after completion of the activities required by subsection (c)(2) of this Section.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.120 Groundwater Collection Trench**

a) The owner or operator of Ash Pond D must design, install, and, consistent with any applicable wastewater discharge permit conditions, operate a groundwater collection trench along the south property boundary of the Hutsonville Power Station to prevent migration of groundwater impacted by Ash Pond D south of the property boundary.

b) Plans for the groundwater collection trench, including, but not limited to, a plan for operation and maintenance, must be approved by the Agency in the closure plan.

c) The groundwater collection trench must be constructed according to a construction quality assurance program that meets the requirements of Section 840.146 of this Subpart.

d) Once compliance with the groundwater quality standards set forth in Section 840.116 of this Subpart has been achieved in accordance with Section 840.118(a) of this Subpart, the owner or operator of Ash Pond D may discontinue operation of the groundwater collection trench.

1) Upon discontinuing operation of the groundwater collection trench, the owner or operator must perform four quarterly sampling of the groundwater monitoring system wells as identified in the post-closure care plan, or modification of that plan, to ensure compliance with the

applicable groundwater quality standards set forth in Section 840.116 of this Subpart.

2) Results of the four quarterly samplings must be included in the post-closure report documentation. If compliance is not confirmed, operation of the groundwater collection trench and discharge system must be resumed.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.122 Groundwater Discharge System**

a) Groundwater collected in the groundwater collection trench must be directed to an outfall for which the Hutsonville Power Station has NPDES authorization or to another option as approved by the Agency in the closure plan or post-closure care plan in accordance with applicable law, including, but not limited to, permit requirements.

b) The groundwater discharge system must be constructed according to a construction quality assurance program that meets the requirements of Section 840.146 of this Subpart.

c) Plans for the groundwater discharge system, including, but not limited to, a plan for operation and maintenance, must be approved by the Agency in the closure plan.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.124 Final Slope and Stabilization**

a) All final slopes must be designed and constructed to a grade capable of supporting vegetation and minimizing erosion.

b) All slopes must be designed to drain runoff away from the cover and to prevent ponding.

c) Ash Pond D must meet the stability criteria of 35 Ill. Adm. Code 811.304.

d) The owner or operator may use coal combustion waste generated at the site in establishing the final grade and slope as provided below:

1) The earthen berms surrounding Ash Pond D must be regraded to eliminate any freeboard between the top of the berm and the adjacent surface of the coal combustion waste;

2) Additional coal combustion waste may be placed only directly on top of coal combustion waste that is already in place;

3) The maximum final slope must be no greater than 5 percent;

4) Any additional coal combustion waste used to establish the final grade and slope is considered coal combustion by-product, and its use does not require any independent approval pursuant to Section 3.135 of the Act [415 ILCS 5/3.135].

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.126 Final Cover System**

The owner or operator of Ash Pond D must design and install a final cover system for Ash Pond D. The final cover system must consist of a low permeability layer and a final protective layer.

a) Standards for the low permeability layer. The low permeability layer must be designed to minimize surface infiltration and must consist of a geosynthetic membrane cover and be constructed in accordance with the following standards:

1) The geosynthetic membrane must have a minimum thickness of 40 mil (0.04 inches) and, in terms of hydraulic flux, be equivalent or superior to a 3 foot layer of soil with a hydraulic conductivity of $I \times 10^{-7}$ centimeters per second.

2) The geosynthetic membrane must be placed over a prepared base free from sharp objects and other materials that may cause damage.

b) Standards for the final protective layer. The final protective layer must:

1) Cover the entire geosynthetic membrane.

2) Be at least 3 feet thick and must be sufficient to protect the geosynthetic membrane from freezing and minimize root penetration of the geosynthetic membrane.

3) Consist of soil material capable of supporting vegetation.

4) Be placed as soon as possible after placement of the geosynthetic membrane.

5) Be covered with vegetation to minimize wind and water erosion.

c) Construction Quality Assurance Program. The final cover system must be constructed according to a construction quality assurance program that meets the requirements of Section 840.146 of this Subpart.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.128 Closure Plan**

a) Within 180 days after January 28, 2011~~the effective date of this Subpart~~, the owner or operator of Ash Pond D must prepare and submit to the Agency a closure plan for review and approval.

b) The owner or operator of Ash Pond D must maintain the closure plan onsite or at a location specified in the closure plan.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.130 Contents of Closure Plan**

The closure plan must contain, at a minimum, the following information or documents:

a) Site map. The site map must identify all pertinent features and buildings at the Hutsonville Power Station and must clearly identify the following:

1) All of the surface impoundments located at the site;

2) All existing and proposed groundwater collection trenches associated with the operation or closure of Ash Pond D; and

3) All existing and proposed groundwater monitoring wells.

b) Description of Ash Pond D. The description of Ash Pond D must include all of the following information:

1) A description of the contents of Ash Pond D;

2) The estimated volume of material contained in Ash Pond D; and

3) An analysis of the structural integrity of Ash Pond D.

c) Description of the closure activities to be performed in accordance with this Subpart and any additional activities performed by the owner or operator to close Ash Pond D, including any dewatering.

d) Description and results of the hydrogeologic site investigation required by Section 840.110 of this Subpart.

e) Description of the groundwater trend analysis methods required by Section 840.118 of this Subpart.

f) Plans, specifications and drawings for the groundwater monitoring system required by Section 840.112 of this Subpart, including, but not limited to, a description of the maintenance plan required by Section 840.112(d).

g) Description of the groundwater monitoring program required by Section 840.114 of this Subpart, including, but not limited to, a description of the quality assurance program for sample collection, preservation and analysis.

h) Identification of the location of the monitoring wells used for trend analyses required by Section 840.118 of this Subpart.

i) Plans, specifications and drawings for the groundwater collection trench and discharge system set forth in Sections 840.120 and 840.122 of this Subpart.

j) Plans, specifications and drawings for the final slope design and construction and demonstration of compliance with the stability criteria required in Section 840.124 of this Subpart.

k) Plans, specifications and drawings for the final cover system required by Section 840.126 of this Subpart.

l) Estimates of the amount of time to complete closure, including an estimate of the time required for hydrostatic equilibrium of groundwater beneath Ash Pond D, the cost of closure, and the cost of post-closure care.

m) A proposal for a groundwater management zone as set forth in Section 840.116(b) of this Subpart, if applicable, and including, but not limited to, plans, specifications and drawings for any structures or devices that must be constructed.

n) Description of the Construction Quality Assurance program required by Section 840.146 of this Subpart, including, but not limited to, the sampling programs required by Section 840.146(b)(7).

o) Description of actions proposed to mitigate statistically significant increasing trends in accordance with Section 840.118(c) of this Subpart, if applicable, including, but not limited to, plans, specifications, and drawings for any structures or devices that must be constructed.

p) The signature and seal of the professional engineer supervising the preparation of the closure plan.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.132 Modification of Existing Permits**

Within 180 days after January 28, 2011~~the effective date of this Subpart A~~, the owner or operator of Ash Pond D must timely submit to the Agency an application to revise any State operating permit or NPDES permit issued by the Agency as required by Sections 840.120 and 840.122 of this Subpart, if necessary.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.134 Completion of Closure, Closure Report and Certification of Completion of Closure**

a) The owner or operator must complete engineering and design activities for the closure of Ash Pond D within 180 days after January 28, 2011~~the effective date of this Subpart~~.

b) The owner or operator must complete closure of Ash Pond D within 18 months after the Agency's approval of the closure plan, unless the Agency approves an alternative timeline.

c) No later than 90 days after the completion of all closure activities required by this Subpart and approved in the closure plan, the owner or operator of Ash Pond D must prepare and submit to the Agency a closure report for review and approval. The report must include certification by a professional engineer that Ash Pond D has been closed in accordance with the approved closure plan required by Section 840.128 of this Subpart and the requirements of this Subpart. The report also must contain supporting documentation, including, but not limited to:

1) Engineering and hydrogeology reports, including, but not limited to, monitoring well completion reports and boring logs, all CQA reports, certifications, and designations of CQA officers-in-absentia required by Section 840.146 of this Subpart;

2) Photographs of the final cover system and groundwater collection trench and any other photographs relied upon to document construction activities;

3) A written summary of closure requirements and activities as set forth in the closure plan and this Subpart A;

4) Any other information relied upon by the professional engineer in making the closure certification; and

5) The signature and seal of the professional engineer supervising the implementation of the closure plan, the preparation of the closure report, and making the certification of completion of closure.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.136 Post-Closure Maintenance of Cover System**

The owner or operator of Ash Pond D must maintain the surface of the cover system beginning immediately after construction until approval of the post-closure report by the Agency.

a) After closure, and until completion of the post-closure report, the owner or operator of Ash Pond D must conduct inspections of the cover system at the same time and frequency as the groundwater monitoring sampling schedule set forth in Section 840.114 of this Subpart.

b) The owner or operator of Ash Pond D must fill all rills, gullies, and crevices six inches or deeper. Areas identified as particularly susceptible to erosion must be recontoured.

c) The owner or operator of Ash Pond D must repair all eroded and scoured drainage channels and replace lining material, if necessary.

d) The owner or operator of Ash Pond D must fill and recontour all holes and depressions created by settling so as to prevent standing water.

e) The owner or operator of Ash Pond D must revegetate all areas in excess of 100 square feet, cumulative, with failed or eroded vegetation.

f) The owner or operator of Ash Pond D must repair all tears, rips, punctures, and other damage to the geosynthetic membrane.

g) The owner or operator must prevent the growth of woody species on the protective cover.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.138 Post-Closure Care Plan**

a) Within 180 days after January 28, 2011~~the effective date of this Subpart A~~, the owner or operator of Ash Pond D must prepare and submit to the Agency a post-closure care plan for review and approval.

b) The owner or operator must maintain the post-closure care plan onsite or at a location specified in the post-closure care plan.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.140 Contents of Post-Closure Care Plan**

The post-closure care plan, or modification of the plan, must include, at a minimum, the following elements:

a) Description of the post-closure care activities required by Section 840.136 of this Subpart;

b) Description of the groundwater monitoring system required by Section 840.112 of the Subpart and a description of the maintenance plan for the groundwater monitoring system;

c) Description of the groundwater monitoring program required by Section 840.114 of this Subpart;

d) Identification of the location of the monitoring wells used for trend analyses required by Section 840.118 of this Subpart;

e) Description of the operation and maintenance that will be required for the groundwater collection trench and discharge system required by Sections 840.120 and 840.122 of this Subpart;

f) Description of the groundwater trend analysis methods required by Section 840.118 of this Subpart;

g) A proposal for a groundwater management zone as set forth in Section 840.116(b) of this Subpart, if applicable;

h) Description of actions proposed to mitigate statistically significant increasing trends in accordance with Section 840.118(c) of this Subpart, if applicable, and the operation and maintenance of any structures or devices; and

i) The signature and seal of the professional engineer supervising the preparation of the post-closure care plan.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.142 Post-Closure Report and Certification of Completion of Post-Closure Care Plan**

Post-closure care must continue until a demonstration of compliance with the groundwater quality standards set forth in Section 840.116 has been approved by the Agency. The owner or operator of Ash Pond D must prepare and submit to the Agency for review and approval a post-closure report within 60 days after satisfying the requirements of the approved post-closure care plan and achieving the applicable groundwater quality standards as set forth in the plan and Sections 840.116 through 840.118 of this Subpart. The post-closure report must include certifications by a professional engineer that the standards and requirements set forth in this Subpart A and approved in the post-closure care plan have been met. A professional geologist

may supervise post-closure care activities as appropriate under the Professional Geologist Licensing Act [225 ILCS 745]. The report also must contain supporting documentation, including, but not limited to:

a) Engineering and hydrogeology reports, including, but not limited to, documentation of compliance with the groundwater quality standards of this Subpart and results of the four quarterly samplings performed under Section 840.120 of this Subpart;

b) Photographs of the final cover system and groundwater collection trench and any other photographs relied upon to document construction activities;

c) A written summary of post-closure care requirements and activities as set forth in the post-closure care plan and this Subpart A and their completion;

d) Any other information relied upon by the professional engineer or professional geologist, as appropriate for the activity, in making the post-closure care certifications; and

e) The signature and seal of the professional engineer and professional geologist supervising the implementation of the post-closure care plan, and the signature and seal of the professional engineer supervising preparation of the post-closure report and making the certification of completion of the post-closure care plan.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.144 Recordkeeping and Reporting Requirements**

a) The owner or operator of Ash Pond D must file an annual report with the Agency no later than January 31 of each year during the closure of Ash Pond D and for the entire post-closure care period. Once the requirements of Section 840.142 of this Subpart have been met, annual reports are no longer required. The owner or operator must submit groundwater sampling and analysis data and decisions to remove constituents from the monitoring program no later than 30 days after the sampling and analysis have been completed.

b) All annual reports must contain the following information:

1) Trend analyses required by Section 840.118(b) of all groundwater monitoring data generated by the groundwater monitoring program required by Section 840.114 of this Subpart;

2) A copy of any notice submitted to the Agency pursuant to Section 840.118(c)(1)(A) of this Subpart;

3) A discussion of any statistically significant increasing trends and actions taken to mitigate such trends in accordance with Section 840.118(c)(3) of this Subpart; and

4) The completed closure or post-closure activities performed during the preceding year.

c) The owner or operator of Ash Pond D must maintain onsite or at a location specified in the closure or post-closure care plan all monitoring data and trend analysis data for 10 years following generation of the data.

d) The owner or operator of Ash Pond D must maintain the closure plan until the end of the post-closure care period.

e) The owner or operator of Ash Pond D must maintain the post-closure care plan for 10 years following the certification of the post-closure report required by Section 840.142 of this Subpart.

f) All reports, plans, modifications and notifications required under this Subpart to be submitted to the Agency must be submitted in writing to the Bureau of Water, Division of Public Water Supplies, Attn: Hydrogeology and Compliance Unit, 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 or electronically as authorized and directed by the Agency.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.146 Construction Quality Assurance Program**

a) The following components must be constructed according to a construction quality assurance program:

1) Installation of the groundwater collection trench and discharge system required by Sections 840.120 and 840.122 of this Subpart~~Part~~;

2) Compaction of the final cover system subgrade and foundation to design parameters;

3) Application of final cover, including installation of the geomembrane; and

4) Construction of ponds, ditches, lagoons and berms.

b) The construction quality assurance program must meet the following requirements:

1) The operator must designate a construction quality assurance (CQA) officer who is an Illinois licensed professional engineer (LPE).

2) At the end of each week of construction of the final cover system until construction is complete, a summary report must be either prepared by the CQA officer or under the supervision of the CQA officer. The report must include descriptions of the weather, locations where construction occurred during the previous week, materials used, results of testing, inspection reports, and procedures used to perform the inspections. The CQA officer must certify the report. The owner or operator of the Hutsonville Power Station shall retain all weekly summary reports certified by the CQA officer until the completion of the post-closure care period and must make those reports available at reasonable times for inspection and photocopying by the Agency.

3) The CQA officer must exercise judgment to certify the following:

A) That the bedding material contains no undesirable objects;

B) That the closure plan has been followed;

C) That the anchor trench and backfill are constructed to prevent damage to the geosynthetic membrane;

D) That all tears, rips, punctures, and other damage are repaired;

E) That all geosynthetic membrane seams are properly constructed and tested in accordance with manufacturer's specifications;

F) That the groundwater trench is constructed to intersect the water table;

G) That the groundwater trench is properly constructed to slope toward extraction points, and the extraction equipment is properly designed and installed;

H) That an appropriate operations and maintenance plan for the trench and extraction and discharge equipment is provided;

I) That proper filter material consisting of uniform granular fill, to avoid clogging, is used in construction; and

J) That the filter material as placed must possess structural strength adequate to support the maximum loads imposed by the overlying materials and equipment used at the facility.

4) The CQA officer must supervise and be responsible for all inspections, testing and other activities required to be implemented as part of the CQA program under this Section.

5) The CQA officer must be present to provide supervision and assume responsibility for performing all inspections of the following activities:

A) Compaction of the subgrade and foundation to design parameters;

B) Application of final cover, including installation of the geomembrane;

C) Installation of the groundwater collection trench and discharge system required by Sections 840.120 and 840.122 of this Subpart; and

D) Construction of ponds, ditches, lagoons and berms.

6) If the CQA officer is unable to be present to perform, as required by subsection (b)(5) of this Section, the CQA officer must provide, in writing, the reasons for his or her absence, a designation of a person who must exercise professional judgment in carrying out the duties of the CQA officer-in-absentia, and a signed statement that the CQA officer assumes full responsibility for all inspections performed and reports prepared by the designated CQA officer-in-absentia during the absence of the CQA officer.

7) The sampling program must be implemented as part of the CQA plan for all construction activities in order to ensure, at a minimum, that construction materials and operations meet design specifications.

A) The sampling program must be designed prior to construction.

B) The sampling program must be based upon statistical sampling techniques and must establish and specify criteria for acceptance or rejection of materials and operations.

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.148 Review, Approval, and Modification of Closure Plan and Post-Closure Care Plan**

The closure plan and post-closure care plan prepared and submitted to the Agency in accordance with Sections 840.128 and 840.138 of this Subpart, and any modifications to those plans, must be reviewed and approved by the Agency prior to implementation.

a) A closure plan satisfying the requirements of Section 840.130 of this Subpart, a post-closure care plan satisfying the requirements of Section 840.140 of this Subpart, and any modifications to approved plans must be submitted to the Agency for review and approval prior to implementation. The Agency will have 90 days from the receipt of a plan or proposed modification to conduct a review and make a final determination to approve or disapprove a plan or modification or to approve a plan or modification with conditions.

1) The Agency's record of the date of receipt of a plan or proposed modification to a plan will be deemed conclusive unless a contrary date is proved by a dated, signed receipt from the Agency or certified or registered mail.

2) Submission of an amended plan or amended modification to a plan restarts the time for review.

3) The owner or operator may waive the Agency's decision deadline upon a request from the Agency or at the owner's or operator's discretion.

b) A proposed modification to a closure plan or post-closure care plan must include the reason for the modification, all the information and supporting documentation that will be changed from or will supplement the information provided in the original or most recently approved plan, and the signature and seal of the professional engineer supervising the preparation of the proposed modification.

c) When reviewing a closure plan or modification, the Agency must consider:

1) Whether the plan or modification contains, at a minimum, all the elements required pursuant to Section 840.130 of this Subpart and has been accompanied by the information and supporting documentation necessary to evaluate the compliance of the proposed plan relative to the standards and requirements of this Subpart;

2) Whether the activities, structures and devices proposed are in accordance with the applicable standards and requirements of this Subpart and are otherwise consistent with generally accepted engineering practices and principles of hydrogeology, accepted groundwater modeling practices, appropriate statistical analyses, and appropriate sampling techniques and analytical methods;

3) The likelihood that the plan or modification will result in the containment of the ash and associated contaminants and the attainment of the applicable groundwater quality standards set forth in Sections 840.116 and 840.118 of this Subpart;

4) Whether the plan or modification contains the required professional signatures and seals.

d) When reviewing a post-closure care plan or proposed modification, the Agency must consider:

1) Whether the plan or modification contains, at a minimum, all the elements required pursuant to Section 840.140 of this Subpart and has been accompanied by the information and supporting documentation necessary to evaluate the compliance of the proposed plan relative to the standards and requirements of this Subpart;

2) Whether the activities, structures and devices proposed will be completed, operated and maintained in accordance with the applicable standards and requirements of this Subpart and are otherwise consistent with generally accepted engineering practices and principles of hydrogeology, accepted groundwater modeling practices, appropriate statistical analyses, and appropriate sampling techniques and analytical methods;

3) The management of risk relative to any remaining contamination, including, but not limited to, provisions for the use of long-term restrictions on the use of groundwater as a potable water supply, if appropriate;

4) Whether the plan or modification contains the required professional signatures and seals.

e) Upon completion of the review, the Agency must notify the owner or operator in writing of its final determination on the plan or proposed modification. The notification must be made by certified or registered mail post-marked with a date stamp and with return receipt requested. The Agency's final determination will be deemed to have taken place on the post-marked date that the notice is mailed. If the Agency disapproves a plan or modification or approves a plan or modification with conditions, the written notification must contain the following information, as applicable:

1) An explanation of the specific type of information or documentation, if any, that the Agency deems the owner or operator did not provide;

2) A list of the provisions of the Act, this Subpart or other applicable regulations that may be violated if the plan or modification is approved as submitted;

3) A statement of the specific reasons why the Act, this Subpart or other applicable regulations may be violated if the plan or modification is approved as submitted; and

4) A statement of the reasons for conditions if conditions are required.

f) If the Agency disapproves a plan or modification, approves a plan or modification with conditions, or fails to issue a final determination within the applicable review period, the owner or operator may, within 35 days after receipt of the final determination or expiration of the review period, file an appeal with the Board. Appeals to the Board are subject to review under Section 40 of the Act [415 ILCS 5/40].

(Source: Added at 35 Ill. Reg. ___, effective_____)

**Section 840.150 Review and Approval of Closure Report and Certification of Completion of Closure, Post-Closure Report and Certification of Completion of Post-Closure Care Plan**

The closure report and post-closure report prepared and submitted to the Agency in accordance with Sections 840.134 and 840.142 of this Subpart must be reviewed and approved by the Agency prior to the completion of closure or post-closure care.

a) A closure report satisfying the requirements of Section 840.134 of this Subpart and a post-closure report satisfying the requirements of Section 840.142 of this Subpart must be submitted to the Agency for review and approval. Closure and post-closure activities will not be deemed complete until the reports are approved by the Agency.

b) Submission, review, and approval procedures and deadlines, notification requirements, and rights of appeal shall be the same as those set forth in Section 840.148 of this Subpart for closure plans and post-closure care plans.

c) When reviewing a closure report and certification of completion of closure, the Agency must consider whether the documentation demonstrates that the activities, structures and devices approved in the closure plan have been completed in accordance with this Subpart and the approved closure plan, including, but not limited to:

1) The performance of the hydrogeologic site investigation required by Section 840.110 of this Subpart;

2) The installation of the groundwater monitoring system required by Section 840.112 of this Subpart;

3) The installation of the groundwater collection trench and discharge system or alternative approved by the Agency as required by Sections 840.120 and 840.122 of this Subpart;

4) The construction of the final slope and compliance with the stability criteria required by Section 840.124 of this Subpart;

5) The installation of the final cover system required by Section 840.126 of this Subpart;

6) Compliance with the Construction Quality Assurance requirements of Section 840.146 of this Subpart;

7) The establishment of a groundwater management zone in accordance with Section 840.116(b) of this Subpart, if applicable;

8) The implementation of actions to mitigate increasing trends as required by Section 840.118(c) of this Subpart, if applicable; and

9) The presence of professional signatures and seals required by Section 840.134 of this Subpart.

d) When reviewing a post-closure report and certification of completion of post-closure care plan, the Agency must consider whether the documentation demonstrates that the activities, structures and devices approved in the post-closure care plan have been completed, operated and maintained in accordance with this Subpart A and the approved post-closure care plan including, but not limited to:

1) The post-closure maintenance of the cover system required by Section 840.136 of this Subpart;

2) The maintenance of the groundwater monitoring system in accordance with Section 840.112(d) of this Subpart;

3) The implementation of the groundwater monitoring program required by Section 840.114 of this Subpart;

4) The operation and maintenance of the groundwater collection trench and discharge system, or alternative approved by the Agency, required by Sections 840.120 and 840.122 of this Subpart;

5) The performance of the groundwater trend analysis required by Section 840.118 of this Subpart;

6) The implementation of actions to mitigate increasing trends as required by Section 840.118(c) of this Subpart, if applicable;

7) Compliance with the requirements of the groundwater management zone as established pursuant to Section 840.116(b) of this Subpart, if applicable;

8) Compliance with the groundwater quality standards set forth in Sections 840.116(a) and 840.116(b) of this Subpart as demonstrated in accordance with Section 840.118 of this Subpart; and

9) The presence of professional signatures and seals required by Section 840.140 of this Subpart.

(Source: Added at 35 Ill. Reg. ___, effective_____)

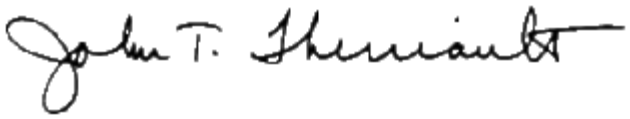
**Section 840.152 Resource Conservation and Recovery Act**

Nothing in this Subpart shall be construed to be less stringent than or inconsistent with the provisions of the federal Resource Conservation and Recovery Act of 1976 (P.L. 94-580), as amended, or regulations adopted under that Act. To the extent that any rules adopted in this Subpart are less stringent than or inconsistent with any portion of RCRA applicable to the closure of Ash Pond D, RCRA will prevail.

(Source: Added at 35 Ill. Reg. ___, effective_____)

IT IS SO ORDERED.

I, John T. Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on January 20, 2011, by a vote of 5-0.



John T. Therriault, Assistant Clerk
Illinois Pollution Control Board

# Dynegy's First Hearing
# Exhibit 4

Director of an approved State the following information as it becomes available:

(1) Any location restriction demonstration required under §§ 257.7 through 257.12; and

(2) Any demonstration, certification, finding, monitoring, testing, or analytical data required in §§ 257.21 through 257.28.

(b) The owner/operator must notify the State Director when the documents from paragraph (a) of this section have been placed or added to the operating record, and all information contained in the operating record must be furnished upon request to the State Director or be made available at all reasonable times for inspection by the State Director.

(c) The Director of an approved State can set alternative schedules for recordkeeping and notification requirements as specified in paragraphs (a) and (b) of this section, except for the notification requirements in § 257.25(g)(1)(iii).

(d) The Director of an approved state program may receive electronic documents only if the state program includes the requirements of 40 CFR Part 3—(Electronic reporting).

[44 FR 53460, Sept. 13, 1979, as amended at 70 FR 59888, Oct. 13, 2005]

## Subpart C [Reserved]

## Subpart D—Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments

SOURCE: 80 FR 21468, Apr. 17, 2015, unless otherwise noted.

### § 257.50 Scope and purpose.

(a) This subpart establishes minimum national criteria for purposes of determining which solid waste disposal facilities and solid waste management practices do not pose a reasonable probability of adverse effects on health or the environment under sections 1008(a)(3) and 4004(a) of the Resource Conservation and Recovery Act.

(b) This subpart applies to owners and operators of new and existing landfills and surface impoundments, including any lateral expansions of such units that dispose or otherwise engage in solid waste management of CCR generated from the combustion of coal at electric utilities and independent power producers. Unless otherwise provided in this subpart, these requirements also apply to disposal units located off-site of the electric utility or independent power producer. This subpart also applies to any practice that does not meet the definition of a beneficial use of CCR.

(c) This subpart also applies to inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.

(d) This subpart does not apply to CCR landfills that have ceased receiving CCR prior to October 19, 2015.

(e) This subpart does not apply to electric utilities or independent power producers that have ceased producing electricity prior to October 19, 2015.

(f) This subpart does not apply to wastes, including fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated at facilities that are not part of an electric utility or independent power producer, such as manufacturing facilities, universities, and hospitals. This subpart also does not apply to fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, generated primarily from the combustion of fuels (including other fossil fuels) other than coal, for the purpose of generating electricity unless the fuel burned consists of more than fifty percent (50%) coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal.

(g) This subpart does not apply to practices that meet the definition of a beneficial use of CCR.

(h) This subpart does not apply to CCR placement at active or abandoned underground or surface coal mines.

(i) This subpart does not apply to municipal solid waste landfills that receive CCR.

### § 257.51 Effective date of this subpart.

The requirements of this subpart take effect on October 19, 2015.

**§ 257.52 Applicability of other regulations.**

(a) Compliance with the requirements of this subpart does not affect the need for the owner or operator of a CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit to comply with all other applicable federal, state, tribal, or local laws or other requirements.

(b) Any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit continues to be subject to the requirements in §§ 257.3–1, 257.3–2, and 257.3–3.

**§ 257.53 Definitions.**

The following definitions apply to this subpart. Terms not defined in this section have the meaning given by RCRA.

*Acre foot* means the volume of one acre of surface area to a depth of one foot.

*Active facility* or *active electric utilities or independent power producers* means any facility subject to the requirements of this subpart that is in operation on October 19, 2015. An electric utility or independent power producer is in operation if it is generating electricity that is provided to electric power transmission systems or to electric power distribution systems on or after October 19, 2015. An off-site disposal facility is in operation if it is accepting or managing CCR on or after October 19, 2015.

*Active life* or *in operation* means the period of operation beginning with the initial placement of CCR in the CCR unit and ending at completion of closure activities in accordance with § 257.102.

*Active portion* means that part of the CCR unit that has received or is receiving CCR or non-CCR waste and that has not completed closure in accordance with § 257.102.

*Aquifer* means a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells or springs.

*Area-capacity curves* means graphic curves which readily show the reservoir water surface area, in acres, at different elevations from the bottom of the reservoir to the maximum water surface, and the capacity or volume, in acre-feet, of the water contained in the reservoir at various elevations.

*Areas susceptible to mass movement* means those areas of influence (*i.e.*, areas characterized as having an active or substantial possibility of mass movement) where, because of natural or human-induced events, the movement of earthen material at, beneath, or adjacent to the CCR unit results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.

*Beneficial use of CCR* means the CCR meet all of the following conditions:

(1) The CCR must provide a functional benefit;

(2) The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction;

(3) The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and

(4) When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.

*Closed* means placement of CCR in a CCR unit has ceased, and the owner or operator has completed closure of the CCR unit in accordance with § 257.102 and has initiated post-closure care in accordance with § 257.104.

*Coal combustion residuals (CCR)* means fly ash, bottom ash, boiler slag, and

flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

*CCR fugitive dust* means solid airborne particulate matter that contains or is derived from CCR, emitted from any source other than a stack or chimney.

*CCR landfill or landfill* means an area of land or an excavation that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. For purposes of this subpart, a CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of a beneficial use of CCR.

*CCR pile or pile* means any non-containerized accumulation of solid, nonflowing CCR that is placed on the land. CCR that is beneficially used off-site is not a CCR pile.

*CCR surface impoundment or impoundment* means a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.

*CCR unit* means any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit, or a combination of more than one of these units, based on the context of the paragraph(s) in which it is used. This term includes both new and existing units, unless otherwise specified.

*Dike* means an embankment, berm, or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

*Displacement* means the relative movement of any two sides of a fault measured in any direction.

*Disposal* means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste as defined in section 1004(27) of the Resource Conservation and Recovery Act into or on any land or water so that such solid waste, or constituent thereof, may enter the environment or be emitted into the air or discharged into any waters, including groundwaters. For purposes of this subpart, disposal does not include the storage or the beneficial use of CCR.

*Downstream toe* means the junction of the downstream slope or face of the CCR surface impoundment with the ground surface.

*Encapsulated beneficial use* means a beneficial use of CCR that binds the CCR into a solid matrix that minimizes its mobilization into the surrounding environment.

*Existing CCR landfill* means a CCR landfill that receives CCR both before and after October 19, 2015, or for which construction commenced prior to October 19, 2015 and receives CCR on or after October 19, 2015. A CCR landfill has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun prior to October 19, 2015.

*Existing CCR surface impoundment* means a CCR surface impoundment that receives CCR both before and after October 19, 2015, or for which construction commenced prior to October 19, 2015 and receives CCR on or after October 19, 2015. A CCR surface impoundment has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun prior to October 19, 2015.

*Facility* means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, disposing, or otherwise conducting solid waste management of CCR. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

*Factor of safety (Safety factor)* means the ratio of the forces tending to resist the failure of a structure to the forces tending to cause such failure as determined by accepted engineering practice.

*Fault* means a fracture or a zone of fractures in any material along which

strata on one side have been displaced with respect to that on the other side.

*Flood hydrograph* means a graph showing, for a given point on a stream, the discharge, height, or other characteristic of a flood as a function of time.

*Freeboard* means the vertical distance between the lowest point on the crest of the impoundment dike and the surface of the waste contained therein.

*Free liquids* means liquids that readily separate from the solid portion of a waste under ambient temperature and pressure.

*Groundwater* means water below the land surface in a zone of saturation.

*Hazard potential classification* means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of the diked CCR surface impoundment or mis-operation of the diked CCR surface impoundment or its appurtenances. The hazardous potential classifications include high hazard potential CCR surface impoundment, significant hazard potential CCR surface impoundment, and low hazard potential CCR surface impoundment, which terms mean:

(1) *High hazard potential CCR surface impoundment* means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.

(2) *Low hazard potential CCR surface impoundment* means a diked surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

(3) *Significant hazard potential CCR surface impoundment* means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

*Height* means the vertical measurement from the downstream toe of the CCR surface impoundment at its lowest point to the lowest elevation of the crest of the CCR surface impoundment.

*Holocene* means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch, at 11,700 years before present, to present.

*Hydraulic conductivity* means the rate at which water can move through a permeable medium (*i.e.*, the coefficient of permeability).

*Inactive CCR surface impoundment* means a CCR surface impoundment that no longer receives CCR on or after October 19, 2015 and still contains both CCR and liquids on or after October 19, 2015.

*Incised CCR surface impoundment* means a CCR surface impoundment which is constructed by excavating entirely below the natural ground surface, holds an accumulation of CCR entirely below the adjacent natural ground surface, and does not consist of any constructed diked portion.

*Indian country* or *Indian lands* means:

(1) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation;

(2) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of the State; and

(3) All Indian allotments, the Indian titles to which have not been extinguished, including rights of way running through the same.

*Indian Tribe* or *Tribe* means any Indian tribe, band, nation, or community recognized by the Secretary of the Interior and exercising substantial governmental duties and powers on Indian lands.

*Inflow design flood* means the flood hydrograph that is used in the design or modification of the CCR surface impoundments and its appurtenant works.

*In operation* means the same as *active life*.

*Karst terrain* means an area where karst topography, with its characteristic erosional surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but

are not limited to, dolines, collapse shafts (sinkholes), sinking streams, caves, seeps, large springs, and blind valleys.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing CCR landfill or existing CCR surface impoundment made after October 19, 2015.

*Liquefaction factor of safety* means the factor of safety (safety factor) determined using analysis under liquefaction conditions.

*Lithified earth material* means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

*Maximum horizontal acceleration in lithified earth material* means the maximum expected horizontal acceleration at the ground surface as depicted on a seismic hazard map, with a 98% or greater probability that the acceleration will not be exceeded in 50 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

*New CCR landfill* means a CCR landfill or lateral expansion of a CCR landfill that first receives CCR or commences construction after October 19, 2015. A new CCR landfill has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun after October 19, 2015. Overfills are also considered new CCR landfills.

*New CCR surface impoundment* means a CCR surface impoundment or lateral expansion of an existing or new CCR surface impoundment that first receives CCR or commences construction after October 19, 2015. A new CCR surface impoundment has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun after October 19, 2015.

*Nonparticipating State* means a State—

(1) For which the Administrator has not approved a State permit program or other system of prior approval and conditions under RCRA section 4005(d)(1)(B);

(2) The Governor of which has not submitted to the Administrator for approval evidence to operate a State permit program or other system of prior approval and conditions under RCRA section 4005(d)(1)(A);

(3) The Governor of which provides notice to the Administrator that, not fewer than 90 days after the date on which the Governor provides the notice to the Administrator, the State will relinquish an approval under RCRA section 4005(d)(1)(B) to operate a permit program or other system of prior approval and conditions; or

(4) For which the Administrator has withdrawn approval for a permit program or other system of prior approval and conditions under RCRA section 4005(d)(1)(E).

*Operator* means the person(s) responsible for the overall operation of a CCR unit.

*Overfill* means a new CCR landfill constructed over a closed CCR surface impoundment.

*Owner* means the person(s) who owns a CCR unit or part of a CCR unit.

*Participating State* means a state with a state program for control of CCR that has been approved pursuant to RCRA section 4005(d).

*Participating State Director* means the chief administrative officer of any state agency operating the CCR permit program in a participating state or the delegated representative of the Participating State Director. If responsibility is divided among two or more state agencies, Participating State Director means the chief administrative officer of the state agency authorized to perform the particular function or procedure to which reference is made.

*Poor foundation conditions* mean those areas where features exist which indicate that a natural or human-induced

event may result in inadequate foundation support for the structural components of an existing or new CCR unit. For example, failure to maintain static and seismic factors of safety as required in §§ 257.73(e) and 257.74(e) would cause a poor foundation condition.

*Probable maximum flood* means the flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the drainage basin.

*Qualified person* means a person or persons trained to recognize specific appearances of structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit by visual observation and, if applicable, to monitor instrumentation.

*Qualified professional engineer* means an individual who is licensed by a state as a Professional Engineer to practice one or more disciplines of engineering and who is qualified by education, technical knowledge and experience to make the specific technical certifications required under this subpart. Professional engineers making these certifications must be currently licensed in the state where the CCR unit(s) is located.

*Recognized and generally accepted good engineering practices* means engineering maintenance or operation activities based on established codes, widely accepted standards, published technical reports, or a practice widely recommended throughout the industry. Such practices generally detail approved ways to perform specific engineering, inspection, or mechanical integrity activities.

*Retrofit* means to remove all CCR and contaminated soils and sediments from the CCR surface impoundment, and to ensure the unit complies with the requirements in § 257.72

*Representative sample* means a sample of a universe or whole (e.g., waste pile, lagoon, and groundwater) which can be expected to exhibit the average properties of the universe or whole. See EPA publication SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Chapter 9 (available at *http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm*) for a discussion and examples of representative samples.

*Run-off* means any rainwater, leachate, or other liquid that drains over land from any part of a CCR landfill or lateral expansion of a CCR landfill.

*Run-on* means any rainwater, leachate, or other liquid that drains over land onto any part of a CCR landfill or lateral expansion of a CCR landfill.

*Sand and gravel pit or quarry* means an excavation for the extraction of aggregate, minerals or metals. The term sand and gravel pit and/or quarry does not include subsurface or surface coal mines.

*Seismic factor of safety* means the factor of safety (safety factor) determined using analysis under earthquake conditions using the peak ground acceleration for a seismic event with a 2% probability of exceedance in 50 years, equivalent to a return period of approximately 2,500 years, based on the U.S. Geological Survey (USGS) seismic hazard maps for seismic events with this return period for the region where the CCR surface impoundment is located.

*Seismic impact zone* means an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years.

*Slope protection* means engineered or non-engineered measures installed on the upstream or downstream slope of the CCR surface impoundment to protect the slope against wave action or erosion, including but not limited to rock riprap, wooden pile, or concrete revetments, vegetated wave berms, concrete facing, gabions, geotextiles, or fascines.

*Solid waste management or management* means the systematic administration of the activities which provide for the collection, source separation, storage, transportation, processing, treatment, or disposal of solid waste.

*State* means any of the fifty States in addition to the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

*State Director* means the chief administrative officer of the lead state agency responsible for implementing the state program regulating disposal in CCR landfills, CCR surface impoundments, and all lateral expansions of a CCR unit.

*Static factor of safety* means the factor of safety (safety factor) determined using analysis under the long-term, maximum storage pool loading condition, the maximum surcharge pool loading condition, and under the end-of-construction loading condition.

*Structural components* mean liners, leachate collection and removal systems, final covers, run-on and run-off systems, inflow design flood control systems, and any other component used in the construction and operation of the CCR unit that is necessary to ensure the integrity of the unit and that the contents of the unit are not released into the environment.

*Unstable area* means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity, including structural components of some or all of the CCR unit that are responsible for preventing releases from such unit. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.

*Uppermost aquifer* means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary. Upper limit is measured at a point nearest to the natural ground surface to which the aquifer rises during the wet season.

*Waste boundary* means a vertical surface located at the hydraulically downgradient limit of the CCR unit. The vertical surface extends down into the uppermost aquifer.

[80 FR 21468, Apr. 17, 2015, as amended at 80 FR 37991, July 2, 2015; 83 FR 36451, July 30, 2018]

LOCATION RESTRICTIONS

### § 257.60 Placement above the uppermost aquifer.

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table). The owner or operator must demonstrate by the dates specified in paragraph (c) of this section that the CCR unit meets the minimum requirements for placement above the uppermost aquifer.

(b) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration meets the requirements of paragraph (a) of this section.

(c) The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this section by the date specified in either paragraph (c)(1) or (2) of this section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this section when the demonstration is placed in the facility's operating record as required by § 257.105(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this section by the date specified in paragraph (c)(1) of this section is subject to the requirements of § 257.101(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of

a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this section is prohibited from placing CCR in the CCR unit.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(e), the notification requirements specified in § 257.106(e), and the internet requirements specified in § 257.107(e).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36451, July 30, 2018]

### § 257.61 Wetlands.

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in wetlands, as defined in § 232.2 of this chapter, unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that the CCR unit meets the requirements of paragraphs (a)(1) through (5) of this section.

(1) Where applicable under section 404 of the Clean Water Act or applicable state wetlands laws, a clear and objective rebuttal of the presumption that an alternative to the CCR unit is reasonably available that does not involve wetlands.

(2) The construction and operation of the CCR unit will not cause or contribute to any of the following:

(i) A violation of any applicable state or federal water quality standard;

(ii) A violation of any applicable toxic effluent standard or prohibition under section 307 of the Clean Water Act;

(iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(iv) A violation of any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.

(3) The CCR unit will not cause or contribute to significant degradation of wetlands by addressing all of the following factors:

(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the CCR unit;

(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the CCR unit;

(iii) The volume and chemical nature of the CCR;

(iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCR;

(v) The potential effects of catastrophic release of CCR to the wetland and the resulting impacts on the environment; and

(vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(4) To the extent required under section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent reasonable as required by paragraphs (a)(1) through (3) of this section, then minimizing unavoidable impacts to the maximum extent reasonable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and reasonable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient information is available to make a reasoned determination with respect to the demonstrations in paragraphs (a)(1) through (4) of this section.

(b) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration meets the requirements of paragraph (a) of this section.

(c) The owner or operator of the CCR unit must complete the demonstrations required by paragraph (a) of this section by the date specified in either paragraph (c)(1) or (2) of this section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral

expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this section when the demonstration is placed in the facility's operating record as required by § 257.105(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this section by the date specified in paragraph (c)(1) of this section is subject to the requirements of § 257.101(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstrations showing compliance with the requirements of paragraph (a) of this section is prohibited from placing CCR in the CCR unit.

(d) The owner or operator must comply with the recordkeeping requirements specified in § 257.105(e), the notification requirements specified in § 257.106(e), and the Internet requirements specified in § 257.107(e).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36451, July 30, 2018]

### § 257.62 Fault areas.

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR unit.

(b) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration meets the requirements of paragraph (a) of this section.

(c) The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this section by the date specified in either paragraph (c)(1) or (2) of this section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this section when the demonstration is placed in the facility's operating record as required by § 257.105(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this section by the date specified in paragraph (c)(1) of this section is subject to the requirements of § 257.101(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this section is prohibited from placing CCR in the CCR unit.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(e), the notification requirements specified in § 257.106(e), and the Internet requirements specified in § 257.107(e).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36451, July 30, 2018]

### § 257.63 Seismic impact zones.

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in seismic impact zones unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that all structural components including liners, leachate collection and removal

systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

(b) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration meets the requirements of paragraph (a) of this section.

(c) The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this section by the date specified in either paragraph (c)(1) or (2) of this section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this section when the demonstration is placed in the facility's operating record as required by § 257.105(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this section by the date specified in paragraph (c)(1) of this section is subject to the requirements of § 257.101(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this section is prohibited from placing CCR in the CCR unit.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(e), the notification requirements specified in § 257.106(e), and the Internet requirements specified in § 257.107(e).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36451, July 30, 2018]

### § 257.64 Unstable areas.

(a) An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.

(b) The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in significant differential settling;

(2) On-site or local geologic or geomorphologic features; and

(3) On-site or local human-made features or events (both surface and subsurface).

(c) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration meets the requirements of paragraph (a) of this section.

(d) The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this section by the date specified in either paragraph (d)(1) or (2) of this section.

(1) For an existing CCR landfill or existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this section when the demonstration is placed in the facility's operating record as required by § 257.105(e).

(4) An owner or operator of an existing CCR surface impoundment or existing CCR landfill who fails to demonstrate compliance with the requirements of paragraph (a) of this section by the date specified in paragraph (d)(1) of this section is subject to the requirements of § 257.101(b)(1) or (d)(1), respectively.

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this section is prohibited from placing CCR in the CCR unit.

(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(e), the notification requirements specified in § 257.106(e), and the Internet requirements specified in § 257.107(e).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36451, July 30, 2018]

DESIGN CRITERIA

### § 257.70 Design criteria for new CCR landfills and any lateral expansion of a CCR landfill.

(a)(1) New CCR landfills and any lateral expansion of a CCR landfill must be designed, constructed, operated, and maintained with either a composite liner that meets the requirements of paragraph (b) of this section or an alternative composite liner that meets the requirements in paragraph (c) of this section, and a leachate collection and removal system that meets the requirements of paragraph (d) of this section.

(2) Prior to construction of an overfill the underlying surface impoundment must meet the requirements of § 257.102(d).

(b) A *composite liner* must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner (GM), and the lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1 \times 10^{-7}$ centimeters per second (cm/sec). GM components consisting of high density polyethylene (HDPE) must be at least 60-mil thick. The GM or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component. The composite liner must be:

(1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the CCR or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(2) Constructed of materials that provide appropriate shear resistance of the upper and lower component interface to prevent sliding of the upper component including on slopes;

(3) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(4) Installed to cover all surrounding earth likely to be in contact with the CCR or leachate.

(c) If the owner or operator elects to install an alternative composite liner, all of the following requirements must be met:

(1) An *alternative composite liner* must consist of two components; the upper component consisting of, at a minimum, a 30-mil GM, and a lower component, that is not a geomembrane, with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more than $1 \times 10^{-7}$ cm/sec. GM components consisting of high density polyethylene (HDPE) must be at least 60-mil thick. If the lower component of the alternative liner is compacted soil, the GM must be installed in direct and uniform contact with the compacted soil.

(2) The owner or operator must obtain certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the liquid flow rate through the lower component of the alternative composite liner is no greater than the liquid flow rate through two feet of compacted soil

with a hydraulic conductivity of $1x10^{-7}$ cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than $1x10^{-7}$ cm/sec. The hydraulic conductivity of any alternative to the two feet of compacted soil must be determined using recognized and generally accepted methods. The liquid flow rate comparison must be made using Equation 1 of this section, which is derived from Darcy's Law for gravity flow through porous media.

(Eq. 1):

$$\frac{Q}{A} = q = k\left(\frac{h}{t} + 1\right)$$

Where:

Q = flow rate (cubic centimeters/second);
A = surface area of the liner (squared centimeters);
q = flow rate per unit area (cubic centimeters/second/squared centimeter);
k = hydraulic conductivity of the liner (centimeters/second);
h = hydraulic head above the liner (centimeters); and
t = thickness of the liner (centimeters).

(3) The alternative composite liner must meet the requirements specified in paragraphs (b)(1) through (4) of this section.

(d) The *leachate collection and removal system* must be designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and post-closure care period. The leachate collection and removal system must be:

(1) Designed and operated to maintain less than a 30-centimeter depth of leachate over the composite liner or alternative composite liner;

(2) Constructed of materials that are chemically resistant to the CCR and any non-CCR waste managed in the CCR unit and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying waste, waste cover materials, and equipment used at the CCR unit; and

(3) Designed and operated to minimize clogging during the active life and post-closure care period.

(e) Prior to construction of the CCR landfill or any lateral expansion of a CCR landfill, the owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the design of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system meets the requirements of this section.

(f) Upon completion of construction of the CCR landfill or any lateral expansion of a CCR landfill, the owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the design of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system have been constructed in accordance with the requirements of this section.

(g) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(f), the notification requirements specified in § 257.106(f), and the Internet requirements specified in § 257.107(f).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36451, July 30, 2018]

### § 257.71 Liner design criteria for existing CCR surface impoundments.

(a)(1) No later than October 17, 2016, the owner or operator of an existing CCR surface impoundment must document whether or not such unit was constructed with any one of the following:

(i) A liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than $1 \times 10^{-7}$ cm/sec;

(ii) A composite liner that meets the requirements of § 257.70(b); or

(iii) An alternative composite liner that meets the requirements of § 257.70(c).

(2) The hydraulic conductivity of the compacted soil must be determined using recognized and generally accepted methods.

(3) An existing CCR surface impoundment is considered to be an existing unlined CCR surface impoundment if either:

(i) The owner or operator of the CCR unit determines that the CCR unit is not constructed with a liner that meets the requirements of paragraphs (a)(1)(i), (ii), or (iii) of this section; or

(ii) The owner or operator of the CCR unit fails to document whether the CCR unit was constructed with a liner that meets the requirements of paragraphs (a)(1)(i), (ii), or (iii) of this section.

(4) All existing unlined CCR surface impoundments are subject to the requirements of § 257.101(a).

(b) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority attesting that the documentation as to whether a CCR unit meets the requirements of paragraph (a) of this section is accurate.

(c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(f), the notification requirements specified in § 257.106(f), and the Internet requirements specified in § 257.107(f).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36452, July 30, 2018]

### § 257.72 Liner design criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment.

(a) New CCR surface impoundments and lateral expansions of existing and new CCR surface impoundments must be designed, constructed, operated, and maintained with either a composite liner or an alternative composite liner that meets the requirements of § 257.70(b) or (c).

(b) Any liner specified in this section must be installed to cover all surrounding earth likely to be in contact with CCR. Dikes shall not be constructed on top of the composite liner.

(c) Prior to construction of the CCR surface impoundment or any lateral expansion of a CCR surface impoundment, the owner or operator must obtain certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the design of the composite liner or, if applicable, the design of an alternative composite liner complies with the requirements of this section.

(d) Upon completion, the owner or operator must obtain certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the composite liner or if applicable, the alternative composite liner has been constructed in accordance with the requirements of this section.

(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(f), the notification requirements specified in § 257.106(f), and the Internet requirements specified in § 257.107(f).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36452, July 30, 2018]

### § 257.73 Structural integrity criteria for existing CCR surface impoundments.

(a) The requirements of paragraphs (a)(1) through (4) of this section apply to all existing CCR surface impoundments, except for those existing CCR surface impoundments that are incised CCR units. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR unit no longer meets the definition of an incised CCR unit, the CCR unit is subject to the requirements of paragraphs (a)(1) through (4) of this section.

(1) No later than, December 17, 2015, the owner or operator of the CCR unit must place on or immediately adjacent to the CCR unit a permanent identification marker, at least six feet high showing the identification number of the CCR unit, if one has been assigned by the state, the name associated with the CCR unit and the name of the owner or operator of the CCR unit.

(2) *Periodic hazard potential classification assessments.* (i) The owner or operator of the CCR unit must conduct initial and periodic hazard potential classification assessments of the CCR unit according to the timeframes specified in paragraph (f) of this section. The owner or operator must document the hazard potential classification of each CCR unit as either a high hazard potential CCR surface impoundment, a significant hazard potential CCR surface impoundment, or a low hazard potential CCR surface impoundment. The owner or operator must also document the basis for each hazard potential classification.

(ii) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial hazard potential classification and each subsequent periodic classification specified in paragraph (a)(2)(i) of this section was conducted in accordance with the requirements of this section.

(3) *Emergency Action Plan (EAP)*—(i) *Development of the plan.* No later than April 17, 2017, the owner or operator of a CCR unit determined to be either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment under paragraph (a)(2) of this section must prepare and maintain a written EAP. At a minimum, the EAP must:

(A) Define the events or circumstances involving the CCR unit that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;

(B) Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR unit;

(C) Provide contact information of emergency responders;

(D) Include a map which delineates the downstream area which would be affected in the event of a CCR unit failure and a physical description of the CCR unit; and

(E) Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders.

(ii) *Amendment of the plan.* (A) The owner or operator of a CCR unit subject to the requirements of paragraph (a)(3)(i) of this section may amend the written EAP at any time provided the revised plan is placed in the facility's operating record as required by § 257.105(f)(6). The owner or operator must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect.

(B) The written EAP must be evaluated, at a minimum, every five years to ensure the information required in paragraph (a)(3)(i) of this section is accurate. As necessary, the EAP must be updated and a revised EAP placed in the facility's operating record as required by § 257.105(f)(6).

(iii) *Changes in hazard potential classification.* (A) If the owner or operator of a CCR unit determines during a periodic hazard potential assessment that the CCR unit is no longer classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit is no longer subject to the requirement to prepare and maintain a written EAP beginning on the date the periodic hazard potential assessment documentation is placed in the facility's operating record as required by § 257.105(f)(5).

(B) If the owner or operator of a CCR unit classified as a low hazard potential CCR surface impoundment subsequently determines that the CCR unit is properly re-classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit must prepare a written EAP for the CCR unit as required by paragraph (a)(3)(i) of this section within six

months of completing such periodic hazard potential assessment.

(iv) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the written EAP, and any subsequent amendment of the EAP, meets the requirements of paragraph (a)(3) of this section.

(v) *Activation of the EAP.* The EAP must be implemented once events or circumstances involving the CCR unit that represent a safety emergency are detected, including conditions identified during periodic structural stability assessments, annual inspections, and inspections by a qualified person.

(4) The CCR unit and surrounding areas must be designed, constructed, operated, and maintained with vegetated slopes of dikes not to exceed a height of 6 inches above the slope of the dike, except for slopes which are protected with an alternate form(s) of slope protection.

(b) The requirements of paragraphs (c) through (e) of this section apply to an owner or operator of an existing CCR surface impoundment that either:

(1) Has a height of five feet or more and a storage volume of 20 acre-feet or more; or

(2) Has a height of 20 feet or more.

(c)(1) No later than October 17, 2016, the owner or operator of the CCR unit must compile a history of construction, which shall contain, to the extent feasible, the information specified in paragraphs (c)(1)(i) through (xi) of this section.

(i) The name and address of the person(s) owning or operating the CCR unit; the name associated with the CCR unit; and the identification number of the CCR unit if one has been assigned by the state.

(ii) The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(iii) A statement of the purpose for which the CCR unit is being used.

(iv) The name and size in acres of the watershed within which the CCR unit is located.

(v) A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed.

(vi) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; the method of site preparation and construction of each zone of the CCR unit; and the approximate dates of construction of each successive stage of construction of the CCR unit.

(vii) At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation.

(viii) A description of the type, purpose, and location of existing instrumentation.

(ix) Area-capacity curves for the CCR unit.

(x) A description of each spillway and diversion design features and capacities and calculations used in their determination.

(xi) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.

(xii) Any record or knowledge of structural instability of the CCR unit.

(2) *Changes to the history of construction.* If there is a significant change to any information compiled under paragraph (c)(1) of this section, the owner or operator of the CCR unit must update the relevant information and place it in the facility's operating record as required by § 257.105(f)(9).

(d) *Periodic structural stability assessments.* (1) The owner or operator of the CCR unit must conduct initial and

periodic structural stability assessments and document whether the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein. The assessment must, at a minimum, document whether the CCR unit has been designed, constructed, operated, and maintained with:

(i) Stable foundations and abutments;

(ii) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;

(iii) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit;

(iv) Vegetated slopes of dikes and surrounding areas not to exceed a height of six inches above the slope of the dike, except for slopes which have an alternate form or forms of slope protection;

(v) A single spillway or a combination of spillways configured as specified in paragraph (d)(1)(v)(A) of this section. The combined capacity of all spillways must be designed, constructed, operated, and maintained to adequately manage flow during and following the peak discharge from the event specified in paragraph (d)(1)(v)(B) of this section.

(A) All spillways must be either:

(*1*) Of non-erodible construction and designed to carry sustained flows; or

(*2*) Earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.

(B) The combined capacity of all spillways must adequately manage flow during and following the peak discharge from a:

(*1*) Probable maximum flood (PMF) for a high hazard potential CCR surface impoundment; or

(*2*) 1000-year flood for a significant hazard potential CCR surface impoundment; or

(*3*) 100-year flood for a low hazard potential CCR surface impoundment.

(vi) Hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure; and

(vii) For CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body.

(2) The periodic assessment described in paragraph (d)(1) of this section must identify any structural stability deficiencies associated with the CCR unit in addition to recommending corrective measures. If a deficiency or a release is identified during the periodic assessment, the owner or operator unit must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

(3) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment was conducted in accordance with the requirements of this section.

(e) *Periodic safety factor assessments.* (1) The owner or operator must conduct an initial and periodic safety factor assessments for each CCR unit and document whether the calculated factors of safety for each CCR unit achieve the minimum safety factors specified in paragraphs (e)(1)(i) through (iv) of this section for the critical cross section of the embankment. The critical cross section is the cross section anticipated to be the most susceptible of all cross sections to structural failure based on appropriate engineering considerations, including loading conditions. The safety factor assessments must be supported by appropriate engineering calculations.

(i) The calculated static factor of safety under the long-term, maximum storage pool loading condition must equal or exceed 1.50.

(ii) The calculated static factor of safety under the maximum surcharge

pool loading condition must equal or exceed 1.40.

(iii) The calculated seismic factor of safety must equal or exceed 1.00.

(iv) For dikes constructed of soils that have susceptibility to liquefaction, the calculated liquefaction factor of safety must equal or exceed 1.20.

(2) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment specified in paragraph (e)(1) of this section meets the requirements of this section.

(f) *Timeframes for periodic assessments*—(1) *Initial assessments.* Except as provided by paragraph (f)(2) of this section, the owner or operator of the CCR unit must complete the initial assessments required by paragraphs (a)(2), (d), and (e) of this section no later than October 17, 2016. The owner or operator has completed an initial assessment when the owner or operator has placed the assessment required by paragraphs (a)(2), (d), and (e) of this section in the facility's operating record as required by §257.105(f)(5), (10), and (12).

(2) *Use of a previously completed assessment(s) in lieu of the initial assessment(s).* The owner or operator of the CCR unit may elect to use a previously completed assessment to serve as the initial assessment required by paragraphs (a)(2), (d), and (e) of this section provided that the previously completed assessment(s):

(i) Was completed no earlier than 42 months prior to October 17, 2016; and

(ii) Meets the applicable requirements of paragraphs (a)(2), (d), and (e) of this section.

(3) *Frequency for conducting periodic assessments.* The owner or operator of the CCR unit must conduct and complete the assessments required by paragraphs (a)(2), (d), and (e) of this section every five years. The date of completing the initial assessment is the basis for establishing the deadline to complete the first subsequent assessment. If the owner or operator elects to use a previously completed assessment(s) in lieu of the initial assessment as provided by paragraph (f)(2) of this section, the date of the report for the previously completed assessment is the basis for establishing the deadline to complete the first subsequent assessment. The owner or operator may complete any required assessment prior to the required deadline provided the owner or operator places the completed assessment(s) into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent assessments is based on the date of completing the previous assessment. For purposes of this paragraph (f)(3), the owner or operator has completed an assessment when the relevant assessment(s) required by paragraphs (a)(2), (d), and (e) of this section has been placed in the facility's operating record as required by §257.105(f)(5), (10), and (12).

(4) *Closure of the CCR unit.* An owner or operator of a CCR unit who either fails to complete a timely safety factor assessment or fails to demonstrate minimum safety factors as required by paragraph (e) of this section is subject to the requirements of §257.101(b)(2).

(g) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in §257.105(f), the notification requirements specified in §257.106(f), and the internet requirements specified in §257.107(f).

### §257.74 Structural integrity criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment.

(a) The requirements of paragraphs (a)(1) through (4) of this section apply to all new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, except for those new CCR surface impoundments that are incised CCR units. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR unit no longer meets the definition of an incised CCR unit, the CCR unit is subject to the requirements of paragraphs (a)(1) through (4) of this section.

(1) No later than the initial receipt of CCR, the owner or operator of the CCR unit must place on or immediately adjacent to the CCR unit a permanent identification marker, at least six feet high showing the identification number

of the CCR unit, if one has been assigned by the state, the name associated with the CCR unit and the name of the owner or operator of the CCR unit.

(2) *Periodic hazard potential classification assessments.* (i) The owner or operator of the CCR unit must conduct initial and periodic hazard potential classification assessments of the CCR unit according to the timeframes specified in paragraph (f) of this section. The owner or operator must document the hazard potential classification of each CCR unit as either a high hazard potential CCR surface impoundment, a significant hazard potential CCR surface impoundment, or a low hazard potential CCR surface impoundment. The owner or operator must also document the basis for each hazard potential classification.

(ii) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial hazard potential classification and each subsequent periodic classification specified in paragraph (a)(2)(i) of this section was conducted in accordance with the requirements of this section.

(3) *Emergency Action Plan (EAP)*—(i) *Development of the plan.* Prior to the initial receipt of CCR in the CCR unit, the owner or operator of a CCR unit determined to be either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment under paragraph (a)(2) of this section must prepare and maintain a written EAP. At a minimum, the EAP must:

(A) Define the events or circumstances involving the CCR unit that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;

(B) Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR unit;

(C) Provide contact information of emergency responders;

(D) Include a map which delineates the downstream area which would be affected in the event of a CCR unit failure and a physical description of the CCR unit; and

(E) Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders.

(ii) *Amendment of the plan.* (A) The owner or operator of a CCR unit subject to the requirements of paragraph (a)(3)(i) of this section may amend the written EAP at any time provided the revised plan is placed in the facility's operating record as required by § 257.105(f)(6). The owner or operator must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect.

(B) The written EAP must be evaluated, at a minimum, every five years to ensure the information required in paragraph (a)(3)(i) of this section is accurate. As necessary, the EAP must be updated and a revised EAP placed in the facility's operating record as required by § 257.105(f)(6).

(iii) *Changes in hazard potential classification.* (A) If the owner or operator of a CCR unit determines during a periodic hazard potential assessment that the CCR unit is no longer classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit is no longer subject to the requirement to prepare and maintain a written EAP beginning on the date the periodic hazard potential assessment documentation is placed in the facility's operating record as required by § 257.105(f)(5).

(B) If the owner or operator of a CCR unit classified as a low hazard potential CCR surface impoundment subsequently determines that the CCR unit is properly re-classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit must prepare a written EAP for the CCR unit as required by paragraph (a)(3)(i) of this section within six months of completing such periodic hazard potential assessment.

(iv) The owner or operator of the CCR unit must obtain a certification from a

qualified professional engineer stating that the written EAP, and any subsequent amendment of the EAP, meets the requirements of paragraph (a)(3) of this section.

(v) *Activation of the EAP.* The EAP must be implemented once events or circumstances involving the CCR unit that represent a safety emergency are detected, including conditions identified during periodic structural stability assessments, annual inspections, and inspections by a qualified person.

(4) The CCR unit and surrounding areas must be designed, constructed, operated, and maintained with vegetated slopes of dikes not to exceed a height of six inches above the slope of the dike, except for slopes which are protected with an alternate form(s) of slope protection.

(b) The requirements of paragraphs (c) through (e) of this section apply to an owner or operator of a new CCR surface impoundment and any lateral expansion of a CCR surface impoundment that either:

(1) Has a height of five feet or more and a storage volume of 20 acre-feet or more; or

(2) Has a height of 20 feet or more.

(c)(1) No later than the initial receipt of CCR in the CCR unit, the owner or operator unit must compile the design and construction plans for the CCR unit, which must include, to the extent feasible, the information specified in paragraphs (c)(1)(i) through (xi) of this section.

(i) The name and address of the person(s) owning or operating the CCR unit; the name associated with the CCR unit; and the identification number of the CCR unit if one has been assigned by the state.

(ii) The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(iii) A statement of the purpose for which the CCR unit is being used.

(iv) The name and size in acres of the watershed within which the CCR unit is located.

(v) A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed.

(vi) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; the method of site preparation and construction of each zone of the CCR unit; and the dates of construction of each successive stage of construction of the CCR unit.

(vii) At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation.

(viii) A description of the type, purpose, and location of existing instrumentation.

(ix) Area-capacity curves for the CCR unit.

(x) A description of each spillway and diversion design features and capacities and calculations used in their determination.

(xi) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.

(xii) Any record or knowledge of structural instability of the CCR unit.

(2) *Changes in the design and construction.* If there is a significant change to any information compiled under paragraph (c)(1) of this section, the owner or operator of the CCR unit must update the relevant information and place it in the facility's operating record as required by § 257.105(f)(13).

(d) *Periodic structural stability assessments.* (1) The owner or operator of the CCR unit must conduct initial and

periodic structural stability assessments and document whether the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein. The assessment must, at a minimum, document whether the CCR unit has been designed, constructed, operated, and maintained with:

(i) Stable foundations and abutments;

(ii) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;

(iii) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit;

(iv) Vegetated slopes of dikes and surrounding areas not to exceed a height of six inches above the slope of the dike, except for slopes which have an alternate form or forms of slope protection;

(v) A single spillway or a combination of spillways configured as specified in paragraph (d)(1)(v)(A) of this section. The combined capacity of all spillways must be designed, constructed, operated, and maintained to adequately manage flow during and following the peak discharge from the event specified in paragraph (d)(1)(v)(B) of this section.

(A) All spillways must be either:

(*1*) Of non-erodible construction and designed to carry sustained flows; or

(*2*) Earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.

(B) The combined capacity of all spillways must adequately manage flow during and following the peak discharge from a:

(*1*) Probable maximum flood (PMF) for a high hazard potential CCR surface impoundment; or

(*2*) 1000-year flood for a significant hazard potential CCR surface impoundment; or

(*3*) 100-year flood for a low hazard potential CCR surface impoundment.

(vi) Hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure; and

(vii) For CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body.

(2) The periodic assessment described in paragraph (d)(1) of this section must identify any structural stability deficiencies associated with the CCR unit in addition to recommending corrective measures. If a deficiency or a release is identified during the periodic assessment, the owner or operator unit must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

(3) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment was conducted in accordance with the requirements of this section.

(e) *Periodic safety factor assessments.* (1) The owner or operator must conduct an initial and periodic safety factor assessments for each CCR unit and document whether the calculated factors of safety for each CCR unit achieve the minimum safety factors specified in paragraphs (e)(1)(i) through (v) of this section for the critical cross section of the embankment. The critical cross section is the cross section anticipated to be the most susceptible of all cross sections to structural failure based on appropriate engineering considerations, including loading conditions. The safety factor assessments must be supported by appropriate engineering calculations.

(i) The calculated static factor of safety under the end-of-construction loading condition must equal or exceed 1.30. The assessment of this loading condition is only required for the initial safety factor assessment and is not required for subsequent assessments.

(ii) The calculated static factor of safety under the long-term, maximum storage pool loading condition must equal or exceed 1.50.

(iii) The calculated static factor of safety under the maximum surcharge pool loading condition must equal or exceed 1.40.

(iv) The calculated seismic factor of safety must equal or exceed 1.00.

(v) For dikes constructed of soils that have susceptibility to liquefaction, the calculated liquefaction factor of safety must equal or exceed 1.20.

(2) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment specified in paragraph (e)(1) of this section meets the requirements of this section.

(f) *Timeframes for periodic assessments*—(1) *Initial assessments.* Except as provided by paragraph (f)(2) of this section, the owner or operator of the CCR unit must complete the initial assessments required by paragraphs (a)(2), (d), and (e) of this section prior to the initial receipt of CCR in the unit. The owner or operator has completed an initial assessment when the owner or operator has placed the assessment required by paragraphs (a)(2), (d), and (e) of this section in the facility's operating record as required by §257.105(f)(5), (10), and (12).

(2) *Frequency for conducting periodic assessments.* The owner or operator of the CCR unit must conduct and complete the assessments required by paragraphs (a)(2), (d), and (e) of this section every five years. The date of completing the initial assessment is the basis for establishing the deadline to complete the first subsequent assessment. The owner or operator may complete any required assessment prior to the required deadline provided the owner or operator places the completed assessment(s) into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent assessments is based on the date of completing the previous assessment. For purposes of this paragraph (f)(2), the owner or operator has completed an assessment when the relevant assessment(s) required by paragraphs (a)(2), (d), and (e) of this section has been placed in the facility's operating record as required by §257.105(f)(5), (10), and (12).

(3) *Failure to document minimum safety factors during the initial assessment.* Until the date an owner or operator of a CCR unit documents that the calculated factors of safety achieve the minimum safety factors specified in paragraphs (e)(1)(i) through (v) of this section, the owner or operator is prohibited from placing CCR in such unit.

(4) *Closure of the CCR unit.* An owner or operator of a CCR unit who either fails to complete a timely periodic safety factor assessment or fails to demonstrate minimum safety factors as required by paragraph (e) of this section is subject to the requirements of §257.101(c).

(g) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in §257.105(f), the notification requirements specified in §257.106(f), and the internet requirements specified in §257.107(f).

### Operating Criteria

### §257.80 Air criteria.

(a) The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities.

(b) *CCR fugitive dust control plan.* The owner or operator of the CCR unit must prepare and operate in accordance with a CCR fugitive dust control plan as specified in paragraphs (b)(1) through (7) of this section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act.

(1) The CCR fugitive dust control plan must identify and describe the CCR fugitive dust control measures the owner or operator will use to minimize CCR from becoming airborne at the facility. The owner or operator must select, and include in the CCR fugitive dust control plan, the CCR fugitive

dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions. Examples of control measures that may be appropriate include: Locating CCR inside an enclosure or partial enclosure; operating a water spray or fogging system; reducing fall distances at material drop points; using wind barriers, compaction, or vegetative covers; establishing and enforcing reduced vehicle speed limits; paving and sweeping roads; covering trucks transporting CCR; reducing or halting operations during high wind events; or applying a daily cover.

(2) If the owner or operator operates a CCR landfill or any lateral expansion of a CCR landfill, the CCR fugitive dust control plan must include procedures to emplace CCR as conditioned CCR. Conditioned CCR means wetting CCR with water to a moisture content that will prevent wind dispersal, but will not result in free liquids. In lieu of water, CCR conditioning may be accomplished with an appropriate chemical dust suppression agent.

(3) The CCR fugitive dust control plan must include procedures to log citizen complaints received by the owner or operator involving CCR fugitive dust events at the facility.

(4) The CCR fugitive dust control plan must include a description of the procedures the owner or operator will follow to periodically assess the effectiveness of the control plan.

(5) The owner or operator of a CCR unit must prepare an initial CCR fugitive dust control plan for the facility no later than October 19, 2015, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this subpart after October 19, 2015. The owner or operator has completed the initial CCR fugitive dust control plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(1).

(6) *Amendment of the plan.* The owner or operator of a CCR unit subject to the requirements of this section may amend the written CCR fugitive dust control plan at any time provided the revised plan is placed in the facility's operating record as required by § 257.105(g)(1). The owner or operator must amend the written plan whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit.

(7) The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the initial CCR fugitive dust control plan, or any subsequent amendment of it, meets the requirements of this section.

(c) *Annual CCR fugitive dust control report.* The owner or operator of a CCR unit must prepare an annual CCR fugitive dust control report that includes a description of the actions taken by the owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The initial annual report must be completed no later than 14 months after placing the initial CCR fugitive dust control plan in the facility's operating record. The deadline for completing a subsequent report is one year after the date of completing the previous report. For purposes of this paragraph (c), the owner or operator has completed the annual CCR fugitive dust control report when the plan has been placed in the facility's operating record as required by § 257.105(g)(2).

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(g), the notification requirements specified in § 257.106(g), and the internet requirements specified in § 257.107(g).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36452, July 30, 2018]

### § 257.81 Run-on and run-off controls for CCR landfills.

(a) The owner or operator of an existing or new CCR landfill or any lateral expansion of a CCR landfill must design, construct, operate, and maintain:

(1) A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm; and

(2) A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(b) Run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under § 257.3–3.

(c) *Run-on and run-off control system plan*—(1) *Content of the plan*. The owner or operator must prepare initial and periodic run-on and run-off control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this section. These plans must document how the run-on and run-off control systems have been designed and constructed to meet the applicable requirements of this section. Each plan must be supported by appropriate engineering calculations. The owner or operator has completed the initial run-on and run-off control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(3).

(2) *Amendment of the plan*. The owner or operator may amend the written run-on and run-off control system plan at any time provided the revised plan is placed in the facility's operating record as required by § 257.105(g)(3). The owner or operator must amend the written run-on and run-off control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.

(3) *Timeframes for preparing the initial plan*—(i) *Existing CCR landfills*. The owner or operator of the CCR unit must prepare the initial run-on and run-off control system plan no later than October 17, 2016.

(ii) *New CCR landfills and any lateral expansion of a CCR landfill*. The owner or operator must prepare the initial run-on and run-off control system plan no later than the date of initial receipt of CCR in the CCR unit.

(4) *Frequency for revising the plan*. The owner or operator of the CCR unit must prepare periodic run-on and run-off control system plans required by paragraph (c)(1) of this section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first subsequent plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed a periodic run-on and run-off control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(3).

(5) The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the initial and periodic run-on and run-off control system plans meet the requirements of this section.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(g), the notification requirements specified in § 257.106(g), and the internet requirements specified in § 257.107(g).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36452, July 30, 2018]

### § 257.82 Hydrologic and hydraulic capacity requirements for CCR surface impoundments.

(a) The owner or operator of an existing or new CCR surface impoundment or any lateral expansion of a CCR surface impoundment must design, construct, operate, and maintain an inflow design flood control system as specified in paragraphs (a)(1) and (2) of this section.

(1) The inflow design flood control system must adequately manage flow into the CCR unit during and following the peak discharge of the inflow design flood specified in paragraph (a)(3) of this section.

(2) The inflow design flood control system must adequately manage flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood specified in paragraph (a)(3) of this section.

(3) The inflow design flood is:

(i) For a high hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the probable maximum flood;

(ii) For a significant hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the 1,000-year flood;

(iii) For a low hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the 100-year flood; or

(iv) For an incised CCR surface impoundment, the 25-year flood.

(b) Discharge from the CCR unit must be handled in accordance with the surface water requirements under § 257.3–3.

(c) *Inflow design flood control system plan*—(1) *Content of the plan*. The owner or operator must prepare initial and periodic inflow design flood control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this section. These plans must document how the inflow design flood control system has been designed and constructed to meet the requirements of this section. Each plan must be supported by appropriate engineering calculations. The owner or operator of the CCR unit has completed the inflow design flood control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(4).

(2) *Amendment of the plan*. The owner or operator of the CCR unit may amend the written inflow design flood control system plan at any time provided the revised plan is placed in the facility's operating record as required by § 257.105(g)(4). The owner or operator must amend the written inflow design flood control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.

(3) *Timeframes for preparing the initial plan*—(i) *Existing CCR surface impoundments*. The owner or operator of the CCR unit must prepare the initial inflow design flood control system plan no later than October 17, 2016.

(ii) *New CCR surface impoundments and any lateral expansion of a CCR surface impoundment*. The owner or operator must prepare the initial inflow design flood control system plan no later than the date of initial receipt of CCR in the CCR unit.

(4) *Frequency for revising the plan*. The owner or operator must prepare periodic inflow design flood control system plans required by paragraph (c)(1) of this section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first periodic plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed an inflow design flood control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(4).

(5) The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the initial and periodic inflow design flood control system plans meet the requirements of this section.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(g), the notification requirements specified in § 257.106(g), and the internet requirements specified in § 257.107(g).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36451, July 30, 2018]

### § 257.83 Inspection requirements for CCR surface impoundments.

(a) *Inspections by a qualified person*. (1) All CCR surface impoundments and any lateral expansion of a CCR surface impoundment must be examined by a qualified person as follows:

(i) At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit;

(ii) At intervals not exceeding seven days, inspect the discharge of all outlets of hydraulic structures which pass underneath the base of the surface impoundment or through the dike of the CCR unit for abnormal discoloration, flow or discharge of debris or sediment; and

(iii) At intervals not exceeding 30 days, monitor all CCR unit instrumentation.

(iv) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by § 257.105(g)(5).

(2) *Timeframes for inspections by a qualified person*—(i) *Existing CCR surface impoundments.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section no later than October 19, 2015.

(ii) *New CCR surface impoundments and any lateral expansion of a CCR surface impoundment.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section upon initial receipt of CCR by the CCR unit.

(b) Annual i*nspections by a qualified professional engineer.* (1) If the existing or new CCR surface impoundment or any lateral expansion of the CCR surface impoundment is subject to the periodic structural stability assessment requirements under § 257.73(d) or § 257.74(d), the CCR unit must additionally be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

(i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by §§ 257.73(c)(1) and 257.74(c)(1), previous periodic structural stability assessments required under §§ 257.73(d) and 257.74(d), the results of inspections by a qualified person, and results of previous annual inspections);

(ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures; and

(iii) A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

(2) *Inspection report.* The qualified professional engineer must prepare a report following each inspection that addresses the following:

(i) Any changes in geometry of the impounding structure since the previous annual inspection;

(ii) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;

(iii) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;

(iv) The storage capacity of the impounding structure at the time of the inspection;

(v) The approximate volume of the impounded water and CCR at the time of the inspection;

(vi) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures; and

(vii) Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

(3) *Timeframes for conducting the initial inspection*—(i) *Existing CCR surface impoundments.* The owner or operator of the CCR unit must complete the initial inspection required by paragraphs (b)(1) and (2) of this section no later than January 19, 2016.

(ii) *New CCR surface impoundments and any lateral expansion of a CCR surface impoundment.* The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this section is completed no later than 14 months following the date of initial receipt of CCR in the CCR unit.

(4) *Frequency of inspections.* (i) Except as provided for in paragraph (b)(4)(ii) of

this section, the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by § 257.105(g)(6).

(ii) In any calendar year in which both the periodic inspection by a qualified professional engineer and the quinquennial (occurring every five years) structural stability assessment by a qualified professional engineer required by §§ 257.73(d) and 257.74(d) are required to be completed, the annual inspection is not required, provided the structural stability assessment is completed during the calendar year. If the annual inspection is not conducted in a year as provided by this paragraph (b)(4)(ii), the deadline for completing the next annual inspection is one year from the date of completing the quinquennial structural stability assessment.

(5) If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

(c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(g), the notification requirements specified in § 257.106(g), and the internet requirements specified in § 257.107(g).

[80 FR 21468, Apr. 17, 2015, as amended at 80 FR 37992, July 2, 2015]

### § 257.84 Inspection requirements for CCR landfills.

(a) *Inspections by a qualified person.* (1) All CCR landfills and any lateral expansion of a CCR landfill must be examined by a qualified person as follows:

(i) At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit; and

(ii) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by § 257.105(g)(8).

(2) *Timeframes for inspections by a qualified person*—(i) *Existing CCR landfills.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section no later than October 19, 2015.

(ii) *New CCR landfills and any lateral expansion of a CCR landfill.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section upon initial receipt of CCR by the CCR unit.

(b) *Annual inspections by a qualified professional engineer.* (1) Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

(i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections); and

(ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

(2) *Inspection report.* The qualified professional engineer must prepare a report following each inspection that addresses the following:

(i) Any changes in geometry of the structure since the previous annual inspection;

(ii) The approximate volume of CCR contained in the unit at the time of the inspection;

(iii) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit; and

(iv) Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

(3) *Timeframes for conducting the initial inspection*—(i) *Existing CCR landfills.* The owner or operator of the CCR unit must complete the initial inspection required by paragraphs (b)(1) and (2) of this section no later than January 19, 2016.

(ii) *New CCR landfills and any lateral expansion of a CCR landfill.* The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this section no later than 14 months following the date of initial receipt of CCR in the CCR unit.

(4) *Frequency of inspections.* The owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by § 257.105(g)(9).

(5) If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

(c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(g), the notification requirements specified in § 257.106(g), and the internet requirements specified in § 257.107(g).

[80 FR 21468, Apr. 17, 2015, as amended at 80 FR 37992, July 2, 2015]

## GROUNDWATER MONITORING AND CORRECTIVE ACTION

### § 257.90 Applicability.

(a) All CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under §§ 257.90 through 257.99, except as provided in paragraph (g) of this section.

(b) *Initial timeframes*—(1) *Existing CCR landfills and existing CCR surface impoundments.* No later than October 17, 2017, the owner or operator of the CCR unit must be in compliance with the following groundwater monitoring requirements:

(i) Install the groundwater monitoring system as required by § 257.91;

(ii) Develop the groundwater sampling and analysis program to include selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by § 257.93;

(iii) Initiate the detection monitoring program to include obtaining a minimum of eight independent samples for each background and downgradient well as required by § 257.94(b); and

(iv) Begin evaluating the groundwater monitoring data for statistically significant increases over background levels for the constituents listed in appendix III of this part as required by § 257.94.

(2) *New CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units.* Prior to initial receipt of CCR by the CCR unit, the owner or operator must be in compliance with the groundwater monitoring requirements specified in paragraph (b)(1)(i) and (ii) of this section. In addition, the owner or operator of the CCR unit must initiate the detection monitoring program to include obtaining a minimum of eight independent samples for each background well as required by § 257.94(b).

(c) Once a groundwater monitoring system and groundwater monitoring program has been established at the CCR unit as required by this subpart, the owner or operator must conduct groundwater monitoring and, if necessary, corrective action throughout the active life and post-closure care period of the CCR unit.

(d) In the event of a release from a CCR unit, the owner or operator must immediately take all necessary measures to control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of contaminants into the environment. The owner or operator of the CCR unit must comply with all applicable requirements in §§ 257.96, 257.97, and 257.98.

(e) *Annual groundwater monitoring and corrective action report.* For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

(1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

(4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the internet requirements specified in § 257.107(h).

(g) *Suspension of groundwater monitoring requirements.* (1) The Participating State Director or EPA where EPA is the permitting authority may suspend the groundwater monitoring requirements under §§ 257.90 through 257.95 for a CCR unit for a period of up to ten years, if the owner or operator provides written documentation that, based on the characteristics of the site in which the CCR unit is located, there is no potential for migration of any of the constituents listed in appendices III and IV to this part from that CCR unit to the uppermost aquifer during the active life of the CCR unit and the post-closure care period. This demonstration must be certified by a qualified professional engineer and approved by the Participating State Director or EPA where EPA is the permitting authority, and must be based upon:

(i) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport, including at a minimum, the information necessary to evaluate or interpret the effects of the following properties or processes on contaminant fate and transport:

(A) Aquifer Characteristics, including hydraulic conductivity, hydraulic gradient, effective porosity, aquifer thickness, degree of saturation, stratigraphy, degree of fracturing and secondary porosity of soils and bedrock, aquifer heterogeneity, groundwater discharge, and groundwater recharge areas;

(B) Waste Characteristics, including quantity, type, and origin;

(C) Climatic Conditions, including annual precipitation, leachate generation estimates, and effects on leachate quality;

(D) Leachate Characteristics, including leachate composition, solubility, density, the presence of immiscible constituents, Eh, and pH; and

(E) Engineered Controls, including liners, cover systems, and aquifer controls (*e.g.*, lowering the water table). These must be evaluated under design and failure conditions to estimate their long-term residual performance.

(ii) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and the environment.

(2) The owner or operator of the CCR unit may renew this suspension for additional ten year periods by submitting written documentation that the site characteristics continue to ensure there will be no potential for migration of any of the constituents listed in Appendices III and IV of this part. The documentation must include, at a minimum, the information specified in paragraphs (g)(1)(i) and (g)(1)(ii) of this section and a certification by a qualified professional engineer and approved by the State Director or EPA where EPA is the permitting authority. The owner or operator must submit the documentation supporting their renewal request for the state's or EPA's review and approval of their extension one year before the groundwater monitoring suspension is due to expire. If the existing groundwater monitoring extension expires or is not approved, the owner or operator must begin groundwater monitoring according to paragraph (a) of this section within 90 days. The owner or operator may continue to renew the suspension for ten-year periods, provided the owner or operator demonstrate that the standard in paragraph (g)(1) of this section continues to be met for the unit. The owner or operator must place each completed demonstration in the facility's operating record.

(3) The owner or operator of the CCR unit must include in the annual groundwater monitoring and corrective action report required by § 257.90(e) or § 257.100(e)(5)(ii) any approved no migration demonstration.

[80 FR 21468, Apr. 17, 2015, as amended at 81 FR 51807, Aug. 5, 2016; 83 FR 36452, July 30, 2018]

### § 257.91 Groundwater monitoring systems.

(a) *Performance standard.* The owner or operator of a CCR unit must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that:

(1) Accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the CCR management area where:

(i) Hydrogeologic conditions do not allow the owner or operator of the CCR unit to determine what wells are hydraulically upgradient; or

(ii) Sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells; and

(2) Accurately represent the quality of groundwater passing the waste boundary of the CCR unit. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer.

All potential contaminant pathways must be monitored.

(b) The number, spacing, and depths of monitoring systems shall be determined based upon site-specific technical information that must include thorough characterization of:

(1) Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

(2) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(c) The groundwater monitoring system must include the minimum number of monitoring wells necessary to meet the performance standards specified in paragraph (a) of this section, based on the site-specific information specified in paragraph (b) of this section. The groundwater monitoring system must contain:

(1) A minimum of one upgradient and three downgradient monitoring wells; and

(2) Additional monitoring wells as necessary to accurately represent the quality of background groundwater that has not been affected by leakage from the CCR unit and the quality of groundwater passing the waste boundary of the CCR unit.

(d) The owner or operator of multiple CCR units may install a multiunit groundwater monitoring system instead of separate groundwater monitoring systems for each CCR unit.

(1) The multiunit groundwater monitoring system must be equally as capable of detecting monitored constituents at the waste boundary of the CCR unit as the individual groundwater monitoring system specified in paragraphs (a) through (c) of this section for each CCR unit based on the following factors:

(i) Number, spacing, and orientation of each CCR unit;

(ii) Hydrogeologic setting;

(iii) Site history; and

(iv) Engineering design of the CCR unit.

(2) If the owner or operator elects to install a multiunit groundwater monitoring system, and if the multiunit system includes at least one existing unlined CCR surface impoundment as determined by § 257.71(a), and if at any time after October 19, 2015 the owner or operator determines in any sampling event that the concentrations of one or more constituents listed in appendix IV to this part are detected at statistically significant levels above the groundwater protection standard established under § 257.95(h) for the multiunit system, then all unlined CCR surface impoundments comprising the multiunit groundwater monitoring system are subject to the closure requirements under § 257.101(a) to retrofit or close.

(e) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well borehole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (*i.e.*, the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

(1) The owner or operator of the CCR unit must document and include in the operating record the design, installation, development, and decommissioning of any monitoring wells, piezometers and other measurement, sampling, and analytical devices. The qualified professional engineer must be given access to this documentation when completing the groundwater monitoring system certification required under paragraph (f) of this section.

(2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to the design specifications throughout the life of the monitoring program.

(f) The owner or operator must obtain a certification from a qualified professional engineer or approval from

the Participating State Director or approval from EPA where EPA is the permitting authority stating that the groundwater monitoring system has been designed and constructed to meet the requirements of this section. If the groundwater monitoring system includes the minimum number of monitoring wells specified in paragraph (c)(1) of this section, the certification must document the basis supporting this determination.

(g) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in §257.105(h), the notification requirements specified in §257.106(h), and the internet requirements specified in §257.107(h).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36453, July 30, 2018]

**§257.92 [Reserved]**

**§257.93 Groundwater sampling and analysis requirements.**

(a) The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells required by §257.91. The owner or operator of the CCR unit must develop a sampling and analysis program that includes procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

(b) The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. For purposes of §§257.90 through 257.98, the term *constituent* refers to both hazardous constituents and other monitoring parameters listed in either appendix III or IV of this part.

(c) Groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator of the CCR unit must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same CCR management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

(d) The owner or operator of the CCR unit must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the constituents required in the particular groundwater monitoring program that applies to the CCR unit as determined under §257.94(a) or §257.95(a). Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR unit if it meets the requirements of §257.91(a)(1).

(e) The number of samples collected when conducting detection monitoring and assessment monitoring (for both downgradient and background wells) must be consistent with the statistical procedures chosen under paragraph (f) of this section and the performance standards under paragraph (g) of this section. The sampling procedures shall be those specified under §257.94(b) through (d) for detection monitoring, §257.95(b) through (d) for assessment monitoring, and §257.96(b) for corrective action.

(f) The owner or operator of the CCR unit must select one of the statistical methods specified in paragraphs (f)(1) through (5) of this section to be used in evaluating groundwater monitoring data for each specified constituent. The statistical test chosen shall be conducted separately for each constituent in each monitoring well.

(1) A parametric analysis of variance followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(2) An analysis of variance based on ranks followed by multiple comparison

procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure, in which an interval for each constituent is established from the distribution of the background data and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of paragraph (g) of this section.

(6) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR management area. The certification must include a narrative description of the statistical method selected to evaluate the groundwater monitoring data.

(g) Any statistical method chosen under paragraph (f) of this section shall comply with the following performance standards, as appropriate, based on the statistical test method used:

(1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of constituents. Normal distributions of data values shall use parametric methods. Non-normal distributions shall use non-parametric methods. If the distribution of the constituents is shown by the owner or operator of the CCR unit to be inappropriate for a normal theory test, then the data must be transformed or a distribution-free (non-parametric) theory test must be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparison procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be such that this approach is at least as effective as any other approach in this section for evaluating groundwater data. The parameter values shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(4) If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be such that this approach is at least as effective as any other approach in this section for evaluating groundwater data. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(5) The statistical method must account for data below the limit of detection with one or more statistical procedures that shall at least as effective as any other approach in this section for evaluating groundwater data. Any practical quantitation limit that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method must include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(h) The owner or operator of the CCR unit must determine whether or not there is a statistically significant increase over background values for each constituent required in the particular groundwater monitoring program that applies to the CCR unit, as determined under § 257.94(a) or § 257.95(a).

(1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the groundwater quality of each constituent at each monitoring well designated pursuant to § 257.91(a)(2) or (d)(1) to the background value of that constituent, according to the statistical procedures and performance standards specified under paragraphs (f) and (g) of this section.

(2) Within 90 days after completing sampling and analysis, the owner or operator must determine whether there has been a statistically significant increase over background for any constituent at each monitoring well.

(i) The owner or operator must measure ''total recoverable metals'' concentrations in measuring groundwater quality. Measurement of total recoverable metals captures both the particulate fraction and dissolved fraction of metals in natural waters. Groundwater samples shall not be field-filtered prior to analysis.

(j) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the Internet requirements specified in § 257.107(h).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36453, July 30, 2018]

### § 257.94 Detection monitoring program.

(a) The owner or operator of a CCR unit must conduct detection monitoring at all groundwater monitoring wells consistent with this section. At a minimum, a detection monitoring program must include groundwater monitoring for all constituents listed in appendix III to this part.

(b) Except as provided in paragraph (d) of this section, the monitoring frequency for the constituents listed in appendix III to this part shall be at least semiannual during the active life of the CCR unit and the post-closure period. For existing CCR landfills and existing CCR surface impoundments, a minimum of eight independent samples from each background and downgradient well must be collected and analyzed for the constituents listed in appendix III and IV to this part no later than October 17, 2017. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, a minimum of eight independent samples for each background well must be collected and analyzed for the constituents listed in appendices III and IV to this part during the first six months of sampling.

(c) The number of samples collected and analyzed for each background well and downgradient well during subsequent semiannual sampling events must be consistent with § 257.93(e), and must account for any unique characteristics of the site, but must be at least one sample from each background and downgradient well.

(d) The owner or operator of a CCR unit may demonstrate the need for an alternative monitoring frequency for repeated sampling and analysis for constituents listed in appendix III to this part during the active life and the post-closure care period based on the availability of groundwater. If there is not adequate groundwater flow to sample wells semiannually, the alternative frequency shall be no less than annual. The need to vary monitoring frequency must be evaluated on a site-specific basis. The demonstration must be supported by, at a minimum, the information specified in paragraphs (d)(1) and (2) of this section.

(1) Information documenting that the need for less frequent sampling. The alternative frequency must be based on consideration of the following factors:

(i) Lithology of the aquifer and unsaturated zone;

(ii) Hydraulic conductivity of the aquifer and unsaturated zone; and

(iii) Groundwater flow rates.

(2) Information documenting that the alternative frequency will be no less effective in ensuring that any leakage from the CCR unit will be discovered within a timeframe that will not materially delay establishment of an assessment monitoring program.

(3) The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).

(e) If the owner or operator of the CCR unit determines, pursuant to § 257.93(h) that there is a statistically significant increase over background levels for one or more of the constituents listed in appendix III to this part at any monitoring well at the waste boundary specified under § 257.91(a)(2), the owner or operator must:

(1) Except as provided for in paragraph (e)(2) of this section, within 90 days of detecting a statistically significant increase over background levels for any constituent, establish an assessment monitoring program meeting the requirements of § 257.95.

(2) The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a statistically significant increase over background levels to include obtaining a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority verifying the accuracy of the information in the report. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with a detection monitoring program under this section. If a successful demonstration is not completed within the 90-day period, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under § 257.95. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

(3) The owner or operator of a CCR unit must prepare a notification stating that an assessment monitoring program has been established. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by § 257.105(h)(5).

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the Internet requirements specified in § 257.107(h).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36453, July 30, 2018]

### § 257.95 Assessment monitoring program.

(a) Assessment monitoring is required whenever a statistically significant increase over background levels has been detected for one or more of the constituents listed in appendix III to this part.

(b) Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator of the CCR unit must sample and analyze the groundwater for all constituents listed in appendix IV to this part. The number of samples collected and analyzed for each well during each sampling event must be consistent with § 257.93(e), and must account for any unique characteristics of the site, but must be at least one sample from each well.

(c) The owner or operator of a CCR unit may demonstrate the need for an alternative monitoring frequency for

repeated sampling and analysis for constituents listed in appendix IV to this part during the active life and the post-closure care period based on the availability of groundwater. If there is not adequate groundwater flow to sample wells semiannually, the alternative frequency shall be no less than annual. The need to vary monitoring frequency must be evaluated on a site-specific basis. The demonstration must be supported by, at a minimum, the information specified in paragraphs (c)(1) and (2) of this section.

(1) Information documenting that the need for less frequent sampling. The alternative frequency must be based on consideration of the following factors:

(i) Lithology of the aquifer and unsaturated zone;

(ii) Hydraulic conductivity of the aquifer and unsaturated zone; and

(iii) Groundwater flow rates.

(2) Information documenting that the alternative frequency will be no less effective in ensuring that any leakage from the CCR unit will be discovered within a timeframe that will not materially delay the initiation of any necessary remediation measures.

(3) The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).

(d) After obtaining the results from the initial and subsequent sampling events required in paragraph (b) of this section, the owner or operator must:

(1) Within 90 days of obtaining the results, and on at least a semiannual basis thereafter, resample all wells that were installed pursuant to the requirements of § 257.91, conduct analyses for all parameters in appendix III to this part and for those constituents in appendix IV to this part that are detected in response to paragraph (b) of this section, and record their concentrations in the facility operating record. The number of samples collected and analyzed for each background well and downgradient well during subsequent semiannual sampling events must be consistent with § 257.93(e), and must account for any unique characteristics of the site, but must be at least one sample from each background and downgradient well;

(2) Establish groundwater protection standards for all constituents detected pursuant to paragraph (b) or (d) of this section. The groundwater protection standards must be established in accordance with paragraph (h) of this section; and

(3) Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

(e) If the concentrations of all constituents listed in appendices III and IV to this part are shown to be at or below background values, using the statistical procedures in § 257.93(g), for two consecutive sampling events, the owner or operator may return to detection monitoring of the CCR unit. The owner or operator must prepare a notification stating that detection monitoring is resuming for the CCR unit. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by § 257.105(h)(7).

(f) If the concentrations of any constituent in appendices III and IV to this part are above background values, but all concentrations are below the groundwater protection standard established under paragraph (h) of this section, using the statistical procedures in § 257.93(g), the owner or operator must continue assessment monitoring in accordance with this section.

(g) If one or more constituents in appendix IV to this part are detected at

statistically significant levels above the groundwater protection standard established under paragraph (h) of this section in any sampling event, the owner or operator must prepare a notification identifying the constituents in appendix IV to this part that have exceeded the groundwater protection standard. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by § 257.105(h)(8). The owner or operator of the CCR unit also must:

(1) Characterize the nature and extent of the release and any relevant site conditions that may affect the remedy ultimately selected. The characterization must be sufficient to support a complete and accurate assessment of the corrective measures necessary to effectively clean up all releases from the CCR unit pursuant to § 257.96. Characterization of the release includes the following minimum measures:

(i) Install additional monitoring wells necessary to define the contaminant plume(s);

(ii) Collect data on the nature and estimated quantity of material released including specific information on the constituents listed in appendix IV of this part and the levels at which they are present in the material released;

(iii) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with paragraph (d)(1) of this section; and

(iv) Sample all wells in accordance with paragraph (d)(1) of this section to characterize the nature and extent of the release.

(2) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance with paragraph (g)(1) of this section. The owner or operator has completed the notifications when they are placed in the facility's operating record as required by § 257.105(h)(8).

(3) Within 90 days of finding that any of the constituents listed in appendix IV to this part have been detected at a statistically significant level exceeding the groundwater protection standards the owner or operator must either:

(i) Initiate an assessment of corrective measures as required by § 257.96; or

(ii) Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the constituents in Appendix III and Appendix IV of this part are at or below background as specified in paragraph (e) of this section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority.

(4) If a successful demonstration has not been made at the end of the 90 day period provided by paragraph (g)(3)(ii) of this section, the owner or operator of the CCR unit must initiate the assessment of corrective measures requirements under § 257.96.

(5) If an assessment of corrective measures is required under § 257.96 by either paragraph (g)(3)(i) or (g)(4) of this section, and if the CCR unit is an existing unlined CCR surface impoundment as determined by § 257.71(a), then the CCR unit is subject to the closure requirements under § 257.101(a) to retrofit or close. In addition, the owner or operator must prepare a notification stating that an assessment of corrective measures has been initiated.

(h) The owner or operator of the CCR unit must establish a groundwater protection standard for each constituent in appendix IV to this part detected in the groundwater. The groundwater protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been established under §§ 141.62 and 141.66 of this title, the MCL for that constituent;

(2) For the following constituents:

(i) Cobalt 6 micrograms per liter (μg/l);

(ii) Lead 15 μg/l;

(iii) Lithium 40 μg/l; and

(iv) Molybdenum 100 μg/l.

(3) For constituents for which the background level is higher than the levels identified under paragraphs (h)(1) and (h)(2) of this section, the background concentration.

(i) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the Internet requirements specified in § 257.107(h).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36453, July 30, 2018]

### § 257.96 Assessment of corrective measures.

(a) Within 90 days of finding that any constituent listed in Appendix IV to this part has been detected at a statistically significant level exceeding the groundwater protection standard defined under § 257.95(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority.

(b) The owner or operator of the CCR unit must continue to monitor groundwater in accordance with the assessment monitoring program as specified in § 257.95.

(c) The assessment under paragraph (a) of this section must include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under § 257.97 addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The institutional requirements, such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(s).

(d) The owner or operator must place the completed assessment of corrective measures in the facility's operating record. The assessment has been completed when it is placed in the facility's operating record as required by § 257.105(h)(10).

(e) The owner or operator must discuss the results of the corrective measures assessment at least 30 days prior to the selection of remedy, in a public meeting with interested and affected parties.

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the

Internet requirements specified in § 257.107(h).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36454, July 30, 2018]

**§ 257.97 Selection of remedy.**

(a) Based on the results of the corrective measures assessment conducted under § 257.96, the owner or operator must, as soon as feasible, select a remedy that, at a minimum, meets the standards listed in paragraph (b) of this section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act. The owner or operator must prepare a semiannual report describing the progress in selecting and designing the remedy. Upon selection of a remedy, the owner or operator must prepare a final report describing the selected remedy and how it meets the standards specified in paragraph (b) of this section. The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the remedy selected meets the requirements of this section. The report has been completed when it is placed in the operating record as required by § 257.105(h)(12).

(b) Remedies must:

(1) Be protective of human health and the environment;

(2) Attain the groundwater protection standard as specified pursuant to § 257.95(h);

(3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents in appendix IV to this part into the environment;

(4) Remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems;

(5) Comply with standards for management of wastes as specified in § 257.98(d).

(c) In selecting a remedy that meets the standards of paragraph (b) of this section, the owner or operator of the CCR unit shall consider the following evaluation factors:

(1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

(i) Magnitude of reduction of existing risks;

(ii) Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy;

(iii) The type and degree of long-term management required, including monitoring, operation, and maintenance;

(iv) Short-term risks that might be posed to the community or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal of contaminant;

(v) Time until full protection is achieved;

(vi) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, or containment;

(vii) Long-term reliability of the engineering and institutional controls; and

(viii) Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

(i) The extent to which containment practices will reduce further releases; and

(ii) The extent to which treatment technologies may be used.

(3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

(i) Degree of difficulty associated with constructing the technology;

(ii) Expected operational reliability of the technologies;

(iii) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(iv) Availability of necessary equipment and specialists; and

(v) Available capacity and location of needed treatment, storage, and disposal services.

(4) The degree to which community concerns are addressed by a potential remedy(s).

(d) The owner or operator must specify as part of the selected remedy a schedule(s) for implementing and completing remedial activities. Such a schedule must require the completion of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (d)(1) through (6) of this section. The owner or operator of the CCR unit must consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination, as determined by the characterization required under § 257.95(g);

(2) Reasonable probabilities of remedial technologies in achieving compliance with the groundwater protection standards established under § 257.95(h) and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for CCR managed during implementation of the remedy;

(4) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(5) Resource value of the aquifer including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users;

(iii) Groundwater quantity and quality;

(iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to CCR constituents;

(v) The hydrogeologic characteristic of the facility and surrounding land; and

(vi) The availability of alternative water supplies; and

(6) Other relevant factors.

(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the Internet requirements specified in § 257.107(h).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36454, July 30, 2018]

### § 257.98 Implementation of the corrective action program.

(a) Within 90 days of selecting a remedy under § 257.97, the owner or operator must initiate remedial activities. Based on the schedule established under § 257.97(d) for implementation and completion of remedial activities the owner or operator must:

(1) Establish and implement a corrective action groundwater monitoring program that:

(i) At a minimum, meets the requirements of an assessment monitoring program under § 257.95;

(ii) Documents the effectiveness of the corrective action remedy; and

(iii) Demonstrates compliance with the groundwater protection standard pursuant to paragraph (c) of this section.

(2) Implement the corrective action remedy selected under § 257.97; and

(3) Take any interim measures necessary to reduce the contaminants leaching from the CCR unit, and/or potential exposures to human or ecological receptors. Interim measures must, to the greatest extent feasible, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to § 257.97. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

(i) Time required to develop and implement a final remedy;

(ii) Actual or potential exposure of nearby populations or environmental receptors to any of the constituents listed in appendix IV of this part;

(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iv) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

(v) Weather conditions that may cause any of the constituents listed in appendix IV to this part to migrate or be released;

(vi) Potential for exposure to any of the constituents listed in appendix IV to this part as a result of an accident or failure of a container or handling system; and

(vii) Other situations that may pose threats to human health and the environment.

(b) If an owner or operator of the CCR unit, determines, at any time, that compliance with the requirements of § 257.97(b) is not being achieved through the remedy selected, the owner or operator must implement other methods or techniques that could feasibly achieve compliance with the requirements.

(c) Remedies selected pursuant to § 257.97 shall be considered complete when:

(1) The owner or operator of the CCR unit demonstrates compliance with the groundwater protection standards established under § 257.95(h) has been achieved at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under § 257.91.

(2) Compliance with the groundwater protection standards established under § 257.95(h) has been achieved by demonstrating that concentrations of constituents listed in appendix IV to this part have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 257.93(f) and (g).

(3) All actions required to complete the remedy have been satisfied.

(d) All CCR that are managed pursuant to a remedy required under § 257.97, or an interim measure required under paragraph (a)(3) of this section, shall be managed in a manner that complies with all applicable RCRA requirements.

(e) Upon completion of the remedy, the owner or operator must prepare a notification stating that the remedy has been completed. The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority attesting that the remedy has been completed in compliance with the requirements of paragraph (c) of this section. The report has been completed when it is placed in the operating record as required by § 257.105(h)(13).

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the internet requirements specified in § 257.107(h).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36454, July 30, 2018]

## Closure and Post-Closure Care

### § 257.100 Inactive CCR surface impoundments.

(a) Inactive CCR surface impoundments are subject to all of the requirements of this subpart applicable to existing CCR surface impoundments.

(b)–(d) [Reserved]

(e) *Timeframes for certain inactive CCR surface impoundments.* (1) An inactive CCR surface impoundment for which the owner or operator has completed the actions by the deadlines specified in paragraphs (e)(1)(i) through (iii) of this section is eligible for the alternative timeframes specified in paragraphs (e)(2) through (6) of this section. The owner or operator of the CCR unit must comply with the applicable recordkeeping, notification, and internet requirements associated with these provisions. For the inactive CCR surface impoundment:

(i) The owner or operator must have prepared and placed in the facility's operating record by December 17, 2015, a notification of intent to initiate closure of the inactive CCR surface impoundment pursuant to § 257.105(i)(1);

(ii) The owner or operator must have provided notification to the State Director and/or appropriate Tribal authority by January 19, 2016, of the intent to initiate closure of the inactive CCR surface impoundment pursuant to § 257.106(i)(1); and

(iii) The owner or operator must have placed on its CCR Web site by January 19, 2016, the notification of intent to initiate closure of the inactive CCR surface impoundment pursuant to § 257.107(i)(1).

(2) *Location restrictions.* (i) No later than April 16, 2020, the owner or operator of the inactive CCR surface impoundment must:

(A) Complete the demonstration for placement above the uppermost aquifer as set forth by § 257.60(a), (b), and (c)(3);

(B) Complete the demonstration for wetlands as set forth by § 257.61(a), (b), and (c)(3);

(C) Complete the demonstration for fault areas as set forth by § 257.62(a), (b), and (c)(3);

(D) Complete the demonstration for seismic impact zones as set forth by § 257.63(a), (b), and (c)(3); and

(E) Complete the demonstration for unstable areas as set forth by § 257.64(a), (b), (c), and (d)(3).

(ii) An owner or operator of an inactive CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (e)(2)(i) of this section is subject to the closure requirements of § 257.101(b)(1).

(3) *Design criteria.* The owner or operator of the inactive CCR surface impoundment must:

(i) No later than April 17, 2018, complete the documentation of liner type as set forth by § 257.71(a) and (b).

(ii) No later than June 16, 2017, place on or immediately adjacent to the CCR unit the permanent identification marker as set forth by § 257.73(a)(1).

(iii) No later than October 16, 2018, prepare and maintain an Emergency Action Plan as set forth by § 257.73(a)(3).

(iv) No later than April 17, 2018, compile a history of construction as set forth by § 257.73(b) and (c).

(v) No later than April 17, 2018, complete the initial hazard potential classification, structural stability, and safety factor assessments as set forth by § 257.73(a)(2), (b), (d), (e), and (f).

(4) *Operating criteria.* The owner or operator of the inactive CCR surface impoundment must:

(i) No later than April 18, 2017, prepare the initial CCR fugitive dust control plan as set forth in § 257.80(b).

(ii) No later than April 17, 2018, prepare the initial inflow design flood control system plan as set forth in § 257.82(c).

(iii) No later than April 18, 2017, initiate the inspections by a qualified person as set forth by § 257.83(a).

(iv) No later than July 19, 2017, complete the initial annual inspection by a qualified professional engineer as set forth by § 257.83(b).

(5) *Groundwater monitoring and corrective action.* The owner or operator of the inactive CCR surface impoundment must:

(i) No later than April 17, 2019, comply with groundwater monitoring requirements set forth in §§ 257.90(b) and 257.94(b); and

(ii) No later than August 1, 2019, prepare the initial groundwater monitoring and corrective action report as set forth in § 257.90(e).

(6) *Closure and post-closure care.* The owner or operator of the inactive CCR surface impoundment must:

(i) No later than April 17, 2018, prepare an initial written closure plan as set forth in § 257.102(b); and

(ii) No later than April 17, 2018, prepare an initial written post-closure care plan as set forth in § 257.104(d).

[80 FR 21468, Apr. 17, 2015, as amended at 81 FR 51807, Aug. 5, 2016]

### § 257.101 Closure or retrofit of CCR units.

(a) The owner or operator of an existing unlined CCR surface impoundment, as determined under § 257.71(a), is subject to the requirements of paragraph (a)(1) of this section.

(1) Except as provided by paragraph (a)(3) of this section, if at any time after October 19, 2015, an owner or operator of an existing unlined CCR surface impoundment determines in any sampling event that the concentrations of one or more constituents listed in appendix IV of this part are detected at statistically significant levels above the groundwater protection standard established under § 257.95(h) for such CCR unit, within six months of making such determination or no later than October 31, 2020, whichever date is later, the owner or operator of the existing unlined CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR surface impoundment and either retrofit or close the CCR unit in accordance with the requirements of § 257.102.

(2) An owner or operator of an existing unlined CCR surface impoundment that closes in accordance with paragraph (a)(1) of this section must include a statement in the notification required under § 257.102(g) or (k)(5) that the CCR surface impoundment is closing or retrofitting under the requirements of paragraph (a)(1) of this section.

(3) The timeframe specified in paragraph (a)(1) of this section does not apply if the owner or operator complies with the alternative closure procedures specified in § 257.103.

(4) At any time after the initiation of closure under paragraph (a)(1) of this section, the owner or operator may cease closure activities and initiate a retrofit of the CCR unit in accordance with the requirements of § 257.102(k).

(b) The owner or operator of an existing CCR surface impoundment is subject to the requirements of paragraph (b)(1) of this section.

(1)(i) *Location standard under § 257.60.* Except as provided by paragraph (b)(4) of this section, the owner or operator of an existing CCR surface impoundment that has not demonstrated compliance with the location standard specified in § 257.60(a) must cease placing CCR and non-CCR wastestreams into such CCR unit no later than October 31, 2020, and close the CCR unit in accordance with the requirements of § 257.102.

(ii) *Location standards under §§ 257.61 through 257.64.* Except as provided by paragraph (b)(4) of this section, within six months of determining that an existing CCR surface impoundment has not demonstrated compliance with any location standard specified in §§ 257.61(a), 257.62(a), 257.63(a), and 257.64(a), the owner or operator of the CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR unit and close the CCR unit in accordance with the requirements of § 257.102.

(2) Within six months of either failing to complete the initial or any subsequent periodic safety factor assessment required by § 257.73(e) by the deadlines specified in § 257.73(f)(1) through (3) or failing to document that the calculated factors of safety for the existing CCR surface impoundment achieve the minimum safety factors specified in § 257.73(e)(1)(i) through (iv), the owner or operator of the CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR unit and close the CCR unit in accordance with the requirements of § 257.102.

(3) An owner or operator of an existing CCR surface impoundment that closes in accordance with paragraphs (b)(1) or (2) of this section must include a statement in the notification required under § 257.102(g) that the CCR surface impoundment is closing under the requirements of paragraphs (b)(1) or (2) of this section.

(4) The timeframe specified in paragraph (b)(1) of this section does not apply if the owner or operator complies with the alternative closure procedures specified in § 257.103.

(c) The owner or operator of a new CCR surface impoundment is subject to the requirements of paragraph (c)(1) of this section.

(1) Within six months of either failing to complete the initial or any subsequent periodic safety factor assessment required by § 257.74(e) by the deadlines specified in § 257.74(f)(1) through (3) or failing to document that the calculated factors of safety for the new CCR surface impoundment achieve the minimum safety factors specified in § 257.74(e)(1)(i) through (v), the owner or operator of the CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR unit and close the CCR unit in accordance with the requirements of § 257.102.

(2) An owner or operator of an new CCR surface impoundment that closes in accordance with paragraph (c)(1) of this section must include a statement in the notification required under § 257.102(g) that the CCR surface impoundment is closing under the requirements of paragraph (c)(1) of this section.

(d) The owner or operator of an existing CCR landfill is subject to the requirements of paragraph (d)(1) of this section.

(1) Except as provided by paragraph (d)(3) of this section, within six months of determining that an existing CCR

landfill has not demonstrated compliance with the location restriction for unstable areas specified in §257.64(a), the owner or operator of the CCR unit must cease placing CCR and non-CCR waste streams into such CCR landfill and close the CCR unit in accordance with the requirements of §257.102.

(2) An owner or operator of an existing CCR landfill that closes in accordance with paragraph (d)(1) of this section must include a statement in the notification required under §257.102(g) that the CCR landfill is closing under the requirements of paragraph (d)(1) of this section.

(3) The timeframe specified in paragraph (d)(1) of this section does not apply if the owner or operator complies with the alternative closure procedures specified in §257.103.

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36454, July 30, 2018]

### §257.102 Criteria for conducting the closure or retrofit of CCR units.

(a) Closure of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must be completed either by leaving the CCR in place and installing a final cover system or through removal of the CCR and decontamination of the CCR unit, as described in paragraphs (b) through (j) of this section. Retrofit of a CCR surface impoundment must be completed in accordance with the requirements in paragraph (k) of this section.

(b) *Written closure plan*—(1) *Content of the plan.* The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section.

(i) A narrative description of how the CCR unit will be closed in accordance with this section.

(ii) If closure of the CCR unit will be accomplished through removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section.

(iii) If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with paragraph (d) of this section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of this section.

(iv) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.

(v) An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this section at any time during the CCR unit's active life.

(vi) A schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure. When preparing the written closure plan, if the owner or operator of a CCR unit estimates that the time required to complete closure will exceed the timeframes specified in paragraph (f)(1) of this section, the written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under paragraph (f)(2) of this section.

(2) *Timeframes for preparing the initial written closure plan*—(i) *Existing CCR landfills and existing CCR surface impoundments.* No later than October 17, 2016, the owner or operator of the CCR unit must prepare an initial written closure plan consistent with the requirements specified in paragraph (b)(1) of this section.

(ii) *New CCR landfills and new CCR surface impoundments, and any lateral*

*expansion of a CCR unit*. No later than the date of the initial receipt of CCR in the CCR unit, the owner or operator must prepare an initial written closure plan consistent with the requirements specified in paragraph (b)(1) of this section.

(iii) The owner or operator has completed the written closure plan when the plan, including the certification required by paragraph (b)(4) of this section, has been placed in the facility's operating record as required by § 257.105(i)(4).

(3) *Amendment of a written closure plan*. (i) The owner or operator may amend the initial or any subsequent written closure plan developed pursuant to paragraph (b)(1) of this section at any time.

(ii) The owner or operator must amend the written closure plan whenever:

(A) There is a change in the operation of the CCR unit that would substantially affect the written closure plan in effect; or

(B) Before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan.

(iii) The owner or operator must amend the closure plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the need to revise an existing written closure plan. If a written closure plan is revised after closure activities have commenced for a CCR unit, the owner or operator must amend the current closure plan no later than 30 days following the triggering event.

(4) The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the initial and any amendment of the written closure plan meets the requirements of this section.

(c) *Closure by removal of CCR*. An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to § 257.95(h) for constituents listed in appendix IV to this part.

(d) *Closure performance standard when leaving CCR in place*—(1) The owner or operator of a CCR unit must ensure that, at a minimum, the CCR unit is closed in a manner that will:

(i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;

(ii) Preclude the probability of future impoundment of water, sediment, or slurry;

(iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;

(iv) Minimize the need for further maintenance of the CCR unit; and

(v) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

(2) *Drainage and stabilization of CCR surface impoundments*. The owner or operator of a CCR surface impoundment or any lateral expansion of a CCR surface impoundment must meet the requirements of paragraphs (d)(2)(i) and (ii) of this section prior to installing the final cover system required under paragraph (d)(3) of this section.

(i) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.

(ii) Remaining wastes must be stabilized sufficient to support the final cover system.

(3) *Final cover system*. If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of paragraph (d)(3)(i) of this section, or the requirements of the alternative

final cover system specified in paragraph (d)(3)(ii) of this section.

(i) The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(i)(A) through (D) of this section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this section.

(A) The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than $1 \times 10^{-5}$ cm/sec, whichever is less.

(B) The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.

(C) The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.

(D) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

(ii) The owner or operator may select an alternative final cover system design, provided the alternative final cover system is designed and constructed to meet the criteria in paragraphs (f)(3)(ii)(A) through (D) of this section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this section.

(A) The design of the final cover system must include an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (d)(3)(i)(A) and (B) of this section.

(B) The design of the final cover system must include an erosion layer that provides equivalent protection from wind or water erosion as the erosion layer specified in paragraph (d)(3)(i)(C) of this section.

(C) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

(iii) The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the design of the final cover system meets the requirements of this section.

(e) *Initiation of closure activities.* Except as provided for in paragraph (e)(4) of this section and § 257.103, the owner or operator of a CCR unit must commence closure of the CCR unit no later than the applicable timeframes specified in either paragraph (e)(1) or (2) of this section.

(1) The owner or operator must commence closure of the CCR unit no later than 30 days after the date on which the CCR unit either:

(i) Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or

(ii) Removes the known final volume of CCR from the CCR unit for the purpose of beneficial use of CCR.

(2)(i) Except as provided by paragraph (e)(2)(ii) of this section, the owner or operator must commence closure of a CCR unit that has not received CCR or any non-CCR waste stream or is no longer removing CCR for the purpose of beneficial use within two years of the last receipt of waste or within two years of the last removal of CCR material for the purpose of beneficial use.

(ii) Notwithstanding paragraph (e)(2)(i) of this section, the owner or operator of the CCR unit may secure an additional two years to initiate closure of the idle unit provided the owner or operator provides written documentation that the CCR unit will continue to accept wastes or will start removing CCR for the purpose of beneficial use. The documentation must be supported by, at a minimum, the information specified in paragraphs (e)(2)(ii)(A) and (B) of this section. The owner or operator may obtain two-year extensions provided the owner or operator continues to be able to demonstrate that there is reasonable likelihood that the CCR unit will accept wastes in the foreseeable future or will remove CCR from the unit for the purpose of beneficial use. The owner or operator must place each completed demonstration, if more than one time extension is sought, in the facility's operating

record as required by § 257.105(i)(5) prior to the end of any two-year period.

(A) Information documenting that the CCR unit has remaining storage or disposal capacity or that the CCR unit can have CCR removed for the purpose of beneficial use; and

(B) Information demonstrating that that there is a reasonable likelihood that the CCR unit will resume receiving CCR or non-CCR waste streams in the foreseeable future or that CCR can be removed for the purpose of beneficial use. The narrative must include a best estimate as to when the CCR unit will resume receiving CCR or non-CCR waste streams. The situations listed in paragraphs (e)(2)(ii)(B)(*1*) through (*4*) of this section are examples of situations that would support a determination that the CCR unit will resume receiving CCR or non-CCR waste streams in the foreseeable future.

(*1*) Normal plant operations include periods during which the CCR unit does not receive CCR or non-CCR waste streams, such as the alternating use of two or more CCR units whereby at any point in time one CCR unit is receiving CCR while CCR is being removed from a second CCR unit after its dewatering.

(*2*) The CCR unit is dedicated to a coal-fired boiler unit that is temporarily idled (e.g., CCR is not being generated) and there is a reasonable likelihood that the coal-fired boiler will resume operations in the future.

(*3*) The CCR unit is dedicated to an operating coal-fired boiler (*i.e.,* CCR is being generated); however, no CCR are being placed in the CCR unit because the CCR are being entirely diverted to beneficial uses, but there is a reasonable likelihood that the CCR unit will again be used in the foreseeable future.

(*4*) The CCR unit currently receives only non-CCR waste streams and those non-CCR waste streams are not generated for an extended period of time, but there is a reasonable likelihood that the CCR unit will again receive non-CCR waste streams in the future.

(iii) In order to obtain additional time extension(s) to initiate closure of a CCR unit beyond the two years provided by paragraph (e)(2)(i) of this section, the owner or operator of the CCR unit must include with the demonstration required by paragraph (e)(2)(ii) of this section the following statement signed by the owner or operator or an authorized representative:

> I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(3) For purposes of this subpart, closure of the CCR unit has commenced if the owner or operator has ceased placing waste and completes any of the following actions or activities:

(i) Taken any steps necessary to implement the written closure plan required by paragraph (b) of this section;

(ii) Submitted a completed application for any required state or agency permit or permit modification; or

(iii) Taken any steps necessary to comply with any state or other agency standards that are a prerequisite, or are otherwise applicable, to initiating or completing the closure of a CCR unit.

(4) The timeframes specified in paragraphs (e)(1) and (2) of this section do not apply to any of the following owners or operators:

(i) [Reserved]

(ii) An owner or operator of an existing unlined CCR surface impoundment closing the CCR unit as required by § 257.101(a);

(iii) An owner or operator of an existing CCR surface impoundment closing the CCR unit as required by § 257.101(b);

(iv) An owner or operator of a new CCR surface impoundment closing the CCR unit as required by § 257.101(c); or

(v) An owner or operator of an existing CCR landfill closing the CCR unit as required by § 257.101(d).

(f) *Completion of closure activities.* (1) Except as provided for in paragraph (f)(2) of this section, the owner or operator must complete closure of the CCR unit:

(i) For existing and new CCR landfills and any lateral expansion of a CCR landfill, within six months of commencing closure activities.

(ii) For existing and new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, within five years of commencing closure activities.

(2)(i) *Extensions of closure timeframes.* The timeframes for completing closure of a CCR unit specified under paragraphs (f)(1) of this section may be extended if the owner or operator can demonstrate that it was not feasible to complete closure of the CCR unit within the required timeframes due to factors beyond the facility's control. If the owner or operator is seeking a time extension beyond the time specified in the written closure plan as required by paragraph (b)(1) of this section, the demonstration must include a narrative discussion providing the basis for additional time beyond that specified in the closure plan. The owner or operator must place each completed demonstration, if more than one time extension is sought, in the facility's operating record as required by §257.105(i)(6) prior to the end of any two-year period. Factors that may support such a demonstration include:

(A) Complications stemming from the climate and weather, such as unusual amounts of precipitation or a significantly shortened construction season;

(B) Time required to dewater a surface impoundment due to the volume of CCR contained in the CCR unit or the characteristics of the CCR in the unit;

(C) The geology and terrain surrounding the CCR unit will affect the amount of material needed to close the CCR unit; or

(D) Time required or delays caused by the need to coordinate with and obtain necessary approvals and permits from a state or other agency.

(ii) *Maximum time extensions.* (A) CCR surface impoundments of 40 acres or smaller may extend the time to complete closure by no longer than two years.

(B) CCR surface impoundments larger than 40 acres may extend the timeframe to complete closure of the CCR unit multiple times, in two-year increments. For each two-year extension sought, the owner or operator must substantiate the factual circumstances demonstrating the need for the extension. No more than a total of five two-year extensions may be obtained for any CCR surface impoundment.

(C) CCR landfills may extend the timeframe to complete closure of the CCR unit multiple times, in one-year increments. For each one-year extension sought, the owner or operator must substantiate the factual circumstances demonstrating the need for the extension. No more than a total of two one-year extensions may be obtained for any CCR landfill.

(iii) In order to obtain additional time extension(s) to complete closure of a CCR unit beyond the times provided by paragraph (f)(1) of this section, the owner or operator of the CCR unit must include with the demonstration required by paragraph (f)(2)(i) of this section the following statement signed by the owner or operator or an authorized representative:

> I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(3) Upon completion, the owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority verifying that closure has been completed in accordance with the closure plan specified in paragraph (b) of this section and the requirements of this section.

(g) No later than the date the owner or operator initiates closure of a CCR unit, the owner or operator must prepare a notification of intent to close a CCR unit. The notification must include the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA

is the permitting authority for the design of the final cover system as required by § 257.102(d)(3)(iii), if applicable. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(i)(7).

(h) Within 30 days of completion of closure of the CCR unit, the owner or operator must prepare a notification of closure of a CCR unit. The notification must include the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority as required by § 257.102(f)(3). The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(i)(8).

(i) *Deed notations.* (1) Except as provided by paragraph (i)(4) of this section, following closure of a CCR unit, the owner or operator must record a notation on the deed to the property, or some other instrument that is normally examined during title search.

(2) The notation on the deed must in perpetuity notify any potential purchaser of the property that:

(i) The land has been used as a CCR unit; and

(ii) Its use is restricted under the post-closure care requirements as provided by § 257.104(d)(1)(iii).

(3) Within 30 days of recording a notation on the deed to the property, the owner or operator must prepare a notification stating that the notation has been recorded. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(i)(9).

(4) An owner or operator that closes a CCR unit in accordance with paragraph (c) of this section is not subject to the requirements of paragraphs (i)(1) through (3) of this section.

(j) The owner or operator of the CCR unit must comply with the closure recordkeeping requirements specified in § 257.105(i), the closure notification requirements specified in § 257.106(i), and the closure Internet requirements specified in § 257.107(i).

(k) *Criteria to retrofit an existing CCR surface impoundment.* (1) To retrofit an existing CCR surface impoundment, the owner or operator must:

(i) First remove all CCR, including any contaminated soils and sediments from the CCR unit; and

(ii) Comply with the requirements in § 257.72.

(iii) A CCR surface impoundment undergoing a retrofit remains subject to all other requirements of this subpart, including the requirement to conduct any necessary corrective action.

(2) *Written retrofit plan*—(i) *Content of the plan.* The owner or operator must prepare a written retrofit plan that describes the steps necessary to retrofit the CCR unit consistent with recognized and generally accepted good engineering practices. The written retrofit plan must include, at a minimum, all of the following information:

(A) A narrative description of the specific measures that will be taken to retrofit the CCR unit in accordance with this section.

(B) A description of the procedures to remove all CCR and contaminated soils and sediments from the CCR unit.

(C) An estimate of the maximum amount of CCR that will be removed as part of the retrofit operation.

(D) An estimate of the largest area of the CCR unit that will be affected by the retrofit operation.

(E) A schedule for completing all activities necessary to satisfy the retrofit criteria in this section, including an estimate of the year in which retrofit activities of the CCR unit will be completed.

(ii) *Timeframes for preparing the initial written retrofit plan.* (A) No later than 60 days prior to date of initiating retrofit activities, the owner or operator must prepare an initial written retrofit plan consistent with the requirements specified in paragraph (k)(2) of this section. For purposes of this subpart, initiation of retrofit activities has commenced if the owner or operator has ceased placing waste in the unit and completes any of the following actions or activities:

(*1*) Taken any steps necessary to implement the written retrofit plan;

(*2*) Submitted a completed application for any required state or agency permit or permit modification; or

(*3*) Taken any steps necessary to comply with any state or other agency standards that are a prerequisite, or are otherwise applicable, to initiating or completing the retrofit of a CCR unit.

(B) The owner or operator has completed the written retrofit plan when the plan, including the certification required by paragraph (k)(2)(iv) of this section, has been placed in the facility's operating record as required by § 257.105(j)(1).

(iii) *Amendment of a written retrofit plan.* (A) The owner or operator may amend the initial or any subsequent written retrofit plan at any time.

(B) The owner or operator must amend the written retrofit plan whenever:

(*1*) There is a change in the operation of the CCR unit that would substantially affect the written retrofit plan in effect; or

(*2*) Before or after retrofit activities have commenced, unanticipated events necessitate a revision of the written retrofit plan.

(C) The owner or operator must amend the retrofit plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the revision of an existing written retrofit plan. If a written retrofit plan is revised after retrofit activities have commenced for a CCR unit, the owner or operator must amend the current retrofit plan no later than 30 days following the triggering event.

(iv) The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer or an approval from the Participating State Director or an approval from EPA where EPA is the permitting authority that the activities outlined in the written retrofit plan, including any amendment of the plan, meet the requirements of this section.

(3) *Deadline for completion of activities related to the retrofit of a CCR unit.* Any CCR surface impoundment that is being retrofitted must complete all retrofit activities within the same time frames and procedures specified for the closure of a CCR surface impoundment in § 257.102(f) or, where applicable, § 257.103.

(4) Upon completion, the owner or operator must obtain a written certification from a qualified professional engineer or an approval from the Participating State Director or an approval from EPA where EPA is the permitting authority verifying that the retrofit activities have been completed in accordance with the retrofit plan specified in paragraph (k)(2) of this section and the requirements of this section.

(5) No later than the date the owner or operator initiates the retrofit of a CCR unit, the owner or operator must prepare a notification of intent to retrofit a CCR unit. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(j)(5).

(6) Within 30 days of completing the retrofit activities specified in paragraph (k)(1) of this section, the owner or operator must prepare a notification of completion of retrofit activities. The notification must include the certification from a qualified professional engineer or an approval from the Participating State Director or an approval from EPA where EPA is the permitting authority has is required by paragraph (k)(4) of this section. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(j)(6).

(7) At any time after the initiation of a CCR unit retrofit, the owner or operator may cease the retrofit and initiate closure of the CCR unit in accordance with the requirements of § 257.102.

(8) The owner or operator of the CCR unit must comply with the retrofit recordkeeping requirements specified in § 257.105(j), the retrofit notification requirements specified in § 257.106(j), and the retrofit Internet requirements specified in § 257.107(j).

[80 FR 21468, Apr. 17, 2015, as amended at 81 FR 51808, Aug. 5, 2016; 83 FR 36455, July 30, 2018]

### § 257.103 Alternative closure requirements.

The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is

subject to closure pursuant to §257.101(a), (b)(1), or (d) may continue to receive CCR in the unit provided the owner or operator meets the requirements of either paragraph (a) or (b) of this section.

(a)(1) *No alternative CCR disposal capacity.* Notwithstanding the provisions of §257.101(a), (b)(1), or (d), a CCR unit may continue to receive CCR if the owner or operator of the CCR unit certifies that the CCR must continue to be managed in that CCR unit due to the absence of alternative disposal capacity both on-site and off-site of the facility. To qualify under this paragraph (a)(1), the owner or operator of the CCR unit must document that all of the following conditions have been met:

(i) No alternative disposal capacity is available on-site or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section;

(ii) The owner or operator has made, and continues to make, efforts to obtain additional capacity. Qualification under this subsection lasts only as long as no alternative capacity is available. Once alternative capacity is identified, the owner or operator must arrange to use such capacity as soon as feasible;

(iii) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action; and

(iv) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the development of alternative CCR disposal capacity.

(2) Once alternative capacity is available, the CCR unit must cease receiving CCR and initiate closure following the timeframes in §257.102(e) and (f).

(3) If no alternative capacity is identified within five years after the initial certification, the CCR unit must cease receiving CCR and close in accordance with the timeframes in §257.102(e) and (f).

(b)(1) *Permanent cessation of a coal-fired boiler(s) by a date certain.* Notwithstanding the provisions of §257.101(a), (b)(1), and (d), a CCR unit may continue to receive CCR if the owner or operator certifies that the facility will cease operation of the coal-fired boilers within the timeframes specified in paragraphs (b)(2) through (4) of this section, but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR unit due to the absence of alternative disposal capacity both on-site and off-site of the facility. To qualify under this paragraph (b)(1), the owner or operator of the CCR unit must document that all of the following conditions have been met:

(i) No alternative disposal capacity is available on-site or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section.

(ii) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action; and

(iii) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the closure of the coal-fired boiler.

(2) For a CCR surface impoundment that is 40 acres or smaller, the coal-fired boiler must cease operation and the CCR surface impoundment must have completed closure no later than October 17, 2023.

(3) For a CCR surface impoundment that is larger than 40 acres, the coal-fired boiler must cease operation, and the CCR surface impoundment must complete closure no later than October 17, 2028.

(4) For a CCR landfill, the coal-fired boiler must cease operation, and the CCR landfill must complete closure no later than April 19, 2021.

(c) Required notices and progress reports. An owner or operator of a CCR unit that closes in accordance with paragraphs (a) or (b) of this section must complete the notices and progress reports specified in paragraphs (c)(1) through (3) of this section.

(1) Within six months of becoming subject to closure pursuant to §257.101(a), (b)(1), or (d), the owner or operator must prepare and place in the

facility's operating record a notification of intent to comply with the alternative closure requirements of this section. The notification must describe why the CCR unit qualifies for the alternative closure provisions under either paragraph (a) or (b) of this section, in addition to providing the documentation and certifications required by paragraph (a) or (b) of this section.

(2) The owner or operator must prepare the periodic progress reports required by paragraphs (a)(1)(iv) or (b)(1)(iii), in addition to describing any problems encountered and a description of the actions taken to resolve the problems. The annual progress reports must be completed according to the following schedule:

(i) The first annual progress report must be prepared no later than 13 months after completing the notification of intent to comply with the alternative closure requirements required by paragraph (c)(1) of this section.

(ii) The second annual progress report must be prepared no later than 12 months after completing the first annual progress report. Additional annual progress reports must be prepared within 12 months of completing the previous annual progress report.

(iii) The owner or operator has completed the progress reports specified in paragraph (c)(2) of this section when the reports are placed in the facility's operating record as required by § 257.105(i)(10).

(3) An owner or operator of a CCR unit must also prepare the notification of intent to close a CCR unit as required by § 257.102(g).

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(i), the notification requirements specified in § 257.106(i), and the Internet requirements specified in § 257.107(i).

### § 257.104 Post-closure care requirements.

(a) *Applicability*. (1) Except as provided by paragraph (a)(2) of this section, § 257.104 applies to the owners or operators of CCR landfills, CCR surface impoundments, and all lateral expansions of CCR units that are subject to the closure criteria under § 257.102.

(2) An owner or operator of a CCR unit that elects to close a CCR unit by removing CCR as provided by § 257.102(c) is not subject to the post-closure care criteria under this section.

(b) *Post-closure care maintenance requirements.* Following closure of the CCR unit, the owner or operator must conduct post-closure care for the CCR unit, which must consist of at least the following:

(1) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(2) If the CCR unit is subject to the design criteria under § 257.70, maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of § 257.70; and

(3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of §§ 257.90 through 257.98.

(c) *Post-closure care period.* (1) Except as provided by paragraph (c)(2) of this section, the owner or operator of the CCR unit must conduct post-closure care for 30 years.

(2) If at the end of the post-closure care period the owner or operator of the CCR unit is operating under assessment monitoring in accordance with § 257.95, the owner or operator must continue to conduct post-closure care until the owner or operator returns to detection monitoring in accordance with § 257.95.

(d) *Written post-closure plan*—(1) *Content of the plan*. The owner or operator of a CCR unit must prepare a written post-closure plan that includes, at a minimum, the information specified in paragraphs (d)(1)(i) through (iii) of this section.

(i) A description of the monitoring and maintenance activities required in paragraph (b) of this section for the CCR unit, and the frequency at which these activities will be performed;

(ii) The name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period; and

(iii) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this subpart. Any other disturbance is allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer or approved by the Participating State Director or approved from EPA where EPA is the permitting authority, and notification shall be provided to the State Director that the demonstration has been placed in the operating record and on the owners or operator's publicly accessible internet site.

(2) *Deadline to prepare the initial written post-closure plan*—(i) *Existing CCR landfills and existing CCR surface impoundments*. No later than October 17, 2016, the owner or operator of the CCR unit must prepare an initial written post-closure plan consistent with the requirements specified in paragraph (d)(1) of this section.

(ii) *New CCR landfills, new CCR surface impoundments, and any lateral expansion of a CCR unit*. No later than the date of the initial receipt of CCR in the CCR unit, the owner or operator must prepare an initial written post-closure plan consistent with the requirements specified in paragraph (d)(1) of this section.

(iii) The owner or operator has completed the written post-closure plan when the plan, including the certification required by paragraph (d)(4) of this section, has been placed in the facility's operating record as required by § 257.105(i)(4).

(3) *Amendment of a written post-closure plan*. (i) The owner or operator may amend the initial or any subsequent written post-closure plan developed pursuant to paragraph (d)(1) of this section at any time.

(ii) The owner or operator must amend the written closure plan whenever:

(A) There is a change in the operation of the CCR unit that would substantially affect the written post-closure plan in effect; or

(B) After post-closure activities have commenced, unanticipated events necessitate a revision of the written post-closure plan.

(iii) The owner or operator must amend the written post-closure plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the need to revise an existing written post-closure plan. If a written post-closure plan is revised after post-closure activities have commenced for a CCR unit, the owner or operator must amend the written post-closure plan no later than 30 days following the triggering event.

(4) The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer or an approval from the Participating State Director or an approval from EPA where EPA is the permitting authority that the initial and any amendment of the written post-closure plan meets the requirements of this section.

(e) *Notification of completion of post-closure care period*. No later than 60 days following the completion of the post-closure care period, the owner or operator of the CCR unit must prepare a notification verifying that post-closure care has been completed. The notification must include the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority verifying that post-closure care has been completed in accordance with the closure plan specified in paragraph (d) of this section and the requirements of this section. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(i)(13).

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(i), the notification requirements specified in § 257.106(i), and the Internet requirements specified in § 257.107(i).

[80 FR 21468, Apr. 17, 2015, as amended at 81 FR 51808, Aug. 5, 2016; 83 FR 36455, July 30, 2018]

RECORDKEEPING, NOTIFICATION, AND POSTING OF INFORMATION TO THE INTERNET

### § 257.105 Recordkeeping requirements.

(a) Each owner or operator of a CCR unit subject to the requirements of this subpart must maintain files of all information required by this section in a written operating record at their facility.

(b) Unless specified otherwise, each file must be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record, or study.

(c) An owner or operator of more than one CCR unit subject to the provisions of this subpart may comply with the requirements of this section in one recordkeeping system provided the system identifies each file by the name of each CCR unit. The files may be maintained on microfilm, on a computer, on computer disks, on a storage system accessible by a computer, on magnetic tape disks, or on microfiche.

(d) The owner or operator of a CCR unit must submit to the State Director and/or appropriate Tribal authority any demonstration or documentation required by this subpart, if requested, when such information is not otherwise available on the owner or operator's publicly accessible Internet site.

(e) *Location restrictions.* The owner or operator of a CCR unit subject to this subpart must place the demonstrations documenting whether or not the CCR unit is in compliance with the requirements under §§ 257.60(a), 257.61(a), 257.62(a), 257.63(a), and 257.64(a), as it becomes available, in the facility's operating record.

(f) *Design criteria.* The owner or operator of a CCR unit subject to this subpart must place the following information, as it becomes available, in the facility's operating record:

(1) The design and construction certifications as required by § 257.70(e) and (f).

(2) The documentation of liner type as required by § 257.71(a).

(3) The design and construction certifications as required by § 257.72(c) and (d).

(4) Documentation prepared by the owner or operator stating that the permanent identification marker was installed as required by §§ 257.73(a)(1) and 257.74(a)(1).

(5) The initial and periodic hazard potential classification assessments as required by §§ 257.73(a)(2) and 257.74(a)(2).

(6) The emergency action plan (EAP), and any amendment of the EAP, as required by §§ 257.73(a)(3) and 257.74(a)(3), except that only the most recent EAP must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this section.

(7) Documentation prepared by the owner or operator recording the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders as required by §§ 257.73(a)(3)(i)(E) and 257.74(a)(3)(i)(E).

(8) Documentation prepared by the owner or operator recording all activations of the emergency action plan as required by §§ 257.73(a)(3)(v) and 257.74(a)(3)(v).

(9) The history of construction, and any revisions of it, as required by § 257.73(c), except that these files must be maintained until the CCR unit completes closure of the unit in accordance with § 257.102.

(10) The initial and periodic structural stability assessments as required by §§ 257.73(d) and 257.74(d).

(11) Documentation detailing the corrective measures taken to remedy the deficiency or release as required by §§ 257.73(d)(2) and 257.74(d)(2).

(12) The initial and periodic safety factor assessments as required by §§ 257.73(e) and 257.74(e).

(13) The design and construction plans, and any revisions of it, as required by § 257.74(c), except that these files must be maintained until the CCR

unit completes closure of the unit in accordance with § 257.102.

(g) *Operating criteria.* The owner or operator of a CCR unit subject to this subpart must place the following information, as it becomes available, in the facility's operating record:

(1) The CCR fugitive dust control plan, and any subsequent amendment of the plan, required by § 257.80(b), except that only the most recent control plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this section.

(2) The annual CCR fugitive dust control report required by § 257.80(c).

(3) The initial and periodic run-on and run-off control system plans as required by § 257.81(c).

(4) The initial and periodic inflow design flood control system plan as required by § 257.82(c).

(5) Documentation recording the results of each inspection and instrumentation monitoring by a qualified person as required by § 257.83(a).

(6) The periodic inspection report as required by § 257.83(b)(2).

(7) Documentation detailing the corrective measures taken to remedy the deficiency or release as required by §§ 257.83(b)(5) and 257.84(b)(5).

(8) Documentation recording the results of the weekly inspection by a qualified person as required by § 257.84(a).

(9) The periodic inspection report as required by § 257.84(b)(2).

(h) *Groundwater monitoring and corrective action.* The owner or operator of a CCR unit subject to this subpart must place the following information, as it becomes available, in the facility's operating record:

(1) The annual groundwater monitoring and corrective action report as required by § 257.90(e).

(2) Documentation of the design, installation, development, and decommissioning of any monitoring wells, piezometers and other measurement, sampling, and analytical devices as required by § 257.91(e)(1).

(3) The groundwater monitoring system certification as required by § 257.91(f).

(4) The selection of a statistical method certification as required by § 257.93(f)(6).

(5) Within 30 days of establishing an assessment monitoring program, the notification as required by § 257.94(e)(3).

(6) The results of appendices III and IV to this part constituent concentrations as required by § 257.95(d)(1).

(7) Within 30 days of returning to a detection monitoring program, the notification as required by § 257.95(e).

(8) Within 30 days of detecting one or more constituents in appendix IV to this part at statistically significant levels above the groundwater protection standard, the notifications as required by § 257.95(g).

(9) Within 30 days of initiating the assessment of corrective measures requirements, the notification as required by § 257.95(g)(5).

(10) The completed assessment of corrective measures as required by § 257.96(d).

(11) Documentation prepared by the owner or operator recording the public meeting for the corrective measures assessment as required by § 257.96(e).

(12) The semiannual report describing the progress in selecting and designing the remedy and the selection of remedy report as required by § 257.97(a), except that the selection of remedy report must be maintained until the remedy has been completed.

(13) Within 30 days of completing the remedy, the notification as required by § 257.98(e).

(14) The demonstration, including long-term performance data, supporting the suspension of groundwater monitoring requirements as required by § 257.90(g).

(i) *Closure and post-closure care.* The owner or operator of a CCR unit subject to this subpart must place the following information, as it becomes available, in the facility's operating record:

(1) The notification of intent to initiate closure of the CCR unit as required by § 257.100(c)(1).

(2) The annual progress reports of closure implementation as required by § 257.100(c)(2)(i) and (ii).

(3) The notification of closure completion as required by § 257.100(c)(3).

(4) The written closure plan, and any amendment of the plan, as required by §257.102(b), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this section.

(5) The written demonstration(s), including the certification required by §257.102(e)(2)(iii), for a time extension for initiating closure as required by §257.102(e)(2)(ii).

(6) The written demonstration(s), including the certification required by §257.102(f)(2)(iii), for a time extension for completing closure as required by §257.102(f)(2)(i).

(7) The notification of intent to close a CCR unit as required by §257.102(g).

(8) The notification of completion of closure of a CCR unit as required by §257.102(h).

(9) The notification recording a notation on the deed as required by §257.102(i).

(10) The notification of intent to comply with the alternative closure requirements as required by §257.103(c)(1).

(11) The annual progress reports under the alternative closure requirements as required by §257.103(c)(2).

(12) The written post-closure plan, and any amendment of the plan, as required by §257.104(d), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this section.

(13) The notification of completion of post-closure care period as required by §257.104(e).

(j) *Retrofit criteria.* The owner or operator of a CCR unit subject to this subpart must place the following information, as it becomes available, in the facility's operating record:

(1) The written retrofit plan, and any amendment of the plan, as required by §257.102(k)(2), except that only the most recent retrofit plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this section.

(2) The notification of intent that the retrofit activities will proceed in accordance with the alternative procedures in §257.103.

(3) The annual progress reports required under the alternative requirements as required by §257.103.

(4) The written demonstration(s), including the certification in §257.102(f)(2)(iii), for a time extension for completing retrofit activities as required by §257.102(k)(3).

(5) The notification of intent to initiate retrofit of a CCR unit as required by §257.102(k)(5).

(6) The notification of completion of retrofit activities as required by §257.102(k)(6).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36456, July 30, 2018]

### §257.106 Notification requirements.

(a) The notifications required under paragraphs (e) through (i) of this section must be sent to the relevant State Director and/or appropriate Tribal authority before the close of business on the day the notification is required to be completed. For purposes of this section, *before the close of business* means the notification must be postmarked or sent by electronic mail (email). If a notification deadline falls on a weekend or federal holiday, the notification deadline is automatically extended to the next business day.

(b) If any CCR unit is located in its entirety within Indian Country, the notifications of this section must be sent to the appropriate Tribal authority. If any CCR unit is located in part within Indian Country, the notifications of this section must be sent both to the appropriate State Director and Tribal authority.

(c) Notifications may be combined as long as the deadline requirement for each notification is met.

(d) Unless otherwise required in this section, the notifications specified in this section must be sent to the State Director and/or appropriate Tribal authority within 30 days of placing in the operating record the information required by §257.105.

(e) *Location restrictions.* The owner or operator of a CCR unit subject to the requirements of this subpart must notify the State Director and/or appropriate Tribal authority that each demonstration specified under §257.105(e)

has been placed in the operating record and on the owner or operator's publicly accessible internet site.

(f) *Design criteria.* The owner or operator of a CCR unit subject to this subpart must notify the State Director and/or appropriate Tribal authority when information has been placed in the operating record and on the owner or operator's publicly accessible internet site. The owner or operator must:

(1) Within 60 days of commencing construction of a new CCR unit, provide notification of the availability of the design certification specified under § 257.105(f)(1) or (3). If the owner or operator of the CCR unit elects to install an alternative composite liner, the owner or operator must also submit to the State Director and/or appropriate Tribal authority a copy of the alternative composite liner design.

(2) No later than the date of initial receipt of CCR by a new CCR unit, provide notification of the availability of the construction certification specified under § 257.105(f)(1) or (3).

(3) Provide notification of the availability of the documentation of liner type specified under § 257.105(f)(2).

(4) Provide notification of the availability of the initial and periodic hazard potential classification assessments specified under § 257.105(f)(5).

(5) Provide notification of the availability of emergency action plan (EAP), and any revisions of the EAP, specified under § 257.105(f)(6).

(6) Provide notification of the availability of documentation prepared by the owner or operator recording the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders specified under § 257.105(f)(7).

(7) Provide notification of documentation prepared by the owner or operator recording all activations of the emergency action plan specified under § 257.105(f)(8).

(8) Provide notification of the availability of the history of construction, and any revision of it, specified under § 257.105(f)(9).

(9) Provide notification of the availability of the initial and periodic structural stability assessments specified under § 257.105(f)(10).

(10) Provide notification of the availability of the documentation detailing the corrective measures taken to remedy the deficiency or release specified under § 257.105(f)(11).

(11) Provide notification of the availability of the initial and periodic safety factor assessments specified under § 257.105(f)(12).

(12) Provide notification of the availability of the design and construction plans, and any revision of them, specified under § 257.105(f)(13).

(g) *Operating criteria.* The owner or operator of a CCR unit subject to this subpart must notify the State Director and/or appropriate Tribal authority when information has been placed in the operating record and on the owner or operator's publicly accessible internet site. The owner or operator must:

(1) Provide notification of the availability of the CCR fugitive dust control plan, or any subsequent amendment of the plan, specified under § 257.105(g)(1).

(2) Provide notification of the availability of the annual CCR fugitive dust control report specified under § 257.105(g)(2).

(3) Provide notification of the availability of the initial and periodic run-on and run-off control system plans specified under § 257.105(g)(3).

(4) Provide notification of the availability of the initial and periodic inflow design flood control system plans specified under § 257.105(g)(4).

(5) Provide notification of the availability of the periodic inspection reports specified under § 257.105(g)(6).

(6) Provide notification of the availability of the documentation detailing the corrective measures taken to remedy the deficiency or release specified under § 257.105(g)(7).

(7) Provide notification of the availability of the periodic inspection reports specified under § 257.105(g)(9).

(h) *Groundwater monitoring and corrective action.* The owner or operator of a CCR unit subject to this subpart must notify the State Director and/or appropriate Tribal authority when information has been placed in the operating record and on the owner or operator's publicly accessible internet site. The owner or operator must:

(1) Provide notification of the availability of the annual groundwater monitoring and corrective action report specified under § 257.105(h)(1).

(2) Provide notification of the availability of the groundwater monitoring system certification specified under § 257.105(h)(3).

(3) Provide notification of the availability of the selection of a statistical method certification specified under § 257.105(h)(4).

(4) Provide notification that an assessment monitoring programs has been established specified under § 257.105(h)(5).

(5) Provide notification that the CCR unit is returning to a detection monitoring program specified under § 257.105(h)(7).

(6) Provide notification that one or more constituents in appendix IV to this part have been detected at statistically significant levels above the groundwater protection standard and the notifications to land owners specified under § 257.105(h)(8).

(7) Provide notification that an assessment of corrective measures has been initiated specified under § 257.105(h)(9).

(8) Provide notification of the availability of assessment of corrective measures specified under § 257.105(h)(10).

(9) Provide notification of the availability of the semiannual report describing the progress in selecting and designing the remedy and the selection of remedy report specified under § 257.105(h)(12).

(10) Provide notification of the completion of the remedy specified under § 257.105(h)(13).

(11) Provide the demonstration supporting the suspension of groundwater monitoring requirements specified under § 257.105(h)(14).

(i) *Closure and post-closure care.* The owner or operator of a CCR unit subject to this subpart must notify the State Director and/or appropriate Tribal authority when information has been placed in the operating record and on the owner or operator's publicly accessible Internet site. The owner or operator must:

(1) Provide notification of the intent to initiate closure of the CCR unit specified under § 257.105(i)(1).

(2) Provide notification of the availability of the annual progress reports of closure implementation specified under § 257.105(i)(2).

(3) Provide notification of closure completion specified under § 257.105(i)(3).

(4) Provide notification of the availability of the written closure plan, and any amendment of the plan, specified under § 257.105(i)(4).

(5) Provide notification of the availability of the demonstration(s) for a time extension for initiating closure specified under § 257.105(i)(5).

(6) Provide notification of the availability of the demonstration(s) for a time extension for completing closure specified under § 257.105(i)(6).

(7) Provide notification of intent to close a CCR unit specified under § 257.105(i)(7).

(8) Provide notification of completion of closure of a CCR unit specified under § 257.105(i)(8).

(9) Provide notification of the deed notation as required by § 257.105(i)(9).

(10) Provide notification of intent to comply with the alternative closure requirements specified under § 257.105(i)(10).

(11) The annual progress reports under the alternative closure requirements as required by § 257.105(i)(11).

(12) Provide notification of the availability of the written post-closure plan, and any amendment of the plan, specified under § 257.105(i)(12).

(13) Provide notification of completion of post-closure care specified under § 257.105(i)(13).

(j) *Retrofit criteria.* The owner or operator of a CCR unit subject to this subpart must notify the State Director and/or appropriate Tribal authority when information has been placed in the operating record and on the owner or operator's publicly accessible Internet site. The owner or operator must:

(1) Provide notification of the availability of the written retrofit plan, and any amendment of the plan, specified under § 257.105(j)(1).

(2) Provide notification of intent to comply with the alternative retrofit requirements specified under § 257.105(j)(2).

(3) The annual progress reports under the alternative retrofit requirements as required by § 257.105(j)(3).

(4) Provide notification of the availability of the demonstration(s) for a time extension for completing retrofit activities specified under § 257.105(j)(4).

(5) Provide notification of intent to initiate retrofit of a CCR unit specified under § 257.105(j)(5).

(6) Provide notification of completion of retrofit activities specified under § 257.105(j)(6).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36456, July 30, 2018]

### § 257.107 Publicly accessible Internet site requirements.

(a) Each owner or operator of a CCR unit subject to the requirements of this subpart must maintain a publicly accessible Internet site (CCR Web site) containing the information specified in this section. The owner or operator's Web site must be titled ''CCR Rule Compliance Data and Information.''

(b) An owner or operator of more than one CCR unit subject to the provisions of this subpart may comply with the requirements of this section by using the same Internet site for multiple CCR units provided the CCR Web site clearly delineates information by the name or identification number of each unit.

(c) Unless otherwise required in this section, the information required to be posted to the CCR Web site must be made available to the public for at least five years following the date on which the information was first posted to the CCR Web site.

(d) Unless otherwise required in this section, the information must be posted to the CCR Web site within 30 days of placing the pertinent information required by § 257.105 in the operating record.

(e) *Location restrictions.* The owner or operator of a CCR unit subject to this subpart must place each demonstration specified under § 257.105(e) on the owner or operator's CCR Web site.

(f) *Design criteria.* The owner or operator of a CCR unit subject to this subpart must place the following information on the owner or operator's CCR Web site:

(1) Within 60 days of commencing construction of a new unit, the design certification specified under § 257.105(f)(1) or (3).

(2) No later than the date of initial receipt of CCR by a new CCR unit, the construction certification specified under § 257.105(f)(1) or (3).

(3) The documentation of liner type specified under § 257.105(f)(2).

(4) The initial and periodic hazard potential classification assessments specified under § 257.105(f)(5).

(5) The emergency action plan (EAP) specified under § 257.105(f)(6), except that only the most recent EAP must be maintained on the CCR Web site irrespective of the time requirement specified in paragraph (c) of this section.

(6) Documentation prepared by the owner or operator recording the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders specified under § 257.105(f)(7).

(7) Documentation prepared by the owner or operator recording any activation of the emergency action plan specified under § 257.105(f)(8).

(8) The history of construction, and any revisions of it, specified under § 257.105(f)(9).

(9) The initial and periodic structural stability assessments specified under § 257.105(f)(10).

(10) The documentation detailing the corrective measures taken to remedy the deficiency or release specified under § 257.105(f)(11).

(11) The initial and periodic safety factor assessments specified under § 257.105(f)(12).

(12) The design and construction plans, and any revisions of them, specified under § 257.105(f)(13).

(g) *Operating criteria.* The owner or operator of a CCR unit subject to this subpart must place the following information on the owner or operator's CCR Web site:

(1) The CCR fugitive dust control plan, or any subsequent amendment of the plan, specified under § 257.105(g)(1) except that only the most recent plan must be maintained on the CCR Web

site irrespective of the time requirement specified in paragraph (c) of this section.

(2) The annual CCR fugitive dust control report specified under § 257.105(g)(2).

(3) The initial and periodic run-on and run-off control system plans specified under § 257.105(g)(3).

(4) The initial and periodic inflow design flood control system plans specified under § 257.105(g)(4).

(5) The periodic inspection reports specified under § 257.105(g)(6).

(6) The documentation detailing the corrective measures taken to remedy the deficiency or release specified under § 257.105(g)(7).

(7) The periodic inspection reports specified under § 257.105(g)(9).

(h) *Groundwater monitoring and corrective action.* The owner or operator of a CCR unit subject to this subpart must place the following information on the owner or operator's CCR Web site:

(1) The annual groundwater monitoring and corrective action report specified under § 257.105(h)(1).

(2) The groundwater monitoring system certification specified under § 257.105(h)(3).

(3) The selection of a statistical method certification specified under § 257.105(h)(4).

(4) The notification that an assessment monitoring programs has been established specified under § 257.105(h)(5).

(5) The notification that the CCR unit is returning to a detection monitoring program specified under § 257.105(h)(7).

(6) The notification that one or more constituents in appendix IV to this part have been detected at statistically significant levels above the groundwater protection standard and the notifications to land owners specified under § 257.105(h)(8).

(7) The notification that an assessment of corrective measures has been initiated specified under § 257.105(h)(9).

(8) The assessment of corrective measures specified under § 257.105(h)(10).

(9) The semiannual reports describing the progress in selecting and designing remedy and the selection of remedy report specified under § 257.105(h)(12), except that the selection of the remedy report must be maintained until the remedy has been completed.

(10) The notification that the remedy has been completed specified under § 257.105(h)(13).

(11) The demonstration supporting the suspension of groundwater monitoring requirements specified under § 257.105(h)(14).

(i) *Closure and post-closure care.* The owner or operator of a CCR unit subject to this subpart must place the following information on the owner or operator's CCR Web site:

(1) The notification of intent to initiate closure of the CCR unit specified under § 257.105(i)(1).

(2) The annual progress reports of closure implementation specified under § 257.105(i)(2).

(3) The notification of closure completion specified under § 257.105(i)(3).

(4) The written closure plan, and any amendment of the plan, specified under § 257.105(i)(4).

(5) The demonstration(s) for a time extension for initiating closure specified under § 257.105(i)(5).

(6) The demonstration(s) for a time extension for completing closure specified under § 257.105(i)(6).

(7) The notification of intent to close a CCR unit specified under § 257.105(i)(7).

(8) The notification of completion of closure of a CCR unit specified under § 257.105(i)(8).

(9) The notification recording a notation on the deed as required by § 257.105(i)(9).

(10) The notification of intent to comply with the alternative closure requirements as required by § 257.105(i)(10).

(11) The annual progress reports under the alternative closure requirements as required by § 257.105(i)(11).

(12) The written post-closure plan, and any amendment of the plan, specified under § 257.105(i)(12).

(13) The notification of completion of post-closure care specified under § 257.105(i)(13).

(j) *Retrofit criteria.* The owner or operator of a CCR unit subject to this subpart must place the following information on the owner or operator's CCR Web site:

(1) The written retrofit plan, and any amendment of the plan, specified under §257.105(j)(1).

(2) The notification of intent to comply with the alternative retrofit requirements as required by §257.105(j)(2).

(3) The annual progress reports under the alternative retrofit requirements as required by §257.105(j)(3).

(4) The demonstration(s) for a time extension for completing retrofit activities specified under §257.105(j)(4).

(5) The notification of intent to retrofit a CCR unit specified under §257.105(j)(5).

(6) The notification of completion of retrofit activities specified under §257.105(j)(6).

[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36456, July 30, 2018]

## APPENDIX I TO PART 257—MAXIMUM CONTAMINANT LEVELS (MCLS)

### MAXIMUM CONTAMINANT LEVELS (MCLS) PROMULGATED UNDER THE SAFE DRINKING WATER ACT

| Chemical | CAS No. | MCL (mg/l) |
|---|---|---|
| Arsenic | 7440–38–2 | 0.05 |
| Barium | 7440–39–3 | 1.0 |
| Benzene | 71–343–2 | 0.005 |
| Cadmium | 7440–43–9 | 0.01 |
| Carbon tetrachloride | 56–23–5 | 0.005 |
| Chromium (hexavalent) | 7440–47–3 | 0.05 |
| 2,4-Dichlorophenoxy acetic acid | 94–75–7 | 0.1 |
| 1,4-Dichlorobenzene | 106–46–7 | 0.075 |
| 1,2-Dichloroethane | 107–06–2 | 0.005 |
| 1,1-Dichloroethylene | 75–35–4 | 0.007 |
| Endrin | 75–20–8 | 0.0002 |
| Fluoride | 7 | 4.0 |
| Lindane | 58–89–9 | 0.004 |
| Lead | 7439–92–1 | 0.05 |
| Mercury | 7439–97–6 | 0.002 |
| Methoxychlor | 72–43–5 | 0.1 |
| Nitrate | ..... | 10.0 |
| Selenium | 7782–49–2 | 0.01 |
| Silver | 7440–22–4 | 0.05 |
| Toxaphene | 8001–35–2 | 0.005 |
| 1,1,1-Trichloroethane | 71–55–6 | 0.2 |
| Trichloroethylene | 79–01–6 | 0.005 |
| 2,4,5-Trichlorophenoxy acetic acid | 93–76–5 | 0.01 |
| Vinyl chloride | 75–01–4 | 0.002 |

[56 FR 51016, Oct. 9, 1991]

## APPENDIX II TO PART 257

### *A. Processes To Significantly Reduce Pathogens*

*Aerobic digestion:* The process is conducted by agitating sludge with air or oxygen to maintain aerobic conditions at residence times ranging from 60 days at 15 °C to 40 days at 20 °C, with a volatile solids reduction of at least 38 percent.

*Air Drying:* Liquid sludge is allowed to drain and/or dry on under-drained sand beds, or paved or unpaved basins in which the sludge is at a depth of nine inches. A minimum of three months is needed, two months of which temperatures average on a daily basis above 0 °C.

*Anaerobic digestion:* The process is conducted in the absence of air at residence times ranging from 60 days at 20 °C to 15 days at 35 to 55 °C, with a volatile solids reduction of at least 38 percent.

*Composting:* Using the within-vessel, static aerated pile or windrow composting methods, the solid waste is maintained at minimum operating conditions of 40 °C for 5 days. For four hours during this period the temperature exceeds 55 °C.

*Lime Stabilization:* Sufficient lime is added to produce a pH of 12 after 2 hours of contact.

*Other methods:* Other methods or operating conditions may be acceptable if pathogens and vector attraction of the waste (volatile solids) are reduced to an extent equivalent to the reduction achieved by any of the above methods.

### *B. Processes To Further Reduce Pathogens*

*Composting:* Using the within-vessel composting method, the solid waste is maintained at operating conditions of 55 °C or greater for three days. Using the static aerated pile composting method, the solid waste is maintained at operating conditions of 55 °C or greater for three days. Using the windrow composting method, the solid waste attains a temperature of 55 °C or greater for at least 15 days during the composting period. Also, during the high temperature period, there will be a minimum of five turnings of the windrow.

*Heat drying:* Dewatered sludge cake is dried by direct or indirect contact with hot gases, and moisture content is reduced to 10 percent or lower. Sludge particles reach temperatures well in excess of 80 °C, or the wet bulb temperature of the gas stream in contact with the sludge at the point where it leaves the dryer is in excess of 80 °C.

*Heat treatment:* Liquid sludge is heated to temperatures of 180 °C for 30 minutes.

*Thermophilic Aerobic Digestion:* Liquid sludge is agitated with air or oxygen to maintain aerobic conditions at residence times of 10 days at 55–60 °C, with a volatile solids reduction of at least 38 percent.

*Other methods:* Other methods or operating conditions may be acceptable if pathogens and vector attraction of the waste (volatile solids) are reduced to an extent equivalent to the reduction achieved by any of the above methods.

Any of the processes listed below, if added to the processes described in Section A above, further reduce pathogens. Because the processes listed below, on their own, do not

reduce the attraction of disease vectors, they are only add-on in nature.

*Beta ray irradiation:* Sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 °C).

*Gamma ray irradiation:* Sludge is irradiated with gamma rays from certain isotopes, such as $^{60}$Cobalt and $^{137}$Cesium, at dosages of at least 1.0 megarad at room temperature (ca. 20 °C).

*Pasteurization:* Sludge is maintained for at least 30 minutes at a minimum temperature of 70 °C.

*Other methods:* Other methods or operating conditions may be acceptable if pathogens are reduced to an extent equivalent to the reduction achieved by any of the above add-on methods.

### APPENDIX III TO PART 257—CONSTITUENTS FOR DETECTION MONITORING

| Common name [1] |
|---|
| Boron |
| Calcium |
| Chloride |
| Fluoride |
| pH |
| Sulfate |
| Total Dissolved Solids (TDS) |

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[80 FR 21500, Apr. 17, 2015]

### APPENDIX IV TO PART 257—CONSTITUENTS FOR ASSESSMENT MONITORING

| Common name [1] |
|---|
| Antimony |
| Arsenic |
| Barium |
| Beryllium |
| Cadmium |
| Chromium |
| Cobalt |
| Fluoride |
| Lead |
| Lithium |
| Mercury |
| Molybdenum |
| Selenium |
| Thallium |
| Radium 226 and 228 combined |

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[80 FR 21500, Apr. 17, 2015]

## PART 258—CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS

### Subpart A—General



### Subpart B—Location Restrictions



### Subpart C—Operating Criteria



### Subpart D—Design Criteria



### Subpart E—Ground-Water Monitoring and Corrective Action



### Subpart F—Closure and Post-Closure Care

# Dynegy's First Hearing
# Exhibit 5


Federal Register

**Monday,**
**June 21, 2010**

## Part II

# Environmental Protection Agency

**40 CFR Parts 257, 261, 264 et al.**
**Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities; Proposed Rule**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Parts 257, 261, 264, 265, 268, 271 and 302**

**[EPA–HQ–RCRA–2009–0640; FRL–9149–4]**

**RIN–2050–AE81**

## Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA or Agency) is proposing to regulate for the first time, coal combustion residuals (CCRs) under the Resource Conservation and Recovery Act (RCRA) to address the risks from the disposal of CCRs generated from the combustion of coal at electric utilities and independent power producers. However, the Agency is considering two options in this proposal and, thus, is proposing two alternative regulations. Under the first proposal, EPA would reverse its August 1993 and May 2000 Bevill Regulatory Determinations regarding coal combustion residuals (CCRs) and list these residuals as special wastes subject to regulation under subtitle C of RCRA, when they are destined for disposal in landfills or surface impoundments. Under the second proposal, EPA would leave the Bevill determination in place and regulate disposal of such materials under subtitle D of RCRA by issuing national minimum criteria. Under both alternatives EPA is proposing to establish dam safety requirements to address the structural integrity of surface impoundments to prevent catastrophic releases.

EPA is not proposing to change the May 2000 Regulatory Determination for beneficially used CCRs, which are currently exempt from the hazardous waste regulations under Section 3001(b)(3)(A) of RCRA. However, EPA is clarifying this determination and seeking comment on potential refinements for certain beneficial uses. EPA is also not proposing to address the placement of CCRs in mines, or non-minefill uses of CCRs at coal mine sites in this action.

**DATES:** Comments must be received on or before September 20, 2010. EPA will provide an opportunity for a public hearing on the rule upon request. Requests for a public meeting should be submitted to EPA's Office of Resource Conservation and Recovery by July 21, 2010. *See* the **FOR FURTHER INFORMATION CONTACT** section for contact information. Should EPA receive requests for public meetings within this timeframe, EPA will publish a document in the **Federal Register** providing the details of such meetings.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA–HQ–RCRA–2009–0640, by one of the following methods:

- *http://www.regulations.gov:* Follow the on-line instructions for submitting comments.
- *E-mail:* Comments may be sent by electronic mail (e-mail) to *rcra-docket@epa.gov,* Attention Docket ID No. EPA–HQ–RCRA–2009–0640. In contrast to EPA's electronic public docket, EPA's e-mail system is not an "anonymous access" system. If you send an e-mail comment directly to the Docket without going through EPA's electronic public docket, EPA's e-mail system automatically captures your e-mail address. E-mail addresses that are automatically captured by EPA's e-mail system are included as part of the comment that is placed in the official public docket, and made available in EPA's electronic public docket.
- *Fax:* Comments may be faxed to 202–566–0272; Attention Docket ID No. EPA–HQ–RCRA–2009–0640.
- *Mail:* Send your comments to the Hazardous Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities Docket, Attention Docket ID No., EPA–HQ–RCRA–2009–0640, Environmental Protection Agency, *Mailcode:* 5305T, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Please include a total of two copies.
- *Hand Delivery:* Deliver two copies of your comments to the Hazardous Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities Docket, Attention Docket ID No., EPA–HQ–RCRA–2009–0640, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC 20460. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

*Instructions:* Direct your comments to Docket ID No. EPA–HQ–RCRA–2009–0640. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *http://www.regulations.gov* or e-mail. The *http://www.regulations.gov* Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *http://www.regulations.gov,* your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket, visit the EPA Docket Center homepage at *http://www.epa.gov/epahome/dockets.htm.* For additional instructions on submitting comments, go to the **SUPPLEMENTARY INFORMATION** section of this document.

*Docket:* All documents in the docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the Hazardous Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities Docket, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC 20460. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The Docket telephone number is (202) 566–0270. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The

telephone number for the Public Reading Room is (202) 566–1744.

**FOR FURTHER INFORMATION CONTACT:** Alexander Livnat, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5304P; *telephone number:* (703) 308–7251; *fax number:* (703) 605–0595; *e-mail address: livnat.alexander@epa.gov,* or Steve Souders, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5304P; *telephone number:* (703) 308–8431; *fax number:* (703) 605–0595; *e-mail address: souders.steve@epa.gov.* For technical information on the CERCLA aspects of this rule, contact Lynn Beasley, Office of Emergency Management, Regulation and Policy Development Division (5104A), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, [*E-mail address and telephone number: Beasley.lynn@epa.gov* (202–564–1965).]

For more information on this rulemaking please visit *http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/index.htm.*

**SUPPLEMENTARY INFORMATION:**

**A. Does this action apply to me?**

The proposed rule would apply to all coal combustion residuals (CCRs) generated by electric utilities and independent power producers. However, this proposed rule does not address the placement of CCRs in minefills. The U. S. Department of Interior (DOI) and EPA will address the management of CCRs in minefills in a separate regulatory action(s), consistent with the approach recommended by the National Academy of Sciences, recognizing the expertise of DOI's Office of Surface Mining Reclamation and Enforcement in this area.[1] In addition, under either alternative proposal, EPA is not proposing to affect the current status of coal combustion residuals that are beneficially used.[2] (*See* section IV. D for further details on proposed clarifications of beneficial use.) CCRs from non-utility boilers burning coal are not included within today's proposed rule. EPA will decide on an appropriate action for these wastes after completing this rulemaking effort.

The proposed rule may affect the following entities: electric utility facilities and independent power producers that fall under the North American Industry Classification System (NAICS) code 221112, and hazardous waste treatment and disposal facilities that fall under NAICS code 562211. The industry sector(s) identified above may not be exhaustive; other types of entities not listed could also be affected. The Agency's aim is to provide a guide for readers regarding those entities that potentially could be affected by this action. To determine whether your facility, company, business, organization, etc., is affected by this action, you should refer to the applicability criteria contained in section IV of this preamble. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

**B. What should I consider as I prepare my comments for EPA?**

1. *Submitting confidential business information (CBI).* Do not submit information that you consider to be CBI through *http://www.regulations.gov* or by e-mail. Send or deliver information identified as CBI only to the following address: RCRA CBI Document Control Officer, Office of Resource Conservation and Recovery (5305P), U.S. EPA, 1200 Pennsylvania Avenue, NW., Washington DC 20460, Attention Docket No, EPA–HQ–RCRA–2009–0640. You may claim information that you submit to EPA as CBI by marking any part or all of the information as CBI (if you submit CBI on a disk or CD ROM, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI). Information so marked will not be disclosed, except in accordance with the procedures set forth in 40 CFR part 2. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. If you submit the copy that does not contain CBI on disk or CD ROM, mark the outside of the disk or CD ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and EPA's electronic public docket without prior notice. If you have questions about CBI or the procedures for claiming CBI, please contact: LaShan Haynes, Office of Resource Conservation and Recovery (5305P), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington DC 20460–0002, telephone (703) 605–0516, e-mail address *haynes.lashan@epa.gov.*

2. *Tips for Preparing Your Comments.* When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Follow directions—The Agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.
- Explain why you agree or disagree, suggest alternatives, and substitute language for your requested changes, and explain your interest in the issue you are attempting to address.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible.
- Make sure to submit your comments by the comment period deadline identified.

3. *Docket Copying Costs.* The first 100-copied pages are free. Thereafter, the charge for making copies of Docket materials is 15 cents per page.

**C. Definitions, Abbreviations and Acronyms Used in This Preamble (Note: Any term used in this proposed rulemaking that is not defined in this section will either have its normal dictionary meaning, or is defined in 40 CFR 260.10.)**

*Acre-foot* means the volume of one acre of surface area to a depth of one foot.

*Beneficial Use of Coal Combustion Products (CCPs)* means the use of CCPs that provides a functional benefit; replaces the use of an alternative material, conserving natural resources that would otherwise need to be obtained through practices such as extraction; and meets relevant product specifications and regulatory standards (where these are available). CCPs that are used in excess quantities (*e.g.,* the field-applications of FGD gypsum in amounts that exceed scientifically-supported quantities required for enhancing soil properties and/or crop

[1] The National Research Council (NRC) Committee on Mine Placement of Coal Combustion Wastes stated: "The committee believes that OSM and its SMCRA state partners should take the lead in developing new national standards for CCR use in mines because the framework is in place to deal with mine-related issues." National Academy of Sciences. Managing Coal Combustion Residues in Mines; The National Academies Press, Washington, DC, 2006.

[2] The NRC committee recommended "that secondary uses of CCRs that pose minimal risks to human health and the environment be strongly encouraged." *Ibid.*

yields), placed as fill in sand and gravel pits, or used in large scale fill projects, such as for restructuring the landscape, are excluded from this definition.

*Boiler slag* means the molten bottom ash collected at the base of slag tap and cyclone type furnaces that is quenched with water. It is made up of hard, black, angular particles that have a smooth, glassy appearance.

*Bottom ash* means the agglomerated, angular ash particles, formed in pulverized coal furnaces that are too large to be carried in the flue gases and collect on the furnace walls or fall through open grates to an ash hopper at the bottom of the furnace.

*CCR Landfill* means a disposal facility or part of a facility where CCRs are placed in or on land and which is not a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit. For purposes of this proposed rule, landfills also include piles, sand and gravel pits, quarries, and/or large scale fill operations. Sites that are excavated so that more coal ash can be used as fill are also considered CCR landfills.

*CCR Surface Impoundment* or *impoundment* means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of CCRs containing free liquids, and which is not an injection well. Examples of CCR surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons. CCR surface impoundments are used to receive CCRs that have been sluiced (flushed or mixed with water to facilitate movement), or wastes from wet air pollution control devices, often in addition to other solid wastes.

*Cenospheres* are lightweight, inert, hollow spheres comprised largely of silica and alumina glass.

*Coal Combustion Products (CCPs)* means fly ash, bottom ash, boiler slag, or flue gas desulfurization materials, that are beneficially used.

*Coal Combustion Residuals (CCRs)* means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials destined for disposal. CCRs are also known as coal combustion wastes (CCWs) and fossil fuel combustion (FFC) wastes, when destined for disposal.

*Electric Power Sector (Electric Utilities and Independent Power Producers)* means that sector of the power generating industry that comprises electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

*Existing CCR Landfill* means a landfill which was in operation or for which construction commenced prior to the effective date of the final rule. A CCR landfill has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which cannot be cancelled or modified without substantial loss—for physical construction of the CCR landfill to be completed within a reasonable time.

*Existing CCR Surface Impoundment* means a surface impoundment which was in operation or for which construction commenced prior to the effective date of the final rule. A CCR surface impoundment has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which can not be cancelled or modified without substantial loss—for physical construction of the CCR surface impoundment to be completed within a reasonable time.

*Flue Gas Desulfurization (FGD)* material means the material produced through a process used to reduce sulfur dioxide ($SO_2$) emissions from the exhaust gas system of a coal-fired boiler. The physical nature of these materials varies from a wet sludge to a dry powdered material, depending on the process, and their composition comprises either sulfites, sulfates or a mixture thereof.

*Fly ash* means the very fine globular particles of silica glass which is a product of burning finely ground coal in a boiler to produce electricity, and is removed from the plant exhaust gases by air emission control devices.

*Hazard potential* means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of a dam (or impoundment) or mis-operation of the dam or appurtenances.[3]

*High hazard potential surface impoundment* means a surface impoundment where failure or mis-operation will probably cause loss of human life.

*Significant hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns.

*Low hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

*Less than low hazard potential surface impoundment* means a surface impoundment not meeting the definitions for High, Significant, or Low Hazard Potential.

*Independent registered professional engineer or hydrologist* means a scientist or engineer who is not an employee of the owner or operator of a CCR landfill or surface impoundment who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing CCR landfill, or existing CCR surface impoundment made after the effective date of the final rule.

*Maximum Contaminant Level (MCL)* means the highest level of a contaminant that is allowed in drinking water under the Safe Drinking Water Act (SDWA). MCLs are set as close to the MCL goals as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards for drinking water.

*Minefill* means a project involving the placement of CCRs in coal mine voids for use as fill, grouting, subsidence control, capping, mine sealing, and

[3] The Hazard Potential Classification System for Dams was developed by the U.S. Army Corps of Engineers for the National Inventory of Dams (*see https://rsgis.crrel.usace.army.mil/apex/f?p=397:1:913698079375545*). Hazard potential ratings do not provide an estimate of the probability of failure or mis-operation, but rather what the consequences of such a failure or mis-operation would be.

treating acid mine drainage, whether for purposes of disposal or for beneficial use, such as mine reclamation.

*Natural water table* means the natural level at which water stands in a shallow well open along its length and penetrating the surficial deposits just deeply enough to encounter standing water at the bottom. This level is uninfluenced by groundwater pumping or other engineered activities.

*Organosilanes* are organic compounds containing at least one carbon to silicon bond, and are typically used to promote adhesion.

*Potential damage case* means those cases with documented MCL exceedances that were measured in ground water beneath or close to the waste source. In these cases, while the association with CCRs has been established, the documented exceedances had not been demonstrated at a sufficient distance from the waste management unit to indicate that waste constituents had migrated to the extent that they could cause human health concerns.

*Pozzolanic material* means primarily vitreous siliceous materials, such as many types of CCRs that, when combined with calcium hydroxide and in the presence of water, exhibit cementitious properties.

*Proven damage case* means those cases with (i) Documented exceedances of primary maximum contaminant levels (MCLs) or other health-based standards measured in ground water at sufficient distance from the waste management unit to indicate that hazardous constituents have migrated to the extent that they could cause human health concerns, and/or (ii) where a scientific study provides documented evidence of another type of damage to human health or the environment (*e.g.,* ecological damage), and/or (iii) where there has been an administrative ruling or court decision with an explicit finding of specific damage to human health or the environment. In cases of co-management of CCRs with other industrial waste types, CCRs must be clearly implicated in the reported damage.

*Sand and gravel pit, and/or quarry* means an excavation for the commercial extraction of aggregate for use in construction projects. CCRs have historically been used to fill sand and gravel pits and quarries. CCRs are not known to be used to fill metal mines.

*Secondary Drinking Water Standards* are non-enforceable federal guidelines regarding cosmetic effects (such as tooth or skin discoloration) or aesthetic effects (such as taste, odor, or color) of drinking water.

*Special Wastes* means any of the following wastes that are managed under the modified subtitle C requirements: CCRs destined for disposal.

*Surface Water* means all water naturally open to the atmosphere (rivers, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries, etc.).

*Uniquely associated wastes* means low-volume wastes other than those defined as CCRs that are related to the coal combustion process. Examples of uniquely associated wastes are precipitation runoff from coal storage piles at the electric utility, waste coal or coal mill rejects that are not of sufficient quality to burn as a fuel, and wastes from cleaning boilers used to generate steam.

CCPs Coal Combustion Products
CCRs Coal Combustion Residuals
CFR Code of Federal Regulations
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
EPA U.S. Environmental Protection Agency
EPCRA Emergency Planning and Community Right-to-Know Act
MCL Maximum Contaminant Level
m/L milligrams per liter
NPDES National Pollutant Discharge Elimination System
NRC National Response Center
PDWS Primary Drinking Water Standard
OSM Office of Surface Mining Reclamation and Enforcement, U.S. Department of the Interior
RCRA Resource Conservation and Recovery Act (42 USCA 6901)
RQ Reportable Quantity
SDWS Secondary Drinking Water Standard
SMCRA Surface Mining Control and Reclamation Act
µg/L micrograms per liter
WQC Federal water quality criteria

### D. The Contents of This Preamble Are Listed in the Following Outline

## I. Background

### *A. Why is EPA proposing two options?*

#### 1. Basis of Why EPA Is Proceeding With Today's Co-Proposals

EPA is revisiting its regulatory determination for CCRs under the Bevill amendment. This decision is driven in part by the failure of a surface impoundment retaining wall in Kingston, TN in December 2009. Deciding upon the appropriate course of action to address over 100 million tons per year of CCRs is an extremely important step. In developing this proposal, EPA conducted considerable data gathering and analysis. While the public was able to comment on significant portions of our analyses in August 2007, as part of a Notice of Data Availability, there are differing views regarding the meaning of EPA's information and what course of action EPA should take. In part, the differing views are fueled by the complex data, analyses, legislation, implications of available options, possible unintended consequences, and a decision process, all of which pose considerations that could justify EPA selecting a RCRA subtitle C approach or selecting a RCRA subtitle D approach.

Deciding whether or not to maintain the Bevill exemption for CCRs, entails an evaluation of the eight RCRA Section 8002(n) study factors:

- Source and volumes of CCRs generated per year
- Present disposal and utilization practices
- Potential danger, if any, to human health and the environment from the disposal and reuse of CCRs
- Documented cases in which danger to human health or the environment from surface runoff or leachate has been proved
- Alternatives to current disposal methods
- The cost of such alternatives
- The impact of the alternatives on the use of coal and other natural resources
- The current and potential utilization of CCRs

Ultimately, the approach selected will need to ensure that catastrophic releases such as occurred at the Tennessee Valley Authority's (TVA's) Kingston, Tennessee facility do not occur and that other types of damage cases associated with CCR surface impoundments and landfills are prevented. Thus, this process requires EPA to balance the eight factors, which ultimately rests on a policy judgment. This is further complicated in this case because the facts identified under each of the individual factors are even subject to widely varying perspectives. For example, in considering the alternatives to current disposal methods, some claim that RCRA subtitle C would significantly lessen beneficial use while others *see* beneficial use expanding as disposal becomes more costly; some *see* damage cases as substantial, while others note very few incidences of significant off-site contamination.

Given the inherently discretionary nature of the decision, the complexities of the scientific analyses, and the controversy of the issue, EPA wants to ensure that the ultimate decision is based on the best available data, and is taken with the fullest possible extent of public input. As discussed in section IV in greater detail, there are a number of issues on which additional or more recent information would be useful in

allowing the Agency to reach a final decision. In the absence of this information, EPA has not yet reached a conclusion as to how to strike the appropriate balance among these eight factors and so is presenting two proposals for federal regulation of CCRs.

As EPA weighs the eight Bevill study factors to reach our ultimate decision, EPA will be guided by the following principles, which are reflected in the discussions throughout this preamble. The first is that EPA's actions must ultimately be protective of human health and the environment. Second, any decision must be based on sound science. Finally, in conducting this rulemaking, EPA wants to ensure that our decision processes are transparent and encourage the greatest degree of public participation. Consequently, to further the public's understanding and ability to comment on all the issues facing the Agency, within this proposal, EPA identifies a series of scientific, economic, and materials management issues on which we are seeking comment from the public to strengthen our knowledge of the impact of EPA's decision.

There are three key areas of analyses where EPA is seeking comment: The extent of existing damage cases, the extent of the risks posed by the mismanagement of CCRs, and the adequacy of State programs to ensure proper management of CCRs (*e.g.,* is groundwater monitoring required of CCR landfills and surface impoundments). Since the 2007 NODA, EPA received new reports from industry and environmental and citizen groups regarding damage cases. Industry provided information indicating that many of EPA's listed proven damage cases do not meet EPA's criteria for a damage case to be proven. Environmental and citizen groups, on the other hand, reported that there are additional damage cases of which EPA is unaware. EPA's analysis, as well as the additional information from industry and environmental and citizen groups, which is in the docket for this proposal, needs to undergo public review, with the end result being a better understanding of the nature and number of damage cases. In addition, as discussed at length in sections II and IV, a number of technical questions have been raised regarding EPA's quantitative groundwater risk assessment. The Agency would implement similar technical controls under RCRA subtitle C or D. Therefore, a central issue is the adequacy of State programs. Under either regulatory approach, State programs will have key implementation roles. This is a very complex area to evaluate. For example, as EPA reports that 36% of the States do not have minimum liner requirements for CCR landfills, and 67% do not have liner requirements for CCR surface impoundments, we also observe that nearly all new CCR landfills and surface impoundments are constructed with liners. It should also be recognized that while states currently have considerable expertise in their State dam safety programs, those programs do not tend to be part of State solid waste or clean water act programs, and so, oversight may not be adequately captured in EPA's existing data. In several areas, there are these types of analytical tensions that warrant careful consideration by the public and EPA. This proposal requests states and others to provide further information on state programs, including the prevalence of groundwater monitoring at existing facilities (an area where our information is nearly 15 years old) and why state programs may address groundwater monitoring and risks differently for surface impoundments located proximate to rivers.

The results of the risk analysis demonstrate significant risks from surface impoundments. A common industry practice, however, is to place surface impoundments right next to water bodies. While the Agency's population risk assessment analysis accounted for adjacent water bodies, the draft risk assessment that presents individual risk estimates does not account for the presence of adjacent water bodies in the same manner that the population risk assessment did. EPA is requesting public comment on the exact locations of CCR waste management units so that the Agency can more fully account for water bodies that may exist between a waste management unit and a drinking water well (and thus, could potentially intercept a contaminated groundwater plume). EPA is also requesting comments on how the risk assessment should inform the final decision.

While the Agency believes the analyses conducted are sound, today's co-proposal of two options reflects our commitment to use the public process fully to ensure the best available scientific and regulatory impact analyses are considered in our decision. The final course of action will fully consider these legitimate and complex issues, and will result in the selection of a regulatory structure that best addresses the eight study factors identified in section 8002(n) of RCRA, and ensures protection of human health and the environment.

2. Brief Description of Today's Co-Proposals

a. Summary of Subtitle C Proposal

In combination with its proposal to reverse the Bevill determination for CCRs destined for disposal, EPA is proposing to list as a special waste, to be regulated under the RCRA subtitle C regulations, CCRs from electric utilities and independent power producers when destined for disposal in a landfill or surface impoundment. These CCRs would be regulated from the point of their generation to the point of their final disposition, including during and after closure of any disposal unit. This would include the generator and transporter requirements and the requirements for facilities managing CCRs, such as siting, liners (with modification), run-on and run-off controls, groundwater monitoring, fugitive dust controls, financial assurance, corrective action, including facility-wide corrective action, closure of units, and post-closure care (with certain modifications). In addition, facilities that dispose of, treat, or, in many cases, store, CCRs also would be required to obtain permits for the units in which such materials are disposed, treated, and stored. The rule would also regulate the disposal of CCRs in sand and gravel pits, quarries, and other large fill operations as a landfill.

To address the potential for catastrophic releases from surface impoundments, we also are proposing requirements for dam safety and stability for impoundments that, by the effective date of the final rule, have not closed consistent with the requirements. We are also proposing land disposal restrictions and treatment standards for CCRs, as well as a prohibition on the disposal of treated CCRs below the natural water table.

b. Summary of Subtitle D Proposal

In combination with today's proposal to leave the Bevill determination in place, EPA is proposing to regulate CCRs disposed of in surface impoundments or landfills under RCRA subtitle D requirements which would establish national criteria to ensure the safe disposal of CCRs in these units. The units would be subject to, among other things, location standards, composite liner requirements (new landfills and surface impoundments would require composite liners; existing surface impoundments without liners would have to retrofit within five years, or cease receiving CCRs and close); groundwater monitoring and corrective action standards for releases from the unit; closure and post-closure care

requirements; and requirements to address the stability of surface impoundments. We are also soliciting comments on requiring financial assurance. The rule would also regulate the disposal of CCRs in sand and gravel pits, quarries, and other large fill operations as a landfill. The rule would not regulate the generation, storage or treatment of CCRs prior to disposal. Because of the scope of subtitle D authority, the rule would not require permits, nor could EPA enforce the requirements. Instead, states or citizens could enforce the requirements under RCRA citizen suit authority; the states could also enforce any state regulation under their independent state enforcement authority.

EPA is also considering a potential modification to the subtitle D option, called "D prime" in the following table. Under this option, existing surface impoundments would not have to close or install composite liners but could continue to operate for their useful life. In the "D prime" option, the other elements of the subtitle D option would remain the same.

3. Summary of Estimated Regulatory Costs and Benefits

For the purposes of comparing the estimated regulatory compliance costs to the monetized benefits for each regulatory option, the Regulatory Impact Analysis (RIA) computed two comparison indicators: Net benefits (*i.e.,* benefits minus costs), and benefit/cost ratio (*i.e.,* benefits divided by costs). Table 1 below provides a summary of estimated regulatory costs and benefits for three regulatory options, based on the 7% discount rate base case and the 50-year period-of-analysis applied in the RIA. Furthermore, this benefit and cost summary table displays ranges of net benefit and benefit/cost results across three different scenarios concerning the potential impacts of each option on the future annual beneficial use of CCRs under each option. The first scenario presents the potential impact scenario that assumes that the increased future annual cost of RCRA-regulated CCR disposal will induce coal-fired electric utility plants to increase beneficial use of CCRs. The second scenario presents a potential market stigma effect under the subtitle C option which will induce a decrease in future annual CCR beneficial use. The third scenario assumed that beneficial use of CCRs continues according to its recent trend line without any future change as a result of any of the regulatory options. The RIA estimates both the first and second scenario incrementally in relation to the third scenario no change trend line. Table 1 shows the range of impacts and associated ranges of net benefits and benefit-cost ratios across these three beneficial use scenarios for each regulatory option. While each of these three scenario outcomes may be possible, EPA's experience with the RCRA program indicates that industrial generators of RCRA-regulated wastes are often able to increase recycling and materials recovery rates after a subtitle C regulation. Section XII in this preamble provides additional discussion of these estimates.

TABLE 1—SUMMARY TABLE COMPARISON OF REGULATORY BENEFITS TO COSTS—RANGING OVER ALL THREE BENEFICIAL USE SCENARIOS

[$Millions @ 2009$ prices and @ 7% discount rate over 50-year future period-of-analysis 2012 to 2061]

| | Subtitle C "Special waste" | Subtitle D | Subtitle "D prime" |
|---|---|---|---|
| A. Present Values: | | | |
| 1. Regulatory Costs: | $20,349 | $8,095 | $3,259. |
| 2. Regulatory Benefits: | $87,221 to $102,191 | $34,964 to $41,761 | $14,111 to $17,501. |
| 3. Net Benefits (2–1) | ($251,166) to $81,842 | ($6,927) to $33,666 | ($2,666) to $14,242. |
| 4. Benefit/Cost Ratio (2/1) | (11.343) to 5.022 | 0.144 to 5.159 | 0.182 to 5.370. |
| B. Average Annualized Equivalent Values:* | | | |
| 1. Regulatory Costs | $1,474 | $587 | $236. |
| 2. Regulatory Benefits: | $6,320 to $7,405 | $2,533 to $3,026 | $1,023 to $1,268. |
| 3. Net Benefits (2–1) | ($18,199) to $5,930 | ($502) to $2,439 | ($193) to $1,032. |
| 4. Benefit/Cost Ratio (2/1) | (11.347) to 5.022 | 0.145 to 5.159 | 0.182 to 5.370. |

* **Note:** Average annualized equivalent values calculated by multiplying 50-year present values by a 50-year 7% discount rate "capital recovery factor" of 0.07246.

*B. What is the statutory authority for this action?*

These regulations are being proposed under the authority of sections 1008(a), 2002(a), 3001, 3004, 3005, and 4004 of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), 42 U.S.C. 6907(a), 6912(a), 6921,6924, 6925 and 6944. These statutes, combined, are commonly referred to as "RCRA."

RCRA section 1008(a) authorizes EPA to publish "suggested guidelines for solid waste management." 42 U.S.C. 6907(a). Such guidelines must provide a technical and economic description of the level of performance that can be achieved by available solid waste management practices that provide for protection of human health and the environment.

RCRA section 2002 grants EPA broad authority to prescribe, in consultation with federal, State, and regional authorities, such regulations as are necessary to carry out the functions under federal solid waste disposal laws. (42 U.S.C. 6912(a)).

RCRA section 3001(b) requires EPA to list particular wastes that will be subject to the requirements established under subtitle C. (42 U.S.C. 6921(b)). The regulation listing such wastes must be based on the listing criteria established pursuant to section 3001(a), and codified at 40 CFR 261.11.

Section 3001(b)(3)(A) of RCRA established a temporary exemption for fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels, among others, and required the Agency to conduct a study of those wastes and, after public hearings and an opportunity for comment, determine whether these wastes should be regulated pursuant to subtitle C requirements (42 U.S.C. 6921 (b)(3)(A)).

Section 3004 of RCRA generally requires EPA to establish standards applicable to the treatment, storage, and disposal of hazardous waste to ensure that human health and the environment are protected. 42 U.S.C. 6924. Sections

3004(c) and (d) prohibit free liquids in hazardous waste landfills. Sections 3004(g) and (m) prohibit land disposal of hazardous wastes, unless, before disposal, those wastes meet treatment standards established by EPA that will "substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats are minimized." (42 U.S.C. 6924(c), (d), (g), and (m)).

RCRA section 3004(x) allows the Administrator to tailor certain specified requirements for particular categories of wastes, including those that are the subject of today's proposal, namely "fly ash waste, bottom ash waste, and flue gas emission control wastes generated primarily from the combustion of coal or other fossil fuels" (42 U.S.C. 6924(x)). EPA is authorized to modify the requirements of sections 3004 (c), (d), (e), (f), (g), (o), and (u), and section 3005(j), to take into account the special characteristics of the wastes, the practical difficulties associated with implementation of such requirements, and site-specific characteristics, including but not limited to the climate, geology, hydrology and soil chemistry at the site. EPA may only make such modifications, provided the modified requirements assure protection of human health and the environment. (42 U.S.C. 6924(x)).

RCRA section 3005 generally requires any facility that treats, stores, or disposes of wastes identified or listed under subtitle C, to have a permit. 42 U.S.C. 6925(a). This section also generally imposes requirements on facilities that become newly subject to the permitting requirements as a result of regulatory changes, and so can continue to operate for a period until they obtain a permit—*i.e.,* "interim status facilities." 42 U.S.C. 6925(e), (i), (j). Congress imposed special requirements on interim status surface impoundments in section 3005(j). In order to continue receiving wastes, interim status surface impoundments are generally required to retrofit the impoundment within 4 years, to install a double liner, with a leachate collection system, and groundwater monitoring. 42 U.S.C. 6925(j)(6). In addition, wastes disposed into interim status surface impoundments must meet the land disposal restrictions in EPA's regulations, or the unit must be annually dredged. 42 U.S.C. 6925(j)(11).

RCRA Section 4004 generally requires EPA to promulgate regulations containing criteria for determining which facilities shall be classified as sanitary landfills (and not open dumps) so that there is no reasonable probability of adverse effects on health or the environment from disposal of solid wastes at such facilities.

*C. Regulation of Wastes Under RCRA Subtitle C*

Solid wastes may become subject to regulation under subtitle C of RCRA in one of two ways. A waste may be subject to regulation if it exhibits certain hazardous properties, called "characteristics," or if EPA has specifically listed the waste as hazardous. *See* 42 U.S.C. 6921(a). EPA's regulations in the Code of Federal Regulations (40 CFR) define four hazardous waste characteristic properties: Ignitability, corrosivity, reactivity, or toxicity (*See* 40 CFR 261.21–261.24). All generators must determine whether or not a waste exhibits any of these characteristics by testing the waste, or by using knowledge of the process that generated the waste (*see* § 262.11(c)). While not required to sample the waste, generators will be subject to enforcement actions if found to be improperly managing wastes that exhibit one or more of the characteristics.

EPA may also conduct a more specific assessment of a waste or category of wastes and "list" them if they meet the criteria set out in 40 CFR 261.11. Under the third criterion, at 40 CFR 261.11(a)(3), a waste will be listed if it contains hazardous constituents identified in 40 CFR part 261, Appendix VIII, and if, after considering the factors noted in this section of the regulations, we "conclude that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." We place a chemical on the list of hazardous constituents on Appendix VIII only if scientific studies have shown a chemical has toxic effects on humans or other life forms. When listing a waste, we also add the hazardous constituents that serve as the basis for listing the waste to 40 CFR part 261, Appendix VII.

The regulations at 40 CFR 261.31 through 261.33 contain the various hazardous wastes that EPA has listed to date. Section 261.31 lists wastes generated from non-specific sources, known as "F-wastes," that are usually generated by various industries or types of facilities, such as "wastewater treatment sludges from electroplating operations" (*see* EPA Hazardous Waste No. F006). Section 261.32 lists wastes generated from specific industry sources, known as "K-wastes," such as "Spent potliners from primary aluminum production" (*see* EPA Hazardous Waste No. K088). Section 261.33 contains lists of commercial chemical products and other materials, known as "P-wastes" or "U-wastes," that become hazardous wastes when they are discarded or intended to be discarded.

As discussed in greater detail later in this proposal, EPA is considering whether to codify a listing of CCRs that are disposed of in landfills or surface impoundments, in a new section of the regulations, as "Special Wastes." EPA is considering creating this new category of wastes, in part, to reflect the fact that these wastes would be subject to modified regulatory requirements using the authority provided under section 3004(x) of RCRA (*e.g.,* the modified CCR landfill and surface impoundment liner and leak detection system requirements, the effective dates for the land disposal restrictions, and the surface impoundment retrofit requirements).

If a waste exhibits a hazardous characteristic or is listed under subtitle C, then it is subject to the requirements of RCRA subtitle C, and the implementing regulations found in 40 CFR parts 260 through 268, parts 270 to 279, and part 124. These requirements apply to persons who generate, transport, treat, store or dispose of such waste and establish rules governing every phase of the waste's management from its generation to its final disposition and beyond. Facilities that treat, store or dispose of hazardous wastes require a permit which incorporates all of the design and operating standards established by EPA rules, including standards for piles, landfills, and surface impoundments. Under RCRA subtitle C requirements, land disposal of hazardous waste is prohibited unless the waste is first treated to meet the treatment standards (or meets the treatment standards as generated) established by EPA that minimize threats to human health and the environment posed by the land disposal of the waste, or unless the waste is disposed in a unit from which there will be no migration of hazardous constituents for as long as the waste remains hazardous. In addition, RCRA subtitle C facilities are required to clean up any releases of hazardous waste or constituents from solid waste management units at the facility, as well as beyond the facility boundary, as necessary to protect human health and the environment. RCRA subtitle C also requires that permitted facilities demonstrate that they have adequate financial resources (*i.e.,* financial assurance) for obligations, such as closure, post-closure care, necessary

clean up, and any liability from facility operations.

The RCRA subtitle C requirements are generally implemented under state programs that EPA has authorized to operate in lieu of the federal program, based upon a determination that the state program is no less stringent than the federal program. In a state that operates under an authorized program, any revisions made to EPA requirements are generally effective as part of the federal RCRA program in that state only after the state adopts the revised requirement, and EPA authorizes the state requirement. The exception applies with respect to requirements implementing statutory provisions added to subtitle C by the 1984 Hazardous and Solid Waste Amendments to RCRA; such requirements are immediately effective in all states, and are enforced by EPA.

All RCRA hazardous wastes are also hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as defined in section 101(14)(C) of the CERCLA statute. This applies to wastes listed in §§ 261.31 through 261.33, as well as any wastes that exhibits a RCRA hazardous characteristic. Table 302.4 at 40 CFR 302.4 lists the CERCLA hazardous substances along with their reportable quantities (RQs). Anyone spilling or releasing a hazardous substance at or above its RQ must report the release to the National Response Center, as required in CERCLA Section 103. In addition, Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA) requires facilities to report the release of a CERCLA hazardous substance at or above its RQ to State and local authorities. Today's rule proposes an approach for estimating whether released CCRs exceed an RQ. Wastes listed as special wastes will generally be subject to the same requirements under RCRA subtitle C and CERCLA as are hazardous wastes, although as discussed elsewhere in this preamble, EPA is proposing to revise certain requirements under the authority of section 3004(x) of RCRA to account for the large volumes and unique characteristics of these wastes.

*D. Regulation of Solid Wastes Under RCRA Subtitle D*

Solid wastes that are neither a listed and/or characteristic hazardous waste are subject to the requirements of RCRA subtitle D. Subtitle D of RCRA establishes a framework for Federal, State, and local government cooperation in controlling the management of nonhazardous solid waste. The federal role in this arrangement is to establish the overall regulatory direction, by providing minimum nationwide standards for protecting human health and the environment, and to providing technical assistance to states for planning and developing their own environmentally sound waste management practices. The actual planning and direct implementation of solid waste programs under RCRA subtitle D, however, remains a state and local function, and the act authorizes States to devise programs to deal with State-specific conditions and needs. That is, EPA has no role in the planning and direct implementation of solid waste programs under RCRA subtitle D.

Under the authority of sections 1008(a)(3) and 4004(a) of subtitle D of RCRA, EPA first promulgated the Criteria for Classification of Solid Waste Disposal Facilities and Practices (40 CFR part 257) on September 13, 1979. These subtitle D Criteria establish minimum national performance standards necessary to ensure that "no reasonable probability of adverse effects on health or the environment" will result from solid waste disposal facilities or practices. Practices not complying with the criteria constitute "open dumping" for purposes of the Federal prohibition on open dumping in section 4005(a). EPA does not have the authority to enforce the prohibition directly (except in situations involving the disposal or handling of sludge from publicly-owned treatment works, where Federal enforcement of POTW sludge-handling facilities is authorized under the CWA). States and citizens may enforce the prohibition on open dumping using the authority under RCRA section 7002. EPA, however, may act only if the handling, storage, treatment, transportation, or disposal of such wastes may present an imminent and substantial endangerment to health or the environment (RCRA 7003). In addition, the prohibition may be enforced by States and other persons under section 7002 of RCRA.

In contrast to subtitle C, RCRA subtitle D requirements relate only to the disposal of the solid waste, and EPA does not have the authority to establish requirements governing the generation, transportation, storage, or treatment of such wastes prior to disposal. Moreover, EPA would not have administrative enforcement authority to enforce any RCRA subtitle D criteria for CCR facilities, authority to require states to issue permits for them or oversee those permits, nor authority for EPA to determine whether any state permitting program for CCR facilities is adequate. Subtitle D of RCRA also provides less extensive authority to establish requirements relating to the cleanup (or corrective action) and financial assurance at solid waste facilities.

EPA regulations affecting RCRA subtitle D facilities are found at 40 CFR parts 240 through 247, and 255 through 258. The existing part 257 criteria include general environmental performance standards addressing eight major topics: Floodplains (§ 257.3–1), endangered species (§ 257.3–2), surface water (§ 257.3–3), ground water (§ 257.3–4), land application (§ 257.35), disease (§ 257.3–6), air (§ 257.3–7), and safety (§ 257.3–8). EPA has also established regulations for RCRA subtitle D landfills that accept conditionally exempt small quantity generator hazardous wastes, and household hazardous wastes (*i.e.,* "municipal solid waste") at 40 CFR Part 258, but these are of limited relevance to CCRs, which fall into neither category of wastes.

*E. Summary of the 1993 and 2000 Regulatory Determinations*

Section 3001(b)(3)(A)(i) of RCRA (known as the Bevill exclusion or exemption) excluded certain large-volume wastes generated primarily from the combustion of coal or other fossil fuels from being regulated as hazardous waste under subtitle C of RCRA, pending completion of a Report to Congress required by Section 8002(n) of RCRA and a determination by the EPA Administrator either to promulgate regulations under RCRA subtitle C or to determine that such regulations are unwarranted.

In 1988, EPA published a Report to Congress on Wastes from the Combustion of Coal by Electric Utility Power Plants (EPA, 1988). The report, however, did not address co-managed utility CCRs, other fossil fuel wastes that are generated by utilities, and wastes from non-utility boilers burning any type of fossil fuel. Further, because of other priorities, EPA did not complete its Regulatory Determination on fossil fuel combustion (FFC) wastes at that time.

In 1991, a suit was filed against EPA for failure to complete a Regulatory Determination on FFC wastes (*Gearhart* v. *Reilly* Civil No. 91–2345 (D.D.C.), and on June 30, 1992, the Agency entered into a Consent Decree that established a schedule for EPA to complete the Regulatory Determinations for all FFC wastes. Specifically, FFC wastes were divided into two categories: (1) Fly ash, bottom ash, boiler slag, and flue gas emission control waste from the combustion of coal by electric utilities and independent commercial power

producers, and (2) all remaining wastes subject to RCRA Sections 3001(b)(3)(A)(i) and 8002(n)—that is, large volume coal combustion wastes generated at electric utility and independent power producing facilities that are co-managed together with certain other coal combustion wastes; coal combustion wastes generated at non-utilities; coal combustion wastes generated at facilities with fluidized bed combustion technology; petroleum coke combustion wastes; wastes from the combustion of mixtures of coal and other fuels (*i.e.,* co-burning of coal with other fuels where coal is at least 50% of the total fuel); wastes from the combustion of oil; and wastes from the combustion of natural gas.

On August 9, 1993, EPA published its Regulatory Determination for the first category of wastes (58 FR 42466, *http://www.epa.gov/epawaste/nonhaz/industrial/special/mineral/080993.pdf*), concluding that regulation under subtitle C of RCRA for these wastes was not warranted. To make an appropriate determination for the second category, or "remaining wastes," EPA concluded that additional study was necessary. Under the court-ordered deadlines, the Agency was required to complete a Report to Congress by March 31, 1999, and issue a Regulatory Determination by October 1, 1999.

In keeping with its court-ordered schedule, and pursuant to the requirements of Section 3001(b)(3)(A)(i) and Section 8002(n) of RCRA, EPA prepared a Report to Congress on the remaining FFC wastes in March 1999 (*http://www.epa.gov/epaoswer/other/fossil/volume_2.pdf*). The report addresses the eight study factors required by Section 8002(n) of RCRA for FFC wastes (*see* discussion in section IV. B).

On May 22, 2000, EPA published its Regulatory Determination on wastes from the combustion of fossil fuels for the remaining wastes (65 FR 32214, *http://www.epa.gov/fedrgstr/EPA-WASTE/2000/May/Day-22/f11138.htm*). In its Regulatory Determination, EPA concluded that the remaining wastes were largely identical to the high-volume monofilled wastes, which remained exempt based on the 1993 Regulatory Determination. The high volume wastes simply dominate the waste characteristics even when co-managed with other wastes, and thus the May 2000 Regulatory Determination addressed not only the remaining wastes, but effectively reopened the decision on CCRs that went to monofills.

EPA concluded that these wastes could pose significant risks if not properly managed, although the risk information was limited. EPA identified and discussed a number of documented proven damage cases, as well as cases indicating at least a potential for damage to human health and the environment, but did not rely on its quantitative groundwater risk assessment, as EPA concluded that it was not sufficiently reliable. However, EPA concluded that significant improvements were being made in waste management practices due to increasing state oversight, although gaps remained in the current regulatory regime. On this basis, the Agency concluded to retain the Bevill exemption, and stated we would issue a regulation under subtitle D of RCRA, establishing minimum national standards. Those subtitle D standards have not yet been issued. (Today's proposal could result in the development of the subtitle D standards consistent with the May 2000 Regulatory Determination, or with a revision of the determination, or the issuance of subtitle C standards under RCRA.)

EPA also explicitly stated in the May 2000 Regulatory Determination that the Agency would continue to review the issues, and would reconsider its decision that subtitle C regulations were unwarranted based on a number of factors. EPA noted that its ongoing review would include (1) "the extent to which [the wastes] have caused damage to human health or the environment;" (2) the adequacy of existing regulation of the wastes; (3) the results of an NAS report regarding the adverse human health effects of mercury;[4] and (4) "risk posed by managing coal combustion solid wastes if levels of mercury or other hazardous constituents change due to any future Clean Air Act air pollution control requirements for coal burning utilities" and that these efforts could result in a subsequent revision to the Regulatory Determination. For a further discussion of the basis for the Agency's determination, *see* section IV below.

### *F. What are CCRs?*

CCRs are residuals from the combustion of coal. For purposes of this proposal, CCRs are fly ash, bottom ash, boiler slag (all composed predominantly of silica and aluminosilicates), and flue gas desulfurization materials (predominantly Ca-$SO_X$ compounds) that were generated from processes intended to generate power.

Fly ash is a product of burning finely ground coal in a boiler to produce electricity. Fly ash is removed from the plant exhaust gases primarily by electrostatic precipitators or baghouses and secondarily by wet scrubber systems. Physically, fly ash is a very fine, powdery material, composed mostly of silica. Nearly all particles are spherical in shape.

Bottom ash is comprised of agglomerated coal ash particles that are too large to be carried in the flue gas. Bottom ash is formed in pulverized coal furnaces and is collected by impinging on the furnace walls or falling through open grates to an ash hopper at the bottom of the furnace. Physically, bottom ash is coarse, with grain sizes spanning from fine sand to fine gravel, typically grey to black in color, and is quite angular with a porous surface structure.

Boiler slag is the molten bottom ash collected at the base of slag tap and cyclone type furnaces that is quenched with water. When the molten slag comes in contact with the quenching water, it fractures, crystallizes, and forms pellets. This boiler slag material is made up of hard, black, angular particles that have a smooth, glassy appearance.

Flue Gas Desulfurization (FGD) material is produced through a process used to reduce sulfur dioxide ($SO_2$) emissions from the exhaust gas system of a coal-fired boiler. The physical nature of these materials varies from a wet sludge to a dry powdered material, depending on the process. The wet sludge generated from the wet scrubbing process using a lime-based reagent is predominantly calcium sulfite, while the wet sludge generated from the wet scrubbing process using a limestone-based reagent is predominantly calcium sulfate. The dry powdered material from dry scrubbers that is captured in a baghouse consists of a mixture of sulfites and sulfates.

CCRs are managed in either wet or dry disposal systems. In wet systems, materials are generally sluiced via pipe to a surface impoundment. The material can be generated wet, such as FGD, or generated dry and water added to facilitate transport (*i.e.* sluiced) through pipes. In dry systems, CCRs are transported in its dry form to landfills for disposal.

#### 1. Chemical Constituents in CCRs

The chemical characteristics of CCRs depend on the type and source of coal, the combustion technology, and the pollution control technology employed. For the 1999 Report to Congress and the May 2000 Regulatory Determination, EPA developed an extensive database

[4] Toxicological Effects of Methylmercury, National Academy of Sciences, July 2000 (*http://books.nap.edu/catalog.php?record_id=9899#toc*). EPA has not taken any actions regarding the May 2000 Regulatory Determination as a result of the NAS report.

on the leaching potential of CCR constituents using the toxicity characteristic leaching procedure (TCLP) from a number of sources. More recent data on the composition of CCRs, including their leaching potential, have been collected and are discussed in the next sub-section. The CCR constituent database (available in the docket to this proposal) contains data on more than 40 constituents. Table 2 presents the median compositions of trace element TCLP leachates of each of the main four types of large volume CCRs (fly ash, bottom ash, boiler slag, and FGD gypsum). (Additional information, including the range of TCLP values, is available in the docket or on-line in the documents identified in the footnotes to the following table.)

TABLE 2—TCLP MEDIAN COMPOSITIONS OF COAL-FIRED UTILITY LARGE-VOLUME CCRS [5] (MG/L)

| Constituent | Fly ash | Bottom ash | Boiler slag | FGD |
|---|---|---|---|---|
| As | 0.066 | 0.002 | 0.002 | 0.290 |
| Ba | 0.289 | 0.290 | 0.260 | 0.532 |
| B | 0.933 | 0.163 | n/a | — |
| Cd | 0.012 | 0.005 | 0.0018 | 0.010 |
| $Cr^{VI}$ | 0.203 | 0.010 | 0.003 | 0.120 |
| Cu | n/a | n/a | 0.050 | n/a |
| Pb | 0.025 | 0.005 | 0.0025 | 0.120 |
| Hg | 0.0001 | 0.0001 | 0.0002 | 0.0001 |
| Se | 0.020 | 0.0013 | 0.0025 | 0.280 |
| Ag | 0.005 | 0.0050 | 0.0001 | 0.060 |
| V | 0.111 | 0.0050 | 0.010 | — |
| Zn | 0.285 | 0.015 | 0.075 | — |

n/a = data not available.
-- = too few data points to calculate statistics.
Source: Data from supporting documentation to the 1993 Regulatory Determination; values below the detection limit were treated as one-half the detection limit.

The composition of FGD gypsum depends on the position within the air emissions control system where the $SO_2$ component is subject to scrubbing: If scrubbing takes place up stream of the removal of fly ash particulates, the FGD would actually comprise a mix of both components. Table 3 presents mean TCLP trace element compositions of FGD gypsum generated by a scrubbing operation that is located down stream from the particulate collection elements of the air emissions control system; it therefore represents an 'end member' FGD gypsum.

TABLE 3—FGD GYPSUM TCLP COMPOSITIONS (MG/L) FROM: (1) TWO OHIO POWER PLANTS *[6] (MEAN DATA); (2) 12 SAMPLES OF COMMERCIAL WALLBOARD PRODUCED FROM SYNTHETIC GYPSUM **[7] (MEDIAN DATA)

| Constituent | Cardinal Plant * | Bruce Mansfield Plant * | Synthetic Gypsum ** |
|---|---|---|---|
| As | <0.006 | 0.0075 | 0.00235 |
| Ba | 0.373 | 0.270 | 0.043 |
| B | 0.137 | 0.0255 | n/a |
| Cd | 0.00167 | 0.00055 | 0.00145 |
| Cr | 0.00587 | 0.00575 | 0.0047 |
| Cu | <0.001 | <0.001 | n/a |
| Pb | <0.003 | <0.003 | 0.0006 |
| Hg | $1.8\times10^{-5}$ | $2.6\times10^{-6}$ | <0.0003 |
| Se | 0.0123 | <0.011 | 0.044 |
| V | <0.001 | 0.002 | n/a |
| Zn | 0.170 | 0.0560 | n/a |
| Ag | n/a | n/a | <0.00005 |

n/a = data not available.

The contaminants of most environmental concern in CCRs are antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver and thallium. Although these metals rarely exceed the RCRA hazardous waste toxicity characteristic (TC), because of the mobility of metals and the large size of typical disposal units, metals (especially arsenic) have leached at levels of concern from unlined landfills and surface impoundments. In addition, it should also be noted that since the Agency announced its May 2000 Regulatory Determination, EPA has revised the maximum contaminant level (MCL) for arsenic,[8] without a corresponding revision of the TC. As a result, while arsenic levels are typically well below the TC, drinking water risks from contaminated groundwater due to releases from landfills and impoundments may still be high. Also, as discussed below, a considerable body of evidence has emerged indicating that the TCLP alone is not a good predictor

[5] Compiled from Tables 3–1, 3–3, 3–5 and 3–7, in: Technical Background Document for the Report to Congress on Remaining Wastes from Fossil Fuel Combustion: Waste Characteristics, March 15, 1999 (*http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/ffc2_399.pdf*).

[6] Compiled from: Table 3–5, in: An Evaluation of Flue Gas Desulfurization Gypsum for Abandoned Mine Land Reclamation, Rachael A. Pasini, Thesis, The Ohio State University, 2009.

[7] Compiled from: Table 10, in: Fate of Mercury in Synthetic Gypsum Used for Wallboard Production, J. Sanderson *et al.,* USG Corporation, Final Report prepared for NETL, June 2008.

of the mobility of metals in CCRs under a variety of different conditions. This issue is further discussed in the following subsection.

From Tables 2 and 3 above, it is evident that each of the main four types of CCRs, when subjected to a TCLP leach test, yields a different amount of trace element constituents. EPA is soliciting public comments on whether, in light of these differences in the mobility of hazardous metals between the four major types of CCRs, regulatory oversight should be equally applied to each of these CCR types when destined for disposal.

2. Recent EPA Research on Constituent Leaching From CCRs

Changes to fly ash and other CCRs are expected to occur as a result of increased use and application of advanced air pollution control technologies in coal-fired power plants. These technologies include flue gas desulfurization (FGD) systems for $SO_2$ control, selective catalytic reduction (SCR) systems for $NO_X$ control, and activated carbon injection systems for mercury control. These technologies are being installed or are expected to be installed in response to federal regulations, state regulations, legal consent decrees, and voluntary actions taken by industry to adopt more stringent air pollution controls. Use of more advanced air pollution control technology reduces air emissions of metals and other pollutants in the flue gas of a coal-fired power plant by capturing and transferring the pollutants to the fly ash and other air pollution control residues. The impact of changes in air pollution control on the characteristics of CCRs and the leaching potential of metals is the focus of ongoing research by EPA's Office of Research and Development (ORD). This research is being conducted to identify any potential cross-media transfers of mercury and other metals and to meet EPA's commitment in the Mercury Roadmap (*http://www.epa.gov/hg/roadmap.htm*) to report on the fate of mercury and other metals from implementation of multi-pollutant control at coal-fired power plants.

Over the last few years, in cooperation with Electric Power Research Institute (EPRI) and the utility industry, EPA obtained 73 different CCRs from 31 coal-fired boilers spanning a range of coal types and air pollution control configurations. Samples of CCRs were collected to evaluate differences in air pollution control, such as addition of post-combustion $NO_X$ controls (*i.e.,* selective catalytic reduction), FGD scrubbers, and enhanced sorbents for mercury capture. A series of reports have been developed to document the results from the ORD research: The first report (Characterization of Mercury-Enriched Coal Combustion Residuals from Electric Utilities Using Enhanced Sorbents for Mercury Control, EPA–600/R–06/008, February 2006; *http://www.epa.gov/ORD/NRMRL/pubs/600r06008/600r06008.pdf*) was developed to document changes in fly ash resulting from the addition of sorbents for enhanced mercury capture. The second report (Characterization of Coal Combustion Residuals from Electric Utilities Using Wet Scrubbers for Multi-Pollutant Control; EPA–600/R–08/077, July 2008, *http://www.epa.gov/nrmrl/pubs/600r08077/600r08077.pdf*) was developed to evaluate residues from the expanded use of wet scrubbers. The third report (Characterization of Coal Combustion Residues from Electric Utilities—Leaching and Characterization Data, EPA–600/R–09/151, December 2009, *http://www.epa.gov/nrmrl/pubs/600r09151/600r09151.html*) updates the data in the earlier reports and provides data on an additional 40 samples to cover the range of coal types and air pollution control configurations, including some not covered in the two previous reports.

Data from these studies is being used to identify potential trends in the composition and leaching behavior of CCRs resulting from changes in air pollution controls. Summary data on the higher volume CCRs is provided for 34 fly ashes (Table 4) and 20 FGD gypsum samples (Table 5). The report provides analysis of other types of CCRs (*i.e.,* non-gypsum scrubber residues (primarily scrubber sludge containing calcium sulfite), blended CCRs (non-gypsum scrubber residues, fly ash, and lime), and wastewater treatment filter cake). For each of the metals that are reported (Sb, As, Ba, B, Cd Cr, Co, Hg, Pb, Mo, Se, and Tl) from the leaching test results, "box and whisker" plots have been developed comparing the different materials and providing comparison to field leachate data.

The purpose of this research was to try to understand how power plant air pollution control residues, and their leaching potential, are likely to change with the increased use of multi-pollutant and mercury controls, anticipated in response to new Clean Air Act regulations. An initial focus was to identify appropriate leach testing methods to assess leaching potential under known or expected CCR management conditions (beneficial use or disposal). The EPA's Science Advisory Board and the National Academy of Sciences have in the past raised concerns over the use of single-point pH tests that do not reflect the range of actual conditions under which wastes are plausibly managed.[9] Because metal leaching rates change with changing environmental conditions (especially pH), single point tests may not be the most accurate predictor of potential environmental release of mercury or other metals because they do not provide estimates of leaching under some disposal or reuse conditions that can plausibly occur.

In response to these concerns, a review of available leaching test methods was conducted. A leaching test method[10] based on research conducted at Vanderbilt University in the United States and the Energy Research Center of the Netherlands, among others, was selected to address some of these concerns.

While EPA/ORD's research relied on the Vanderbilt method, similar methods (i.e, tests evaluating leaching at different plausible disposal pH values) have been used to evaluate the leaching behavior and support hazardous waste listings of other materials as well.[11] Because of their general utility, the research methods have been drafted into the appropriate format and are being evaluated for inclusion in EPA's waste analytical methods guidance, SW–846[12]

[8] *See http://www.epa.gov/safewater/arsenic/regulations.html.*

[9] National Academy of Sciences, Managing Coal Combustion Residues in Mines; The National Academies Press, Washington, DC, 2006.

[10] Kosson, D.S.; Van Der Sloot, H.A.; Sanchez, F.; Garrabrants, A.C., An Integrated Framework for Evaluating Leaching in Waste Management and Utilization of Secondary Materials. Environmental Engineering Science 2002, 19, 159–204.

[11] *See* 65 FR 67100 (November 8, 2000) for a discussion of EPA's use of multi-pH leach testing in support of listing a mercury-bearing sludge from VCM–A production, and EPA/600/R–02/019, September 2001, *Stabilization and Testing of Mercury Containing Wastes: Borden Catalyst.*

[12] Five different methods have been developed for use depending upon the information needed and the waste form.

1. Draft Method 1313—Liquid-Solid Partitioning as a Function of Eluate pH using a Parallel Batch Extraction Test

2. Draft Method 1314—Liquid-Solid Partitioning as a Function of Liquid-Solid Ratio Using an Up-flow Column Test

3. Draft Method 1315—Mass Transfer in Monolithic or Compacted Granular Materials Using a Semi-dynamic Tank Leach Test

4. Draft Method 1316—Liquid-Solid Partitioning as a Function of Liquid-Solid Ratio Using a Parallel Batch Test

5. Draft Method 1317—Concise Test for Determining Consistency in Leaching Behavior

The test methods were developed to identify differences in the constituent leaching rate resulting from the form of the tested material, as well as the effects of pH and the liquid/solid ratio. Fine grained

Continued

to facilitate their routine use for evaluating other wastes or reuse materials (*http://www.epa.gov/osw/hazard/testmethods/sw846/index.htm*).

For the ORD research, equilibrium batch test methods that identify changes in leaching at different pH and liquid/solid ratio values were used to evaluate CCRs resulting from different air pollution controls at coal-fired power plants. This allowed evaluation of leaching potential over a range of field conditions under which CCRs are anticipated to be managed during either disposal or beneficial use applications. Landfill field leachate data from EPA [13] and EPRI [14] studies were used to establish the range of pH conditions expected to be found in actual disposal. From this data set, and excluding the extreme values (below 5th percentile and above 95th percentile), a pH range of 5.4 and 12.4 was determined to represent the range of plausible management conditions (with regard to pH) for CCRs. This means that approximately 5% of the values had a pH below 5.4 and approximately 5% of the values had a pH greater than 12.4. However, it is important to note that 9 of the 34 fly ash samples generated a pH in deionized water (*i.e.,* the pH generated by the tested material itself) below pH 5.4. Therefore, these results might understate CCR leaching potential if actual field conditions extend beyond the pH range of 5.4 and 12.4.

In Tables 4 and 5, the total metals content of the fly ash and FGD gypsum samples evaluated is provided along with the leach test results. Reference indicators (*i.e.,* MCL,[15] TC,[16] and DWEL [17]) are also provided to provide some context in understanding the leach results. It is critical to bear in mind that the leach test results represent a distribution of potential constituent release from the material as disposed or used on the land. The data presented do not include any attempt to estimate the amount of constituent that may reach an aquifer or drinking water well. Leachate leaving a landfill is invariably diluted in ground water to some degree when it reaches the water table, or constituent concentrations are attenuated by sorption and other chemical reactions in groundwater and sediment. Also, groundwater pH may be different from the pH at the site of contaminant release, and so the solubility and mobility of leached contaminants may change when they reach groundwater. None of these dilution or attenuation processes is incorporated into the leaching values presented. That is, no dilution and attenuation factor, or DAF,[18] has been applied to these results. Thus, comparisons with regulatory health values, particularly drinking water values, must be done with caution. Groundwater transport and fate modeling would be needed to generate an assessment of the likely risk that may result from the CCRs represented by these data.

In reviewing the data and keeping these caveats in mind, conclusions to date from the research include:

(1) Review of the fly ash and FGD gypsum data (Tables 4 and 5) show a range of total constituent concentration values that vary over a much broader range than do the leach data. This much greater range of leaching values only partially illustrates what more detailed review of the data shows: That for these CCRs, the rate of constituent release to the environment is affected by leaching conditions (in some cases dramatically so), and that leaching evaluation under a single set of conditions may, to the degree that single point leach tests fail to consider actual management conditions, lead to inaccurate conclusions about expected leaching in the field.

(2) Comparison of the ranges of totals values and leachate data from the complete data set supports earlier conclusions 51[19] [20] [21] that the rate of constituent leaching cannot be reliably estimated based on total constituent concentration alone.

(3) From the more complete data in Report 3, distinctive patterns in leaching behavior have been identified over the range of pH values that would plausibly be encountered for CCR disposal, depending on the type of material sampled and the element. This reinforces the above conclusions based on the summary data.

(4) Based on the data (summarized in Table 4), on the leach results from evaluation of 34 fly ashes across the plausible management pH range of 5.4 to 12.4,

- The leach results at the upper end of the leachate concentration range exceed the TC values for As, Ba, Cr, and Se (indicated by the shading in the table).

(5) Based on the data (summarized in Table 5), on the leach results from evaluation of 20 FGD gypsums across the plausible management pH range of 5.4 to 12.4,

- The leach results at the upper end of the leachate concentration ranges exceed the TC value for Se.

(6) The variability in total content and the leaching of constituents within a material type (*e.g.,* fly ash, gypsum) is such that, while leaching of many samples exceeds one or more of the available health indicators, many of the other samples within the material type may be lower than the available regulatory or health indicators.

materials (e.g., particle sizes of 2 mm or less) will have greater contact with leaching solutions (in a lab test) or rainfall (in the environment) than will solid materials such as concrete or CCRs that are pozzolanic when exposed to water. In applying these methods to CCRs or other materials, batch tests that are designed to reach equilibrium are used with fine-grained or particle-size reduced materials. For solid materials, the tests were designed to evaluate constituent leaching from the exposed surface (leaching of constituents that are either at the surface, or that have migrated over time to the surface), can be used. Testing at equilibrium provides an upper bound estimate of constituent leaching at each set of conditions tested. In some instances, these results may represent the real situation, since when rainfall percolation through a material in the environment is slow, the constituent concentration in the water passing through the materials may reach, or nearly reach equilibrium. Testing of solid (or "monolithic") materials evaluates constituent leaching from materials of low permeability for which most rainfall flows around the material rather than percolating through it. This results in less contact between the rainfall and the material, and so typically, a lower rate of constituent leaching. For monolithic materials, both the equilibrium and monolith tests are conducted to understand the likely initial rates of leaching from the monolith (while it remains solid), and the upper bound on likely leaching, when the monolith degrades over time, exposing more surface area to percolating rainwater, and typically, higher constituent leaching rates. It may also be possible to avoid the cost of testing solid, monolithic materials, if the material leaches at low constituent concentrations under the equilibrium testing conditions.

[13] U.S. EPA (2000) Characterization and evaluation of landfill leachate, Draft Report. 68–W6–0068, Sept 2000.

[14] EPRI (2006) Characterization of Field Leachates at Coal Combustion Product Management Sites: Arsenic, Selenium, Chromium, and Mercury Speciation, EPRI Report Number 1012578. EPRI, Palo Alto, CA and U.S. Department of Energy, Pittsburgh, PA.

[15] MCL is the maximum concentration limit for contaminants in drinking water.

[16] TC is the toxicity characteristic and is a threshold for hazardous waste determinations.

[17] DWEL is the drinking water equivalent level to be protective for non-carcinogenic endpoints of toxicity over a lifetime of exposure. DWEL was developed for chemicals that have a significant carcinogenic potential and provides the risk manager with evaluation on non-cancer endpoints, but infers that carcinogenicity should be considered the toxic effect of greatest concern (*http://www.epa.gov/safewater/pubs/gloss2.html#D*).

[18] For example, EPA used a generic DAF values of 100 in the Toxicity Characteristic final regulation. (*See:* 55 FR 11827, March 29, 1990)

[19] Senior, C; Thorneloe, S.; Khan, B.; Goss, D. Fate of Mercury Collected from Air Pollution Control Devices; EM, July 2009, 15–21.

[20] U.S. EPA, Characterization of Mercury-Enriched Coal Combustion Residuals from Electric Utilities Using Enhanced Sorbents for Mercury Control, EPA–600/R–06/008, Feb. 2006; *http://www.epa.gov/ORD/NRMRL/pubs/600r06008/600r06008.pdf.*

[21] U.S. EPA, Characterization of Coal Combustion Residuals from Electric Utilities Using Wet Scrubbers for Multi-Pollutant Control; EPA–600/R–08/077, July 2008, *http://www.epa.gov/nrmrl/pubs/600r08077/600r08077.pdf.*

Additional or more refined assessment of the dataset may allow some distinctions regarding release potential to be made among particular sources of some CCRs, which may be particularly useful in evaluating CCRs in reuse applications.

EPA anticipates development of a fourth report that presents such additional analysis of the leaching data to provide more insight into constituent release potential for a wider range of CCR management scenarios, including beneficial use applications. This will include calculating potential release rates over a specified time for a range of management scenarios, including use in engineering and commercial applications using probabilistic assessment modeling (Sanchez and Kosson, 2005).[22] This report will be made publicly available when completed.

Finally, the Agency recognizes that this research has generated a substantial amount of data, and believes this data set can be useful as a reference for assessing additional CCR samples in the future. The docket for today's rule therefore includes the full dataset, in the form of a database to provide easier access to EPA's updated leach data.[23]

**Table 4. Preliminary Leach Results for 5.4<pH< 12.4 and at "own pH" from Evaluation of Thirty-Four Fly Ashes.**

| | Hg | Sb | As | Ba | B | Cd | Cr | Co | Pb | Mo | Se | Tl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total in Material (mg/kg) | 0.01 – 1.5 | 3 - 14 | 17 - 510 | 590 – 7,000 | NA | 0.3 – 1.8 | 66 - 210 | 16 - 66 | 24 - 120 | 6.9 - 77 | 1.1 - 210 | 0.72 - 13 |
| Leach results (ug/L) | <0.01-0.50 | <0.3 – 11,000 | 0.32 – 18,000 | 50 – 670,000 | 210 – 270,000 | <0.1 - 320 | <0.3 – 7,300 | <0.3-500 | <0.2 - 35 | <0.5 – 130,000 | 5.7 – 29,000 | <0.3 - 790 |
| TC (ug/L) | 200 | - | 5,000 | 100,000 | - | 1,000 | 5,000 | - | 5,000 | - | 1,000 | - |
| MCL (ug/L) | 2 | 6 | 10 | 2,000 | 7,000 DWEL | 5 | 100 | - | 15 | 200 DWEL | 50 | 2 |

**Note:** The dark shading is used to indicate where there could be a potential concern for a metal when comparing the leach results to the MCL, DWEL, or concentration level used to determine the TC. Note that MCL and DWEL values are intended to represent concentrations at a well and the point of exposure; leachate dilution and attenuation processes that would occur in groundwater before leachate reaches a well are not accounted for, and so MCL and DWEL values cannot be directly compared with leachate values.

[22] Sanchez, F., and D. S. Kosson, 2005. Probabilistic approach for estimating the release of contaminants under field management scenarios. *Waste Management* 25(5), 643–472 (2005).

[23] The database, called "Leach XS Lite" can be used to estimate the leaching potential of CCRs under any specified set of pH or infiltration conditions that may occur in the field. While the database is presented as a "Beta" version, and may be further developed, the data presented in the data base are final data, from the three EPA research reports cited above.

**Table 5. Preliminary Leach Results for 5.4<pH< 12.4 and at "own pH" from Evaluation of Twenty FGD Gypsums.**

| | Hg | Sb | As | Ba | B | Cd | Cr | Co | Pb | Mo | Se | Tl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total in Material (mg/kg) | 0.01 – 3.1 | 0.14 – 8.2 | 0.95 - 10 | 2.4 - 67 | NA | 0.11 – 0.61 | 1.2 – 20 | 0.77 – 4.4 | 0.51 - 12 | 1.1 - 12 | 2.3 - 46 | 0.24 – 2.3 |
| Leach results (ug/L) | <0.01-0.66 | <0.3 - 330 | 0.32 – 1,200 | 30 - 560 | 12 – 270,000 | <0.2 - 370 | <0.3 – 240 | <0.2 – 1,100 | <0.2 - 12 | 0.36 – 1,900 | 3.6 – 16,000 | <0.3 – 1,100 |
| TC (ug/L) | 200 | - | 5,000 | 100,000 | - | 1,000 | 5,000 | - | 5,000 | - | 1,000 | - |
| MCL (ug/L) | 2 | 6 | 10 | 2,000 | 7,000 DWEL | 5 | 100 | - | 15 | 200 DWEL | 50 | 2 |

**Note:** The dark shading is used to indicate where there could be a potential concern for a metal when comparing the leach results to the MCL, DWEL, or concentration level used to determine the TC. Note that MCL and DWEL values are intended to represent concentrations at a well and the point of exposure; leachate dilution and attenuation processes that would occur in groundwater before leachate reaches a well are not accounted for, and so MCL and DWEL values cannot be directly compared with leachate values.

*G. Current Federal Regulations or Standards Applicable to the Placement of CCRs in Landfills and Surface Impoundments.*

CCR disposal operations are typically regulated by state solid waste management programs, although in some instances, surface impoundments are regulated under the states water programs. However, there are limited regulations of CCRs at the federal level.

The discharge of pollutants from CCR management units to waters of the United States are regulated under the National Pollutant Discharge Elimination System (NPDES) at 40 CFR Part 122, authorized by the Clean Water Act (CWA). NPDES permits generally specify an acceptable level of a pollutant or pollutant parameter in a discharge. NPDES permits ensure that a state's mandatory standards for clean water and the federal minimums are being met. A number of the damage cases discussed in the preamble also involved surface water contamination, which were violations of the NPDES permit requirements.

**II. New Information on the Placement of CCRs in Landfills and Surface Impoundments**

*A. New Developments Since the May 2000 Regulatory Determination.*

Since publication of the May 2000 Regulatory Determination, new information and data have become available, including additional damage cases, risk modeling, updated information on current management practices and state regulations associated with the disposal of CCRs, petitions from environmental and citizens groups for EPA to develop rules for the management of CCRs, an industry voluntary agreement on how they would manage CCRs, and a proposal from environmental and citizens groups for a CCR rule. Much of this new information was made available to the public in August 2007 through a Notice of Data Availability (NODA) at 72 FR 49714 (*http://www.epa.gov/fedrgstr/EPA-WASTE/2007/August/Day-29/f17138.pdf*). EPA has received extensive comments from environmental groups, industry, states and others in response to the NODA and as we have moved toward rulemaking. All of the comments and subsequent information we have received are included in the docket to this proposal. The new information on risks and the damage cases are discussed briefly below and in more detail in subsequent sections of this proposed rule; a more detailed discussion of this new information is discussed in other sections of the preamble.

At the time of the May 2000 Regulatory Determination, the Agency was aware of 14 cases of proven damages [24] and 36 cases of potential damages resulting from the disposal of

[24] As discussed later in the preamble, 11 of these documented cases of damage were to human health and the environment, while four of these cases were cases of ecological damage, one of which has now been reclassified as a potential damage case.

CCRs. The Agency has since learned of an additional 13 cases of proven damages and 4 cases of potential damages, including a catastrophic release of CCRs from a disposal unit at the Tennessee Valley Authority (TVA) Kingston facility in Harriman, Tennessee in December 2008. In total, EPA has documented 27 cases of proven damages and 40 cases of potential damages resulting from the disposal of CCRs. Proven damage cases have been documented in 12 states, and potential damage cases—in 17 states. *See* section II.C. and the Appendix to this proposal for more detailed discussions of EPA's CCR damage cases.

As part of the process for making the May 2000 Regulatory Determination for CCRs, EPA prepared a draft quantitative risk assessment. However, because of time constraints, the Agency was unable to address public comments on the draft risk assessment in time for the Regulatory Determination. Between 2000 and 2006, EPA addressed the public comments and updated the quantitative risk assessment for the management of CCR in landfills and surface impoundments. The revised risk assessment was made available for public comment in the August 2007 draft report titled "Human and Ecological Risk Assessment of Coal Combustion Wastes."

In the May 2000 Regulatory Determination, the Agency concluded that the utility industry had made significant improvements in its waste management practices for new landfills and surface impoundments since the practices reflected in the 1999 Report to Congress, and that most state regulatory programs had similarly improved. To verify its conclusion, in 2005, the U.S. Department of Energy (DOE) and EPA conducted a joint study to collect more recent information on the management practices for CCRs by the electric power industry, and state programs in 11 states. The results of the study were published in the report titled "Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994–2004." Additionally, we are aware of at least one state (Maryland) that has recently amended its regulatory requirements for the management of CCRs.

In February 2004, 125 environmental and citizens groups petitioned the EPA Administrator for a rulemaking prohibiting the disposal of coal power plant wastes into groundwater and surface water until such time as EPA promulgates federally enforceable regulations pursuant to RCRA. A copy of the petition is available at *http://www.regulations.gov/fdmspublic/component/main?/main=DocumentDetail&o=09000064801cf8d1.*

In October 2006, the utility industry through their trade association, the Utility Solid Waste Activities Group (USWAG) submitted to EPA a "Utility Industry Action Plan for the Management of Coal Combustion Products." The plan outlines the utility industry's commitment to adopt groundwater performance standards and monitoring, conduct risk assessments prior to placement of CCRs in sand and gravel pits, and to consider dry-handling prior to constructing new disposal units.

In January 2007, environmental and citizens groups submitted to EPA a "Proposal for the Federal Regulation of Coal Combustion Waste." The proposal provides a framework for comprehensive regulation under subtitle D of RCRA for waste disposed of in landfills and surface impoundments generated by coal-fired power plants. Then in July 2009, environmental and citizens groups filed a second petition requesting that the EPA Administrator promulgate regulations that designate CCRs as hazardous waste under subtitle C of RCRA.[25] In support of their petition, the environmental groups cited "numerous reports and data produced by the Agency since EPA's final Regulatory Determination * * * which quantify the waste's toxicity, threat to human health and the environment, inadequate state regulatory programs, and the damage caused by mismanagement." A copy of the petition is available in the docket to this proposal. The Agency has, as yet, not made a decision as to whether to lift the Bevill exemption, and, while it has determined that federal regulation is appropriate, it has not made a determination as to whether regulations should be promulgated under subtitles C or D of RCRA. Consequently, EPA is deferring its response to the petitioner. However, the preamble discusses the issues raised in these petitions at length. In addition, the Agency is deferring its proposed response to the petitioners' request regarding the placement of CCRs in minefills as the Agency will work with OSM to address the management of CCRs in minefills in a separate rulemaking action. (*See* discussion in other parts of the preamble for the Agency's basis for its decisions.)

In August 2007, EPA published a NODA (72 FR 49714, *http://www.epa.gov/fedrgstr/EPA-WASTE/2007/August/Day-29/f17138.htm*) which made public, and sought comment on, the new information we received since the May 2000 Regulatory Determination through 2007, except for the July 2009 petition entitled, *Petition for Rulemaking Pursuant to Section 7004(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Coal Combustion Waste and the Basis for Reconsideration of the 2000 Regulatory Determination Concerning Wastes from the Combustion of Fossil Fuels.* The new information included the joint DOE and EPA report entitled: *Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994–2004;* the draft risk assessment; and EPA's damage case assessment. EPA also included in the docket to the NODA the February 2004 Petition for Rulemaking submitted by a number of environmental and citizens' groups to prohibit the placement or disposal of CCRs into ground water and surface water; and two suggested approaches for managing CCRs in landfills and surface impoundments. One approach is the Voluntary Action Plan that was formulated by the electric utility industry. The second approach was the January 2007 framework prepared by a number of environmental and citizens' groups proposing federal regulation under subtitle D of RCRA for CCRs generated by U.S. coal-fired power plants and disposed of in landfills and surface impoundments. The Agency received a total of 396 comments on the NODA from 375 citizens and citizen and environmental groups, 16 industry groups, and 5 state and local government organizations. In general, citizens, citizens groups, and environmental groups commented that state regulations are inadequate and called on EPA to develop enforceable regulations for the disposal of CCRs under the hazardous waste provisions of RCRA. Industry groups, on the other hand, stated that the significant recent improvement in industry management and state regulatory oversight of CCR disposal demonstrates that the conditions that once led EPA to determine that federal subtitle D regulations were warranted no longer exist and therefore, further development of subtitle D regulations is no longer necessary. In September 2008, the Environmental Council of the States (ECOS) issued a resolution that states already have regulations in place that apply to CCRs, and a federal regulation is not necessary. The 2008 ECOS resolution was revised in March 2010 and calls upon EPA to conclude that

[25] This rulemaking petition was filed by: Earthjustice; the Sierra Club; the Environmental Integrity Project; the Natural Resources Defense Council; the Southern Environmental Law Center; and Kentucky Resources Council.

additional federal CCR regulations would be duplicative of most state programs, are unnecessary, and should not be adopted, but if adopted must be developed under RCRA subtitle D rather than RCRA subtitle C (*see http://www.ecos.org/files/4018_file_Resolution_08_14_2010_version.doc*). Comments on the NODA are available in the docket to the NODA at *http://www.regulations.gov,* docket number EPA–HQ–RCRA–2006–0796.

Finally, in July and August of 2008, EPA conducted a peer review of the 2007 draft risk assessment "Human and Ecological Risk Assessment of Coal Combustion Wastes." The peer review was conducted by a team of five experts in groundwater modeling, environmental fate and transport modeling, and human health and ecological risk assessment. EPA has revised its risk assessment based on the peer review comments. Results of the peer review and the revised risk assessment are included in the docket to this proposal. Also, *see* section II.B. below and the document titled "What Are the Environmental and Health Effects Associated with Disposing of CCRs in Landfills and Surface Impoundments?" available from the docket to this notice for more detailed discussions of the risk assessment.

In summary, since the May 2000 Regulatory Determination, the Agency has (1) Documented an additional 17 cases of damage from the disposal of CCRs (13 proven and 3 potential); (2) gathered additional information on industry practices; (3) revised its risk assessment, based on comments received on the 1999 Report to Congress, conducted a peer review of the revised risk assessment, and further revised its risk assessment based on peer review comments and comments received on the August 2007 NODA; (4) received a voluntary action plan from the utility industry; (5) received two petitions for rulemaking from environmental and citizens groups; and (6) received a proposal for regulating the management of CCRs in landfills and surface impoundments from environmental and citizens groups. EPA has considered all of this information in making the decisions on the proposals in this notice.

*B. CCR Risk Assessment*

In making the May 2000 Regulatory Determination for CCRs, EPA prepared a draft quantitative risk assessment based on groundwater modeling. However, commenters from all sides raised fundamental scientific questions with the study, and raised issues that went beyond groundwater modeling capability at the time. EPA was unable to address these issues in the available time, and therefore did not rely on the draft risk assessment as part of its basis in making its May 2000 Regulatory Determination; rather we relied on the damage cases identified, as well as other information. In this regard, it is worth noting that EPA did not conclude that the available information regarding the extent or nature of the risks were equivocal. Rather, EPA noted that we had not definitively assessed the ground water risks, due to the criticisms of our draft risk assessment, but still concluded that there were "risks from arsenic that we cannot dismiss." Largely what drove the risks in the original risk assessment were the old units that lacked liners and ground water monitoring (for landfills, only 57% of the units had liners and 85% of the units had ground water monitoring, while for surface impoundments, only 26% of the units had liners and only 38% of the units had ground water monitoring).

Between 2000 and 2006, EPA addressed public comments and updated the quantitative risk assessment for the management of CCRs in landfills and surface impoundments. The purpose of the risk assessment is to identify CCR constituents, waste types, liner types, receptors, and exposure pathways with potential risks and to provide information that EPA can use as we continue to evaluate the risks posed by CCRs disposed of in landfills and surface impoundments. The risk assessment was designed to develop national human and ecological risk estimates that are representative of onsite CCR management settings throughout the United States. A revised draft risk assessment was made available to the public through the August 2007 NODA (which is discussed in other sections of the preamble) and is available at *http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&o=090000648027b9cc*.

EPA submitted the revised draft risk assessment report, together with public comments on the report in response to the 2007 NODA, to a peer review panel. EPA completed the risk assessment, taking into account peer review comments, in a final report titled "Human and Ecological Risk Assessment of Coal Combustion Wastes," (September 2009). The report, peer review comments, and EPA's response to the peer review comments are available in the docket for this proposal.

For purposes of this rulemaking, EPA defined the target level of protection for human health to be an incremental lifetime cancer risk of no greater than one in 100,000 ($10^{-5}$) for carcinogenic chemicals and a hazard quotient of 1.0 for noncarcinogenic chemicals. The hazard quotient is the ratio of an individual's chronic daily dose of a constituent to the reference dose for that constituent, where the reference dose is an estimate of the daily dose that is likely to be without appreciable risk of deleterious effects over a lifetime. These are the target levels that EPA typically uses in its listing decisions. (*See,* for example, the final rule for Nonwastewaters From Productions of Dyes, Pigments, and Food, Drug, and Cosmetic Colorants (70 FR 9144) at *http://www.epa.gov/wastes/laws-regs/state/revision/frs/fr206.pdf*.)

The results of this risk assessment provide further confirmation of the high risks presented in the mismanagement of CCRs disposed in landfills and surface impoundments. The assessment does confirm that there are methods to manage CCRs safely, although it calls into question the reliability of clay liners, especially in surface impoundments, and it points to very high potential risks from unlined surface impoundments.

Specifically, the revised draft CCR risk assessment presents results at a typical exposure (50th percentile), as well as a high-end exposure (90th percentile) risk based on a probabilistic analysis. The revised draft CCR risk assessment results at the 90th percentile suggest that the management of CCRs in unlined or clay-lined waste management units (WMUs) result in risks greater than the risk criteria of $10^{-5}$ for excess cancer risk to humans or an HQ greater than 1 for noncancer effects to both human and ecological receptors which are the criteria generally used in EPA's listing determination procedure.[26] While still above the criteria, clay-lined units tended to have lower risks than unlined units. However, it was the composite-lined units that effectively reduced risks from all pathways and constituents below the risk criteria. More specifically:

○ For humans exposed via the groundwater-to-drinking-water pathway, estimated risks from clay-lined landfills that dispose of CCRs or

[26] EPA's hazardous waste listing determination policy is described in the notice of proposed rulemaking for wastes from the dye and pigment industries at 59 FR 66075–66077 *available at http://www.epa.gov/fedrgstr/EPA-WASTE/1994/December/Day-22/pr-98.html* and in the final rule for Nonwastewaters From Productions of Dyes, Pigments, and Food, Drug, and Cosmetic Colorants (70 FR 9144) at *http://www.epa.gov/wastes/laws-regs/state/revision/frs/fr206.pdf*.

CCRs co-managed with coal refuse are lower than those for unlined landfills. However, the 90th percentile risk estimates, for arsenic that leaks from clay-lined landfills are still above the risk criteria—as high as 1 in 5,000 individual lifetime excess cancer risk.[27] When landfills are unlined, estimated risks above the criteria occur for antimony and molybdenum, as well as arsenic (as high as 1 in 2,000 individual lifetime excess cancer risk). In addition to arsenic, clay-lined fluidized bed combustion (FBC) landfills also presented estimated 90th percentile risks above the criteria for antimony. However, unlined FBC landfills differed in that they were estimated to exceed the risk criteria only for arsenic.[28] At the 50th percentile, only trivalent arsenic from CCRs codisposed with coal refuse was estimated to exceed the risk criteria with cancer risks of 1 in 50,000.

○ Arsenic and cobalt were the constituents with the highest estimated risks for surface impoundments. Clay-lined surface impoundments were estimated to present 90th percentile risks above the criteria for arsenic, boron, cadmium, cobalt, molybdenum, and nitrate. The 90th percentile clay-lined impoundment estimated risks and hazard quotients (HQs) were as follows: for arsenic, the estimated risk was as high as 1 in 140; cobalt's estimated HQ as high as 200, while the estimated HQs for boron, cadmium, molybdenum and nitrate ranged from 2 to 20. The 90th percentile unlined surface impoundment estimates were above the criteria for constituents that include arsenic, lead, cobalt and selenium: estimated arsenic cancer risks are as high as 1 in 50, and non-cancer effects estimates for cobalt ranged from an estimated HQ of 0.9 to 500 depending on whether CCRs were co-managed with coal refuse. At the 50th percentile, the only surface impoundment results estimated to exceed the risk criteria were arsenic and cobalt: unlined impoundments had estimated arsenic cancer risks as high as 6 in 10,000, while clay-lined impoundments had estimated arsenic cancer risks as high as 1 in 5,000. The 50th percentile noncancer HQs due to cobalt in drinking water were estimated to be as high as 20 and 6 for unlined and clay-lined surface impoundments, respectively.

○ Composite liners, as modeled in this assessment, effectively reduce risks from all constituents to below the risk criteria for both landfills and surface impoundments at the 90th and 50th percentiles.

○ The model generally predicts that groundwater risks will occur centuries later for landfills than for surface impoundments. For the groundwater-to-drinking water pathway for unlined landfills, arrival times of the peak concentrations at a receptor well peaked in the hundreds or thousands of years, while unlined surface impoundment risks typically peaked within the first 100 years. Clay liners resulted in later arrival of peak risks, nearly always in the thousands of years for landfills but still in the first few hundred years for surface impoundments. Finally, while composite liners often resulted in a failure of the plume to reach groundwater wells, composite-lined landfills with plumes that were estimated to reach groundwater wells eventually had peak arsenic-in-groundwater concentrations at approximately 10,000 years, while composite-lined surface impoundments' plumes peaked in the thousands of years.

○ For humans exposed via the groundwater-to-surface-water (fish consumption) pathway, unlined and clay-lined surface impoundments were estimated to pose risks above the criteria at the 90th percentile. For CCRs managed alone in surface impoundments, these exceedances came from selenium (estimated HQs of 3 and 2 for unlined and clay-lined units, respectively). For CCRs co-managed with coal refuse, these exceedences came from arsenic (3 in 100,000 and 2 in 100,000 estimated excess cancer risks for unlined and clay-lined units, respectively). All 50th percentile surface impoundment risks are estimated to be below the risk criteria. No constituents pose estimated risks above the risk criteria for landfills (including FBC landfills) at the 90th or 50th percentile.

○ EPA also conducted a separate draft fugitive dust screening assessment which indicates that, without fugitive dust controls, there could be exceedances of the National Ambient Air Quality Standards for fine particulate matter in the air at residences near CCR landfills.[29] The 1998 risk assessment[30] also showed risks from inhalation of chromium in fugitive dust but at levels below the criteria.[31]

EPA recognizes that there are significant uncertainties in national risk assessments of this nature, although it did attempt to address potential uncertainties through Monte Carlo and sensitivity analyses. Uncertainties discussed in the revised risk assessment include:

- The locations and characteristics of currently operating facilities;
- The failure to account for direct discharges to surface water;
- Changing conditions over the 10,000-year period modeled;
- Shifting populations and ecological receptors;
- Additive risks from multiple constituents or multiple pathways;
- Clean closure of surface impoundments;
- The speciation and bioavailability of constituents;
- The effect of compacting CCRs before disposal;
- The assumption that all disposal units are above the water table;
- Full mixing of the groundwater plume;
- The choice of iron sorbent in the soil;
- The appropriateness of the leachate data used and the treatment of nondetects;
- The distance to receptor wells and surface water bodies; and
- The potential conservativeness of human health benchmarks.

The Agency, however, does solicit comment on several specific aspects of the underlying risk assessment. In particular, EPA requests comment on whether clay liners designed to meet a $1x10^{-7}$ cm/sec hydraulic conductivity might perform differently in practice than modeled in the risk assessment. Thus, EPA solicits specific data on the hydraulic conductivity of clay liners associated with CCR disposal units. In addition to the effectiveness of various liner systems, the hydraulic conductivity of coal ash can be reduced with the appropriate addition of moisture followed by compaction to attain 95% of the standard Proctor

[27] Excess cancer risk means risk in addition to pre-existing, "background" risk from other exposures.

[28] Unlined FBC landfills showed less risk as modeled; note that the number of FBC landfills modeled was very small (seven).

[29] EPA's decision to address fugitive dust was based on a peer review comment to the draft Risk Assessment, stakeholder NODA comments, photographic documentation of fugitive dust associated with the hauling and disposal of CCRs, Agency efforts to control fugitive dust emissions from the TVA Kingston spill (see e.g., *http://www.epakingstontva.com/EPA%20Air%20Audits%20and%20Reviews/Kingston%20Fly%20Ash%20-%20EPA%20Audit.pdf*), and OSHA's requirement for MSDS sheets for coal ash.

[30] Non-Groundwater Pathways, Human Health and Ecological Risk Analysis for Fossil Fuel Combustion Phase 2 (FFC2): Draft Final Report (*http://www.epa.gov/osw/nonhaz/industrial/special/fossil/ngwrsk1.pdf*).

[31] All chromium present in the particulate matter was assumed to be in the more toxic, hexavalent form.

maximum dry density value.[32] This concept, it has been reported, could potentially be taken further with the use of compaction coupled with the addition of organosilanes. According to recent studies, organosilanes could take the hydraulic conductivity to zero.[33] EPA solicits comments on the effectiveness of such additives, including any analysis that would reflect long-term performance, as well as the appropriateness of a performance standard that would allow such control measures in lieu of composite liners. EPA has also observed that surface impoundments are often placed right next to surface water bodies which may present complex subsurface environments not considered by the groundwater model, and therefore EPA seeks data on the distance of surface impoundments to water bodies, site specific groundwater risk analysis which accounts for the presence of a nearby surface water body, and groundwater monitoring data associated with such sites.

In characterizing CCRs and utilizing such data for the risk analysis, EPA gathered a variety of data over a long period of time. As a general matter, EPA finds these data to be an accurate characterization, and that the values are in line with recent studies EPA has conducted to characterize new air pollution controls. However, with respect to a few of the highest surface impoundment porewater concentrations (for arsenic in particular), questions have been raised regarding the representativeness of these individual data points. In one case, a facility with the highest arsenic pore water concentration (86.0 mg/L) involved values that were measured in a section of a surface impoundment where coal refuse (defined as coal waste from coal handling, crushing, and sizing operations) was disposed of at the water surface. Pore water samples taken in the coal ash sediment beneath the coal refuse involved concentrations of arsenic as low as 0.003 mg/L. Thus, there is the question of whether those pore water samples measured in the coal refuse represent what leaches out of the bottom of the surface impoundment.

The next highest arsenic values (an average of 5.37 mg/L over 4 samples with the highest concentration being 15.5 mg/L) came from site CASJ (known as SJA in the EPRI report). The concern is that arsenic in the pore water was orders of magnitude higher than in the pond water. That type of change doesn't appear to occur for other constituents in these samples or for arsenic in samples from other surface impoundments. EPA recently attempted to obtain further information that could assist us to better characterize these specific data, but the data are old, the impoundment is no longer in operation, and there are apparently no additional records upon which to draw conclusions.

Additional high concentration values, especially for lead, are associated with ash data provided by Freeman United Mining, which acquired ash for a minefilling project. None of this ash data is associated with electric utilities, but rather with other coal combusters such as John Deere, American Cyanamid, and Washington University in St. Louis, Missouri. The Agency is uncertain whether the high lead levels are associated with lead levels in the source coal, the operations at these facilities, or whether other wastes were mixed with the CCRs.

While these concerns are associated with a small fraction of the data, these data reflect the highest concentrations, and thus can be important considerations in the risk analysis. Based on the above concerns, EPA solicits comment on several questions.

- For the highest concentrations in EPA's database, such as the examples mentioned above, are there values that do not appropriately represent leaching to groundwater, and if so, why not?
- Are there any additional data that are representative of CCR constituents in surface impoundment or landfill leachate (from literature, state files, industry or other sources) that EPA has not identified?
- EPA understands that the disposal practices associated with coal refuse in surface impoundments may have improved based on the development of an industry guide.[34] EPA solicits information on the degree to which coal refuse management practices have changed since the issuance of the guide and the impacts of those changes (*e.g.,* have concentrations of arsenic been reduced in leach samples that have been taken at facilities operating in concert with the industry guide).
- For CCR surface impoundments, are there any examples of pore water concentrations for arsenic increasing orders of magnitude over pond water concentrations?

For more detailed discussions of the CCR risk assessment, *see* the document titled: "What Are the Environmental and Health Effects Associated with Disposing of CCRs in Landfills and Surface Impoundments?" and the report titled "Human and Ecological Risk Assessment of Coal Combustion Wastes" which are included in the docket to this notice.

*C. Damage Cases*

Under the Bevill Amendment for the "special waste" categories of RCRA, EPA was statutorily required to examine "documented cases in which danger to human health or the environment from surface runoff or leachate has been proved" from the disposal of coal combustion wastes (RCRA Section 8002(n)). The criteria used to determine whether danger to human health and the environment has been proven are described in detail in the May 2000 Regulatory Determination at 65 FR 32224.[35]

At the time of the May 2000 Regulatory Determination, the Agency was aware of 11 documented cases of proven damage to ground water and 36 cases of potential damage to human health and the environment from the improper management of CCRs in landfills and surface impoundments. Additionally, the Agency determined that another four cases were documented cases of ecological damages.[36] However, for the May 2000 Regulatory Determination, EPA did not consider these ecological damage cases because all involved some form of discharge from waste management units to nearby lakes or creeks that would be subject to the Clean Water Act regulations. Moreover, EPA concluded that the threats in those cases were not substantial enough to cause large scale, system level ecological disruptions. On review, EPA has concluded that the ecological damage cases are appropriate for consideration because, while they might involve CWA violations, they nevertheless reflect damages from CCR disposal that might be handled under RCRA controls. And, while they may or may not have involved "systems-level"

[32] The standard and modified Proctor compaction tests (ASTM D 698 and D 1557 respectively) are used to determine the maximum achievable density of soils and aggregates by compacting the soil or aggregate in a standardized mould at a standardized compactive force. The maximum dry density value (or maximum achievable dry density value) is determined by dividing the mass of the compacted material (weight divided by the gravitational force) by the volume of the compacted material.

[33] "Organo-silane Chemistry: A Water Repellant Technology for Coal Ash and Soils," John L. Daniels, Mimi S. Hourani, and Larry S. Harper, 2009 World of Coal Ash Conference. *Available at http://www.flyash.info/2009/025-daniels2009.pdf* and in the docket to this proposal.

[34] Guidance for Comanagement of Mill Rejects at Coal-Fired Power Plants, Electric Power Research Institute, 1999. Available in the docket to this proposal.

[35] For definition of "proven damage case," see section C in the Supplementary Information section.

[36] Ecological damages are damages to mammals, amphibians, fish, benthic layer organisms and plants.

disruption, they were significant enough to lead to state response actions, *e.g.,* fish advisories. EPA now believes that ecological damages warranting state environmental response are generally appropriate for inclusion as damage cases, and to fail to include them would lead to an undercounting of real and recognized damages. Accordingly, at the time of the May 2000 Regulatory Determination, in total, 15 cases of proven damages had occurred. Subsequently, one of the 15 proven damage cases has been reclassified as a potential damage case, resulting in a total of 14 proven cases of damage, as of the May 2000 Regulatory Determination.

Since the May 2000 Regulatory Determination, additional damage cases, including ecological damage cases, have occurred, and were discussed in the August 2007 NODA. Specifically, EPA has gathered or received information on 135 alleged damage cases. Six of the alleged damage cases have been excluded from this analysis because they involved minefills, a management method which is outside the scope of this proposal, while sixty-two of the damage cases have not been further assessed because there was little or no information supporting the concerns identified. Of the remaining 67 damage cases evaluated, EPA determined that 24 were proven cases of damage (which includes the 14 proven damage cases from the May 2000 Regulatory Determination); of the 24 damage cases, eight were determined to be proven damages to surface water and sixteen were determined to be proven damages to ground water, with four of the cases to groundwater being from unlined landfills, five coming from unlined surface impoundments, one was from a surface impoundment where it was unclear whether it was lined, and the remaining six cases coming from unlined sand and gravel pits. Another 43 cases (which includes the 36 potential damage cases from the May 2000 Regulatory Determination) were determined to be potential damages to groundwater or surface water; however, four of the potential damage cases were attributable to oil combustion wastes and thus are outside the scope of this proposal; therefore, resulting in 39 CCR potential damage cases. The remaining 10 alleged damage cases were not considered to be proven or potential damage cases due to a lack of evidence that damages were uniquely associated with CCRs; therefore, they were not considered to be CCR damage cases.

Finally, within the last couple of years, EPA has learned of an additional five cases of claimed damage. Two of the cases involve the structural failure of the surface impoundment; *i.e.,* dam safety and structural integrity issues, a pathway which EPA did not consider at the time of the May 2000 Regulatory Determination. These cases are (1) a 0.5 million cubic yard release of water and fly ash to the Delaware River at the Martin's Creek Power Plant in Pennsylvania in 2005, leading to a response action costing $37 million, and (2) the catastrophic failure of a dike at TVA's Kingston, Tennessee facility, leading to the release of 5.4 million cubic yards of fly ash sludge over an approximately 300 acre area and into a branch of the Emory River, followed by a massive cleanup operation overseen by EPA and the state of Tennessee. EPA classifies these as proven damage cases. Another case involved the failure of a discharge pipe at the TVA Widows Creek plant in Stevenson, Alabama, resulting in a 6.1 million gallon release from an FGD pond, leading to $9.2 million in cleanup costs. EPA did not classify this as a damage case, because samples at relevant points of potential exposure did not exceed applicable standards. Two other cases involved the placement of coal ash in large scale fill operations. The first case, the BBBS Sand and Gravel Quarries in Gambrills, Maryland, involved the disposal of fly ash and bottom ash (beginning in 1995) in two sand and gravel quarries. EPA considers this site a proven damage case, because groundwater samples from residential drinking wells near the site include heavy metals and sulfates at or above groundwater quality standards, and the state of Maryland is overseeing remediation. The second case is the Battlefield Golf Course in Chesapeake, Virginia where 1.5 million yards of fly ash were used as fill and for contouring of a golf course. Groundwater contamination above drinking water levels has been found at the edges and corners of the golf course, but not in residential wells. An EPA study in April 2010 established that residential wells near the site were not impacted by the fly ash and, therefore, EPA does not consider this site a proven damage case. However, due to the onsite groundwater contamination, EPA considers this site to be a potential damage case. Thus, the Agency has classified three of the five new cases as proven damage cases, one as a potential damage case, and the other as not being a damage case (*i.e.,* not meeting the criteria to be considered either a proven or potential damage case). This brings the total number of proven damage cases to 27 and 40 potential cases of damage from the mismanagement of CCRs being disposed.

The Martins Creek and TVA Kingston fly ash impoundment failures underscore the need for surface impoundment integrity requirements. In the case of the Martins Creek failure, 0.5 million cubic yards of fly ash slurry was released into the Delaware River when a dike failed. Fortunately, there are no homes in the path of the release and all the damage was confined to power plant property and the Delaware River. On the other hand, the 5.4 million cubic yards of fly ash sludge released as a result of the TVA Kingston impoundment failure covered an area of approximately 300 acres, flowed into a branch of the Emory River, disrupted power, ruptured a gas line, knocked one home off its foundation and damaged others. Fortunately, there were no injuries.

While much of our risk modeling deals with ground water contamination, based on historical facts, EPA recognizes that failures of large CCR impoundments can lead to catastrophic environmental releases and large cleanup costs. It is critical to understand as well, however, that the structural integrity requirements and the requirements for conversion or retrofitting of existing or new impoundments are designed to avoid such releases and that the benefits of avoiding such catastrophic failures are very significant. As discussed in more detail in Section XII of today's proposal and as fully explained in our Regulatory Impact Analysis (RIA), EPA estimated the benefits of avoiding the future cleanup costs of or impoundment failures. Depending on the regulatory option chosen, the annualized benefits range from $29 million to $1,212 million per year, and the net present value of these ranges from $405 million to $16,732 million. In addition, the RIA did not quantify or monetize several other additional benefits consisting of future avoided social costs associated with ecological and socio-economic damages. These include avoided damages to natural resources, damages to property and physical infrastructure, avoided litigation costs associated with such events, and reduction of toxic chemical-contaminated effluent discharges from impoundments to surface waters.

In December 2009, EPA received a new report from EPRI challenging our conclusions on many of the proven damage cases often noting that there was not significant off-site contamination.

The report, "Evaluation of Coal Combustion Product Damage Cases (Volumes 1 and 2), Draft Report,

November 2009," is available in the docket to this proposal. EPA solicits comments on EPRI's report and welcomes additional data regarding the proven damage cases identified by EPA, especially the degree to which there was off-site contamination.

EPA notes that several stakeholders have very recently identified additional claimed damage cases, and the agency has not had the time to review them closely.[37] Similarly, other stakeholders have recently provided valuable information on CCR risks, costs of different possible options, and characterization data, which EPA has also not had time to review in detail or to respond to. Generally, these reports include information that is relevant to today's proposal. EPA will review this information carefully as we proceed to a final rule, and we encourage commenters on the proposal to consider this material, which EPA has placed in the rulemaking docket, as they prepare comments.

For a more detailed discussion of the damage cases, *see* the Appendix to this notice, the table "Summary of Proven Cases with Damages to Groundwater and to Surface Water" at the end of the Appendix, and the document "Coal Combustion Wastes Damage Case Assessments" available at *http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&d=EPA-HQ-RCRA-2006-0796-0015*.

## III. Overview and Summary of the Bevill Regulatory Determination and the Proposed Subtitle C and Subtitle D Regulatory Options

In today's notice, EPA is reevaluating its August 1993 and May 2000 Bevill Regulatory Determinations regarding CCRs generated at electric utilities and independent power producers. In the May 2000 determination, EPA concluded that disposal of CCRs did not warrant regulation under RCRA subtitle C as a hazardous waste, but did warrant federal regulation as a solid waste under subtitle D of RCRA. However, EPA never issued federal regulations under subtitle D of RCRA for CCRs. (As noted previously, today's proposal could result in the development of subtitle D standards consistent with the May 2000 Regulatory Determination, or with a revision of the determination, or the issuance of subtitle C standards under RCRA.) Today, EPA is reconsidering this determination, and is soliciting comments on two alternative options: (1) to reverse the Bevill determination (with respect to disposal of CCRs in surface impoundments and landfills), and regulate such CCRs as special wastes under RCRA subtitle C, and (2) to leave the Bevill determination in place and regulate CCRs going to disposal under federal RCRA subtitle D standards. Today's co-proposal provides regulatory text for both options.

In determining whether or not to exclude a Bevill waste from regulation under RCRA subtitle C, EPA must evaluate and weigh eight factors. In section IV. B. of this preamble, EPA discusses CCRs from electric utilities in light of these factors, and we highlight the considerations that might lead us to reversing the August 1993 and May 2000 Regulatory Determinations (and therefore regulate CCR disposal under RCRA subtitle C), or to leave the determination in place (and regulate CCR disposal under RCRA subtitle D).

At the same time, EPA continues to believe the Bevill exclusion should remain in place for CCRs going to certain beneficial uses, because of the important benefits to the environment and the economy from these uses, and because the management scenarios for these products are very different from the risk case being considered for CCR disposal in surface impoundments and landfills. EPA makes it clear that CCRs in sand and gravel pits, quarries, and other large fill operations is not beneficial use, but disposal. As such, it would be regulated under whichever option is finalized. EPA solicits comments, however, on whether unencapsulated uses of CCRs warrant tighter federal control.

### *A. Summary of Subtitle C Proposal*

In combination with its proposal to reverse the Bevill determination for CCRs destined for disposal, EPA is proposing to list as a special waste, CCRs from electric utilities and independent power producers when destined for disposal in a landfill or surface impoundment. These CCRs would be regulated under the RCRA subtitle C rules (as proposed to be amended here) from the point of their generation to the point of their final disposition, which includes both during and after closure of any disposal unit. In addition, EPA is proposing that all existing units that have not closed in accordance with the criteria outlined in this proposal, by the effective date of the final rule, would be subject to all of the requirements of subtitle C, including the permitting requirements at 40 CFR parts 124 and 270. As such, persons who generate, transport and treat, store or dispose of CCRs would be subject to the existing cradle-to-grave subtitle C waste management requirements at 40 CFR parts 260 through 268, parts 270 to 279, and part 124 including the generator and transporter requirements and the requirements for facilities managing CCRs, such as siting, liners (with modification), run-on and run-off controls, groundwater monitoring, fugitive dust controls, financial assurance, corrective action, including facility-wide corrective action, closure of units, and post-closure care (with certain modifications). In addition, facilities that dispose of, treat, or, in many cases, store, CCRs also would be required to obtain permits for the units in which such materials are disposed, treated, and stored. EPA is also considering and seeking comment on a modification, which would not require the closure or installation of composite liners in existing surface impoundments; rather, these surface impoundments could continue to operate for the remainder of their useful life. The rule would also regulate the disposal of CCRs in sand and gravel pits, quarries, and other large fill operations as a landfill.

To address the potential for catastrophic releases from surface impoundments, we also are proposing requirements for dam safety and stability for impoundments that, by the effective date of the final rule, have not closed consistent with the requirements. Finally, we are proposing land disposal restrictions and treatment standards for CCRs, as well as a prohibition on the disposal of treated CCRs below the natural water table.

### *B. Summary of Subtitle D Proposal*

In combination with its proposal to leave the Bevill determination in place, EPA is proposing to regulate CCRs disposed of in surface impoundments or landfills under the RCRA subtitle D requirements, which would establish national criteria to ensure the safe disposal of CCRs in these units. The units would be subject to, among other things, location standards, composite liner requirements (new landfills and surface impoundments would require composite liners; existing surface impoundments without liners would have to retrofit within five years, or cease receiving CCRs and close); groundwater monitoring and corrective action for releases from the unit standards; closure and post-closure care requirements; and requirements to address the stability of surface impoundments. We solicit comments on requiring financial assurance and on

[37] On February 24, the Environmental Integrity Project and EarthJustice issued a report on 31 'new' alleged CCRs damage cases which is available at: *http://www.environmentalintegrity.org/news_reports/documents/OutofControl-MountingDamagesFromCoalAshWasteSites.pdf*.

how the requirements apply to surface impoundments that continue to receive CCRs after the effective date of the rule; specifically, EPA is requesting comment on an alternative under which existing surface impoundments would be allowed to continue to operate without requiring the facility to retrofit the unit to install a composite liner. The rule would also regulate the disposal of CCRs in sand and gravel pits, quarries, and other large fill operations as a landfill. The rule would not regulate the generation, storage or treatment of CCRs prior to disposal. Because of the scope of subtitle D authority, the rule would not require permits, nor could EPA enforce the requirements. Instead, states or citizens could enforce the requirements under RCRA citizen suit authority; the states could also enforce any state regulation under their independent state enforcement authority.

EPA is also considering, and is seeking comment on, a potential modification to the subtitle D option, called "D prime." Under the "D prime" option, existing surface impoundments would not have to close or install composite liners but could continue to operate for their useful life. In the "D prime" option, the other elements of the subtitle D option would remain the same.

## IV. Bevill Regulatory Determination Relating to CCRs From Electric Utilities

As discussed in the preceding sections, EPA originally conditioned its May 2000 Regulatory Determination on continued review of, among other factors, "the extent to which [the wastes] have caused damage to human health or the environment; and the adequacy of existing regulation of the wastes." (*See* 65 FR 32218.) Review of the information developed over the past ten years has confirmed EPA's original risk concerns, and has raised significant questions regarding the accuracy of the Agency's predictions regarding anticipated improvements in management and state regulatory oversight of these wastes. Consequently, the Agency has determined that reconsideration of its May 2000 Regulatory Determination is appropriate, and is revaluating whether regulation of CCRs under RCRA subtitle C is necessary in light of the most recent information. The scientific analyses, however, are complex and present legitimate questions for comment and further consideration. Thus, while EPA has concluded that federal regulation of this material is necessary, the Agency has yet not reached a conclusion as to whether the Bevill determination should be revised, or whether regulation under RCRA subtitle C or D is appropriate, but is soliciting comments on the two options described in the previous section.

As stated earlier, EPA's application of its discretion in weighing the eight Bevill factors—and consequently our ultimate decision—will be guided by the following principles. The first is that EPA's actions must be protective of human health and the environment. Second, any decision must be based on sound science. Finally, in conducting this rulemaking, EPA will ensure that its decision processes are transparent, and encourage the greatest degree of public participation. Consequently, to further the public's understanding and ability to comment on the issues facing the Agency, EPA provides an extensive discussion of the technical issues associated with the available information, as well as the policy considerations and the key factors that will weigh in the Agency's ultimate decision.

### *A. Basis for Reconsideration of May 2000 Regulatory Determination*

EPA decided in May 2000 that regulation under RCRA subtitle C was not warranted in light of the trends in present disposal and utilization practices, the current and potential utilization of the wastes, and the concerns expressed against duplication of efforts by other federal and state agencies. In addition, EPA noted that the utility industry has made significant improvements in its waste management practices with respect to new management units over recent years, and most state regulatory programs are similarly improving. In particular, EPA noted that, of the new units constructed between 1985 and 1995, 60% of the new surface impoundments were lined and 65% had groundwater monitoring. Further, the risk information available was limited, although we also noted that we expected that the limited number of damage cases identified in the Regulatory Determination was an underestimate. However, EPA did not conclude that the available information regarding the extent or nature of the risks were equivocal. However, the Agency noted that "* * * we identified a potential for risks from arsenic that we cannot dismiss * * *."[38] EPA further noted that "[i]n the absence of a more complete groundwater risk assessment, we are unable at this time to draw quantitative conclusions regarding the risks due to arsenic or other contaminants posed by improper waste management." Existing older units that lacked liners and groundwater monitoring (for surface impoundments, only 26% of all units had liners and only 38% of all units had groundwater monitoring) were the major risk drivers in the study.

As discussed in greater detail in section II.B, EPA has revised the draft quantitative risk assessment made available when it solicited public comment on the 1999 Report to Congress to account for the concerns raised by the public during the public comment period. The results of these risk analyses show that certain management practices—the disposal of both wet and dry CCRs in unlined waste management units, but particularly in unlined surface impoundments, and the prevalence of wet handling, can pose significant risks to human health and the environment from releases of CCR toxic constituents to ground water and surface water. The Agency has estimated that there are approximately 300 CCR landfills and 584 CCR surface impoundments or similar management units in use at roughly 495 coal-fired power plants. (Data also indicate that a small number of utilities dispose of CCRs off-site, typically near the generating utility.) Many of these units—particularly surface impoundments—lack liners and groundwater monitoring systems. EPA's revised CCR risk assessment[39] estimated the cancer risk from arsenic[40] that leaches into groundwater from CCRs managed in units without composite liners to exceed EPA's typical risk thresholds of $10^{-4}$ to $10^{-6}$. For example, depending on various assumptions about disposal practices (*e.g.,* whether CCRs are co-disposed with coal refuse), groundwater interception and arsenic speciation, the 90th percentile risks from unlined surface impoundments ranged from $2\times10^{-2}$ to $1\times10^{-4}$. The risks from clay-lined surface impoundments ranged from $7\times10^{3}$ to $4\times10^{-5}$. Similarly, estimated risks from unlined landfills ranged between $5\times10^{-4}$ to $3\times10^{-6}$, and

[38] *See* 65 FR 32216 at *http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/ff2f-fr.pdf.*

[39] "Human and Ecological Risk Assessment of Coal Combustion Wastes," (April 2010).

[40] The risk estimates for arsenic presented in the revised risk assessment are based on the existing cancer slope factor of 1.5 mg/kg/d$^{-1}$ in EPA's Integrated Risk Information System (IRIS). However, EPA is currently evaluating the arsenic cancer slope factor and it is likely to increase. In addition, the National Resources Council (NRC) of the National Academy of Sciences (NAS) made new recommendations regarding new toxicity information in the NRC document, "Arsenic in Drinking Water, 2001 Update." Using this NRC data analysis, EPA calculated a new cancer slope factor of 26 mg/kg/d$^{-1}$ which would increase the individual risk estimates by about 17 times.

from $2\times10^{-4}$ to $5\times10^{-9}$ for clay-lined landfills. EPA's risk assessment also estimated HQs above 1 for other metals, including selenium and lead in unlined and clay-lined units. EPA also notes in this regard that recent research indicates that traditional leach procedures (*e.g.,* TCLP and SPLP) may underestimate the actual leach rates of toxic constituents from CCRs under different field conditions.

Recent events also have demonstrated that, if not properly controlled, these wastes have caused greater damage to human health and the environment than EPA originally estimated in its risk assessments. On December 22, 2008, a failure of the northeastern dike used to contain fly ash occurred at the dewatering area of the TVA's Kingston Fossil Plant in Harriman, Tennessee. Subsequently, approximately 5.4 million cubic yards of fly ash sludge was released over an approximately 300 acre area. The ash slide disrupted power, ruptured a gas line, knocked one home off its foundation and damaged others. A root-cause analysis report developed for TVA, accessible at *http://www.tva.gov/kingston/rca/index.htm,* established that the dike failed because it was expanded by successive vertical additions, to a point where a thin, weak layer of fly ash ('slime') on which it had been founded, failed by sliding. The direct costs to clean up the damage from the TVA Kingston incident are well into the billions, and is currently estimated to exceed $1.2 billion.[41]

Although the TVA spill was the largest, it was not the only damage case to involve impoundment stability. A smaller, but still significant incident occurred in August 2005, when a gate in a dam confining a 40-acre CCR surface impoundment in eastern Pennsylvania failed. The dam failure, a violation of the facility's state-issued solid waste disposal permit and Section 402 of the Clean Water Act, resulted in the discharge of 0.5 million cubic yards of coal-ash and contaminated water into the Oughoughton Creek and the Delaware River.

Moreover, documented cases of the type of damage that EPA originally identified to result from improper management of CCR have continued to occur, leading EPA to question whether the risks that EPA originally identified have been sufficiently mitigated since our May 2000 Regulatory Determination. As discussed in more detail below, and in materials contained in the docket, there is a growing record of proven damage cases to groundwater and surface water, as well as a large number of potential damage cases. Since the May 2000 Regulatory Determination, EPA has documented an additional 13 proven damage cases and 4 potential damage cases.

Further, recently collected information regarding the existing state regulatory programs[42] calls into question whether those programs, in the absence of national minimum standards, have sufficiently improved to address the gaps that EPA had identified in its May 2000 Regulatory Determination such that EPA can continue to conclude that in the absence of federal oversight, the management of these wastes will be adequate to protect human health and the environment. Many state regulatory programs for the management of CCRs, including requirements for liners and groundwater monitoring, are lacking, and while industry practices may be improving, EPA continues to *see* cases of inappropriate management or cases in which key protections (*e.g.,* groundwater monitoring at existing units) are absent. Although the joint DOE and EPA study entitled, Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994–2004, indicates that most new units appear to be better designed, in that they are lined and have installed groundwater monitoring systems, and therefore the total percentages of unprotected units have decreased, it appears that a large amount of waste is still being disposed into units that lack the necessary protections of liners, and groundwater monitoring. Furthermore, while corrective action has generally been taken at the proven damage cases, the RCRA regulatory program is designed to prevent contamination in the first place, if at all practicable, rather than one in which contamination is simply remedied after discovery.[43] This information also highlights that EPA still lacks details regarding the manner and degree to which states are regulating the management of this material. All of these factors emphasize the need for prompt federal rulemaking and have led EPA to reconsider its May 2000 Regulatory Determination.

In sum, as a result of the significant new information accumulated on two of the four considerations specifically identified in the May 2000 Regulatory Determination (65 FR 32218), the Agency has determined that reevaluation of its original conclusions in light of all of the RCRA Section 8002(n) study factors is necessary. Based on its consideration of these statutory factors, EPA has not yet reached a decision on whether to revise the Bevill Regulatory Determination. Rather, EPA has summarized the information available for each of the factors, and identifies those considerations on which EPA believes that critical information is lacking. Accordingly, EPA is soliciting further information and public input on each of these considerations that will factor into the Agency's determination as to whether regulation under RCRA subtitle C or D is warranted.

As stated previously and as fully explained in Section XII of today's proposal and in our Regulatory Impact Analysis, our proposed requirements for surface impoundment structural stability and conversion or retrofitting of units, will have substantial benefits in avoided future clean up costs.

### *B. RCRA Section 8002(n) Study Factors*

Section 8002(n) of RCRA requires the Administrator to conduct a detailed and comprehensive study and submit a report on the adverse effects on human health and the environment, if any, of the disposal and utilization of fly ash waste, bottom ash waste, slag waste, flue gas emission control waste, and other by-product materials generated primarily from the combustion of coal or other fossil fuels. The study was to include an analysis of the eight factors required under section 8002(n) of RCRA. EPA addressed these study factors in the 1988 and 1999 Reports to

[41] $3.0 billion is EPA's "social cost" estimate assigned in the April 2010 RIA to the December 2008 TVA Kingston, TN impoundment release event. Social cost represents the opportunity costs incurred by society, not just the monetary costs for cleanup. OMB's 2003 "Circular A–4: Regulatory Analysis" (page 18) instructs Federal agencies to estimate "opportunity costs" for purpose of valuing benefits and costs in RIAs. This $3.0 billion social cost estimate is larger than TVA's $933 million to $1.2 billion cleanup cost estimate (i.e., TVA's estimate as of 03 Feb 2010), because EPA's social cost estimate consists of three other social cost elements in addition to TVA's cleanup cost estimate: (a) TVA cleanup cost, (b) response, oversight and ancillary costs associated with local, state, and other Federal agencies, (c) ecological damages, and (d) local (community) socio-economic damages. Appendix Q to the April 2010 RIA provides EPA's documentation and calculation of these four cost elements, which total $3.0 billion in social cost.

[42] ASTSWMO Survey Conducted Feb.—Mar. 2009 (Excel spreadsheet) available in the docket for this proposal.

[43] As noted in Appendix I on Damage Cases, of the 16 proven cases of damages to groundwater, the Agency has been able to confirm that corrective actions have been completed in seven cases and are ongoing in the remaining nine cases. Corrective action measures at these CCR management units vary depending on site specific circumstances and include formal closure of the unit, capping, re-grading of ash and the installation of liners over the ash, groundwater treatment, ground-water monitoring, installation of a barrier wall, and combinations of these measures.

Congress. The findings of these two Reports to Congress were the basis for our decisions in the August 1993 and the May 2000 Regulatory Determinations to maintain the Bevill exemption for CCRs. In considering whether to retain or to reverse the August 1993 and May 2000 Regulatory Determinations regarding the Bevill exemption of CCRs destined for disposal, we have reexamined the RCRA section 8002(n) study factors against the data on which we made the May 2000 Regulatory Determination, as well as the most recent data we have available.

*1. Source and volumes of CCR generated per year:* In the mid-1990s, according to various sources, between 62 and 71 million tons of CCRs were generated by coal-fired electric power plants.[44] In comparison, much larger volumes are being generated now (primarily due to the increase in coal-fired power plants), with 136 million tons of CCRs generated by coal-fired electric power plants in 2008.[45]

*2. Present disposal and utilization practices:* In 2008, 34% (46 million tons) of CCRs were landfilled, 22% (29.4 million tons) were disposed into surface impoundments,[46] nearly 37% (50.1 million tons) were beneficially used (excluding minefill operations), and nearly 8% (10.5 million tons) were placed in mines. This compares to approximately 23% (26.2 million tons) landfilled, 46% (53.2 million tons) disposed of into surface impoundments, 23% beneficially used (excluding minefill operations), and 8% (9 million tons) placed in mines in 1995. Thus, while the overall volume of CCRs going to disposal in surface impoundments and landfills has remained relatively constant, the total volume going to surface impoundments has decreased, and the total volume going to landfills has increased.

The Agency has estimated that there are approximately 300 CCR landfills and 584 CCR surface impoundments or similar management units in use at roughly 495 coal-fired power plants. The age of the disposal units varies considerably. For example, while there are new surface impoundments, 75% are greater than 25 years old, with 10% being greater than 50 years old. Similarly, information from an EPRI survey used in the 1999 Report to Congress indicates that the average planned life expectancy of a landfill is approximately 31 years, with about 12% having planned life expectancy over 50 years (with one planning for over 100 years). Many of these units—particularly surface impoundments, lack liners and ground water monitoring systems. EPA has estimated that in 2004, 31% of the CCR landfills and 62% of the CCR surface impoundments lacked liners, and 10% of the CCR landfills and 58% of the CCR surface impoundments lacked groundwater monitoring.[47] In the mid-1990s, there were approximately 275 CCR landfills and 286 CCR surface impoundments in use.[48] EPA does not believe the increased number of surface impoundments identified in today's rule reflects an actual change of practice, but rather more stringent definitions, as well as possibly, the greater availability of more accurate information. For example, much of the increase in surface impoundments likely results from counting units that receive wastewater that has been in contact with even small amounts of coal ash, and thus includes many units which were not included in EPA's mid-1990 estimates.

a. *Existing State Regulatory Oversight.* The results of the joint DOE and EPA study entitled, Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994–2004 indicates that of the states evaluated in this report, state regulations have generally improved since 2000. In addition, it would appear that the industry itself is changing and improving its management practices. For example, all new surface impoundments and nearly all new landfills (97%) identified in the survey that were constructed between 1994 and 2004 were constructed with liners. Regarding the prevalence of groundwater monitoring at new units, the joint DOE/EPA study suggests that nearly all new landfills (98%) and most new surface impoundments (81%) constructed between 1994 and 2004 were constructed with groundwater monitoring systems. Moreover, the frequency of dry handling in landfills appears to have increased; approximately two-thirds of the new units are landfills, while the remaining one-third are surface impoundments. The number of new units from 1994 to 2004 was 56. Assuming that replacement continued at a rate of 5.6 per year since 2004, we would have an additional 34 new units, but it would still be decades at this rate to replace the large collection of older units.

The DOE/EPA study also identifies significant gaps that remain under existing state regulation. For example, only 19% (3 out of 19) of the surveyed surface impoundment unit permits included requirements addressing groundwater protection standards (*i.e.,* contaminant concentrations that cannot be exceeded) or closure/post-closure care, and only 12% (2 out of 12) of surveyed units were required to obtain bonding or financial assurance. The EPA/DOE report also concluded that approximately 30 percent of the net disposable CCRs generated is potentially entirely exempt from the state solid waste permitting requirements[49] (EPA/DOE Report at pages 45–46). For example, Alabama does not currently regulate CCR disposal under any state waste authority and does not currently have a dam safety program (although the state has an initiative to develop one). Texas (the largest coal ash producer) does not require permits for waste managed on-site.[50] Tennessee currently does not regulate surface impoundments under its waste authority, but is now reconsidering this, in light of the TVA spill. Finally, a number of states only regulate surface impoundments under Clean Water Act authorities, and consequently primarily address the risks from effluent discharges to navigable waters, but do not require liners or groundwater monitoring.

The Agency recognizes that these statistics may be difficult to interpret due to the limitations of the study. The study focused on only eleven states, which account for approximately half the CCRs generated in the U.S., and it may not address all of the existing regulatory requirements that states may or could impose through other authorities to control these units. As one example, the DOE/EPA report notes that four of the six states that do not require solid waste permits rely on other state authorities to regulate these units: "In

[44] Cited in "Technical Background Document for the Report to Congress on Remaining Wastes from Fossil Fuel Combustion: Industry Statistics and Waste Management Practices," March 1999.

[45] ACAA (American Coal Ash Association). 2009. *2008 Coal Combustion Product (CCP) Production & Use Survey Report. http://acaa.affiniscape.com/associations/8003/files/2008_ACAA_CCP_Survey_Report_FINAL_100509.*

[46] Estimated from the 2009 ACAA survey and Energy Information Administration 2005 F767 Power Plant database.

[47] Estimated from the 1995 data reported in the May 2000 Regulatory Determination and the data for new units from 1994 to 2004 reported in the 2006 DOE/EPA report "*Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994–2004.*"

[48] Technical Background Document, Ibid.

[49] 38.7 million tons of out of 129 million tons generated CCRs (Based on DOE/EIA 2004 data).

[50] In Texas, on-site means the same or geographically contiguous property which may be divided by public or private rights-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing, as opposed to going along, the right-of-way. Noncontiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access, is also considered on-site property. (Title 30 TAC 335.1)

Florida, if CCWs are disposed in an on-site landfill at a coal-fired electric generating plant authorized under the Florida Power Plant Siting Act (PPSA), no separate permits, including solid waste construction and operation permits, are required. Instead, the entire facility is covered under the PPSA certification, which will contain the same substantive requirements as would otherwise have been imposed by other permits." (EPA/DOE Report at page 46). The DOE/EPA report identified whether states tightened, relaxed, or were neutral with regard to program changes. From the time of the 1999 Report to Congress to 2005, most all programs were neutral, with a couple of programs tightening requirements and none relaxing requirements. Going back to the period of the 1988 Report to Congress to 2005, two states (Alabama and Florida) are reported to have relaxed portions of their standards, while not tightening any other portions of their program. Part of the difficulty in interpreting this information stems from the fact that the survey responses contained little or no details of the state requirements; rather, the responses merely indicated (by checking a box) whether states imposed some sort of requirement relating to the issue. Consequently, the Agency lacks detailed information on the content of the requirements, and whether, for example, performance based requirements or other state programs are used to address the risks from these units. EPA also received detailed comments on this report authored by several environmental groups, who criticized several of the general conclusions. These comments are included in the rule docket (*see* comment attachment submitted by Marty Rustan on behalf of Lisa Evans, Attorney, Earthjustice; EPA–HQ–RCRA–2006–0796–0446.5).

A more recent survey conducted by the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) seems to support the view that the states still have not yet adequately implemented regulatory programs over CCR management units, although like the DOE/EPA study, it lacks details on the substance of the state requirements. According to a 2009 ASTSWMO survey of states with coal ash generation [51] (available in the docket), of the 42 states with coal fired utilities, at least 36 have permit programs for landfills used to manage CCRs, and of the 36 states that have CCR surface impoundments, 25 have permit programs. Permitting is particularly important to provide oversight and to approve implementation plans such as the placement of groundwater monitoring wells. Without a state permit program, regulatory flexibility is limited, and certification by an independent registered professional engineer is necessary. With regard to liner requirements, 36% (15 of the 42 states that responded to this question) do not have minimum [52] liner requirements for CCR landfills, while 67% (24 of the 36 states that responded to this question) do not have CCR liner requirements for surface impoundments. Similarly, 19% (8 of the 42 states that responded to this question) do not have minimum groundwater monitoring requirements for landfills and 61% (22 of the 36 states that responded to this question) do not have groundwater monitoring requirements for surface impoundments.[53] These findings are particularly significant as groundwater monitoring for these kinds of units is a minimum for any credible regulatory regime. The 2009 ASTSWMO survey also indicates that only 36 percent of the states regulate the structural stability of surface impoundments, and only 31 percent of the states require financial assurance for surface impoundments. Because structural stability of surface impoundments is largely regulated by state dam safety programs which are separate from state solid waste programs, EPA recognizes that information from the dam safety programs would be a much more meaningful measure of state regulation of the structural stability of surface impoundments, and solicits such information.

Thus, while the states seem to be regulating landfills to a greater extent, given the significant risks associated with surface impoundments, these results suggest that there continue to be significant gaps in state regulatory programs for the disposal of CCRs. (*See* Letter from ASTSWMO to Matt Hale dated April 1, 2009, a copy of which is in the docket to today's proposed rule for complete results of the survey.)

EPA is also aware of some additional information from ASTSWMO. There are 15 states (Colorado, Florida, Indiana, Iowa, Kansas, Kentucky, Maryland, Minnesota, Mississippi, Montana, New York, North Carolina, Ohio, Pennsylvania, and Virginia) that were considering changes to their CCR regulations at the time of the ASTSWMO survey (February 2009). In late November 2009, ASTSWMO also identified 15 states (Arizona, Delaware, Georgia, Idaho, Iowa, Kansas, Louisiana, Maryland, Mississippi, North Dakota, South Carolina, Tennessee, Washington, Wisconsin, and West Virginia) that had revised their CCR requirements since 2000. Finally, ASTSWMO identified 8 states (Georgia, Illinois, Indiana, Iowa, Montana, Ohio, Pennsylvania, and South Carolina) which are requiring groundwater monitoring at existing facilities that previously did not have groundwater monitoring.

Several issues complicate this assessment, however. As noted previously, EPA lacks any real details regarding how states, in practice, oversee the management of these materials when treated as wastes. For example, some states may use performance based standards or implement requirements to control CCR landfills and surface impoundments under other state programs. Also, most of the new data primarily focuses on the requirements applicable to *new* management units, which represent approximately 10% of the disposal units. EPA has little, if any information, that describes the extent to which states and utilities have implemented requirements—such as groundwater monitoring, for existing units, for the many landfills and surface impoundments that receive CCRs. The information currently in the record with respect to existing units is fifteen years old. EPA expects that it would be unlikely that states would have required existing units to install liners, states would have been more likely to have imposed groundwater monitoring for such units over the last 15 years. Finally, as discussed in the next section, the fact that many of the surface impoundments are located adjacent to water bodies—which is not accounted for in EPA's groundwater risk assessment—may affect our assessment of the extent of the liner and groundwater monitoring requirements that would be necessary. Therefore, EPA solicits detailed comments specifically on the current management practices of state programs, not only under state waste authorities, but under other authorities as well. The adequacy of state regulation is one of the key issues before the Agency, as it will address some of the more significant questions remaining regarding the extent of the

[51] ASTSWMO Survey Conducted Feb.–Mar. 2009 (Excel spreadsheet).

[52] For both landfills and surface impoundments, most of the states that responded to questions addressing their liner and groundwater monitoring program provisions had less stringent requirements, *e.g.,* allowing variance, exemption, or a case-by-case evaluation. In the absence of state-specific information, we are unable to translate these statistics into a concrete number of affected waste units.

[53] Additionally, the July 2009 Petition pointed out deficiencies in state regulatory programs.

risks presented by the disposal of CCRs. Accordingly, the Agency specifically solicits information, whether from state regulatory authorities or from members of the public, regarding details on the entire state regulatory structure, including the specific requirements that states have in place to regulate CCRs, and to provide oversight of these units. EPA would also welcome more detailed information regarding the states' historic practice in implementing its existing requirements, including for example, the states' record of enforcement and its practice in providing for public participation in the development and implementation of any existing permitting requirements. EPA is particularly interested in information on the extent to which states have implemented requirements applicable to the older, existing units, which represent the majority of the units into which CCRs are currently disposed (approximately 90%). EPA also requests information on the extent to which EPA's current information adequately reflects changes in industry practices, adopted independent of state requirements.

b. *Beneficial Use.* In the May 2000 Regulatory Determination, EPA stated: "The Agency has concluded that no additional regulations are warranted for coal combustion wastes that are used beneficially (other than for minefilling) and for oil and gas combustion wastes. We do not wish to place any unnecessary barriers on the beneficial use of fossil fuel combustion wastes so that they can be used in applications that conserve natural resources and reduce disposal costs." (65 FR 32214) (*See* separate discussion regarding minefilling in section IV. E of this preamble.) EPA identified specific beneficial uses as covered by the May 2000 determination. In particular, EPA stated that: "Beneficial purposes include waste stabilization, beneficial construction applications (*e.g.,* cement, concrete, brick and concrete products, road bed, structural fill, blasting grit, wall board, insulation, roofing materials), agricultural applications (*e.g.,* as a substitute for lime) and other applications (absorbents, filter media, paints, plastics and metals manufacture, snow and ice control, waste stabilization)." (*See* 65 FR 32229) These beneficial uses are described in more detail in EPA's Report to Congress on Wastes from the Combustion of Fossil Fuels in March 1999 (*see* Volume 2, Section 3.3.5).

Since EPA's Regulatory Determination in May 2000, there has been a significant increase in the use of CCRs and the development of established commercial sectors that utilize and depend on the beneficial use of CCRs. Additional uses have been identified; for example, the use of CCRs as ingredients in specific products, such as resin-bound products or mineral filler in asphalt. New applications of CCRs have been developed, which may hold great green house gas (GHG) benefits (for example, fly ash bricks and a process to use $CO_2$ emissions to produce cement). Further, EPA expects that uses could shift in the future because the composition and characteristics of CCRs are likely to change due to the addition of new air pollution controls at coal-fired utilities. (*See* section IV. D. below for a more detailed discussion on the beneficial use of CCRs.)

*3. Potential danger, if any, to human health and the environment from the disposal and reuse of CCRs:*

a. *From Disposal.* The contaminants of concern in CCRs include antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver and thallium. Potential human exposure pathways for these contaminants from the disposal of CCRs are ground water ingestion, inhalation, and the consumption of fish exposed to contaminants. Ecological impacts include surface water contamination, contamination of wetlands, and aquatic life exposure to contaminants of concern. As discussed in section II. B, V., and the Regulatory Impact Analysis, the risks modeled for the 2010 risk assessment often exceeded EPA's typical regulatory levels of concern. With very few exceptions, the risks modeled for the 2010 risk assessment correspond with ground water exceedances of constituents observed in EPA's damage case assessments (*e.g.,* arsenic, boron, cadmium, lead, molybdenum, and selenium were modeled and found to exceed the risk criteria in at least some instances, and were also found in at least some of the damage cases). Additionally, as discussed in section I.F.2, the potential exists for the chemical characteristics of certain CCRs (*e.g.,* fly ash and FGD) to increase, which could result in increases in releases from management units, particularly if such wastes are placed in old unlined units, as a result of the increased use and application of advanced air pollution control technologies in coal-fired power plants. Further details on the results of EPA's quantitative groundwater risk assessment, and the technical issues that remain to be addressed, and on the unquantified human and ecological risks can be found in section II and in the Regulatory Impact Analysis for today's proposal.

EPA also conducted a population risk assessment for the groundwater-arsenic pathway, as a complement to the individual risk analysis. While the RCRA program necessarily focuses on individual risks, and individual risks have been the basis of previous Bevill and hazardous waste determinations, the population risk estimate provides perspective, and was used to develop the Agency's cost benefit analyses of different regulatory approaches (discussed in section XII.A of this preamble). In this analysis, EPA calculated a best estimate that current risks from arsenic via the groundwater used as drinking water pathway are 2,509 total excess cancers, over a 75-year period.[54] (A 75-year period was used in this analysis to capture peak risk while the RIA generally covers 50 years.) These estimates are based on a cancer slope factor which represents the most recent science derived from a 2001 National Resources Council review of arsenic toxicity. It should be noted that the analysis did not include risks from other pathways or constituents, as explained in section 5A of the Regulatory Impact Analysis for this proposal.

Of the approximately 584 surface impoundments currently operating in the United States, a certain percentage of these have a great potential for loss of human life and environmental damage in the event of catastrophic failure. Based on the information collected from EPA's recent CERCLA 104(e) information request letters 109 impoundments have either a high or significant hazard potential rating,[55] thirteen of which were not designed by a professional engineer. Of the total universe of surface impoundments, approximately 186 of these units were not designed by a professional engineer. Surface impoundments are generally designed to last the typical operating life of coal-fired boilers, on the order of 40 years. However, many impoundments are aging: 56 units are older than 50 years, 96 are older than 40 years, and 340 are between 26 and 40 years old. In recent years, problems have continued to arise from these units, which appear to be related to the aging infrastructure, and the fact that many units may be nearing the end of

[54] Chapter 5, Page 121 of the Regulatory Impact Analysis for this proposal.

[55] 429 of these impoundments currently have no rating. Thus, the Agency expects the number of surface impoundments with a high or significant hazard rating may increase as additional impoundments are assigned ratings. See the definitions in the Summary section of this notice for the definitions of high and significant hazard potential.

their useful lives. For example, as a result of the administrative consent order issued after the December 2008 spill, TVA conducted testing which showed that another dike at TVA's Kingston, Tennessee plant had significant safety deficiencies. Further, in response to EPA's CERCLA 104(e) information request letter, a total of 35 units at 25 facilities reported historical releases. These range from minor spills to a spill of 0.5 million cubic yards of water and fly ash. Additional details regarding these releases can be found in the docket for this rulemaking. EPA continues its assessments of CCR surface impoundments. The most recent information on these can be found on EPA's internet site at *http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/surveys2/index.htm#surveyresults*.

b. *From Beneficial Use.* The risks associated with the disposal of CCRs stem from the specific nature of that activity and the specific risks it involves; that is, the disposal of CCRs in (often unlined) landfills or surface impoundments, with hundreds of thousands, if not millions, of tons placed in a single concentrated location. And in the case of surface impoundments, the CCRs are managed with water, under a hydraulic head, which promotes more rapid leaching of contaminants into neighboring groundwater than do landfills. The beneficial uses identified as excluded under the Bevill amendment for the most part present a significantly different picture, and a significantly different risk profile.

In 1999 EPA conducted a risk assessment of certain agricultural uses of CCRs,[56] since the use of CCRs in this manner was considered the most likely to raise concerns from a human health and environmental point of view. EPA's risk assessment estimated the risks associated with such uses to be within the range of $1\times10^{-6}$. The results of the risk assessment, as well as EPA's belief that the use of CCRs in agricultural settings was the most likely use to raise concerns, resulted in EPA concluding that none of the identified beneficial uses warranted federal regulation, because "we were not able to identify damage cases associated with these types of beneficial uses, nor do we now believe that these uses of coal combustion wastes present a significant risk to human health or the environment." (65 FR 32230, May 22, 2000.) EPA also cited the importance of beneficially using secondary materials and of resource conservation, as an alternative to disposal.

To date, EPA has still seen no evidence of damages from the beneficial uses of CCRs that EPA identified in its original Regulatory Determination. For example, there is wide acceptance of the use of CCRs in encapsulated uses, such as wallboard, concrete, and bricks because the CCRs are bound into products. The Agency believes that such beneficial uses of CCRs offer significant environmental benefits.

As we discuss in other sections of this preamble, there are situations where large quantities of CCRs have been used indiscriminately as unencapsulated, general fill. The Agency does not consider this a beneficial use under today's proposal, but rather considers it waste management.

*Environmental Benefits*

The beneficial use of CCRs offers significant environmental benefits, including greenhouse gas (GHG) reduction, energy conservation, reduction in land disposal (*i.e.,* avoidance of potential CCR disposal impacts), and reduction in the need to mine and process virgin materials and the associated environmental impacts. Specifically:

*Greenhouse Gas and Energy Benefits.* The beneficial use of CCRs reduces energy consumption and GHG emissions in a number of ways. One of the most widely recognized beneficial applications of CCRs is the use of coal fly ash as a substitute for Portland cement in the manufacture of concrete. Reducing the amount of cement produced by beneficially using fly ash as a substitute for cement leads to large supply chain-wide reductions in energy use and GHG emissions.[57] For example, fly ash typically replaces between 15 and 30 percent of the cement in concrete, although the percentages can and have been higher. However, assuming a 15 to 30 percent fly ash to cement replacement rate, and considering the approximate amount of cement that is produced each year, would result in a reduction of GHG emissions by approximately 12.5 to 25 million tons of $CO_2$ equivalent and a reduction in oil consumption by 26.8 to 53.6 million barrels of oil.[58] This estimate is likely to underestimate the total benefits that can be achieved. As an added benefit, the use of fly ash generally makes concrete stronger and more durable. This results in a longer lasting material, thereby marginally reducing the need for future cement manufacturing and corresponding avoided emissions and energy use.

*Benefits From Reducing the Need To Mine and Process Virgin Materials.* CCRs can be substituted for many virgin materials that would otherwise have to be mined and processed for use. These virgin materials include limestone to make cement, and Portland cement to make concrete; mined gypsum to make wallboard, and aggregate, such as stone and gravel for uses in concrete and road bed. Using virgin materials for these applications requires mining and processing them, which can impair wildlife habitats and disturb otherwise undeveloped land. It is beneficial to use secondary materials—provided it is done in an environmentally sound manner—that would otherwise be disposed of, rather than to mine and process virgin materials, while simultaneously reducing waste and environmental footprints. Reducing mining, processing and transport of virgin materials also conserves energy, avoids GHG emissions, and reduces impacts on communities.

*Benefits From Reducing the Disposal of CCRs.* Beneficially using CCRs instead of disposing of them in landfills and surface impoundments also reduces the need for additional landfill space and any risks associated with their disposal. In particular, the U.S. disposed of over 75 million tons of CCRs in landfills and surface impoundments in 2008, which is equivalent to the space required of 26,240 quarter-acre home sites under 8 feet of CCRs.

While the Agency recognizes the need for regulations for the management of CCRs in landfills and surface impoundments, we strongly support the beneficial use of CCRs in an environmentally sound manner because of the significant environmental benefits that accrue both locally and globally. As discussed below in section XII.A, the current beneficial use of CCRs as a replacement for industrial raw materials (*e.g.,* Portland cement, virgin stone aggregate, lime, gypsum) provides substantial annual life cycle environmental benefits for these industrial applications. Specifically,

[56] 1998 Draft Final Report; Non-groundwater Pathways, Human Health and Ecological Risk Analysis for Fossil Fuel Combustion Phase 2 (FFC2) and its appendices (A through J); available at *http://www.epa.gov/osw/nonhaz/industrial/special/fossil/fsltech.htm.*

[57] Waste and Materials-Flow Benchmark Sector Report: Beneficial Use of Secondary Materials—Coal Combustion Products, February 12, 2008.

[58] Avoided GHG and energy saving estimates based on energy and environmental benefits estimates in the EPA report entitled, "Study on Increasing the Usage of Recovered Mineral Components in Federally Funded Projects Involving Procurement of Cement or Concrete" available at *http://www.epa.gov/osw/conserve/tools/epg/pdf/rtc/report4-08.pdf.*

beneficially using CCRs as a substitute for industrial raw materials contributes (a) $4.89 billion per year in energy savings, (b) $0.081 billion per year in water savings, (c) $0.239 billion per year in GHG [59] (*i.e.,* carbon dioxide and methane) emissions reduction, and (d) $17.8 billion per year in other air pollution reduction. In addition, these applications also result in annual material and disposal cost savings of approximately $2.93 billion. All together, the beneficial use of CCRs provides $25.9 billion in annual national economic and environmental benefits (relative to 2005 tonnage).[60]

However, as discussed in the next section, there are cases where large quantities of CCRs have been "used" indiscriminately as unencapsulated "fill," *e.g.,* to fill sand and gravel pits or quarries, or as general fill (*e.g.,* Pines, Indiana and the Battlefield Golf Course in Chesapeake, Virginia [61]). Although EPA does not consider these practices to be legitimate beneficial uses, others classify them as such. In any case, EPA has concluded that these practices raise significant environmental concerns.

*4. Documented cases in which danger to human health or the environment from surface runoff or leachate has been proved:* As described previously, EPA has identified 27 proven damage cases: 17 cases of damage to groundwater, and ten cases of damage to surface water, seven of which are ecological damage cases. Sixteen of the 17 proven damage cases to groundwater involved disposal in unlined units—for the one additional unit, it is unknown whether there was a liner. We have also identified 40 potential damage cases to groundwater and surface water. These numbers compare to 14 proven damage cases and 36 potential cases of damage when the Agency announced its Regulatory Determination in May 2000. The Agency believes that these numbers likely underestimate the number of proven and potential damage cases and that it is likely that additional cases of damage would be found if a more comprehensive evaluation was conducted, particularly since much of this waste has been (and continues to be) managed in unlined disposal units.

Several of the new damage cases involve activities that differ from prior damage cases, which were focused on groundwater contamination from landfills and surface impoundments. These new cases present additional risk concerns that EPA did not evaluate in the May 2000 Regulatory Determination. Specifically, some of the recent proven damage cases involved the catastrophic release due to the structural failure of CCR surface impoundments, such as the dam failures that occurred in Martins Creek, Pennsylvania and Kingston, Tennessee.

In addition, a number of proven damage cases involve the large-scale placement, akin to disposal, of CCRs, under the guise of "beneficial use." The "beneficial use" in these cases involved the filling of old, unlined quarries or gravel pits, or the regrading of landscape with large quantities of CCRs. For example, the 216-acre Battlefield Golf Course was contoured with 1.5 million yards of fly ash to develop the golf course. In late 2008, groundwater and surface water sampling was conducted. There were exceedances of primary drinking water standards in on-site groundwater for contaminants typically found in fly ash. In addition, there were exceedances of secondary drinking water standards in both on-site and off-site groundwater (in nine residential wells); however, the natural levels of both manganese and iron in the area's shallow aquifer are very high (0.14 mg/L to 0.24.mg/L and 5.0 mg/L to 13.0 mg/L, respectively), and, thus, it could not be ruled out that the elevated levels of manganese and iron are a result of the natural background levels of these two contaminants. Surface water samples showed elevated levels of aluminum, chromium, iron, lead, manganese, and thallium in one or more on-site samples. The lone off-site surface water sample had elevated levels of aluminum, iron, and manganese. In April 2010 EPA issued a Final Site Inspection Report [62] which concluded that (i) metals contaminants were below MCLs and Safe Drinking Water Act action levels in all residential wells that EPA tested; (2) the residential well data indicate that metals are not migrating from the fly ash to residential wells; and (iii) there are no adverse health effects expected from human exposure to surface water or sediments on the Battlefield Golf Course site as the metal concentrations were below the ATSDR standards for drinking water and soil. Additionally, the sediments samples in the ponds were below EPA Biological Technical Assistance Group screening levels and are not expected to pose a threat to ecological receptors. Similarly, beginning in 1995, the BBBS sand and gravel quarries in Gambrills, Maryland, used fly ash and bottom ash from two Maryland power plants to fill excavated portions of two sand and gravel quarries. Groundwater samples collected in 2006 and 2007 from residential drinking water wells near the site indicated that, in certain locations, contaminants, including heavy metals and sulfates, were present at or above groundwater quality standards. Private wells in 83 homes and businesses in areas around the disposal site were tested. MCLs were exceeded in 34 wells [arsenic (1), beryllium (1), cadmium (6), lead (20),[63] and thallium (6)]. SMCLs were exceeded in 63 wells [aluminum (44), manganese (14), and sulfate (5)]. The state concluded that leachate from the placement of CCRs at the site resulted in the discharge of pollutants to waters of the state.

Further details on these additional damage cases are provided in section II. C (above), and in the Appendix to this notice.

As mentioned in section II.C, during the development of this proposal, EPA received new reports from industry and citizen groups regarding damage cases. Industry provided information that, they suggested, shows that many of EPA's listed proven damage cases do not meet EPA's criteria for a damage case to be proven. On the other hand, citizen groups recently identified additional alleged damage cases. The Agency has not yet had an opportunity to evaluate this additional information. EPA's analysis, as well as the additional information from industry and citizen groups, all of which is available in the docket to this proposed rule, would

[59] The RIA monetizes the annual tonnage of greenhouse gas effects associated with the CCR beneficial use life cycle analysis, based on the 2009 interim social cost of carbon (i.e., interim SCC) of Table III.H.6–3, page 29617 of the joint EPA and DOT–NHTSA "Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards," **Federal Register**, Volume 74, No. 186, 28 Sept 2009. The value applied in the RIA is the $19.50 per ton median value from the $5 to $56 per ton range displayed in the 2007 column in that source. Furthermore, the RIA updated the 2007$ median value from 2007 to 2009 dollars using the NASA Gross Domestic Product Deflator Inflation Calculator at *http://cost.jsc.nasa.gov/inflateGDP.html.* EPA is aware that final SCC values were published on March 9, 2010 in conjunction with a Department of Energy final rule. EPA intends to use the final SCC values for the CCR final rule RIA. The final SCC values are published in the Department of Energy, Energy Efficiency & Renewable Energy Building Technologies Program, "Small Electric Motors Final Rule Technical Support Document: Chapter 16—Regulatory Impact Analysis," March 9, 2010 at *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/sem_finalrule_tsd.html*).

[60] These benefits estimates are further discussed in Chapter 5C of the RIA which is available in the docket for this proposal.

[61] These instances are associated with 7 proven damage cases and 1 potential damage case.

[62] *http://www.epa.gov/reg3hwmd/CurrentIssues/finalr-battlefield_golf_club_site/redacted_DTN_0978_Final_Battlefield_SI_Report.pdf.*

[63] It is uncertain whether lead exceedances were due to CCRs or lead in the plumbing and water holding tanks.

benefit from public input and further review, in the interest of reaching a more complete understanding of the nature and number of damage cases. EPA encourages commenters to consider all of these analyses in developing their comments.

*5. Alternatives to current disposal methods:* There are no meaningful disposal alternatives other than land disposal. Improved disposal management practices are practical (*e.g.,* liners, groundwater monitoring, dust control), although EPA has not identified meaningful or practical treatment options prior to disposal, other than dewatering. (There are, however, available technologies, or technologies under development, to process CCRs now likely destined for disposal so that they can effectively be converted to appropriate beneficial uses.) The beneficial use of these materials as products continues to be an important alternative to disposal.

*6. The cost of such alternative disposal methods:* The Agency has estimated the nationwide costs to the electric utility industry (or to electric rate payers) for each alternative considered for this proposal. These estimates are discussed in the regulatory impact analysis presented within section XII.A of this preamble.

*7. The impact of the alternative disposal methods on the use of coal and other natural resources:* The alternative disposal methods mentioned above are not expected to impact the use of coal or other natural resources. However, we would note that some surface impoundments at coal-fired utilities are also used as wastewater treatment systems for other non-CCR wastewaters. Therefore, if facilities switch from wet to dry handling of CCRs, construction of alternative wastewater treatment systems could become necessary for other non-CCR wastewaters, especially if they involved acidic wastes that are currently neutralized by the coal ash. (Note that the issue of beneficial uses of CCRs is discussed below; if the effect of a subtitle C approach is to increase beneficial uses, it could lead to a decrease in the use of virgin materials like ingredients in cement making, aggregate, mined gypsum, etc. On the other hand, if the effect of that approach were to decrease beneficial uses, as some commenters suggested, it would have the opposite effect on the use of natural resources.)

*8. The current and potential utilization of CCRs:* In 2008, nearly 37% (50.1 million tons) of CCRs were beneficially used (excluding minefill operations) and nearly 8% (10.5 million tons) were placed in minefills. (This compares to 23% of CCRs that were beneficially used, excluding minefilling, at the time of the May 2000 Regulatory Determination, and represents a significant increase.)

Parties have commented that any regulation of CCRs under RCRA subtitle C will impose a crippling stigma on their beneficial use, and eliminate or significantly curtail these uses, even if EPA were to regulate only CCRs destined for disposal, without modifying the regulatory status of beneficial reuse. On the other hand, other parties have commented that increasing the cost of disposal of CCRs through regulation under subtitle C will actually increase their usage in non-regulated beneficial uses, simply as a result of the economics of supply and demand. States, at the same time, have commented that, by operation of state law, the beneficial use of CCRs would be prohibited under the states' beneficial use programs, if EPA designated CCRs as hazardous waste when disposed of in landfills or surface impoundments. At the time of the May 2000 Regulatory Determination, commenters had raised this similar concern, and without agreeing that regulation under RCRA subtitle C would necessarily affect the beneficial reuse of this material, EPA nevertheless strongly expressed concern that beneficial use not be adversely affected.

EPA is interested in additional information supporting the claims that "stigma" will drive people away from the use of valuable products, or that states will prohibit the reuse of CCRs under their beneficial use programs if EPA regulates any aspect of CCR management under subtitle C. Specifically, the Agency requests that commenters provide analyses and other data and information that demonstrate this to be the case. To date, we have received statements and declarations that regulation under subtitle C will have devastating effects on beneficial uses of CCRs. In addition, for those commenters who suggest that regulating CCRs under subtitle C of RCRA would raise liability issues, EPA requests that commenters describe the types of liability and the basis, data, and information on which these claims are based. The issue of beneficial use and stigma are more fully discussed in section VI, where we discuss the alternative of regulating CCRs under subtitle C of RCRA. EPA would also be interested in suggestions on methods by which the Agency could reduce any stigmatic impact that might indirectly arise as a result of regulation of CCRs destined for disposal as a "special" waste under RCRA subtitle C.

*C. Preliminary Bevill Conclusions and Impact of Reconsideration*

The Agency is proposing two different approaches to regulating CCRs: Regulation as a "special" waste listed under RCRA subtitle C if EPA decides to lift the Bevill exemption with respect to disposal; and regulation as a solid waste under RCRA subtitle D, if the Bevill exemption is retained for disposal. Under both of these approaches, requirements for liners and groundwater monitoring would be established, although there are differences with respect to the other types of requirements that can be promulgated by EPA under RCRA subtitle C and D. In addition, as discussed in greater detail below, one of the primary differences between the various approaches relates to the degree and extent of federal oversight, as this varies considerably between the alternatives. As noted previously, EPA has not yet reached a decision on whether to regulate CCRs under RCRA subtitle D or C, but continues to evaluate each of these options in light of the 8002(n) factors.

In determining the level of regulation appropriate for the management of CCRs, several considerations weigh heavily with the Agency; information on these issues will therefore be important for commenters to consider as they prepare their comments. One particularly critical question relates to the extent of the risks posed by the current management of this material, along with the corresponding degree of Federal oversight and control necessary to protect human health and the environment. As discussed in the preceding sections, since EPA's Regulatory Determination in May 2000, new information has called into question EPA's original assessment of the risks posed by the current management of CCRs that are disposed of. In summary, this includes (1) The results of EPA's 2010 risk assessment, which indicates that certain management practices—particularly units without composite liners and the prevalence of wet handling can pose significant risks; (2) the growing record of proven damage cases to ground water and surface water, as well as a large number of potential damage cases; (3) recent events, which have demonstrated that these wastes have caused greater damage to human health and the environment than originally estimated (*i.e.,* catastrophic environmental impacts from surface impoundment breaches, and damage resulting from "sham beneficial uses"); and (4) questions regarding the adequacy of

state regulatory programs for the management of CCRs, as many states appear to lack key protective requirements for liners and groundwater monitoring and a permitting program to ensure that such provisions are being properly implemented, even though overall industry practices appear to be improving. All of these considerations illustrate that in many cases CCRs have not been properly managed. The question is whether federal regulation is more appropriate under subtitle C or subtitle D of RCRA.

Several significant uncertainties remain with respect to all of the identified considerations. For example, as discussed previously, the data and analyses associated with this proposal are complex, and several uncertainties remain in EPA's quantitative risk analysis. One of these uncertainties is the evolving character/composition of CCRs due to electric utility upgrades and retrofits needed to comply with the emerging CAA requirements, which could present new or otherwise unforeseen contaminant issues (*e.g.,* hexavalent chromium from post-$NO_X$ controls). Other uncertainties relate to the extent to which some sampled data with high concentrations used in the risk assessment accurately reflect coal ash leaching from landfills or surface impoundments, and the extent to which releases from surface impoundments located in close proximity to water bodies intercept drinking water wells. For example, as explained earlier in the preamble, some data reflected pore water taken in the upper section of a surface impoundment where coal refuse was placed. There were acid generating conditions and high concentrations of arsenic, but the data demonstrated that the underlying coal ash neutralized the acid conditions and greatly reduced the arsenic which leached from the bottom of the impoundment. There are also technical issues associated with releases from surface impoundments located in close proximity to water bodies which intercept drinking water wells. For example, surface impoundments are commonly placed next to rivers, which can intercept the leachate plume and prevent contamination of drinking water wells on the other side of the river. Also, in such circumstances the direction of groundwater flow on both sides of the river may be towards the river; thus, the drinking water well on the opposite side of a river may not be impacted.

As mentioned previously, EPA has received additional reports on damage cases, one from industry and one from citizen groups. Closer analyses of these reports could have the potential to significantly affect the Agency's conclusions.

An equally significant component of the overall picture, if not more so, relates to how effectively state regulatory programs address the risks associated with improper management of this material. As discussed earlier in this preamble, the continued damage cases and the reports on state regulatory programs call into question whether the trend in improving state regulatory regimes that EPA identified in May 2000 has materialized to the degree anticipated in the Regulatory Determination. Although recent information indicates that significant gaps remain, EPA continues to lack substantial details regarding the full extent of state regulatory authority over these materials, and the manner in which states have in practice, implemented this oversight. Nevertheless, based on the information made available on state programs, the Agency is reticent to establish a regulatory program without any federal oversight. Thus, EPA seeks additional details on regulation of CCRs by states to ensure that EPA's understanding of state programs is as complete as possible. While EPA recognizes that the extent of regulation of CCRs varies between states, EPA is not yet prepared to draw overall conclusions on the adequacy of state programs, as a general matter. EPA is, therefore, requesting that commenters, and particularly state regulatory authorities, provide detailed information regarding the extent of available state regulatory authorities, and the manner in which these have been, and are currently implemented. In this regard, EPA notes that "survey" type information that does not provide these details is unlikely to be able to resolve the concerns arising from the recent information developed since the May 2000 Regulatory Determination. EPA is also soliciting comments on the extent to which the information currently available to the Agency reflects current industry practices at both older and new units. For example, EPA would be particularly interested in information that indicates how many facilities currently have groundwater monitoring systems in place, how those systems are designed and monitored, and what, if anything, they have detected.

EPA has identified several issues that will be relevant as it continues to evaluate the overall adequacy of state regulatory programs. Specifically, EPA intends to consider how state regulatory programs have, in practice, evaluated and imposed requirements to address: (1) Leachate collection; (2) groundwater monitoring; (3) whether a unit must be lined, and the type of liner needed; (4) the effectiveness of existing management units as opposed to new management units; (5) whether the state requires routine analysis of CCRs; (6) whether financial responsibility requirements are in place for the management of CCRs; (7) the extent of permit requirements, including under what authorities these disposal units are permitted, the types of controls that are included in permits, and the extent of oversight provided by the states, (8) whether state programs include criteria for siting new units; (9) the extent of requirements for corrective action, post-closure monitoring and maintenance; (10) the state's pattern of active enforcement and public involvement; and (11) whether or not these facilities have insurance against catastrophic failures.

Directly related to the level of risk presented by improper management of CCRs, EPA is also weighing the differing levels of Federal oversight and control, and the practical implementation challenges, associated with the level and type of regulation under RCRA subtitles C and D. In the interest of furthering the public understanding of this topic, EPA presents an extensive discussion of the differences and concerns raised between regulation under subtitles C and D of RCRA, including a comparison of the advantages and disadvantages of each.

The subtitle C approach proposed today would provide full national cradle-to-grave control over CCRs destined for disposal, consistently managed under federally enforceable standards and through federal permits, or permits issued by the states that EPA has authorized to regulate CCRs in lieu of EPA. Permits can be a particularly important mechanism, because they allow the regulatory Agency to scrutinize the design of disposal units and the management practices of the permit applicant. They also allow the regulator to tailor the permit conditions to the facility site conditions, including the ability to impose additional specific conditions where it deems current or proposed facility practices to be inadequate to protect human health or the environment, pursuant to the omnibus authority in RCRA section 3005(c). Additionally, permitting processes provide the public and the local community the opportunity to participate in regulatory decisions. The combined requirements under subtitle C would effectively phase-out all wet handling of CCRs and prohibit the disposal of CCRs in surface impoundments. Moreover, the subtitle C approach is the only approach that

allows direct federal enforcement of the rule's requirements. The many damage cases, including more recent damage cases, suggest the value of control and oversight at the federal level.

At the same time, EPA acknowledges concerns with a subtitle C approach on the part of states, the utilities, and users of CCR-derived products. The states have expressed concern that any federal approach, including a subtitle D approach, has the potential to cause disruption to the states' implementation of CCR regulatory programs under their own authority. For example, the state of Maryland has recently upgraded its disposal standards for CCRs under its state solid waste authority, and the new state regulations address the major points in today's proposal (except the stability requirement for impoundments and the prohibition against surface impoundments). The state has expressed concern about having to revise its regulations again, and re-permit disposal units under subtitle C of RCRA. A subtitle D approach, as described in today's proposal, would eliminate or significantly reduce these concerns. EPA acknowledges these concerns, and certainly does not wish to force the states to go through unnecessary process steps. EPA nevertheless solicits comment on this issue, including more specifics on the potential for procedural difficulties for state programs, and measures that EPA might adopt to try to mitigate these effects.

Two additional substantive concerns with regulation of CCRs under subtitle C have been raised by commenters: the effect of listing CCRs as hazardous waste under RCRA on beneficial uses, and the availability of existing subtitle C landfill capacity to manage CCRs. As explained previously, EPA shares the concern that beneficial uses not be inadvertently adversely affected by the regulation of CCRs destined for disposal. EPA continues to believe that certain beneficial use, when performed properly, is the environmentally preferable destination for these materials and, therefore, wants to address any potential stigma that might arise from designating CCRs as hazardous wastes. Thus, EPA is seeking data and information, including detailed analyses, of why the subtitle C regulation outlined in today's proposal will have the impact that some commenters have identified. As explained at length in section VI of this preamble, EPA believes it can generally address the concerns that have been raised regarding the effect of subtitle C regulation on legitimate beneficial uses in today's proposal through several of the actions outlined in today's proposal. The most important of these is that EPA is not proposing to revise its May 2000 Regulatory Determination that beneficial uses retain the Bevill exemption and do not warrant federal regulation. Nevertheless, EPA agrees that "stigma" is an important consideration in the Agency's decision, and solicits information and data that will help the Agency quantify the potential effects of any stigma arising from association with CCR disposal regulated under subtitle C.

On the question of hazardous waste disposal capacity, EPA believes that management patterns of CCRs will continue: That landfills and surface impoundments currently receiving CCRs will obtain interim status and convert to RCRA subtitle C status, and that the proposal will not shift disposal patterns in a way that substantially increases the disposal of CCRs off-site from generating utilities to commercial hazardous waste landfills. Therefore, EPA's regulatory analysis assumes disposal patterns will remain generally the same. As commenters have pointed out, CCRs do, in theory, have the potential to overwhelm the current hazardous waste capacity in the United States. EPA's Biennial Report indicates that approximately two million tons of hazardous waste are disposed of annually in hazardous waste landfills, and EPA estimates that the current total national commercial hazardous waste landfill disposal capacity is between 23.5 and 30.3 million tons, while the annual amount of CCRs currently going to land disposal is 46 million tons (with an additional 29.4 million tons going to surface impoundments).[64] These figures illustrate the very large volume of CCR material involved, and how it could overwhelm existing subtitle C disposal capacity. While a DOE survey reports that 70% of disposal involves "company on-site" disposal units and 30% involves "off-site" disposal units, DOE indicated that off-site disposal capacity can be company owned or commercial disposal units. In communications with USWAG, they indicated, in some cases smaller facilities may send ash to a commercial operation, but believed that is in no way representative of the industry as a whole. In some cases, the disposal facility may be operated by a contractor for the utility, and the landfill is a captive facility that does not receive other industrial wastes. At the same time, EPA points out that, to the extent that new capacity is needed, the implementation of today's rule, if the subtitle C alternative is selected, will take place over a number of years, providing time for industry and state permitting authorities to address the issue. However, this is an issue on which EPA would find further information to be helpful. Therefore, EPA solicits detailed information on this topic, to aid in further quantifying the extent to which existing capacity may be insufficient. For example, EPA is interested in detailed information on the volume of CCRs now going off-site for disposal; the nature of off-site disposal sites (*e.g.,* commercial subtitle D landfills versus dedicated CCR landfills owned by the utility); and the amount of available land on utility sites for added disposal capacity.

Finally, the states have expressed concern that the RCRA subtitle C requirements will be considerably more expensive for them to implement than a RCRA subtitle D regulation, without providing commensurate benefits. For example, the states have reported that regulation under RCRA subtitle C, versus subtitle D, would cost them an additional $17 million per year to implement. EPA acknowledges the concern that the RCRA subtitle C requirements can be costly to implement, and could put more pressure on diminishing state budgets. However, were states to utilize the subtitle D requirements of today's proposal, the cost of implementing a RCRA subtitle D program will also be expensive. Thus, EPA is aware of the pressures on state budgets and will consider potential impacts when making a final determination for this rulemaking. Nevertheless, in the event that EPA determines that RCRA subtitle C regulation is warranted, it will be because EPA has determined that there are serious environmental and human health risks that can only be remedied by regulation under subtitle C. Further, under the subtitle C scenario, we believe that most states should be able to address any shortfalls through hazardous waste generator or disposal fees. EPA specifically solicits comments from states as to the extent to which such fees would be able to offset the costs of administering permit, inspection, and enforcement programs.

EPA notes that its estimates of costs of compliance with the subtitle C requirements have increased since its estimates in the 1999 Report to Congress; as explained later in this preamble, EPA believes these costs are commensurate with the benefits to be derived from the controls, and that the costs of regulation under RCRA subtitle D are substantial as well. For example,

[64] These figures reflect the total current capacity, not annual capacity. The annual capacity is significantly less: modifications to annual capacity would require modifications to existing permits.

one of the major potential costs under either the subtitle C or subtitle D option is associated with the required closure of all existing surface impoundments that do not meet the rule's technical requirements, which EPA is proposing under both the subtitle C and subtitle D co-proposals. Further, the technical unit design and groundwater monitoring requirements that will effectively protect human health and the environment under either option are quite similar. Finally, EPA is proposing to modify certain aspects of the RCRA subtitle C framework to address some of the practical implementation challenges associated with applying the existing regulatory framework to these wastes. However, commenters have suggested that EPA has underestimated the costs of compliance under the subtitle C requirements upstream of surface impoundments and landfills (*e.g.,* for storage). Commenters, however, have not provided specific cost estimates associated with storage of CCRs. EPA specifically solicits substantiating detail from commenters.

One disadvantage of a RCRA subtitle C approach, compared to a RCRA subtitle D approach, is that the subtitle C approach, in most states, will not go into effect as quickly as subtitle D. That is, the subtitle C regulations require an administrative process before they become effective and federally enforceable (except in the two states that are not authorized to manage the RCRA program). The RCRA hazardous waste implementation and authorization process is described in detail in sections VII and VIII of this preamble. But to summarize, federal regulations under subtitle C would not go into effect and become federally enforceable until RCRA-authorized states [65] have adopted the requirements under their own state laws, and EPA has authorized the state revisions. Under the RCRA subtitle C regulations, when EPA promulgates more stringent regulations, states are required to adopt those rules within one year, if they can do so by regulation, and two years if required by legislative action. If a state does not adopt new regulations promptly, EPA's only recourse is to withdraw the entire state hazardous waste program. If EPA determines that a subtitle C rule is warranted, the Agency will place a high priority on ensuring that states promptly pick up the new rules and become authorized, and EPA will work aggressively toward this end. Three decades of history in the RCRA program, however, suggest that this process will take two to five years (if not longer) for rules to become federally enforceable.[66]

At the same time, EPA believes there may be benefits in a RCRA subtitle D approach that establishes specific self-implementing requirements that utilities and others managing regulated CCRs would have to comply with, even in the absence of permitting or direct regulatory oversight. EPA recognizes that many of the states have regulatory programs in place, albeit with varying requirements, for the disposal of CCRs, and that industry practices have been improving. The RCRA subtitle D approach would complement existing state programs and practices by filling in gaps, and set forth criteria for disposing of CCRs to meet the national minimum standards that are designed to address key risks identified in damage cases and the risk assessment—including the risk of surface impoundment failure, which has been identified as a concern appropriate for control.

The co-proposed RCRA subtitle D option is less costly than the co-proposed RCRA subtitle C option, according to EPA's Regulatory Impact Assessment. The main differences in the costs are based on the assumption that there will be less compliance, or slower compliance, under a RCRA subtitle D option. In addition, the industry and state commenters suggested that a RCRA subtitle D approach would eliminate two of their concerns: (1) That a RCRA subtitle C approach would inappropriately stigmatize uses of CCRs that provide significant environmental or economic benefits, or that (according to those commenters) hold significant potential promise, and (2) that the volume of CCR wastes generated—particularly if requirements of a RCRA subtitle C regulation led to more off-site disposal—would overwhelm existing subtitle C capacity based on the large volumes of CCRs that are generated and would need to be disposed of. It would also reduce or eliminate expressed industry concerns about the effect of RCRA subtitle C requirements on plant operations, and state concerns related to the burden of the RCRA subtitle C permitting process. Related to the capacity issue, these same commenters have also suggested that, under the RCRA subtitle C regulations, future cleanup of poorly sited or leaking disposal sites (including historical or legacy sites) would be considerably more expensive, especially where off-site disposal was chosen as the option. (EPA's RIA does not quantify this last issue, but the RIA does discuss two recent cases as examples; EPA solicits more detailed comment on this issue, preferably with specific examples.) As stated earlier, EPA does not have sufficient information to conclude that regulation under RCRA subtitle C will stigmatize CCRs destined for beneficial use, for the reasons discussed elsewhere in today's preamble, and the Agency does not at this point have reason to assume that use of off-site commercial disposal of CCRs will increase significantly.

EPA also notes that many of the requirements discussed above would go into effect more quickly under RCRA subtitle D. Under subtitle D of RCRA, EPA would set a specific nationwide compliance date and industry would be subject to the requirements on that date, although as discussed elsewhere in today's preamble, EPA's ability to enforce those requirements is limited. (Of course, certain requirements, such as closure of existing surface impoundments, would have a delayed compliance date set to reflect practical compliance realities, but other requirements, for example, groundwater monitoring or the requirement that new surface impoundments be constructed with composite liners could be imposed substantially sooner than under a RCRA subtitle C rule.) The possible exception would be if EPA decided to establish financial assurance requirements through a regulatory process currently underway that would establish financial assurance requirements for several industries pursuant to CERCLA 108(b), including the Electric Power Generation, Transmission and Distribution Industry. For a more detailed discussion of these issues *see* section IX.

However, there are also disadvantages to any approach under RCRA subtitle D. Subtitle D provides no Federal oversight of state programs as it relates to CCRs. It establishes a framework for Federal, state, and local government cooperation in controlling the management of nonhazardous solid waste. The Federal role in this arrangement is to establish the overall regulatory direction, by providing minimum nationwide standards for protecting human health and the environment, and to provide technical assistance to states for planning and developing their own environmentally sound waste management practices. The co-proposed subtitle D alternative in this proposal would establish national minimum

[65] Currently, all but two states are authorized for the base RCRA program.

[66] In addition, existing facilities would generally operate under self-implementing interim status provisions until the state issued a RCRA permit, which is a several year process, although presumably the facility might remain under state solid waste permits, depending on state law.

standards specifically for CCRs for the first time. The actual planning and direct implementation of solid waste programs under RCRA subtitle D, however, remain state and local functions, and the act authorizes states to devise programs to deal with state-specific conditions and needs.

In further contrast to subtitle C, RCRA subtitle D requirements would regulate only the disposal of solid waste, and EPA does not have the authority to establish requirements governing the transportation, storage, or treatment of such wastes prior to disposal. Under RCRA sections 4004 and 4005(a), EPA cannot require that facilities obtain a permit for these units. EPA also does not have the authority to determine whether any state permitting program for CCR facilities is adequate. This complicates the Agency's ability to develop regulations that can be effectively implemented and tailored to individual site conditions. Moreover, EPA does not have the authority to enforce the regulations, although, the "open dumping" prohibition may be enforced by states and citizens under section 7002 of RCRA.

*D. EPA Is Not Reconsidering the Regulatory Determination Regarding Beneficial Use*

As noted previously, in the May 2000 Regulatory Determination, EPA concluded that federal regulation was not warranted for the beneficial uses identified in the notice, because: "(a) We have not identified any other beneficial uses that are likely to present significant risks to human health or the environment; and (b) no documented cases of damage to human health or the environment have been identified. Additionally, we do not want to place any unnecessary barriers on the beneficial uses of coal combustion wastes so they can be used in applications that conserve natural resources and reduce disposal costs." (*See* 65 FR 32221) EPA did not conduct specific risk assessments for the beneficial use of these materials, except as noted below and elsewhere in this preamble. Instead, it generally described the uses and benefits of CCRs, and cited the importance of beneficially using secondary materials and of resource conservation, as an alternative to disposal. However, EPA did conduct a detailed risk assessment of certain agricultural uses of CCRs,[67] since the use of CCRs in this manner is most likely to raise concerns from an environmental point of view. Overall, EPA concluded at the time that the identified uses of CCRs provided significant benefits (environmental and economic), that we did not want to impose an unnecessary stigma on these uses and therefore, we did not see a justification for regulating these uses at the federal level.

Since EPA's Regulatory Determination in May 2000, the Agency has gathered additional information. In addition to the evolving character/composition of CCRs due to electric utility upgrades and retrofits needed to comply with the emerging CAA requirements, which could present new or otherwise unforeseen contaminant issues (*e.g.,* hexavalent chromium from post-$NO_X$ controls), changes include: (1) A significant increase in the use of CCRs, and the development of established commercial sectors that utilize and depend on the beneficial use of CCRs, (2) the recognition that the beneficial use of CCRs (and, in particular, specific beneficial uses of CCRs, such as using fly ash as a substitute for Portland cement in the production of concrete) provide significant environmental benefits, including the reduction of GHG emissions, (3) the development of new applications of CCRs, which may hold even greater GHG benefits (for example, fly ash bricks and a process to use $CO_2$ emissions to produce cement), (4) new research by EPA and others indicating that the standard leach tests—*e.g.,* the Toxicity Characteristic Leaching Procedure (TCLP) that have generally been used may not accurately represent the performance of varying types of CCRs under variable field conditions, (5) new studies and research by academia and federal agencies on the use of CCRs, including studies on the performance of CCR-derived materials in concrete, road construction,[68] and agriculture,[69] and studies of the risks that may or may not be associated with the different uses of CCRs, including uses of unencapsulated CCRs, and (6) the continuing development of state "beneficial use" regulatory programs under state solid waste authorities.

Some of these changes confirm or strengthen EPA's Regulatory Determination in May 2000 (*e.g.,* the growth and maturation of state beneficial use programs and the growing recognition that the beneficial use of CCRs is a critical component in strategies to reduce GHG emissions); other developments raise critical questions regarding this determination (*e.g.,* the potentially changing composition of CCRs as a result of improved air pollution control and the new science on metals leaching). EPA solicits information and data on these developments and how the beneficial use of CCRs will be affected (*e.g.,* increased use of fly ash in cement and concrete).

However, on balance, after considering all of these issues and the information available to us at this time, EPA believes that the most appropriate approach toward beneficial use is to leave the May 2000 Regulatory Determination in place, as the Agency, other federal agencies, academia, and society more broadly investigate these critical questions and clarify the appropriate beneficial use of these materials. This section provides EPA's basis for leaving the Bevill exemption in place for these beneficial uses, although as discussed throughout this section, EPA is also soliciting comment on unencapsulated uses of CCRs and whether they should continue to be exempted as a beneficial use under the Bevill exemption.

EPA is proposing this approach in recognition that some uses of CCRs, such as encapsulated uses in concrete, and use as an ingredient in the manufacture of wallboard, provide benefits and raise minimal health or environmental concerns. That is, from information available to date, EPA believes that encapsulated uses of CCR, as is common in many consumer products, does not merit regulation. On the other hand, unencapsulated uses have raised concerns and merit closer attention. For example, the placement of unencapsulated CCRs on the land, such as in road embankments or in agricultural uses, presents a set of issues, which may pose similar concerns as those that are causing the Agency to propose to regulate CCRs destined for disposal. Still, the amounts and, in some cases, the manner in which they are used—*i.e.,* subject to engineering specifications and material requirements rather than landfilling techniques—are very different from land disposal. EPA also notes that stakeholders, such as Earthjustice have petitioned EPA to ban particular uses of CCR; for example, the placement of CCRs in direct contact with water bodies.

Due to such issues as the changing characteristics of CCRs, as a result of more widespread use of air pollution control technologies and the new information becoming available on the

[67] Draft Final Report; Non-groundwater Pathways, Human Health and Ecological Risk Analysis for Fossil Fuel Combustion Phase 2 (FFC2) and its appendices (A through J); available at *http://www.epa.gov/osw/nonhaz/industrial/special/fossil/fsltech.htm.*

[68] *See http://www.epa.gov/osw/partnerships/c2p2/cases/index.htm.*

[69] *See http://www.epa.gov/osw/partnerships/c2p2/pubs/fgd-fs.pdf.*

leaching of metals from CCRs, we are considering approaches such as, better defining beneficial use or developing detailed guidance on the beneficial use of CCRs to supplement the regulations. The Agency solicits information and data on these and other approaches that EPA could take in identifying when uses of CCRs constitute a "beneficial use," and consequently will remain exempt.

Other alternative approaches—for example, to regulate the beneficial use of CCRs under the regulations that apply to "use constituting disposal," to prohibit unencapsulated uses outright, including CCRs used in direct contact with water matrices, including the seasonal high groundwater table, or to require front-end CCR and site characterization through the use of leach tests adapted for specific uses of CCR, prior to CCR management decisions—could address concerns that have been expressed over the land placement of CCRs. However, EPA is trying to balance concerns that proposing one or more of these alternatives might have the effect of stifling economic activities and innovation in areas that have potential for environmental benefits, while also providing adequate protection of human health and the environment.

At the same time, EPA recognizes that seven proven damage cases involving the large-scale placement, akin to disposal, of CCRs has occurred under the guise of "beneficial use"—the "beneficial" use being the filling up of old quarries or gravel pits, or the regrading of landscape with large quantities of CCRs. EPA did not consider this type of use as a "beneficial" use in its May 2000 Regulatory Determination, and does not consider this type of use to be covered by the exclusion. Therefore, today's proposed rule explicitly removes these types of uses from the category of beneficial use, such that they would be subject to the management standards that EPA finally promulgates. EPA also seeks information and data on whether it should take a similar approach in today's proposal to unencapsulated uses of CCRs, such as the placement of unencapsulated CCRs on the land—*e.g.,* agricultural uses. Alternatively, EPA is also soliciting comment on whether the Agency should promulgate standards allowing such uses, on a site-specific basis, based on a site specific risk assessment, taking into consideration, inter alia, the CCRs character and composition, their leaching potential under the range of conditions under which CCRs will be managed, and the context in which the CCRs will be applied, such as location, volume, rate of application, and proximity to water.

Before getting into a detailed discussion of the materials in question, EPA would reiterate that CCRs, when beneficially used will conserve resources, provide improved material properties, reduce GHG emissions, lessen the need for waste disposal units, and provide significant domestic economic benefits (as noted above in section XII). At the same time, EPA recognizes that there are important issues and uncertainties associated with specific uses of specific CCRs, that there has been considerable recent and ongoing research on these uses, and that the composition of CCRs are likely changing as a result of more aggressive air pollution controls. EPA is particularly concerned that we avoid the possibility of cross-media transfers stemming from CAA regulations requiring the removal of hazardous air pollutants (*e.g.,* arsenic, mercury, selenium) from utility stacks being released back into the soil and groundwater media through inappropriate "beneficial" uses.

EPA has received numerous comments on specific uses of CCRs, and we have been working with states to help them develop effective beneficial use programs (which apply to a wide range of secondary materials, not just CCRs). EPA, other federal agencies, and academia have conducted research on specific uses, and have provided guidance and best management practices on using CCRs in an environmentally sound manner in a range of applications. For example, EPA, working with the Federal Highway Administration (FHWA), DOE, the American Coal Ash Association (ACAA), and USWAG issued guidance in April 2005 on the appropriate use of coal ash in highway construction. EPA understands that the composition of CCRs, the nature of different CCR uses, and the specific environment in which CCRs are used, can affect the effectiveness and the environmentally sound use of particular projects. In today's proposal, EPA is suggesting that an appropriate balance can be met by (1) determining that the placement of CCRs in sand and gravel pits, as well as the use of large volumes of CCRs in restructuring landscapes to constitute disposal, rather than the beneficial use of CCRs, and at the same time (2) leaving in place its determination that the beneficial uses of CCRs—*e.g.,* those identified in the May 2000 Regulatory Determination as clarified in this notice—should not be prohibited from continuing. As described later in this section of today's notice, EPA solicits comment on whether an alternative approach is appropriate, particularly for unencapsulated uses of CCRs on the land.

1. Why is EPA not proposing to change the determination that CCRs that are beneficially used do not warrant federal regulation?

As an initial matter, we would note that for some of the beneficial uses, CCRs are a raw material used as an ingredient in a manufacturing process that have never been "discarded,[70]" and thus, would not be solid wastes under the existing hazardous waste rules. For example, synthetic gypsum is a product of the FGD process at coal-fired power plants. In this case, the utility designs and operates its air pollution control devices to produce an optimal product, including the oxidation of the FGD to produce synthetic gypsum. In this example, after its production, the utility treats FGD as a valuable input into a production process, *i.e.,* as a product, rather than as something that is intended to be discarded. Wallboard plants are sited in close proximity to power plants for access to raw material, with a considerable investment involved. Thus, FGD gypsum used for wallboard manufacture is a product rather than a waste or discarded material. This use and similar uses of CCRs that meet product specifications would not be affected by today's proposed rule in any case, regardless of the option taken.

With that said, today's proposed action would leave in place EPA's May 2000 Regulatory Determination that beneficially used CCRs do not warrant federal regulation under subtitle C or D of RCRA. As EPA stated in the May 2000 Regulatory Determination, "In the [Report to Congress], we were not able to identify damage cases associated with these types of beneficial uses, nor do we now believe that these uses of coal combustion wastes present a significant risk to human health and the environment. While some commenters disagreed with our findings, no data or other support for the commenters' position was provided, nor was any information provided to show risk or damage associated with agricultural use. Therefore, we conclude that none of the beneficial uses of coal combustion wastes listed above pose risks of concern." (*See* 65 FR 32230.) Since that time, EPA is not aware of data or other information to indicate that existing

[70] In order for EPA to regulate a material under RCRA, the material must be a solid waste, which the statute defines as materials that have been discarded. *See* Section 1004(27) of RCRA for definition of solid waste.

efforts of states, EPA and other federal agencies are not adequate to address environmental issues associated with the beneficial uses of CCRs, that were originally identified in the Regulatory Determination. Therefore, at this time, EPA is not proposing to reverse that determination. Specifically: (1) EPA believes today's proposal will ensure that inappropriate beneficial use situations, like the Gambrills, MD site, will be regulated as disposal; (2) many states are developing effective beneficial use programs which, in many cases, allow the use of CCRs as long as they are demonstrated to be non-hazardous materials, and (3) EPA does not wish to inhibit or eliminate the significant and measurable environmental and economic benefits derived from the use of this valuable material without a demonstration of an environmental or health threat.

EPA also wants to make clear that wastes that consist of or contain these Bevill-exempt beneficially used materials, including demolition debris from beneficially used CCRs in wallboard or concrete that were generated because the products have reached the end of their useful lives—would also not be listed as a special waste subject to subtitle C of RCRA, from the point of their generation to their ultimate disposal.

In summary, EPA continues to believe that the beneficial use of CCRs, when performed properly and in an environmentally sound manner, is the environmentally preferable outcome for CCRs and, therefore, is concerned about regulatory decisions that would limit beneficial uses, including research on beneficial uses. Thus, EPA is not proposing to modify the existing Bevill exemption for CCRs (sometimes referred to as CCPs when beneficially used), and instead is proposing to leave the current determination in place. However, EPA recognizes that there is a disparity in the quality of state programs dealing with beneficial uses, uncertainty relative to the future characteristics of CCRs and, therefore, uncertainty concerning the risks associated with some beneficial uses. At the same time, EPA recognizes the potential environmental benefits with regard to the uses of CCRs. For these reasons, EPA is requesting information and data on the appropriate means of characterizing beneficial uses that are both protective of human health and the environment and provide benefits. EPA is also requesting information and data demonstrating where the federal and state programs are or have been inadequate in being environmentally protective and, conversely, where states have, or are developing, increasingly effective beneficial use programs.

As previously discussed, and discussed in section VI, some stakeholders have commented that EPA should not regulate CCRs when disposed of in landfills or surface impoundments as a hazardous waste, because such an approach would stigmatize the beneficial use of CCRs, and these uses would disappear. Although it remains unclear whether any stigmatic effect from regulating CCRs destined for disposal as hazardous waste would decrease the beneficial use of CCRs, and irrespective of whether EPA ultimately concludes to promulgate regulations under RCRA subtitles C or D, EPA is convinced that regulating the beneficial use of CCRs under RCRA subtitle C as hazardous waste would be unnecessary, in light of the potential risks associated with these uses. For example, use of fly ash as a replacement for Portland cement is one of the most environmentally beneficial uses of CCRs (as discussed below), yet regulating this beneficial use under RCRA subtitle C requirements would substantially increase the cost and regulatory difficulties of using this material, without providing any corresponding risk reduction. Regulating the use of coal ash as a cement ingredient under RCRA subtitle C would subject the coal ash to full hazardous waste requirements up to the point that it is made into concrete, including requirements for generators, manifesting for transportation, and permits for storage. In addition, ready-mix operators would be subject to the land disposal restrictions and other requirements, as use of the concrete would constitute disposal if placed on the land. EPA instead is proposing an approach that would allow beneficial uses to continue, under state controls, EPA guidance, and current industrial standards and practices. Where specific problems are identified, EPA believes they can be safely addressed, but we do not believe that an approach that eliminates a wide range of uses that would add considerably to the costs of the rule, and that would disrupt and potentially close ongoing businesses legitimately using CCRs is justified, on the strength of the existing evidence.

EPA's May 2000 Regulatory Determination not to regulate various beneficial uses under the hazardous waste requirements, and today's proposal to leave that determination in place, does not conflict with EPA's view that certain beneficial uses, *e.g.,* use in road construction or agriculture, should be conducted with care, according to appropriate management practices, and with appropriate characterization of the material and the site where the materials would be placed. In this respect, CCRs are similar to other materials used in this manner—including raw materials derived from quarried aggregates, secondary materials from other industrial processes, and materials derived from natural ores. Rather, EPA concludes that, based on our knowledge of how CCRs are used, that potential risks of these uses do not warrant federal regulation, but can be addressed, if necessary, in other ways, as discussed previously, such as the State of Wisconsin has an extensive beneficial use program that supports the use of CCRs in a variety of circumstances, including in road base construction and agriculture uses, provided certain criteria are met. Similarly, EPA is working with the U.S. Department of Agriculture to develop guidance on the use of FGD gypsum in agriculture.

2. What constitutes beneficial use?

As discussed previously, EPA is not proposing to change the regulatory status of those CCRs that are beneficially used. However, because EPA is proposing to draw a distinction between CCRs that are destined for disposal and those that are beneficially used, we believe it is necessary and appropriate to distinguish between beneficial use and operations that would constitute disposal operations—such as large volumes of CCRs that are used in sand and gravel pits or for restructuring the landscape. EPA believes the following criteria can be used to define legitimate beneficial uses appropriately, and are consistent with EPA's approach in the May 2000 Regulatory Determination, although such criteria were not specifically identified at that time:

○ The material used must provide a functional benefit. For example, CCRs in concrete increase the durability of concrete—and are more effective in combating degradation from salt water; synthetic gypsum serves exactly the same function in wallboard as gypsum from ore, and meets all commercial specifications; CCRs as a soil amendment adjusts the pH of soil to promote plant growth.

○ The material substitutes for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction. For example, the use of FGD gypsum in the manufacture of wallboard (drywall) decreases the need to mine natural gypsum, thereby conserving the natural resource and conserving energy that otherwise would be needed to mine natural gypsum; the use of fly ash in

lieu of portland cement reduces the need for cement. CCRs used in road bed replace quarried aggregate or other industrial materials. These CCRs substitute for another ingredient in an industrial or commercial product.

○ Where relevant product specifications or regulatory standards are available, the materials meet those specifications, and where such specifications or standards have not been established, they are not being used in excess quantities. Typically, when CCRs are used as a commercial product, the amount of CCRs used is controlled by product specifications, or the demands of the user. Fly ash used as a stabilized base course in highway construction is part of many engineering considerations, such as the ASTM C 593 test for compaction, the ASTM D 560 freezing and thawing test, and a seven day compressive strength above 2760 (400 psi). If excessive volumes of CCRs are used—*i.e.,* greater than were necessary for a specific project,—that could be grounds for a determination that the use was subject to regulations for disposal.

○ In the case of agricultural uses, CCRs would be expected to meet appropriate standards, constituent levels, prescribed total loads, application rates, etc. EPA has developed specific standards governing agricultural application of biosolids. While the management scenarios differ between biosludge application and the use of CCRs as soil amendments, EPA would consider application of CCRs for agriculture uses not to be a legitimate beneficial use if they occurred at constituent levels or loading rates greater than EPA's biosolids regulations allow.[71] EPA also recognizes that the characteristics of CCRs are such that total concentrations of metals, as biosolids are assessed, may not be the most appropriate standard, as CCRs have been shown to leach metals with significant variability.

EPA is proposing that these criteria be included in the regulations as part of the definition of beneficial use. EPA requests comment on these criteria, as well as suggestions for other criteria that may need to be included to ensure that legitimate beneficial uses can be identified and enforcement action can be taken against inappropriate uses.

Each of the uses identified in the May 2000 Regulatory Determination, CCRs can and have been utilized in a manner that is beneficial. The discussion that follows provides a brief summary of how certain of the beneficial uses meet the various criteria. EPA solicits comment on the need to provide a formal listing of all beneficial uses. To this end, EPA solicits comment on whether additional uses of CCRs have been established since the May 2000 Regulatory Determination that have not been discussed elsewhere in today's preamble should be regarded as beneficial. Of particular concern in this regard are reports that CCRs are being used in producing counter tops, bowling balls, and in the production of makeup. The Agency solicits comment on whether use of CCRs in consumer products of this kind can be safely undertaken. The Agency further solicits comments for any new uses of CCR, as well as the information and data that supports that it is beneficially used in an environmentally sound manner. The concern with such an alternative is that new and innovative uses that are not on the list would be subject to disposal regulations, until EPA revised its rule.

In the uses where the CCR is encapsulated in the product, such as cement, concrete, brick and concrete products, wallboard, and roofing materials—the CCRs provide a functional benefit—that is, the CCRs provide a cementitious or structural function, the CCRs substitute for cement, gypsum, and aggregate and thus save resources that would otherwise need to be mined and processed, and the CCRs are subject to product specifications, such as ASTM standards. Some of the uses, such as CCRs in paints and plastics not only provide benefits, but EPA generally does not consider materials used in these ways to be waste—that is, they have not been discarded. Use of CCRs in highway projects is a significant practice covering road bed and embankments. CCRs used according to FHA/DOT standards provide an important function in road building, replacing material that would otherwise need to be obtained, such as aggregate or clay. In many cases, the CCRs can lead to better road performance. For snow and ice controls, the beneficial use is limited to boiler slag and bottom ash, which replaces fine aggregate that would otherwise need to be used to prevent skidding, and amounts used are in line with the materials they replace.[72]

### 3. Disposal of CCRs in Sand and Gravel Pits and Large Scale Fill Operations Is Not Considered a Beneficial Use

As indicated earlier, EPA has identified several proven damage cases associated with the placement of CCRs in sand and gravel pits. There has also been significant community concern with large-scale fill operations. Because of the damage cases and the concern that sand and gravel pits and large scale fill operations are essentially landfills under a different name, EPA is clarifying and, thus, proposing to define the placement of CCRs in sand and gravel pits and large scale fill projects as land disposal that would be subject to either the proposed RCRA subtitle C or D regulations. Sites that are excavated so that more coal ash can be used as fill are also considered CCR landfills.

However, EPA recognizes that we need to define or provide guidance on the meaning of "a large scale fill operation." EPA solicits comments on appropriate criteria to distinguish between legitimate beneficial uses and inappropriate operations, such as, for example, a comparison to features associated with relatively small landfills used by the utility industry, and whether characteristics of the materials would allow their safe use for a particular application in a particular setting (*i.e.,* characterize both the materials for the presence of leachable metals and the area where the materials will be placed).

### 4. Issues Associated With Unencapsulated Beneficial Uses

Since the May 2000 Regulatory Determination, the major issues associated with the placement of CCRs on the land for beneficial use has involved the Gambrills, MD site which involves a sand and gravel pit and the Battlefield golf course, which was a large scale fill operation. These are the types of operations that EPA is proposing would be subject to any disposal regulations proposed in today's rule. However, because the Gambrills and Battlefield sites involved the unencapsulated placement of CCRs on the land, it raises questions regarding the beneficial use of unencapsulated uses of CCRs; accordingly, in this section, the Agency presents information on the issues on which it is specifically soliciting comment.

First, we identify the array of environmental issues associated with unencapsulated uses. CCRs can leach toxic metals at levels of concern, so depending on the characteristics of the CCR, the amount of material placed, how it is placed, and the site conditions, there is a potential for environmental concern.

• The importance of characterizing CCRs prior to their utilization is that CCRs from certain facilities may be acceptable under particular beneficial

[71] *See* 40 CFR part 503.

[72] According to the ACAA survey, 80% of boiler slag—a vitreous material often used as an abrasive—is reused, although industry has reported that the demand for boiler slag products is high, and virtually all of the slag is currently used.

use scenarios, while the same material type from a different facility or from the same facility, but generated under different operating conditions (*e.g.,* different air pollution controls or configurations) may not be acceptable for the same management scenario. Changes in air pollution controls will result in fly ash and other CCRs presenting new contaminant issues (*e.g.,* hexavalent chromium from post-NOx controls). Additionally, as described in section I. F. 2, there is significant variability in total metals content and leach characteristics.

- The amount of material placed can significantly impact whether placement of unencapsulated CCRs causes environmental risks. There are great differences between the amount of material disposed of in a landfill and in beneficial use settings. For example, a stabilized fly ash base course for roadway construction may be on the order of 6 to 12 inches thick under the road where it is used—these features differ considerably from the landfill and sand and gravel pit situations where hundreds of thousands to millions of tons of CCRs are disposed of and for which damage cases are documented.
- Unencapsulated fly ash used for structural fill is moistened and compacted in layers, and placed on a drainage layer. By moistening and compacting the fly ash in layers, the hydraulic conductivity can be greatly reduced, sometimes achieving levels similar to liner systems. This limits the transport of water through the ash and thus acts to protect groundwater. The drainage layer prevents capillary effects and thus also limits the amount of water that remains in contact with the fly ash. Although EPA is not aware of the use of organosilanes for beneficial use operations in the U.S., if mixed with fly ash, it is reported to be able to essentially render the fly ash impermeable to water, and thus there may be emerging placement techniques that can also greatly influence the environmental assessment.
- Site conditions are important factors. Hydraulic conductivity of the subsurface, the rainfall in the area, the depth to groundwater, and other factors (*e.g.,* changes in characteristics due to the addition of advanced air pollution controls) are important considerations in whether a specific beneficial use will remain protective of the environment.

Second, EPA notes the work and research being done by states, federal agencies, and academics to assess, provide guidance on, or regulate to address the environmental issues that may be associated with beneficial use. In addition to the recent EPA research on constituent leaching from CCRs described earlier in the preamble, a few highlights include:

- Many states have beneficial use programs. The ASTSWMO 2006 Beneficial Use Survey Report states: "A total of 34 of the 40 reporting States, or 85 percent, indicated they had either formal or informal decision-making processes or beneficial use programs relating to the use of solid wastes." [73] (*http://www.astswmo.org/files/publications/solidwaste/2007BUSurveyReport11–30–07.pdf*) For example, Wisconsin's Department of Natural Resources has developed a regulation (NR 538 Wis. Adm. Code), which includes a five-category system to allow for the beneficial use of industrial by-products, including coal ash. The state has approved CCRs in a full range of uses, including road construction and agricultural uses.
- EPA and USDA are conducting a multi-year study on the use of FGD gypsum in agriculture. The results of that study should be available in late 2012.
- EPA developed an easy to use risk model for assessing the use of recycled industrial materials in highways. This model is shared with states to facilitate assessments to determine if such beneficial use projects will be environmentally protective.[74]
- There is also considerable study and research by states and academic institutions, which EPA views as valuable in not only guiding the parties to appropriate uses, but also in informing EPA. A few examples are:

○ Li L, Benson CH, Edil TB, Hatipoglu B. Groundwater impacts from coal ash in highways. Waste and Management Resources 2006;159(WR4):151–63.

○ Friend M, Bloom P, Halbach T, Grosenheider K, Johnson M. Screening tool for using waste materials in paving projects (STUWMPP). Office of Research Services, Minnesota Dept. of Transportation, Minnesota; 2004. Report nr MN/RC–2005–03.

○ Sauer JJ, Benson CH, Edil TB. Metals leaching from highway test sections constructed with industrial byproducts. University of Wisconsin—Madison, Madison, WI: Geo Engineering, Department of Civil and Environmental Engineering; 2005 December 27, Geo Engineering Report No. 05–21.

Overall, federal agencies, states, and others are doing a great amount of work to promote environmentally sound beneficial use practices, to advance our understanding, and to consider emerging science and practices. Furthermore, the beneficial use of CCRs is a world wide activity, so there is also considerable work and effort from around the globe. In Europe, nearly all CCRs are beneficially used, and when used are considered to be products rather than wastes. Sweden, for example, actively supports the use of CCRs in road construction, and has conducted long-term tests of its use in this manner.

While recognizing the many beneficial use opportunities for CCRs, EPA believes it is imperative to gather a full range of views on the issue of unencapsulated uses in order to ensure the protection of human health and the environment. EPA is fully prepared to reconsider our proposed approach for these uses if comments provide information and data to demonstrate that it is inappropriate. For example, previous risk analyses do not address many of the use applications currently being implemented, and have not addressed the changes to CCR composition with more advanced air pollution control methods and improved leachate characterization. In addition, some scientific literature indicates that the uncontrolled (*i.e.,* excessive) application of CCRs can lead to the potentially toxic accumulation of metals (*e.g.,* in agricultural applications [75] and as fill material [76]). Thus, while EPA does not want to negatively impact the legitimate beneficial use of CCRs unnecessarily, we are also aware of the need to fully consider the risks, management practices, state controls, research, and any other pertinent information. Thus, to help EPA determine whether to revise

[73] Part of EPA's efforts with the states is to support the development of a national database on state beneficial use determinations. Information on the beneficial use determination database can be found on the Northeast Waste Management Officials' Association (NEWMOA) Web site at *http://www.newmoa.org/solidwaste/bud.cfm.* This database helps states share information on beneficial use decisions providing for more consistent and informed decisions.

[74] *See* a Final Report titled, "Use of EPA's Industrial Waste Management Evaluation Model (IWEM) to Support Beneficial Use Determinations" at *http://www.epa.gov/partnerships/c2p2/pubs/iwem-report.pdf* and the Industrial Waste Management Evaluation Model (IWEM) at *http://www.epa.gov/osw/nonhaz/industrial/tools/iwem.*

[75] *See,* for example, "Effects of coal fly ash amended soils on trace element uptake in plant," S.S. Brake, R.R. Jensen, and J. M. Mattox, Environmental Geology, November 7, 2003 *available at http://www.springerlink.com/content/3c5gaq2qrkr5unvp/fulltext.pdf.*

[76] *See* information regarding the Town of Pines Groundwater Plume at *http://www.epa.gov/region5superfund/npl/sas_sites/INN000508071.htm. Also see* additional information for this site at *http://www.epa.gov/region5/sites/pines/#updates.*

its approach and regulate, for example, unencapsulated uses of CCRs on the land, we solicit comments on whether to regulate, and if so, the most appropriate regulatory approach to be taken. For example, EPA might consider a prohibition on these uses, except where, as part of a case-by-case, or material-by-material petition process where appropriate characterization of the material is used (including taking into account the pH to which the material will be exposed) and a risk assessment, approved by a regulatory Agency, shows that the risks were within acceptable ranges.[77] Moreover, if regulating these uses under the RCRA hazardous waste authority is deemed warranted, the risk assessment would have to be approved, through a notice-and-comment process, by EPA or an authorized state. EPA expects that the risk assessment would be based on actual leach data from the material. (*See* request for comment below on material characterization.)

In reaching its decision on whether to regulate unencapsulated uses, EPA would be interested in comments and data on the following:

- We would like comment on whether persons should be required to use a leaching assessment tool in combination with the Draft SW–846 leaching test methods described in Section I. F. 2 and other tools (*e.g.,* USEPA's *Industrial Waste Management Evaluation Model* (IWEM)) to aid prospective beneficial users in calculating potential release rates over a specified period of time for a range of management scenarios, including use in engineering and commercial applications using probabilistic assessment modeling.
- As discussed previously, EPA is working with USDA to study agricultural use of FGD gypsum to provide further knowledge in this area. The Agency is interested in comments relating to the focus of these assessments, the use of historical data, the impact of pH on leaching potential of metals, the scope of management scenarios, the variable and changing nature of CCRs, and variable site conditions. Commenters interested in the EPA/USDA effort should consider the characteristics of FGD gypsum (*see http://www.epa.gov/epawaste/partnerships/c2p2/pubs/fgdgyp.pdf*) and information on the current study (*see http://www.epa.gov/epawaste/partnerships/c2p2/pubs/fgd-fs.pdf*).
- If EPA determines that regulations are needed, should EPA consider removing the Bevill exemption for such unencapsulated uses and regulate these under RCRA subtitle C or should EPA develop regulations under RCRA subtitle D?
- If materials characterization is required, what type of characterization is most appropriate? If the CCRs exceed the toxicity characteristic at pH levels different from the TCLP, should they be excluded from beneficial use? When are total levels relevant? EPA solicits information and data on the extent to which states request and evaluate CCR characterization data prior to the use of unencapsulated CCRs (keeping in mind that EPA ORD studies generally show that measurement of total concentrations for metals do not correlate well with metal leachate concentrations).
- If regulations are developed, should they cover specific practices, for example, restricting fill operations to those that moisten and compact fly ash in layers to attain 95% of the standard Proctor maximum dry density value and provide a drainage layer? Are such construction practices largely followed now?
- Historically, EPA has proposed or imposed conditions on other types of hazardous wastes destined for land placement (*e.g.,* maximum application rates and risk-based concentration limits for cement kiln dust used as a liming agent in agricultural applications (*see* 64 FR 45639; August 20, 1999); maximum allowable total concentrations for non-nutritive and toxic metals in zinc fertilizers produced from recycled hazardous secondary materials (*see* 67 FR 48393; July 24, 2002). Comments are solicited as to whether EPA should establish standards or rely on implementing states to impose CCR-/site-specific limits based on front-end characterization that ensures individual beneficial uses remain protective.
- Whether to exclude from beneficial use unencapsulated uses in direct contact with water bodies (including the seasonal high groundwater table)?

### *E. Placement of CCRs in Minefilling Operations*

In today's proposal, EPA is not addressing its Regulatory Determination on minefilling, and instead will work with the OSM to develop effective federal regulations to ensure that the placement of coal combustion residuals in minefill operations is adequately controlled. In doing so, EPA and OSM will consider the recommendations of the National Research Council (NRC), which, at the direction of Congress, studied the health, safety, and environmental risks associated with the placement of CCRs in active and abandoned coal mines in all major U.S. coal basins. The NRC published its findings on March 1, 2006, in a report entitled "Managing Coal Combustion Residues (CCRs) in Mines," which is available at *http://books.nap.edu/openbook.php?isbn=0309100496.*

The report concluded that the "placement of CCRs in mines as part of coal mine reclamation may be an appropriate option for the disposal of this material. In such situations, however, an integrated process of CCR characterization, site characterization, management and engineering design of placement activities, and design and implementation of monitoring is required to reduce the risk of contamination moving from the mine site to the ambient environment." The NRC report recommended that enforceable federal standards be established for the disposal of CCRs in minefills to ensure that states have specific authority and that states implement adequate safeguards. The NRC Committee on Mine Placement of Coal Combustion Wastes also stated that OSM and its SMCRA state partners should take the lead in developing new national standards for CCR use in mines because the framework is in place to deal with mine-related issues. Consistent with the recommendations of the National Academy of Sciences, EPA anticipates that the U.S. Department of the Interior (DOI) will take the lead in developing these regulations. EPA will work closely with DOI throughout that process. Therefore, the Agency is not addressing minefilling operations in this proposed rule.

### *F. EPA Is Not Proposing To Revise the Bevill Determination for CCRs Generated by Non-Utilities*

In this notice, EPA is not proposing to revise the Bevill exclusion for CCRs generated at facilities that are not part of the electric power sector and which use coal as the fuel in non-utility boilers, such as manufacturing facilities, universities, and hospitals. The Agency lacks sufficient information at this time to determine an appropriate course of action for the wastes from these facilities.

Industries that primarily burn coal to generate power for their own purposes (*i.e.,* non-utilities), also known as combined heat and power (CHP) plants, are primarily engaged in business activities, such as agriculture, mining, manufacturing, transportation, and education. The electricity that they generate is mainly for their own use, but

[77] As part of the petition application, the petitioner would also need to demonstrate that the CCRs are being beneficially used.

any excess may be sold in the wholesale market.[78] According to the Energy Information Administration (EIA), CHPs produced 2.7% of the total electricity generated from coal combustion in 2007 [79] and burned 2.3% of the total coal consumed for electricity generation (24 million tons) [80] at 2,967 facilities.[81] EPA estimates that CHPs generate approximately 3 million tons of CCRs annually or an average of just over 1,000 tons per facility. This is in comparison to electric utilities, which generated 136 million tons of CCRs in 2008, or an average of approximately 275,000 tons per facility. In addition, these manufacturing facilities generate other types of waste, many of which are generated in much larger quantities than CCRs, and thus, they are likely to be mixed or co-managed together. As a result, the composition of any co-managed waste might be fundamentally different from the CCRs that are generated by electric utilities. Presently, EPA lacks critical data from these facilities sufficient to address key Bevill criteria such as current management practices, damage cases, risks, and waste characterization. Thus, EPA solicits information and data on CCRs that are generated by these other industries, such as volumes generated, characteristics of the CCRs, whether they are co-managed with other wastes generated by the industry, as well as other such information. In addition, EPA does not currently have enough information on non-utilities to determine whether a regulatory flexibility analysis would be required under the Regulatory Flexibility Act, nor to conduct one if it is necessary. Therefore, the Agency has decided not to assess these operations in today's proposal, and will instead focus on the nearly 98% of CCRs that are generated at electric utilities.

## V. Co-Proposed Listing of CCRs as a Special Waste Under RCRA Subtitle C and Special Requirements for Disposal of CCRs Generated by Electric Utilities

One of the alternatives in today's co-proposal is to add a new category of wastes that would be subject to regulation under subtitle C of RCRA, by adding to 40 CFR part 261, Subpart F—Special Wastes Subject to Subtitle C Regulations for CCRs destined for disposal. Under this alternative, the Agency further proposes to list CCRs destined for disposal as a special waste and CCRs would then be subject to regulation under 40 CFR parts 260 through 268 and 270 to 279 and 124, and subject to the notification requirements of section 3010 of RCRA. This listing would apply to all CCRs destined for disposal. This section provides EPA's basis for regulating CCRs under subtitle C of RCRA when disposed. As described in this preamble, the proposed listing would not apply to CCRs that are beneficially used (*see* section IV), CCRs that are part of a state or federally required cleanup that commenced prior to the effective date of the final rule (*see* section VI), or CCRs generated by facilities outside the electric power sector (*see* section IV).

### *A. What is the basis for listing CCRs as a special waste?*

Many of the underlying facts on which EPA would rely on to support its proposed special waste listing have been discussed in the previous sections, which lay out reasons why the Agency may decide to reverse the Bevill Regulatory Determination and exemption. Rather than repeat that discussion here, EPA simply references the discussion in the earlier sections. In addition, EPA would be relying on the various risk assessments conducted on CCRs to provide significant support for a listing determination. EPA's risk assessment work includes four analyses: (1) U.S. EPA 1998, "Draft Final Report: Non-groundwater Pathways, Human Health and Ecological Risk Analysis for Fossil Fuel Combustion Phase 2 (FFC2)" (June 5, 1998) referred to hereafter as the 1998 Non-groundwater risk assessment (available in docket # F–1999–FF2P–FFFFF in the RCRA Information Center, and on the EPA Web site at *http://www.epa.gov/osw/nonhaz/industrial/special/fossil/ngwrsk1.pdf*); (2) preliminary groundwater and ecological risk screening of selected constituents in U.S. EPA 2002, "Constituent Screening for Coal Combustion Wastes," (contractor deliverable dated October 2002, available in docket EPA–HQ–RCRA–2006–0796 as Document # EPA–HQ–RCRA–2006–0796–0470); referred to hereafter as the 2002 screening analysis; (3) U.S. EPA 2010a, "Human and Ecological Risk Assessment of Coal Combustion Wastes" (April 2010) available in the docket for this proposed rule, and referred to hereafter as the 2010 risk assessment; and (4) U.S. EPA 2010b, "Inhalation of Fugitive Dust: A Screening Assessment of the Risks Posed by Coal Combustion Waste Landfills—DRAFT" available in the docket for this proposed rule. As explained below, the 2010 risk assessment correlates closely with the listing criteria in EPA's regulations.

#### 1. Criteria for Listing CCRs as a Special Waste and Background on 2010 Risk Assessment

In making listing determinations under subtitle C of RCRA, the Agency considers the listing criteria set out in 40 CFR 261.11. EPA considered these same criteria in making the proposed special waste listing decision.

The criteria provided in 40 CFR 261.11(a)(3) include eleven factors that EPA must consider in determining whether the waste poses a "substantial present or potential hazard to human health and the environment when improperly treated, stored, transported or disposed of or otherwise managed." Nine of these factors, as described generally below, are incorporated or are considered in EPA's risk assessment for the waste streams of concern:

- Toxicity (Sec. 261.11(a)(3)(i)) is considered in developing the health benchmarks used in the risk assessment modeling.
- Constituent concentrations (Sec. 261.11(a)(3)(ii)) and the quantities of waste generated (Sec. 261.11(a)(3)(viii)) are combined in the calculation of the levels of the CCR constituents that pose a hazard.
- Potential of the hazardous constituents and any degradation products to migrate, persist, degrade, and bioaccumulate (sections 261(a)(3)(iii), 261.11(a)(3)(iv), 261.11(a)(3)(v), and 261.11(a)(3)(vi)) are all considered in the design of the fate and transport models used to determine the concentration of the contaminants to which individuals are exposed.
- Two of the factors, plausible mismanagement and the regulatory actions taken by other governmental entities based on the damage caused by the constituents ((§§ 261.11(a)(3)(vii) and 261.11(a)(3)(x)), were used in establishing the waste management scenario(s) modeled in the risk assessment.

One of the remaining factors of the eleven listed in 261.11(a)(3) is consideration of damage cases (§ 261.11(a)(3)(ix)); these are discussed in section II. C. The final factor allows EPA to consider other factors as appropriate (§ 261.11(a)(3)(xi)).

As discussed earlier, EPA conducted analyses of the risks posed by CCRs and determined (subject to consideration of public comment) that it would meet the criteria for listing set forth in 40 CFR 261.11(a)(3). The criteria for listing determinations found at 40 CFR part

[78] Energy Information Administration (*http://www.eia.doe.gov/cneaf/electricity/page/prim2/toc2.html#non*).

[79] *http://www.eia.doe.gov/cneaf/electricity/epa/epaxlfile1_1.pdf.*

[80] *http://www.eia.doe.gov/cneaf/electricity/epa/epaxlfile4_1.pdf.*

[81] *http://www.eia.doe.gov/cneaf/electricity/epa/epaxlfile2_3.pdf.*

261.11 require the Administrator to list a solid waste as a hazardous waste (and thus subject to subtitle C regulation) upon determining that the solid waste meets one of three criteria in 40 CFR 261.11(a)(1)-(3). As just noted, the criteria considered by EPA in determining that listing is warranted pursuant to 40 CFR 261.11(a)(3) are:

- Whether the waste contains any of the toxic constituents listed in Appendix VIII of 40 CFR part 261 (Hazardous Waste Constituents) and, after considering the following factors, the Administrator concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed:

(i) The nature of the toxicity presented by the constituent.

(ii) The concentration of the constituent in the waste.

(iii) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph (vii).

(iv) The persistence of the constituent or any toxic degradation product of the constituent.

(v) The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.

(vi) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.

(vii) The plausible types of improper management to which the waste could be subjected.

(viii) The quantities of the waste generated at individual generation sites or on a regional or national basis.

(ix) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.

(x) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.

(xi) Such other factors as may be appropriate.

In 1994, EPA published a policy statement regarding how the Agency uses human health and environmental risk estimates in making listing decisions, given the uncertainty that can co-exist with risk estimates. Specifically:

"* * * the Agency's listing determination policy utilizes a "weight of evidence" approach in which risk is a key factor * * * however, risk levels themselves do not necessarily represent the sole basis for a listing. There can be uncertainty in calculated risk values and so other factors are used in conjunction with risk in making a listing decision. * * *. EPA's current listing determination procedure * * * uses as an initial cancer risk "level of concern" a calculated risk level of $1 \times 10^{-5}$ (one in one hundred thousand) * * * (1) Waste streams for which the calculated high-end individual cancer-risk level is $1 \times 10^{-5}$ or higher generally are considered candidates for a list decision * * * (2) Waste streams for which these risks are calculated to be $1 \times 10^{-4}$ or higher * * * generally will be considered to pose a substantial present or potential hazard to human health and the environment and generally will be listed as hazardous waste. Such waste streams fall into a category presumptively assumed to present sufficient risk to require their listing as hazardous waste. However, even for these waste streams there can in some cases be factors which could mitigate the high hazard presumption. These additional factors * * * will also be considered by the Agency in making a final determination. (3) Waste streams for which the calculated high-end individual cancer-risk level is lower than $1 \times 10^{-5}$ generally are considered initial candidates for a no-list decision. (4) Waste streams for which these risks are calculated to be $1 \times 10^{-6}$ or lower, and lower than 1.0 HQs or EQs for any non-carcinogens, generally will be considered not to pose a substantial present or potential hazard to human health and the environment and generally will not be listed as hazardous waste. Such waste streams fall into a category presumptively assumed not to pose sufficient risk as to require their listing as hazardous waste. However, even for these waste streams, in some cases, there can be factors that could mitigate the low hazard presumption. These also will be considered by the Agency in making a final determination. (5) Waste streams where the calculated high-end individual cancer-risk level is between $1 \times 10^{-4}$ and $1 \times 10^{-6}$ fall in the category for which there is a presumption of candidacy for either listing (risk > $10^{-5}$) or no listing (risk < $10^{-5}$). However, this presumption is not as strong as when risks are outside this range. Therefore, listing determinations for waste streams would always involve assessment of the additional factors discussed below. * * * Additional factors. b. The following factors will be considered in making listing determinations, particularly for wastes falling into the risk range between $1 \times 10^{-4}$ and $1 \times 10^{-6}$. (1) Certainty of waste characterization; (2) Certainty in risk assessment methodology; (3) Coverage by other regulatory programs; (4) Waste volume; (5) Evidence of co-occurrence; (6) Damage cases showing actual impact to human health or the environment; (7) Presence of toxicant(s) of unknown or unquantifiable risk." *See* 59 FR 66075–66077, December 22, 1994.

*B. Background on EPA's 2010 Risk Assessment*

1. Human Health Risks

Individuals can be exposed to the constituents of concern found in CCRs through a number of exposure routes. Potential contaminant releases from landfills and surface impoundments include: leaching to ground water; overland transport from erosion and runoff; and air emissions. The potential of human exposure from any one of these exposure pathways for a particular chemical is dependent on the physical and chemical characteristics of the chemical, the properties of the waste stream, and the environmental setting. EPA has conducted a peer-reviewed risk assessment of potential human health risks from CCR constituents leaching to groundwater that subsequently migrate either to a nearby drinking water well, or to nearby surface water, and is ingested as drinking water or through fish consumption (U.S. EPA 2010a). EPA has also performed preliminary analyses of human health effects from CCR constituents that have eroded or have run off from CCR waste management units (U.S. EPA 2002), and of human health effects from breathing windblown particulate matter from CCR landfill disposal operations (the 1998 risk assessment and U.S. EPA 2010b).

Longstanding EPA policy is for EPA risk assessments to include a characterization of the risks at two points on a distribution (*i.e.,* range) of risk estimates: a central tendency estimate that represents conditions likely to be encountered in a typical exposure situation, and a high end estimate that represents conditions likely to be encountered by individuals with higher exposures (U.S. EPA 1995).[82] Examples of factors that would influence a nearby resident's exposure are the residence's distance from a CCR waste management unit, and an individual's behavior or activity patterns. In the 2010 risk assessment, the high end risk estimates are the 90th percentile estimates from a probabilistic analysis.

The comparisons that EPA used in this rule to judge whether either a high end or central tendency estimated risk

[82] *Guidance for Risk Characterization,* U.S. Environmental Protection Agency, 1995; accessible at *http://www.epa.gov/OSA/spc/pdfs/rcguide.pdf,* which states that "For the Agency's purposes, high end risk descriptors are plausible estimates of the individual risk for those persons at the upper end of the risk distribution," or conceptually, individuals with "exposure above about the 90th percentile of the population distribution". As suggested in the *Guidance,* we also provide 50th percentile results as the central tendency estimate of that risk distribution.

is of concern are the risk criteria discussed in the 1995 policy. As noted under that policy, for an individual's cancer risk, the risk criteria are in the range of $1 \times 10^{-6}$, or one in one million "excess" (above and beyond pre-existing risk) probability of developing cancer during a lifetime, to $1 \times 10^{-4}$ (one in ten thousand),[83] with $1 \times 10^{-5}$ (one in one hundred thousand) being the "point of departure" for listing a waste and subjecting it to regulation under subtitle C of RCRA.[84] For human non-cancer hazard, the risk criterion is an estimated exposure above the level at which no adverse health effects would be expected to occur (expressed as a ratio of the estimated exposure to the exposure at which it is likely that there would be no adverse health effects; this ratio is also called a hazard quotient (HQ), and a risk of concern equates to a HQ greater than one, or, in certain cases of drinking water exposure, water concentrations above the MCL established under the Safe Drinking Water Act.

The exposure pathways for humans that EPA has evaluated for CCR landfills and surface impoundments are nearby residents' groundwater ingestion and air inhalation, and fish consumption by recreational fishers.

2. Ecological Risks

For ecological non-cancer hazards that are modeled, the risk criterion is a hazard quotient that represents impacts on individual organisms, with a risk of concern being an estimated HQ greater than one. In some instances, EPA also considered documented evidence of ecological harm, such as field studies published in peer-reviewed scientific literature. Such evidence is often sufficient to determine adverse ecological effects in lieu of or in addition to modeling potential ecological risks.

Two types of exposures can occur for ecological receptors: exposures in which ecological receptors inhabit a waste management unit directly, and exposures in which CCRs or its chemical constituents migrate, or move, out of the waste management unit and contaminate nearby soil, surface water, or sediment.

### *C. Consideration of Individual Listing Criteria*

CCRs contain the following Appendix VIII toxic constituents: antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, and thallium. These Appendix VIII constituents are frequently found in CCRs, as has been reported by the U.S. EPA (1988, 1999, 2002, 2006, 2008, and 2010).[85] These are discussed below with respect to the factors outlined in § 261.11(a)(3)(i)–(xi), and the Agency's findings. In the following discussion of the eleven listing factors, we combined factors iii (Migration), iv (Persistence), v (Degradation) and vi (Bioaccumulation); and factors vii (Plausible Types of Mismanagement), viii (Quantities of the Waste Generated), and ix (Nature and Severity of Effects from Mismanagement) for a more lucid presentation of our arguments.

1. Toxicity—Factor (i)

Toxicity is considered in developing the health benchmarks used in risk assessment modeling. The Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs,[86] the EPA Integrated Risk Information System (IRIS),[87] and the Toxicology Data Network (TOXNET) of the National Institutes of Health [88] are all sources of toxicological data on the Appendix VIII hazardous constituents found in CCRs. (The information from these data sources on the toxicity of the metals identified is included in the docket to today's proposed rule.) Two types of ingestion benchmarks are developed. For carcinogens, a cancer slope factor (CSF) is developed. A CSF is the slope of the curve representing the relationship between dose and cancer risk. It is used to calculate the probability that the toxic nature of a constituent ingested at a specific daily dose will cause cancer. For non-carcinogens, a reference dose (RfD) is developed. The RfD (expressed in units of mg of substance/kg body weight-day) is defined as an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. The constituents of concern associated with CCRs include antimony, arsenic, barium, beryllium, cadmium, hexavalent chromium, lead, mercury, nickel, selenium, silver, and thallium. Based on the information in ASTDR's Tox FAQs, EPA's IRIS system and TOXNET, the Agency believes that the metals identified are sufficiently toxic that they are capable of posing a substantial present or potential hazard to human health and the environment when improperly treated, stored, transported disposed of, or otherwise managed. A brief summary of the toxic effects associated with these constituents is presented below, including for the four Appendix VIII hazardous constituents that were estimated in the draft groundwater risk assessment to pose high-end (90th percentile) risks at or above the risk criteria in one or more situations, and that were also found to present risk to human health in one or more damage cases (arsenic, cadmium, lead, and selenium):

*Arsenic.* Ingestion of arsenic has been shown to cause skin cancer and cancer in the liver, bladder and lungs.[89]

*Antimony.* Antimony is associated with altered glucose and cholesterol levels, myocardial effects, and spontaneous abortions. EPA has set a limit of 145 ppb in lakes and streams to protect human health from the harmful effects of antimony taken in through water and contaminated fish and shellfish.[90]

*Barium.* Barium has been found to potentially cause gastrointestinal disturbances and muscular weaknesses when people are exposed to it at levels above the EPA drinking water standards for relatively short periods of time.[91]

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[83] *See* 40 CFR 300.430.

[84] As noted previously, EPA's hazardous waste listing determination policy is described in the notice of proposed rulemaking for wastes from the dye and pigment industries at 59 FR 66075–66077.

[85] Full references: U.S. EPA (Environmental Protection Agency). 1988. *Wastes from the Combustion of Coal by Electric Utility Power Plants—Report to Congress.* EPA–530–SW–88–002. U.S. EPA Office of Solid Waste and Emergency Response. Washington, DC. November.

U.S. EPA (Environmental Protection Agency). 1999. *Report to Congress: Wastes from the Combustion of Fossil Fuels—Volume II,* EPA 530–S–99–010. Office of Solid Waste. March.

U.S. EPA (Environmental Protection Agency). 2002. *Constituent Screening for Coal Combustion Wastes.* Draft Report prepared by Research Triangle Institute for Office of Solid Waste, Washington, DC. September.

U.S. EPA (Environmental Protection Agency). 2006. *Characterization of Mercury-Enriched Coal Combustion Residuals from Electric Utilities Using Enhanced Sorbents for Mercury Control.* EPA 600/R–06/008. Office of Research and Development. Research Triangle Park, NC. January.

U.S. EPA (Environmental Protection Agency). 2008. *Characterization of Coal Combustion Residuals from Electric Utilities Using Wet Scrubbers for Multi-Pollutant Control.* EPA/600/R–08/077. Report to U.S. EPA Office of Research and Development, Air Pollution Control Division. Research Triangle Park, NC. July.

U.S. EPA (Environmental Protection Agency). 2010. *Human and Ecological Risk Assessment of Coal Combustion Wastes.* Office of Resource Conservation and Recovery, Washington, DC. April.

[86] *http://www.atsdr.cdc.gov/toxfaq.html.*

[87] *http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showSubstanceList&list_type=alpha&view=B.*

[88] *http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.*

[89] ATSDR ToxFAQs. *Available at: http://www.atsdr.cdc.gov/toxfaq.html.*

[90] *Ibid.*

[91] *Ibid.*

*Beryllium.* Beryllium can be harmful if you breathe it. If beryllium air levels are high enough (greater than 1,000 ug/m$^3$), an acute condition can result. This condition resembles pneumonia and is called acute beryllium disease.[92]

*Cadmium and Lead.* Cadmium and lead have the following effects: kidney disease, lung disease, fragile bone, decreased nervous system function, high blood pressure, and anemia.[93]

*Hexavalent Chromium.* Hexavalent chromium has been shown to cause lung cancer when inhaled.[94]

*Mercury.* Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus.[95]

*Nickel.* The most common harmful health effect of nickel in humans is an allergic reaction. Approximately 10–20% of the population is sensitive to nickel. The most common reaction is a skin rash at the site of contact. Less frequently, some people who are sensitive to nickel have asthma attacks following exposure to nickel. Some sensitized people react when they consume food or water containing nickel or breathe dust containing it.[96]

*Selenium.* Selenium is associated with selenosis.[97]

*Silver.* Exposure to high levels of silver for a long period of time may result in a condition called arygria, a blue-gray discoloration of the skin and other body tissues.[98]

*Thallium.* Thallium exposure is associated with hair loss, as well as nervous and reproductive system damage.[99]

2. Concentration of Constituents in Waste—Factor (ii)

A CCR constituent database was developed for the Regulatory Determination in May 2000 and in followup work leading to today's co-proposal. This database contained data on the total CCR constituents listed above, as well as many others, with the Appendix VIII constituents found in varying concentrations (*see* Table 6).[100]

TABLE 6—TOTAL METALS CONCENTRATIONS FOUND IN CCRS

[ppm]

| Constituent | Mean | Minimum | Maximum |
|---|---|---|---|
| Antimony | 6.32 | 0.00125 | 3100 |
| Arsenic | 24.7 | 0.00394 | 773 |
| Barium | 246.75 | 0.002 | 7230 |
| Beryllium | 2.8 | 0.025 | 31 |
| Cadmium | 1.05 | 0.000115 | 760.25 |
| Chromium | 27.8 | 0.005 | 5970 |
| Lead | 25 | 0.0074 | 1453 |
| Mercury | 0.18 | 0.000035 | 384.2 |
| Nickel | 32 | 0.0025 | 54055 |
| Selenium | 2.4075 | 0.0002 | 673 |
| Silver | 0.6965 | 0 | 3800 |
| Thallium | 1.75 | 0.09 | 100 |

The data in Table 6 show that many of these metals are contained in CCRs at relatively high concentrations, such that if CCRs were improperly managed, they could leach out and pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed. The risk assessment that was conducted confirms this finding, as do the many damage cases that have been documented and presented in today's co-proposal, including documents contained in the docket to today's proposed rule.

3. Migration, Persistence, Degradation, and Bioaccumulation—Factors (iii), (iv), (v), and (vi)

The potential of the hazardous constituents and any degradation products to migrate, persist, degrade and/or bioaccumulate in the environment are all factors that EPA considered and evaluated in the design of the fate and transport models that were used in assessing the concentrations of the toxic constituents to which humans and ecological receptors may be exposed. However, before discussing the hazardous constituents in the fate and transport models, the Agency would note that the toxic constituents for CCRs are all toxic metals—antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver and thallium, which do not decompose or degrade with the passage of time. Thus, these toxic metals will persist in the environment for very long periods of time, and if they escape from the disposal site, will continue to provide a potential source of long-term contamination.

The purpose of the risk assessment was to use the fate and transport models to assess likely migration of the CCR toxic constituents from different waste types through different exposure pathways, to receptors and to predict whether CCRs under different management scenarios may produce risks to human health and the environment. To estimate the risks posed by the management of CCRs in landfills and surface impoundments, the risk assessment estimated the release of the CCR toxic constituents from landfills and surface impoundments, the concentrations of these constituents in environmental media surrounding coal-fired utility power plants, and the risks that these concentrations pose to human and ecological receptors. The risk estimates were based on a groundwater fate and transport model in which constituents leached to groundwater consumed as drinking water, migrated to surface water and bioaccumulated in recreationally caught and consumed fish, and on direct ecological exposure. The specific 50th and 90th percentile risk assessment results for relevant Appendix VIII constituents are discussed below. While these results are based on a subset of CCR disposal units, they are likely representative of the risks posed by other similar disposal units. As discussed previously, the risk

[92] *Ibid.*

[93] *Ibid.*

[94] *Ibid.*

[95] *Ibid.*

[96] *Ibid.*

[97] *Ibid.*

[98] *Ibid.*

[99] *Ibid.*

[100] Additional data on the waste characteristics of fly ash and FGD are presented in section I.F.2.

assessment demonstrates that if CCRs are improperly managed, they have the potential to present a hazard to human health and the environment above a $1 \times 10^{-4}$ to $1 \times 10^{-6}$ cancer range or an HQ of 1. A detailed discussion of the modeling and risks from this pathway can be found in U.S. EPA 2009a (available in the docket for this proposal). This report presents the methodology, results, and uncertainties of EPA's assessment of human health risks resulting from groundwater contamination from coal-fired electric utilities.

*Ingestion of Groundwater:* The risk assessment predicted that CCRs pose an estimated trivalent arsenic cancer risk of 4 in 10,000 for unlined landfills and 2 in 10,000 for clay-lined landfills at the 90th percentile. No cancer risks above 1 in 100,000 were found at the 50th percentile. The 90th percentile results also estimated that thallium is ingested at three times the reference dose and antimony at twice the reference dose for unlined landfills. For clay-lined landfills, only thallium is estimated to exceed the reference dose, with a 90th percentile ingestion of twice the reference dose.

CCRs co-managed with coal refuse in landfills are estimated to pose arsenic cancer risks of 5 in 10,000 for an unlined landfill and 2 in 10,000 for a clay-lined landfill at the 90th percentile. EPA estimates that arsenic poses a 2 in 100,000 risk of cancer at the 50th percentile for unlined landfills, but poses cancer risks of less than 1 in 100,000 for clay or composite-lined landfills. For CCRs co-managed with coal refule, thallium is estimated at two times the reference dose in unlined landfills at the 90th percentile, but did not exceed the reference dose at the 0th percentile for any liner type.

For unlined landfills managing FBC waste, arsenic is estimated to have a cancer risk of three in one hundred thousand at the 90th percentile. For clay-lined landfills managing FBC waste, arsenic is estimated to have a cancer risk of six in one hundred thousand at the 90th percentile, while thallium is estimated to have an HQ of 4, and antimony is estimated to have an HQ of 3.

The Appendix VIII constituents in CCRs managed in landfills are not all estimated to arrive at the drinking water well at the same time. For unlined landfills, the median number of years until peak well water concentrations are estimated to occur is approximately 2,800 to 9,700 years for arsenic, 2,600 to 10,000 years for selenium, and 2,300 years for thallium. For clay-lined landfills, the median estimated time until peak well concentrations is approximately 4,000 to 10,000 years for arsenic, 5,100 to more than 10,000 years for selenium, and 4,300 years for thallium. Of the contaminated groundwater plumes that are estimated to reach the receptor wells from composite-lined units, the median time to peak well concentration as not estimated to sour in the 10,000 year time period that was modeled.[101]

For surface impoundments, the risk estimates differ. CCRs managed alone, that is, without coal refuse in the same impoundment, are found to pose an arsenic cancer risk of 2 in 1,000 for unlined surface impoundments and 9 in 10,000 for clay-lined surface impoundments at the 90th percentile. For unlined surface impoundments at the 90th percentile, selenium's HQ is two and lead's is three. At the 50th percentile, none of the constituents assessed for non-cancer effects exceed their reference dose in any scenario, but arsenic did pose estimated cancer risks of 1 in 10,000 and 6 in 100,000 for unlined and clay-lined units, respectively. For the surface impoundments with composite liners, arsenic did not exceed cancer risks of 1 in 100,000, nor did selenium exceed its reference dose.

Co-disposed CCRs and coal refuse managed in surface impoundments resulted in the highest risks. For the 90th percentile, arsenic's estimated cancer risk is 2 in 100 and 7 in 1,000 for unlined and clay-lined surface impoundments, respectively.[102] At the 50th percentile, these units still resulted in estimated arsenic cancer risks of 6 in 10,000 for the unlined surface impoundment and 2 in 10,000 for the clay-lined surface impoundment. Cadmium and lead both are estimated to exceed the reference dose by nine times at the 90th percentile for unlined surface impoundments. In clay-lined surface impoundments, cadmium has an estimated cadmium HQ of 3. When managed in surface impoundments with composite liners, these constituents' estimated cancer risks did not exceed 1 in 100,000, nor are they estimated to exceed their reference doses.

As with landfills, the modeling shows differing arrival times of various constituents at the modeled well locations. Due to differences in behaviors when interacting in soil, some chemical constituents move more quickly than others through the subsurface environment. For unlined surface impoundments, the median number of years until peak well water concentrations would occur is estimated to be 74 years for hexavalent selenium and 78 years for arsenic. For clay-lined surface impoundments, the median number of years was estimated to be 90 years for hexavalent selenium and 110 years for trivalent arsenic. Of the plumes that did reach the receptor wells from composite-lined units,[103] the median number of years was estimated to be 4,600 years for hexavalent selenium and 8,600 years for trivalent arsenic.

While hexavalent chromium, and nickel were not modeled using the fate and transport models, they did show the potential for excess risk at the screening stage.[104] Risk attenuation factors were developed for each of these constituents at the 50th and 10th percentiles. Here, attenuation refers to the dilution of the concentration of a constituent. Thus, the 10th percentile (not the 90th percentile) was developed to represent the high-end risks. These risk attenuation factors were calculated by dividing the screening risk results by the full-scale risk results, across all unit types combined, for the constituents modeled in the full-scale assessment. Using the risk attenuation factors, none of the constituents were estimated to exceed an HQ of 1 at either the 50th or 10th percentile for landfills. For surface impoundments, hexavalent chromium was estimated to exceed an HQ of 1 at the 50th percentile, while hexavalent chromium was estimated to exceed an HQ of 1 at the 10th percentile. The HQ for nickel under the surface

[101] The risk model used by EPA evaluates conditions over a 10,000 year period, and considers constituent concentrations during that period. In some cases, peak concentrations do not occur during the 10,000 year period.

[102] Including data with very high leach levels in surface impoundments where pyritic wastes were managed. As mentioned earlier, management of CCRs with coal refuse may have changed, and some pore water data from the coal refuse may not represent the management of these materials today. EPA has solicited comments on these issues.

[103] In other words, based on the results from this subset of the total number of Monte Carlo realizations.

[104] Previous risk assessment results for CCR (U.S. EPA, 1998) indicated concern for the groundwater pathway and limited concern for aboveground pathways for human and ecological receptors. The primary purpose of subsequent risk analyses was to update those results by incorporating new waste characterization data received since 1998 and by applying current data and methodologies to the risk analyses. The initial step in this process is screening and constituent selection for a more detailed analysis. The goal of screening is to identify CCR constituents, waste types, receptors, and exposure pathways with risks below the level of concern and eliminate those combinations from further analysis. The screening analysis (U.S. EPA, 2002) compared the 90th percentile leachate values directly to the human health benchmarks identified above. In other words, it was assumed that a human receptor was drinking leachate directly from a CCR landfill or surface impoundment with no attenuation or variation in exposure.

impoundment scenario was less than 1 using the 50th and 10th percentile values. However, the use of risk attenuation factors in place of probabilistic fate and transport modeling increases the uncertainty associated with these results. This analysis was conducted only for the drinking water exposure pathway.

*Consumption of Recreationally Caught Fish:* For the unlined, clay-lined, or composite-lined landfills, none of the modeled Appendix VIII hazardous constituents posed a cancer risk greater than 1 in 100,000, nor did they exceed their reference doses. However, for surface impoundments co-disposing of CCRs with coal refuse, trivalent arsenic's 90th percentile estimates are 3 in 100,000 and 2 in 100,000 excess cancer risk for unlined and clay-lined units, respectively. Pentavalent arsenic's 90th percentile estimate is 2 in 100,000 excess cancer risk for unlined impoundments. For all other liner and management unit scenarios at the 90th percentile, and all scenarios at the 50th percentile, there were no arsenic cancer risks above 1 in 100,000. Hexavalent selenium is estimated to result in exposures at three times the reference dose and twice the reference dose in the unlined and clay-lined surface impoundment scenarios, respectively, at the 90th percentile. However, selenium is not estimated to exceed the reference dose in the composite lined scenario at the 90th percentile, or any scenario at the 50th percentile.

*Particulate Matter Inhalation:* Air emissions from CCR disposal and storage sites can originate from waste unloading operations, spreading and compacting operations, the re-suspension of particulates from vehicular traffic, and from wind erosion. Air inhalation exposures may cause adverse human health effects, either due to inhalation of small-diameter (less than 10 microns) "respirable" particulate matter that causes adverse effects ($PM_{10}$ and smaller particles which penetrate to and potentially deposit in the thoracic regions of the respiratory tract), which particles are associated with a host of cardio and pulmonary mortality and morbidity effects. *See e.g.* 71 FR at 61151–62 and 61178–85 (Oct. 6, 2006); *see* also 40 CFR 50.6 and 50.13 (National Ambient Air Quality Standards for thoracic coarse particles and fine particles).

To evaluate the potential exposure of residents to particulate matter that live near landfills that have disposed of CCRs, EPA has performed a screening-level analysis using the SCREEN3 model. This analysis, in *Inhalation of Fugitive Dust: A Screening Assessment of the Risks Posed by Coal Combustion Waste Landfills—DRAFT* (U.S. EPA 2010b, copy of which is in the docket for this proposed rule), indicates that, without fugitive dust controls, there could be exceedances of the National Ambient Air Quality Standards (NAAQS) for fine particulate matter in the air at residences near CCR landfills. EPA requests comment and data on the screening analysis, on the results of any ambient air monitoring for particulate matter that has been conducted, where air monitoring stations are located near CCR landfills, along with information on any techniques, such as wetting, compaction, or daily cover that may be employed to reduce such exposures.

A description of the modeling and risks from this pathway for disposal of CCRs in landfills and surface impoundments can be found in the Draft Final Report: Non-ground Water Pathways, Human Health and Ecological Risk Analysis for Fossil Fuel Combustion Phase 2 (FFC2); June 5, 1998.[105] This analysis did not address the issue of enrichment of toxic constituents present in the finer, inhalable fraction of the overall particulate matter size distribution,[106] but used the total constituent concentrations to represent the concentrations of constituents present on the inhaled particulate matter. Based on the analysis, at landfills, the highest estimated risk value was an individual excess lifetime risk of 4 in one million for the farmer, due to inhalation of chromium (all chromium present in the particulate matter was assumed to be in the more toxic, hexavalent form). For surface impoundments, the highest risk value was 2 in one million for the farmer (again assuming all chromium present was hexavalent). The Agency requests comment on the analysis, as presented in the draft final report, as well as any data, including air monitoring data that may be available regarding the potential for residents to be exposed to toxic constituents by this exposure pathway.

*Ecological Exposure:* Where species were directly exposed to surface impoundments, the risk assessment found ecological risks due to selenium, silver, nickel, chromium, arsenic, cadmium, barium, lead, and mercury. For scenarios where species were exposed to constituents that had migrated from the groundwater to surface water and sediment, ecological risk exceedances were found for lead, selenium, arsenic, barium, antimony, and cadmium at the 90th percentile, but not at the 50th percentile. EPA's risk assessment, confirmed by the existing damage cases and field studies published in the peer-reviewed scientific literature, show elevated selenium levels in migratory birds, and elevated contaminant levels in mammals as a result of environmental uptake, fish deformities, and inhibited fish reproductive capacity. Because of the large size of these management units, many being 100's of acres to one that is about 2,600 acres, receptors can often inhabit these waste management units. There are a number of recent references in the peer-reviewed scientific literature specific to CCRs managed in surface impoundments that confirm the 1998 risk assessment results and provide additional pertinent information of potential ecological damage. Hopkins, et al. (2006) [107] observed deformities and reproductive effects in amphibians living on or near CCR disposal sites in Georgia. Rowe, et al. (2002) [108] provided a thorough review of laboratory and field studies that relate to the impact of CCR surface impoundment management practices' on aquatic organisms and communities. Examples of studies cited in Rowe, et al. (2002) that illustrates the impact of CCRs on aquatic organisms in direct contact with surface impoundment waters and/or sediments include Benson and Birge (1985),[109] Coutant, et al. (1978) [110] and Rowe, et al. (2001),[111] while examples of studies cited in Rowe, et al. 2002 that illustrates the impact of CCRs on aquatic organisms in water bodies near CCR surface

[105] *http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/ngwrsk1.pdf.*

[106] *See,* for example, Vouk, V. and Piver, W. "Metallic Elements in Fossil Fuel Combustion Products: Amounts and Form of Emissions and Evaluation of Carcinogenicity and Mutagenicity." Env Health Perspec 1983:47(201–225).

[107] Hopkins, W.A., S.E. DuRant, B.P. Staub, C.L. Rowe, and B.P. Jackson. 2006. Reproduction, embryonic development, and maternal transfer of contaminants in the amphibian Gastrophryne carolinensis. *Environmental Health Perspectives.* 114(5):661–666.

[108] Rowe, C., Hopkins, W., Congdon, G. "Ecotoxicological Implications of Aquatic Disposal of Coal Combustion Residuals in the United States: A Review." Env Monit Assess 2002: 80(270–276).

[109] Benson, W. and Birge, W. "Heavy metal tolerance and metallothionein induction in fathead minnows: results from field and laboratory investigations." Environ Toxicol Chem 1985:4(209–217).

[110] Coutant, C., Wasserman, C., Chung, M., Rubin, D., Manning, M. "Chemistry and biological hazard of a coal-ash seepage stream." J. Water Poll. Control Fed. 1978:50(757–743).

[111] Rowe C., Hopkins, W., and Coffman, V. "Failed recruitment of southern toads (Bufo terrestris) in a trace-element contaminated breeding habitat: direct and indirect effects that may lead to a local population sink." Arch. Environ. Contam. Toxicol. 2001:40(399–405).

impoundments include Lemly (1993),[112] Sorensen, et al. (1982) [113] and (1988).[114] This latter category may reflect CCR impacts attributable to three constituent migration mechanisms: (1) NPDES-permitted discharges from impoundments; (2) overtopping of impoundments; and (3) groundwater-to-surface-water discharges (modeled in US EPA 2010a), as well as other, non-CCR-related, sources of pollutants.

Although chromium, beryllium, and silver were not modeled, they were analyzed using dilution attenuation factors developed for the 50th and 10th percentiles in the same manner as described above. The only exceedance of the HQ of 1 was for silver at the 10th percentile under the landfill scenario. The only exceedances of the ecological criteria for surface impoundments of the 40 CFR part 261 Appendix VIII constituents was for chromium at the 10th percentile. Since full-scale modeling was not conducted, the results for these constituents are uncertain.

4. Plausible Types of Mismanagement, Quantities of the Waste Generated, Nature and Severity of Effects From Mismanagement—Factors (vii), (viii) and (ix)

As discussed earlier, approximately 46 million tons of CCRs were managed in calendar year 2008 in landfills (34%) and nearly 29.4 million tons were managed in surface impoundments (22%).[115] EPA has estimated that in 2004, 69% of the CCR landfills and 38% of the CCR surface impoundments had liners. As shown in the risk assessment and damage cases, the disposal of CCRs into unlined landfills and surface impoundments is likely to pose significant risks to human health and the environment. Additionally, documented damage cases have helped to confirm the actuality and magnitude of risks posed by these unlined disposal units.

The CCR waste stream is generated in very large volumes and is increasing. The ACAA estimates that the production of CCRs has increased steadily from approximately 30 million tons in the 1960s to over 120 million tons in the 2000s.[116] A recent ACAA survey estimates a total CCR production of just over 136 million tons in 2008.[117] This is a substantially large waste stream when compared to the 6.9 million tons of non-wastewater hazardous wastes disposed by all other sectors in 2007, and the 2 million tons of hazardous waste being reported as disposed of in landfills and surface impoundments in 2005.[118]

EPA currently has documented evidence of proven damages to groundwater and surface water from 27 disposal sites and potential damages at 40 sites which are discussed in detail above and in the Appendix to this proposal. The damage cases resulting from CCR constituents migrating into groundwater were generally the same with those predicted in the risk assessment with respect to constituents which migrated, the concentrations reaching receptors, and the consequent magnitude of risk to those receptors. Of the constituents in Appendix VIII of Part 261, four were found at levels of concern in both the risk assessment and the damage cases (arsenic, cadmium, lead, and selenium). Two additional Appendix VIII (Part 261) constituents (chromium and nickel) were found in damage cases, and showed the potential for risk in the risk assessment, but were not modeled through fate and transport modeling. Finally, there were two Appendix VIII (Part 261) constituents (antimony and thallium) that were projected to be capable of migrating and reaching receptors at levels of concern in the risk assessment, but have yet to be identified in any of our groundwater damage cases.[119]

The damages to surface water from Appendix VIII (Part 261) constituents do not reflect a ground water to surface water pathway, but rather reflect surface water discharges. Five damage cases resulted in selenium fish consumption advisories consistent with the risk assessment's prediction that selenium consumption from fish in water bodies affected by CCR disposal units would result in excess ecologic and human health risk. We are aware that at least three of the fish advisories were subsequently rescinded when the criteria was reassessed and revised. The risk assessment also predicts that arsenic would pose such risks. However, while no arsenic fish advisories have been linked to CCR disposal at this time, the risk assessment predicts that selenium will migrate faster than arsenic.

In addition to the impacts on human health from groundwater and surface water contaminated by CCR released from disposal units, the damage cases have also shown the following adverse effects to plants and wildlife: Elevated selenium levels in migratory birds, wetland vegetative damage, fish kills, amphibian deformities, snake metabolic effects, plant toxicity, mammal uptake, fish deformities, and inhibited fish reproductive capacity. Although these effects cannot easily be linked to the results of the risk assessment as was done for groundwater and surface water above, the risk assessment generally agreed with the damage cases because it sometimes showed very high risks to ecological receptors. For additional information on ecological damages, *see* the document titled "What Are the Environmental and Health Effects Associated with Disposing of CCRs in Landfills and Surface Impoundments?" in the docket to this proposal.

Furthermore, four of the 27 proven damage case disposal sites have been listed on the EPA's National Priorities List (NPL). The NPL is the list of national priority sites with known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The Hazard Ranking System (HRS), the scoring system EPA uses to assess the relative threat associated with a release from a site, is the primary method used to determine whether a site should be placed on the NPL.[120] The HRS takes into account the three elements of environmental and human health risk: (1) Probability of release; (2) exposure; and (3) toxicity. EPA generally will list sites with scores of 28.5 or above. The HRS is a proven tool for evaluating and prioritizing the releases that may pose threats to human health and the environment throughout the nation.

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[112] Lemly A., "Guidelines for evaluating selenium data from aquatic monitoring and assessment studies." Environ. Monit. Assess. 1993:28(83–100).

[113] Sorensen, E., Bauer, T., Bell, J., Harlan, C. "Selenium accumulation and cytotoxicity in teleosts following chronic, environmental exposure." Bull. Environ. Contam. Toxicol. 1982:29(688–696).

[114] Sorenson, E. "Selenium accumulation, reproductive status, and histopathological changes in environmentally exposed redear sunfish." Arch Toxicol 1988:61(324–329).

[115] Estimated from the 2009 ACAA survey and Energy Information Administration 2005 F767 Power Plant database.

[116] ACAA (American Coal Ash Association). 2008. Production & Use Chart (1966–2007). *http://www.acaa-usa.org/associations/8003/files/Revised_1966_2007_CCP_Prod_v_Use_Chart.pdf.*

[117] ACAA (American Coal Ash Association). 2009. *2008 Coal Combustion Product (CCP) Production & Use Survey Results. http://www.acaa-usa.org/associations/8003/files/2007_ACAA_CCP_Survey_Report_Form%2809-15-08%29.pdf.*

[118] The National Biennial RCRA Hazardous Waste Report (2007) available at *http://www.epa.gov/epawaste/inforesources/data/br07/national07.pdf.*

[119] While this could indicate a potential conservatism in the model with respect to these two constituents, it is more likely to result from a failure to sample for these constituents as frequently. This is consistent with the data reported in Table 4–29 of the revised risk assessment (only 11 samples taken for antimony and thallium in surface impoundments versus hundreds for various other constituents).

[120] U.S. EPA 2007. "Introduction to the Hazard Ranking System (HRS)." Accessed at: *http://www.epa.gov/superfund/programs/npl_hrs/hrsint.htm.*

Whereas each of those 4 NPL sites also contains waste other than CCRs, CCRs are one of the prevalent waste types in each case.[121]

In addition, the Kingston, Tennessee damage case (*see* the Appendix) helps to illustrate the additional threats to human health and the environment that can be caused by the failure of a CCR waste management unit. At TVA's Kingston facility, there were four failure conditions: The presence of an unusually weak fly ash ("Slimes") foundation; the fill geometry and setbacks; increased loads due to higher fill; and hydraulically placed loose wet ash. If owners or operators do not maintain due diligence regarding the structural integrity of surface impoundments, significant damage to human health and the environment could be a likely outcome. In summary, while the preponderance of documented damage cases were the result of releases from unlined landfills and surface impoundments, EPA believes that the above data identify situations (*e.g.,* adverse impacts on migratory birds) illustrative of potential problems occurring from the management of CCRs in any type of surface impoundment.

5. Action Taken by Other Governmental Agencies or Regulatory Programs Based on the Health or Environmental Hazard Posed by the Waste or Waste Constituent—Factor (x)

As a result of the mismanagement of CCRs, EPA and states have taken steps to compel cleanup in several situations. Specifically, in addition to EPA placing sites on the NPL due to the disposal or indiscriminant placement of CCRs, at least 12 states have issued administrative orders for corrective actions at CCR disposal sites. Corrective action measures at these CCR management units vary depending on the site specific circumstances and include formal closure of the unit, capping, re-grading of ash and the installation of liners over the ash, ground water treatment, groundwater monitoring, and combinations of these measures.

6. Other Factors—Factor (xi)

The damage cases and the risk assessment also found excess risks for human and ecological receptors that resulted from non-Appendix VIII (Part 261) constituents.[122] While not currently identified under RCRA as hazardous or toxic constituents, several of these constituents have the same toxic endpoints as the Appendix VIII (Part 261) constituents found in CCRs, while nitrate is associated with pregnancy complications and methemoglobinemia (blue baby syndrome).[123] Although these non-Appendix VIII (Part 261) constituents do not provide an independent basis for listing CCRs, EPA finds their presence in the damage cases and risk assessment results to be relevant to the listing decision because of the potential to cause additive or synergistic effects to the Appendix VIII constituents. For instance, exposure to high levels of cobalt (cobalt has an HQ of 500 when rounded to 1 significant digit) can result in lung and heart effects, the same endpoints as exposure to high levels of antimony. Thus, these two constituents could act additively or synergistically on both the heart and lungs. The risk assessment showed 90th percentile cobalt drinking water ingestion to be 500 times the reference dose. Thus, cobalt could exacerbate the heart and lung effects due to CCR antimony exposures.

Therefore, based on our examination of CCRs against the criteria for listing, a listing determination for CCRs destined for disposal can be based on such factors as (1) The continued evidence that CCRs in landfills and surface impoundments may not be properly managed—*e.g.,* the lack of groundwater monitoring for many existing units; (2) the continued gaps in some state regulations; (3) the damage cases we have documented to date, including the damage done by the recent catastrophic release of CCRs from the impoundment failure in Kingston, Tennessee; and (4) the results of the risk assessment, which indicates high-end risks associated with disposal of CCRs in unlined and clay-lined CCR landfills and surface impoundments far exceeding acceptable levels (*e.g.,* exceeding a cancer risk threshold of $1 \times 10^{-5}$) [124] and the non-cancer risk threshold (HQ greater than 1).

## VI. Summary of the Co-Proposed Subtitle C Regulations

Under the subtitle C alternative, EPA would list CCRs from electric utilities and independent power producers intended for disposal in landfills and surface impoundments as a special waste, which would make them subject to the existing subtitle C regulations at 40 CFR parts 260 through 268, as well as the permitting requirements in 40 CFR part 270, and the state authorization process in 40 CFR parts 271–272.[125] These regulations establish, among other things, location restrictions; standards for liners, leachate collection and removal systems, and groundwater monitoring for land disposal units; fugitive dust control; closure and post-closure care requirements; storage requirements; corrective action; financial assurance; waste characterization; and permitting requirements. These regulations also impose requirements on generators and transporters of CCRs destined for disposal, including manifesting (if the CCRs destined for disposal are sent off site). As discussed in detail in section IV. E of today's preamble, EPA is proposing to leave the Bevill determination in place for CCRs used beneficially. Thus, CCRs beneficially used would not be subject to regulation from the point of generation or from the point they are recovered from landfills or surface impoundments, to the point where they are used beneficially. In addition, when beneficially used (*e.g.,* in wallboard and concrete), the CCRs become part of a new product; these products do not carry the special waste listing. When these products reach the end of their useful life and are to be disposed of, this represents a new point of generation. This new waste would be subject to RCRA subtitle C if the waste exhibits a characteristic of hazardous waste (*i.e.,* ignitability, corrosivity, reactivity, or toxicity).

In the majority of cases, EPA is proposing that CCRs be subject to the existing subtitle C requirements without modification. Accordingly, for those regulatory requirements that we propose not to modify or for which EPA does not specifically solicit comment, EPA is not proposing to reopen any aspect of those requirements, and will not respond to any unsolicited comments submitted during this rulemaking. However, where EPA has determined that special

[121] For specifics, please *see http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&d=EPA-HQ-RCRA-2006-0796-0015.*

[122] Aluminum, boron, chloride, cobalt, copper, fluoride, iron, lithium, manganese, molybdenum, nitrate/nitrite, strontium, sulfate, vanadium, and zinc.

[123] ATSDR CSEM. Available at: *http://www.atsdr.cdc.gov/csem/nitrate/no3physiologic_effects.html.*

[124] This risk level is consistent with those discussed in EPA's hazardous waste listing determination policy (see the discussion in a proposed listing for wastes from the dye and pigment industries, December 22, 1994; 59 FR 66072).

[125] As discussed in section VI. D of the preamble, as part of the proposal to list CCRs as a special waste, as is done routinely with listed wastes, EPA is also proposing to subject CCRs that are disposed of to the notification requirements under CERCLA at 40 CFR part 302.

characteristics of these wastes warrant changes; *e.g.,* where implementation of existing requirements would present practical difficulties, or where additional requirements are necessary due to the special characteristics of these wastes, EPA is proposing to revise the requirements to account for these considerations. For example, EPA is proposing tailored design criteria for new CCR disposal units, pursuant to its authority under section 3004(x) of RCRA.[126] Similarly, under the authority of section 3004(x) of RCRA, EPA is proposing to modify the CCR landfill and surface impoundment liner and leak detection system requirements and the effective dates for the land disposal restrictions, and the surface impoundment retrofit requirements. EPA is also proposing to establish new land disposal prohibitions and treatment standards for both wastewater and non-wastewater CCRs. In addition, to address dam safety and stability issues, EPA is proposing design and inspection requirements for surface impoundments, similar to those of the Mine Safety and Health Administration (MSHA) design requirements for slurry impoundments at 30 CFR part 77.216 for surface impoundments. Further, EPA is proposing that all existing surface impoundments that have not closed in accordance with the rule's requirements by the effective date of this rule would be subject to all of the requirements of this rule, including the need to obtain a permit, irrespective of whether the unit continues to receive CCRs or the facility otherwise engages in the active management of those units.

Finally, we would note that if the Agency concludes to reverse the Bevill determinations and list CCRs as a special waste, EPA would make in any final rule conforming changes to 40 CFR parts 260 through 268 and 270 through 272 so that it is clear that these requirements apply to all facilities regulated under the authority of RCRA subtitle C that generate, transport, treat, store, or dispose of special wastes as well as to those facilities that generate, treat, store, or dispose of special wastes.

The following paragraphs set out the details of this subtitle C proposal, with the modified or new requirement discussed in Section B. and the existing subtitle C requirements discussed in Section C.

*A. Special Waste Listing*

Under this regulatory option, EPA is proposing to list CCRs generated by electric utilities and independent power producers destined for disposal as a special waste subject to the requirements of RCRA subtitle C by amending 40 CFR part 261 and to add Subpart F—Special Wastes Subject to Subtitle C Regulations. The Agency believes this would be the appropriate manner for listing these wastes, and, as discussed in detail later in this section, the Agency believes that listing CCRs destined for disposal as a special waste, rather than a hazardous waste could, in large measure, address potential issues of stigma.

*B. Proposed Special Requirements for CCRs*

The following paragraphs discuss the special requirements the Agency is proposing for CCRs. These requirements modify or are in addition to the general subtitle C requirements found at 40 CFR parts 264–268 and 270–272.

1. Modification of Technical Standards Under 3004(x)

Section 3004(x) of RCRA authorizes the Administrator to modify the statutory requirements of sections 3004(c), (d), (e), (f), (g), (o), (u), and 3005(j) of RCRA in the case of landfills or surface impoundments receiving Bevill wastes, including CCRs that EPA determines to regulate under subtitle C, to take into account the special characteristics of the wastes, the practical difficulties associated with implementation of such requirements, and site-specific characteristics, including, but not limited to the climate, geology, hydrology and soil chemistry at the site, so long as such modified requirements assure protection of human health and the environment. The Agency is proposing to modify, through its authority under RCRA 3004(x), the CCR landfill and surface impoundment liner and leak detection system requirements, the effective dates for the land disposal restrictions, and the surface impoundment retrofit requirements.

i. Modification of CCR Landfills and Surface Impoundments From the Section 3004(o) Liner and Leak Detection Requirements

The minimum technological requirements set out in RCRA Section 3004(o)(1)(A)(i) requires that new hazardous waste landfills and surface impoundments, replacements of existing landfills and impoundments, and lateral expansions of existing landfills and impoundments,[127] to install two or more liners and a leachate collection and removal system above (in the case of a landfill) and between such liners. Section 3004(o)(4)(A) also requires these units to install a leak detection system. Landfills and surface impoundments covered under the regulations at 40 CFR part 264 are required to have a double liner system, and a leachate collection and removal system that can also serve as a leak detection system as described in 40 CFR sections 264.221 and 264.301. Under section 3005 (j)(1) (and, as explained below, effectively under section 3005 (j)(11) as well), existing surface impoundments are required to meet all of these requirements as well.

EPA is proposing to modify the double liner and leachate collection and removal system requirement by substituting a requirement to install a composite liner and leachate collection and removal system. As modeled in EPA's risk assessment, composite liners effectively reduce risks from all constituents to below the risk criteria for both landfills and surface impoundments. Therefore, the Agency believes a composite liner system would be adequately protective of human health and the environment and a double liner system would be unnecessarily burdensome. The modified standards specify a composite liner system that consists of two components: the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1\times10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component. The leachate collection system must be designed and constructed to maintain less than a 30-cm depth of leachate over the liner.

[126] Section 3004(x) of RCRA provides EPA the authority to modify certain statutory provision (i.e., 3004(c), (d), (e), (f), (g), (o), and (u) and 3005(j) taking into account the special characteristics of such wastes, the practical difficulties associated with implementation of such requirements, and site-specific characteristics, including, but not limited to, climate, geology, hydrology, and soil chemistry at the site, so long as such modified requirements are protective of human health and the environment.

[127] Replacement unit means a landfill, surface impoundment, or waste pile unit (1) from which all or substantially all of the waste is removed, and (2) that is subsequently reused to treat, store, or dispose of such waste. "Replacement unit" does not apply to a unit from which waste is removed during closure, if the subsequent reuse solely involves the disposal of waste from that unit and other closing units or corrective action areas at the facility, in accordance with an approved closure plan or EPA or State approved corrective action. Lateral expansion means a horizontal expansion of the waste boundaries of an existing landfill or surface impoundment.

EPA has concluded that these liner and leachate collection requirements will be protective of human health and the environment from the release of contaminants to groundwater from CCRs in landfills and surface impoundments. Specifically, the risk assessment indicates that risks from disposal units with composite liners will be less than the $1 \times 10^{-5}$ for carcinogens and less than an HQ of one for other hazardous constituents—levels that EPA has considered protective for the management of hazardous wastes. (The results of EPA's risk analyses are discussed in section II.B, and in the full risk assessment document, which is in the docket for today's proposed rulemaking.) Further support is provided by the damage cases, as none of the proven damage cases involved lined landfills or surface impoundments (with the possible exception of one unit, which in any case did not have a composite liner). In addition, the proposed modified requirements are the design standards for composite liners specified for municipal solid waste landfills at 40 CFR part 258; based on EPA's experience, such liner design would be expected to be effective in mitigating the risks of leaching to groundwater for a waste, such as CCRs. For example, CCRs do not contain volatile organics, such as ethylbenzene, which has recently been shown to be problematic for synthetic liners.

Although EPA has not confirmed damage cases involving the failure of clay liners, it is not proposing to allow new disposal units to be built solely with clay liners. EPA's modeling in its risk assessment indicated that clay liners could be of concern; EPA also believes that composite liners reflect today's best practices for new units, and, as such, can therefore be feasibly implemented.[128] Nevertheless, EPA solicits comments on whether clay liners should also be allowed under EPA's regulations. To assist EPA in its review, we request that commenters provide data on the hydraulic conductivity of clay liners associated with coal ash disposal units, and information on the protectiveness of clay liner designs based on site-specific analyses.

Thus, we are proposing to amend the current requirements of 40 CFR 264.220, and 264.300 to require that CCR surface impoundments and landfills install a composite liner and leachate collection and removal system. EPA would codify these requirements, as well as other special requirements for CCR wastes in a new subpart FF of 40 CFR part 264.

EPA also notes that section 3004(o)(2) allows the Agency to approve alternate liner designs, based on site-specific demonstrations that the alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents into ground or surface water at least as effectively as the double-liner system (42 U.S.C. 6924(o)(2)). EPA solicits comment on whether, in addition to the flexibility provided by section 3004(o)(2), EPA's regulations should also provide for alternative liner designs based on, for example, a specific performance standard, such as the subtitle D performance standard in 40 CFR 258.40(a)(1), or a site specific risk assessment, or a standard that the alternative liner, such as a clay liner, was at least as effective as the composite liner. Such an approach might be appropriate, for example, in situations where groundwater is particularly deep and/or infiltration rates are low, or where alternative liner systems provide an equivalent level of protection.

Subtitle C of RCRA requires only new hazardous waste landfills (or new portions of existing landfills) to meet the minimum technology requirements for liners and leachate collection and removal systems. RCRA section 3004 (o)(1)(A). The statute thus does not require existing landfills that are brought into the subtitle C system because they are receiving newly listed hazardous wastes, or the new category of listed special wastes proposed in this notice, to be retrofitted with a new minimum-technology liner/leachate collection and removal system (or to close). They can continue to receive hazardous or special waste, and continue to operate as compliant hazardous or special waste landfills. Following from these provisions, EPA has not typically required existing landfills to be retrofitted to meet the new requirements. Congress specifically established this approach under subtitle C, and EPA sees no reason or special argument to adopt more stringent requirements for CCR landfills, particularly given the volume of the material and the disruption that would be involved with any other approach. However, under the proposal, existing units would have to meet the groundwater monitoring, corrective action, and other requirements of the subtitle C regulations to assure that any groundwater releases from the unit were identified and promptly remediated. This is consistent with the manner in which EPA has historically implemented the hazardous waste requirements. EPA believes that maintaining this approach in this context will be protective, in part, because, unless facilities ship all of their wastes off-site (which EPA believes is highly unlikely), they will need a permit for on-site management of CCRs, which will provide regulatory oversight that could, as necessary, address the risks from the existing (unpermitted) landfills.

By contrast, Congress was significantly more concerned about the risks associated with unlined surface impoundments managing newly listed hazardous wastes (*see* 42 U.S.C. Section 6924, October 21, 1976). This is addressed in more detail in section (iv) below titled "Wet-Handling of CCRs, Closure, and Interim Status for Surface Impoundments."

ii. Fugitive Dust Controls

The proposed subtitle C approach would require that surface impoundments and landfills be managed in a manner that controls fugitive dust consistent with any applicable requirements developed under a State Implementation Plan (SIP) or issued by EPA under section 110 of the Clean Air Act (CAA). Specifically, EPA is proposing to adopt as a standard the 35 $\mu g/m^3$ level established as the level of the 24-hour NAAQS for fine particulate matter (PM–2.5). In addition, CCR facilities would be required to control fugitive dust by either covering or otherwise managing CCRs to control wind dispersal of dust, emplacement as wet conditioned CCRs to control wind dispersal, when stored in piles, or storage in tanks or buildings. For purposes of the proposal, wet conditioning means wetting CCRs with water to a moisture content that prevents wind dispersal, facilitates compaction, but does not result in free liquids. Trucks or other vehicles transporting CCRs are to be covered or otherwise managed to control wind dispersal of dust. EPA is proposing this requirement based on the results of a screening level analysis of the risks posed by fugitive dusts from CCR landfills, which showed that, without fugitive dust controls, levels at nearby locations could exceed the 35 $\mu g/m^3$ level established as the level of the 24-hour PM 2.5 NAAQS for fine particulate.

iii. Special Requirements for Stability of CCR Surface Impoundments

To detect and prevent potential catastrophic releases, EPA is proposing requirements for periodic inspections of surface impoundments. The Agency

[128] EPA notes that the state of Maryland, in developing new standards for CCR disposal units under its subtitle D authorities, prescribes composite liners.

believes that such a requirement is critical to ensure that the owner and operator of the surface impoundment becomes aware of any problems that may arise with the structural stability of the unit before they occur and, thus, prevent the past types of catastrophic releases, such as at Martins Creek, Pennsylvania and TVA's Kingston, Tennessee facility. Therefore, EPA is proposing that inspections be conducted every seven days by a person qualified to recognize specific signs of structural instability and other hazardous conditions by visual observation and, if applicable, to monitor instrumentation. If a potentially hazardous condition develops, the owner or operator shall immediately take action to eliminate the potentially hazardous condition; notify the Regional Administrator or the authorized State Director; and notify and prepare to evacuate, if necessary, all personnel from the property which may be affected by the potentially hazardous condition(s). Additionally, the owner or operator must notify state and local emergency response personnel if conditions warrant so that people living in the area down gradient from the surface impoundment can be evacuated. Reports of inspections are to be maintained in the facility operating record.

To address surface impoundment (or impoundment) integrity (dam safety), EPA considered two options. One option, which is the option proposed in this notice, is to establish standards under RCRA for CCR surface impoundments similar to those promulgated for coal slurry impoundments regulated by the Mine Safety and Health Administration (MSHA) at 30 CFR 77.216. Facilities relying on CCR impoundments would need to (1) submit to EPA or the authorized state plans for the design, construction, and maintenance of existing impoundments, (2) submit to EPA or the authorized state plans for closure, (3) conduct periodic inspections by trained personnel who are knowledgeable in impoundment design and safety, and (4) provide an annual certification by an independent registered professional engineer that all construction, operation, and maintenance of impoundments is in accordance with the approved plan. When problematic stability and safety issues are identified, owners and operators would be required to address these issues in a timely manner.

In developing these proposed regulations for structural integrity of CCR impoundments, EPA sought advice from the federal agencies charged with managing the safety of dams in the United States. Many agencies in the federal government are charged with dam safety, including the U.S. Department of Agriculture (USDA), the Department of Defense (DOD), the Department of Energy (DOE), the Nuclear Regulatory Commission (NRC), the Department of Interior (DOI), and the Department of Labor (DOL), MSHA. EPA looked particularly to MSHA, whose charge and jurisdiction appeared to EPA to be the most similar to our task. MSHA's jurisdiction extends to all dams used as part of an active mining operation and their regulations cover "water, sediment or slurry impoundments" so they include dams for waste disposal, freshwater supply, water treatment, and sediment control. In fact, MSHA's current impoundment regulations were created as a result of the dam failure at Buffalo Creek, West Virginia on February 26, 1972. (This failure released 138 million gallons of stormwater run-off and fine coal refuse, and resulted in 125 persons being killed, another 1,000 were injured, over 500 homes were completely demolished, and nearly 1,000 others were damaged.)

MSHA has nearly 40 years of experience writing regulations and inspecting dams associated with coal mining, which is directly relevant to the issues presented by CCRs in this rule. In our review of the MSHA regulations, we found them to be comprehensive and directly applicable to the dams used in surface impoundments at coal-fired utilities to manage CCRs. We also believe that, based on the record compiled by MSHA for its rulemaking, and on MSHA's 40 years of experience implementing these regulations, these requirements will prevent the catastrophic release of CCRs from surface impoundments, as occurred at TVA's facility in Kingston, Tennessee, and will generally meet RCRA's mandate to ensure the protection of humans and the environment. Thus, we have modeled our proposal on the MSHA regulations in 30 CFR Part 77 and we have placed the text of the salient portions of the MSHA regulations in the docket for this rulemaking. The Agency requests comment on EPA's proposal to adopt the MSHA standards (with limited modifications to deal with issues specific to CCR impoundments) to address surface impoundment integrity under RCRA.

MSHA's regulations cover impoundments which can present a hazard and which impound water, sediment or slurry to an elevation of more than five (5) feet and have a storage volume of 20 acre-feet or more and those that impound water, sediment, or slurry to an elevation of 20 feet or more. EPA seeks comment on whether to cover all CCR impoundments for stability, regardless of height and storage volume, whether to use the cut-offs in the MSHA regulations, or whether other regulations, approaches, or size cut-offs should be used. If commenters believe that other regulations or size cut-offs should be adopted (and not the size-cut offs established in the MSHA regulations), we request that commenters provide the basis and technical support for their position.

The second option that EPA considered, but is not being proposed today, is to establish impoundment integrity requirements under the Clean Water Act's NPDES permit system. Existing regulations at 40 CFR 122.41(e) require that permittees properly operate and maintain all facilities of treatment and control used to achieve compliance with their permits. In addition, regulations at 40 CFR 122.44(k) allow the use of best management practices for the control and abatement of the discharge of toxic pollutants. Guidance could be developed to use best management practices to address impoundment construction, operation, and maintenance, consistent with the requirements of 40 CFR 122.41(e) and 122.44(k). Associated permit conditions could require that surface impoundments be designed and constructed in accordance with relevant state and federal regulations. The Agency requests comments regarding the alternate use of NPDES permits rather than the development of RCRA regulations to address dam safety and structural integrity.

iv. Wet-Handling of CCRs, Closure, and Interim Status for Surface Impoundments

Where a nonhazardous waste surface impoundment is storing a waste that becomes newly subject to the RCRA hazardous waste requirements, RCRA subtitle C and the implementing regulations require these surface impoundments either to be closed or upgraded to meet the minimum technology requirements within four years. RCRA section 3005 (j)(6), is implemented by 40 CFR 268.14.[129] In order to be eligible for this four year grace period, the impoundment must be in compliance with the applicable

[129] 40 CFR 268.14 allows owners and operators of newly regulated surface impoundments to continue managing hazardous waste without complying with the minimum technology requirements for a period up to four years before upgrading or closing the unit.

groundwater monitoring provision under Part 40 CFR 265, Subpart F within 12 months of the promulgation of the new hazardous listing or characteristic.

RCRA section 3005 (j)(11) allows the placement of untreated hazardous waste (*i.e.* hazardous waste otherwise prohibited from land disposal which has not been treated to meet EPA-established treatment standards before land disposal) in surface impoundments under limited circumstances. Such hazardous wastes may be placed in impoundments for purposes of treatment provided the impoundments meet the minimum technology requirements and provided that any treatment residues which either do not meet the treatment standards or which remain classified as hazardous wastes are removed from the impoundment annually. *See* the implementing rules in 40 CFR section 268.4. EPA has interpreted this provision so as not to nullify the provisions of section 3005(j)(6), the upshot being that impoundments receiving newly identified or listed wastes would have four years to close or retrofit under all circumstances. *See* 56 FR 37194. If the surface impoundment continues to treat hazardous wastes after the four year period, it must then be in compliance with 40 CFR 268.4 (Treatment Surface Impoundment Exemption).

Section 3005(j) of RCRA generally requires that existing surface impoundments cannot obtain interim status and continue to receive or store newly regulated hazardous waste for more than four years after the promulgation of the listing—unless the facility owner retrofits the unit by installing a liner that meets the requirements of section 3004(o)(1)(A), or meets the conditions specified in section 3005(j)(2). Under section 3005(j)(2), a surface impoundment may obtain interim status and continue to receive or store hazardous waste after the four-year deadline if (1) The unit has at least one liner, and there is no evidence it is leaking, (2) is located more than one-quarter mile from an underground source of drinking water; and (3) complies with the groundwater monitoring requirements applicable to permitted facilities. In this case, under section 3005(j)(9), the facility owner, at the closure of the unit, would have to remove or decontaminate all waste residues, all contaminated liner material, and contaminated soil to the extent practicable.

As part of the requirement to assure that surface impoundments will be safely phased out, EPA also proposes to regulate surface impoundments that have not completed closure prior to the effective date of the rule. Under that scenario, these units would be subject to the interim status closure requirements of 40 CFR 265.111 and 265.228(a)(2). For surface impoundments that have not met the interim status requirements by the effective date of the rule, they would be subject to the full RCRA subtitle C closure requirements (*e.g.,* obtain a Part A permit and comply with the interim status regulations).

EPA recognizes that for regulatory purposes, it has historically not required disposal units that cease receiving new listed or characteristic wastes before the effective date of RCRA subtitle C to comply with the requirements. However, EPA believes that a revised approach is necessary to protect human health and the environment, in this particular case, given the size of the CCR surface impoundments in question; the enormous volumes of CCRs they typically contain (which typically represent overwhelming mass of the material in place); the fact that the CCRs are typically destined for permanent entombment when the unit is eventually closed (typically with limited removal); the presence of very large hydraulic head leading to continued release—even where the impoundment has been drained—that is, improperly closed CCR impoundments remain open to precipitation and infiltration; and the continuing threat to human health and the environment through catastrophic failure, if the impoundments are not properly closed.

EPA's authority under subtitle C of RCRA extends to wastes that are treated, stored, or disposed of; the statutory definition of disposal has been broadly interpreted to include passive leaking. But historically, EPA has construed the definition of disposal for regulatory purposes to be narrower than the statutory definition of disposal. Although in some situations, post-placement management has been considered disposal, triggering RCRA subtitle C regulatory requirements *e.g.,* multiple dredging of impoundments or management of leachate, EPA has generally interpreted the statute to require a permit only if a facility treats, stores, or disposes of the waste, after the effective date of its designation as a hazardous waste. *See, e.g.,* 43 FR 58984 (Dec. 18, 1978; 45 FR 33074 (May 1980).

The consequence of this interpretation is that, for example, no permit would be required if, after the rule's effective date, a facility neither continued to accept the listed wastes for disposal, nor continued to "manage the wastes" in the existing unit. In other words, under this interpretation, facility owners could abandon the unit before the effective date of the rule without incurring any regulatory obligations under RCRA subtitle C (presuming no other regulated unit is present on-site).

Given the particularly significant risk associated with CCR impoundments described above, as well as the fact that these risks are primarily driven by the existing disposal units, EPA believes a broader interpretation of disposal is appropriate in this case. This is reinforced by the fact that the continued release of constituents to surrounding soil and groundwater through the continued infiltration of precipitation through inappropriately closed CCR impoundments (or failure to remove the impoundment waters, which provides a hydraulic head) properly constitute regulatory disposal in this specific situation.

As a practical matter, EPA believes that owners of facilities where CCRs are managed in existing surface impoundments being brought under RCRA subtitle C by today's proposal would choose not to, or would not be able to, comply with either of these alternatives (*i.e.,* retrofit or clean closure), given the size of the units and the volume of CCRs involved. Therefore, EPA believes that the section 3005(j) requirements, for all practical purposes, will have the effect of requiring the closure of existing surface impoundments receiving CCRs within four years of the effective date of today's proposed rule (unless they already meet the liner requirements).[130]

Section 3004(x), however, gives EPA the authority to modify section 3005(j) requirements, if the specific criteria listed in that section are met. In today's notice, EPA is proposing to modify the time required for retrofitting surface impoundments under section 3005(j), because of the special characteristics (*i.e.,* extremely large volumes) of CCRs and the practical difficulties associated with requiring facilities to cease to store CCRs within four years of the effective date of today's rule.

Therefore, EPA is proposing to modify the section 3005(j) requirements by extending the time limit for unit closure. The modified standard in today's proposal would require facilities operating surface impoundments that do not meet minimum technology

[130] The HSWA surface impoundment retrofit requirements, as they applied to impoundments in existence at the time RCRA was amended in 1984, went into effect in 1988. EPA is not aware of any facility owner/operator managing an existing surface impoundment at the time who chose to retrofit its impoundment, rather than to close it. EPA believes facilities managing surface impoundments today, will similarly choose to close the surface impoundment rather than retrofit.

requirements and are receiving CCRs to stop receiving those CCRs no later than five years after the effective date of the final regulation and to close the unit within two years after that date. In other words, the time required for closure would be up to seven years rather than four years.

EPA believes that the four-year deadline in RCRA section 3005(j) receiving CCRs will be extraordinarily difficult if not impossible for many facilities to meet, given the size of the units and limitations in available alternative subtitle C disposal capacity. Facility owners choosing to close surface impoundments may have to make significant engineering and process changes, *e.g.,* to convert from wet- to dry-handling of wastes, which cannot necessarily be accomplished within four years. For example, USWAG has raised concerns that there is limited manufacturing capacity for key conversion equipment, which could reasonably be expected to complicate the utilities' ability to collectively make the necessary engineering changes within a four-year timeframe. An additional consideration is that EPA expects that many facilities would need to obtain permits for new units or find alternative subtitle C capacity to receive the wastes diverted from surface impoundments. Also, facilities that use surface impoundments receiving CCRs to manage stormwater and nonhazardous wastewater will have to site and get permits for new stormwater management units before facility owners can cease utilizing existing units. The amount of time to achieve either of these alternatives relies, to some extent, on events beyond the facility's control; for example, the timeframes to obtain a permit for a new unit can vary substantially and, in large measure, are ultimately dictated by the permitting authority, rather than the applicant. This may be further complicated by the fact that location standards or on-site space limitations can restrict the opportunity for siting new units at the generating facility, requiring utilities to find off-site disposal facilities able to receive the special waste in the volumes in question.

In the 1984 amendments, Congress only allowed surface impoundments four years to cease receiving hazardous waste (or comply with minimum technological design requirements, etc.). Given the enormously greater volume of waste involved with CCR surface impoundments and the process changes that the facilities will need to implement to convert to dry handling, EPA believes it not practicable to require surface impoundments to cease receiving CCR waste or comply with the minimum technological requirements four years and that additional time is appropriate. (As noted below, facilities in most states will have significantly more time for planning, because the rules will not become effective in states authorized for the RCRA program before those states have amended their requirements consistent with today's rule; the state regulatory process will likely take several years.) On the other hand, as the risks predicted in the risk assessment are extraordinarily high (up to $2 \times 10^{-2}$), EPA believes that closure within the shortest practicable time is important.

Any modifications of section 3005(j) must meet the section 3004(x) stricture that the modification must still "assure protection of human health and the environment (42 U.S.C. 6924(x)." EPA believes that allowing three additional years for closure, under today's proposal, would be protective because surface impoundments subject to the closure requirements would be required (during this interim period) to have groundwater monitoring systems sufficient to detect releases of hazardous constituents into the groundwater, and take corrective action where releases were detected above drinking water levels.[131] Additionally, the median number of years until peak well water concentrations are reached for selenium and arsenic are estimated at 74 and 78 years, respectively, for unlined surface impoundments and 90 and 110 years, respectively, for clay-lined surface impoundments, reducing the likely risks posed over this five-year period.

In addition, although not directly relevant to leaching from these surface impoundments, we would also note (as described previously in this section) that the facility would be required to have an independent registered professional engineer certify that design of the impoundment is in accordance with recognized and generally accepted good engineering practices (RAGAGEP) [132] for the maximum volume of CCR slurry and wastewater that will be impounded therein, and that the design and management features ensure dam stability. Finally, the facilities will be required to conduct weekly inspections to ensure that any potentially hazardous condition or structural weakness will be quickly identified. Therefore, the additional timeframe that EPA is proposing to allow—needed to address practical realities—will "assure protection of human health and the environment. While groundwater monitoring, corrective action, and close oversight of these units is not, we believe, the most appropriate long-term solution, we do believe that these steps will protect public health and the environment in the short term while the permanent solutions are being implemented.

EPA recognizes that the costs of these requirements will be significant, especially for existing surface impoundments and similar units that handle wet CCRs. EPA also acknowledges that the date by which impoundments have to close is an important issue, affecting the costs of phase-out of wet handling and the ability of industry to comply. USWAG has argued strenuously against a closure requirement in the first place, and has asserted that, if such a requirement were imposed, industry would require ten years to comply.[133]

EPA is not persuaded by these comments. We appreciate the cost considerations but also believe it is important that these surface impoundments cease receiving wet-handled CCRs and proceed to closure as soon as practicable. The Agency believes that the time period proposed today is sufficient to provide industry the time necessary to convert from wet handling to dry handling of these wastes, close out existing units, and find or put in place new disposal capacity for these wastes. In addition, the Agency notes that TVA and other utilities have already decided, or are being required by states, to close existing impoundments, regardless of the requirements of today's proposed rule. As a result, EPA believes today's proposal would have less effect than industry commenters suggest because some facilities may be making these changes anyway and they reflect best management practices in today's environment. However, EPA solicits comments on whether seven years (5 years to cease receiving waste and 2 years to close) from the effective date to implement these provisions is an achievable time for facilities to comply.

[131] The Agency is also modifying the requirement that surface impoundments be dredged annually, based on RCRA section 3004(x). This is discussed in detail in section v (Proposed Land Disposal Restrictions) below.

[132] Recognized and generally accepted good engineering practices (RAGAGEPs) are engineering, operation, or maintenance activities based on established codes, standards, published technical reports or recommended practices (RP) or a similar document. RAGAGEPs detail generally approved ways to perform specific engineering, inspection or mechanical integrity activities. *See http://www.osha.gov/OshDoc/Directive_pdf/CPL_03-00-010.pdf.*

[133] In developing cost estimates for closing its surface impoundments, TVA also assumed that the process would take place over ten years.

EPA is interested in comments on procedural, as well as technical, issues (*e.g.,* time to allow permit modifications for new capacity or EPA or state approval of closure plans). As stated earlier, EPA does note that, in the 1984 amendments to RCRA, Congress required existing hazardous waste surface impoundments without liners to retrofit within four years if they are to continue operating. Congress also required impoundments which place hazardous wastes into impoundments to either treat the wastes first, or to use minimum technology impoundments, including a requirement to dredge the impoundment annually. *See* discussion of section 3005(j)(11) and implementing regulations above. As a practical matter, this meant that all but a very few surface impoundments ceased receiving hazardous wastes within this time period. Thus, a requirement that surface impoundments cease receiving liquid wastes in five years and close in seven years is consistent with Congressional direction on appropriate time periods to phase out the management of CCRs in surface impoundments. Further, as noted previously, these specific requirements will not go into effect in most cases until a state is authorized for this aspect of the RCRA program, which normally takes from two to five years after the regulations become federally effective (with some estimates as long as eight years), giving facilities substantial advance notice. (*See* discussion on when the rules become effective in section VII of this preamble.) For commenters who suggest a longer time period is needed, EPA solicits comment on how a longer time period would meet the section 3004(x) risk standard.

Whatever time period EPA selects, the Agency solicits comment on whether it should include a provision that would allow the regulatory Agency to provide additional time on a case-by-case basis because of site-specific issues (*e.g.,* particular technical difficulties or equipment availability outside the utility's control, as well as permitting delays). This provision might be modeled after the provision of 40 CFR 264.112 and 265.112 (Amendment of Plans), allowing facilities to delay closure of hazardous waste management units.

Commenters have also stated that, while it may be appropriate to require closure of most existing impoundments, some may be clearly safe. For example, existing impoundments theoretically may already have a composite liner, and present minimal threat of release (*e.g.,* because they are below grade or not far above grade). EPA solicits comment on whether a variance process would be appropriate allowing some impoundments or similar units that manage wet-handled CCRs to remain in operation because they present minimal risk to groundwater (*e.g.,* because they have a composite liner) and minimal risk of a catastrophic release (*e.g.,* as indicated by a low potential hazard rating under the Federal Guidelines for Dam Safety established by the Federal Emergency Management Agency). It should be noted that the statute already provides such a mechanism in section 3005 (j)(4) and (5) (based on making a so-called 'no-migration' demonstration—evidently Congress' view of what level of control is considered protective for hazardous waste impoundments not utilizing minimum technology controls [134]) and commenters should address whether this existing case-by-case mechanism should be utilized here. In such cases, the wastes might also meet current LDR treatment standards.

v. Proposed Land Disposal Restrictions

Through RCRA sections 3004 (d), (e), (f), and (g), Congress has prohibited the land disposal of hazardous waste unless the waste meets treatment standards established by EPA before the waste is disposed of, or is disposed of in units from which there will be no migration of hazardous constituents for as long as the waste remains hazardous. The treatment standards may be either a treatment level or a specified treatment method, and the treatment must substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized (RCRA section 3004(m)). If the hazardous waste has been treated to the level or by a method specified in the regulations (or if the waste as generated meets the treatment standard), the waste is not subject to any land disposal prohibition and may be disposed of in a land disposal unit which meets the requirements of 40 CFR parts 264 or 265 (the exception being for surface impoundments discussed in the preceding subsection and further below). For hazardous wastes identified or listed under RCRA section 3001 after the date of the 1984 amendments to RCRA subtitle C (the situation here), EPA is required to determine whether the waste shall be prohibited from one or more methods of land disposal within six months after the date of such identification or listing, and if EPA determines that one or more methods are prohibited, the Agency is also required to specify treatment levels or methods of treatment for the waste (RCRA section 3004(g)(4)).

In an effort to make treatment standards as uniform as possible, while adhering to the fundamental requirement that the standards must minimize threats to human health and the environment before hazardous wastes can be land disposed, EPA developed the Universal Treatment Standards (UTS) (codified at 40 CFR 268.48). Under the UTS, whenever technically and legally possible, the Agency adopts the same technology-based numerical limit for a hazardous constituent regardless of the type of hazardous waste in which the constituent is present. *See* 63 FR 28560 (May 26, 1998); 59 FR 47982 (September 19, 1994). The UTS, in turn, reflect the performance of Best Demonstrated Available Technologies (BDAT) of the constituents in question. These treatment standards can be met by any type of treatment, other than impermissible dilution, and wastes can satisfy the treatment standards as generated (*i.e.,* without being treated).

As explained above, section 3004(x) of RCRA authorizes the EPA Administrator to modify the requirements of sections (d), (e), (f), and (g) of section 3004 for Bevill wastes, including CCRs that EPA determines to regulate as hazardous, to take into account the special characteristics of the wastes, the practical difficulties associated with implementation of the requirements, and site-specific characteristics, so long as such modified requirements assure protection of human health and the environment.

In conjunction with a proposed listing, EPA is proposing to prohibit the land disposal of CCRs, unless they meet the applicable treatment standards. In addition, although CCRs could be disposed of without treatment in landfills and impoundments from which there will be no migration of hazardous constituents for as long as the waste remains hazardous, EPA doubts that such a unit exists, given the volumes of CCRs and their many (documented) release pathways discussed above. In any case, no-migration determinations are necessarily made on a case-by-case basis, and the burden is on petitioners to show that individual land disposal units satisfy the exacting standard. *See* 40 CFR section 268.6.

[134] See RCRA section 3004 (d), (e), (f), and (g) all of which define a land disposal unit as protective of human health and the environment if "it has been demonstrated to a reasonable degree of certainty that there will be no migration of hazardous constituents from the disposal unit * * * for as long as the wastes remain hazardous".

2. Proposed Treatment Standards for Non-Wastewaters (Dry CCRs)

For non-wastewaters (*i.e.,* dry CCRs), EPA is proposing that CCRs be subject to the UTS. As EPA has found repeatedly, this standard reflects the performance of Best Demonstrated Available Technology and so satisfies the requirements of section 3004 (m) (*see Hazardous Waste Treatment Council* v. *EPA,* 886 F. 2d 355, 363 (D.C. Cir. 1989)), and also does not force treatment past the point at which threats to human health and the environment are minimized (*see* 55 FR 6640, 6641–42 (Feb. 26, 1990)). These standards should be achievable by application of various available technologies, although data [135] indicate that a great portion (if not virtually all) dry CCRs meet these standards as generated.

*3. Proposed Treatment Standards for Wastewaters (Wet-Handled CCRs)*

EPA is also proposing standards for wastewater CCRs. As an initial matter, EPA is proposing to adopt a specific and different definition of wastewater for CCRs. Under the existing RCRA subtitle C rules, a wastewater is defined as one that contains less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (*i.e.,* the current wastewater definition for purposes of LDRs; *see* 40 CFR part 268.2 (f)). Functionally, the current definition of wastewaters would not include slurried fly ash or slurried FGD from wet air pollution control systems. EPA believes it important to distinguish between nonwastewaters which involve dry coal ash and surface impoundment systems which are commonly viewed as involving wastewaters. EPA, therefore, is proposing to create the distinction between wastewater and nonwastewater CCRs by classifying CCRs as wastewaters if the moisture content of the waste exceeds 50%. Thus, if CCRs contain more water than solids, the CCR would be classified as a wastewater, and would be subject to the LDR treatment standard for wastewaters. By proposing the criteria at 50% moisture, EPA believes new methods for pumping and disposal of high solids material without free liquids are still viable. EPA is proposing this definition to appropriately address risks associated with CCRs surface impoundments, which contain free liquids. However, the Agency requests comment on this alternative definition of wastewaters for purposes of determining which treatment standards the CCRs would be subject to.

As part of the proposed treatment standard, EPA is proposing that these wastewaters undergo solids removal so that the wastewaters contain no greater than 100 mg/l total suspended solids (TSS) and meet the UTS for wastewaters. This proposed level is consistent with wastewater treatment requirements based on Best Practicable Control Technology Currently Available for the Electric Power Generating Point Source Category (40 CFR section 423.12).[136] Solids separation is a base level water pollution control technology, which assures that the vast majority of coal ash and associated contaminants are removed and managed in landfills.

EPA is proposing that wastewaters meet the UTS for wastewaters at 40 CFR section 268.48 as the treatment standard for the liquid fraction. (The CCR solids removed from the wastewater stream would be a non-wastewater and would be subject to the UTS for non-wastewaters.) EPA believes dry disposal of the CCR solids will protect human health and the environment. As previously discussed, this is borne out by the results of the Agency's risk assessment and damage case assessments, which show that wet disposal poses the greatest risks of contaminant releases.

The Agency believes the proposed treatment methods will diminish the toxicity of the waste or substantially reduce the likelihood of migration of toxic constituents from the waste so that short-term and long-term threats to human health and the environment are minimized. If finalized, EPA will add new treatment method codes to the table of Technology Codes and Description of Technology-Based Standards at 40 CFR 268.42. EPA seeks comments on the proposed treatment standards.

4. Effective Date of the LDR Prohibitions

Land disposal prohibitions are to be effective immediately unless EPA finds that there is insufficient alternative protective treatment, recovery or disposal capacity for the wastes. RCRA section 3004(h)(2). National capacity variances can be for up to two years from the date of the prohibition. During the duration of a national capacity variance, the wastes do not require treatment in order to be land disposed. If they are disposed of in a landfill or surface impoundment, however, that unit must meet the minimum technology requirements of RCRA section 3004(o). RCRA section 3004 (h) and 40 CFR section 268.5 (h).[137]

In this case, EPA is proposing that the prohibition and treatment standards for nonwastewaters take effect within 6 months from the date of promulgation of the listing of CCRs as a special waste. We are proposing 6 months to allow time for owners and operators to set up analytic capacity and record-keeping mechanisms for dry CCR wastes, as well as for federal and state agencies to assure that implementation mechanisms are in place. We are not allocating additional time for treatment because our expectation is that all or virtually all dry CCRs meet the proposed treatment standards as generated. However, EPA solicits comment on this issue. EPA also notes that the proposed LDR prohibition and treatment standards would not take effect until programs in authorized states are authorized and the state implementing rules take effect, so this proposal effectively is for the prohibition and treatment standard requirement to take effect 6 months following the conclusion of the authorization process and effective date of authorized state rules. This should be ample time to come into compliance.

For wastewaters, however, under the authority of section 3004 (x), we are proposing that the prohibition and treatment standards take effect within five years of the prohibition. In practice, these requirements will have the effect of prohibiting disposal of wet-handled CCRs in surface impoundments after that date. The proposed date for the wastewater treatment standards would thus be the same as the proposed date that impoundments would stop receiving CCRs, and is being proposed for many of the same reasons. Surface impoundments, of course, are the land disposal units in which wastewaters are managed, so the issues are necessarily connected. As discussed in section VI. B. above, the statute allows owners and operators up to four years to retrofit existing surface impoundments to meet

[135] EPA's CCR constituent database which is available from the docket to this proposal.

[136] Although TSS is not a hazardous constituent, it is a reasonable surrogate of effective treatment performance here because TSS necessarily contain the metal hazardous constituents which are the object of treatment, and these metals will necessarily be removed as TSS are removed. See e.g.; *National Lime Ass'n* v. *EPA, 234 F. 3d 625, 639* (D.C. Cir. 2000) (even though particulate matter is not a hazardous air pollutant, it can be used as a permissible surrogate for treatment of hazardous air pollutant metals since those metals are removed by treatment as PM is removed).

[137] EPA is also authorized to grant up to a one-year extension, renewable for another year, of a prohibition effective date on a case-by-case basis. RCRA section 3004 (h)(3). Applicants must demonstrate that adequate alternative treatment, recovery, or disposal capacity for the petitioners waste cannot reasonably be made available by the effective date due to circumstances beyond the applicant's control, and that the petitioner has entered into a binding contractual commitment to construct or otherwise provide such capacity. 40 CFR 268.5.

the minimum technology requirements (or to close such surface impoundments), and EPA has interpreted this provision as applying to treatment surface impoundments receiving hazardous wastes otherwise prohibited from land disposal. *See* RCRA sections 3005 (j)(6) and 3005 (j)(11). As further explained above, EPA believes that an additional three years is needed for owners and operators to close surface impoundments—*i.e.* seven years in all—and is thus proposing a two year national capacity variance (as provided in RCRA section 3004(h)(2)) and a five year period for impoundment retrofitting yielding a seven year extension.

The legal basis for the proposal is 3004 (x) (which specifically authorizes modification of the section 3005 (j) requirements). Section 3005 (j) (11) allows untreated wastewaters to be managed in surface impoundments that do not meet the minimum technology requirements, but requires that residues in the impoundment be dredged at least annually for management elsewhere. Given the enormous volume of CCRs currently managed in surface impoundments, estimated at 29.4 million tons per year (within EPA's estimated range of 23.5 to 30.3 million tons for the total available U.S. hazardous waste disposal capacity), and the absence of alternative disposal capacity in the short-term, EPA believes annual dredging is impractical and would defeat the purpose of providing additional time to convert to the dry handling of CCRs. Moreover, in this short time, the utilities will be working to convert their processes to dry handling and it is not practicable or necessary to impose this additional requirement. Finally, as discussed previously, in the interim period before surface impoundments cease taking waste and are closed, numerous safeguards will be in place to protect public health and the environment, including ground water monitoring and the requirement to act on any releases quickly. Thus, while such measures are not a long-term solution, they will "assure protection of human health and the environment" in the short-term.

As this discussion clarifies, the issue of a national capacity extension for CCR wastewaters is really an issue of how long it will take to convert to dry handling and to find management capacity for solids dredged from impoundments, *i.e.* issues arising under section 3005 (j)(11) of the statute. EPA, therefore, believes it has the authority and that it is appropriate to use section 3004 (x) to extend the national capacity period in order to convert to dry handling.[138]

EPA is further proposing that during the national capacity variance (the initial two years of the proposed two years plus five year extension of otherwise-applicable requirements), CCR wastewaters could continue to be managed in impoundments that do not meet the minimum technology requirements. The reasons are identical to those allowing such impoundments to receive CCRs for the remainder of the proposed extension period.

EPA solicits comment on these proposals, including comment on whether further time extensions are actually needed in light of the already extended time which will be afforded by the state authorization process.

### *C. Applicability of Subtitle C Regulations*

The discussion in this section describes the existing technical standards required in 40 CFR parts 264/265/267. However, persons who generate and transport CCRs, under the subtitle C alternative, would also be subject to the generator (40 CFR part 262) and transporter (40 CFR part 263) requirements. Although EPA presents this to provide the public with background information as noted previously, EPA is not proposing to modify these standards, nor to reopen the requirements.

*1. General Facility Requirements, including Location Restrictions.* Under the existing regulations, all of the following requirements would apply: the general facility standards of 40 CFR parts 264/265/267 (Subpart B), the preparedness and prevention standards of 40 CFR parts 264/265/267 (Subpart C), the contingency plan and emergency procedures of 40 CFR parts 264/265/267 (Subpart D), and the manifest system, recordkeeping, and reporting requirements of 40 CFR parts 264/265/267 (Subpart E). Consistent with section 264.18, the regulations would include location standards prohibiting the siting of new treatment, storage, or disposal units in a 100-year floodplain (unless the facility made a specific demonstration)[139] and seismic impact areas would be prohibited.[140]

*2. Ground water monitoring/corrective action for regulated units.* The subtitle C alternative to today's proposed rule would require the current ground water monitoring and corrective action requirements of 40 CFR parts 264/265 for regulated landfills and surface impoundments, without modification. Consistent with 40 CFR 265.90, existing CCR disposal units would be required to install groundwater monitoring systems within one year of the effective date of these regulations. The facility would operate under the self-implementing interim status requirements of 40 CFR part 265 until the regulatory authority imposed the specific requirements of 40 CFR part 264 through the RCRA permitting process. Generally, 40 CFR parts 264/265 require groundwater monitoring systems that consist of enough wells, installed at appropriate locations and depths, to yield ground water samples from the uppermost aquifer that represent the quality of background groundwater that has not been affected by leakage from the disposal unit. A detection monitoring program would be required to detect releases to groundwater of CCR constituents listed in the facility permit (these constituents, we believe, would be the metals typically identified as constituents of concern in CCRs). Monitoring frequency is determined by the EPA Regional Administrator or, more typically the authorized state, and required in the RCRA permit. If any of the constituents listed in the facility permit are detected at levels that constitute statistically significant evidence of contamination, the owner or operator must initiate a compliance monitoring program to determine whether the disposal units are in

[138] EPA notes in addition that it is authorized under section 3004 (x) to modify the requirements of LDR prohibitions under section 3004 (g), and EPA views capacity variances related to such prohibitions as within the scope of that section 3004 (x) authorization.

[139] A 100-year flood means a flood that as a one-percent or greater chance of recurring in any given year or a flood of a magnitude equaled or exceeded once in 100 years on the average over a significantly long period.

[140] A seismic impact area means an area with a two percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years. Note that in the pre-1997 editions of the NEHRP (National Earthquake Hazards Reduction Program) provisions, seismic hazards around the nation were defined at a uniform 10 percent probability of exceedance in 50 years. Since the 1997 NEHRP Provisions, however, the seismic design maps have been redefined such that for most regions of the nation, the maximum considered earthquake ground motion is defined with uniform probability of exceedance of 2 percent in 50 years. The change in the exceedance probability (from 10% to 2%) was responsive to comments that the use of 10 percent probability of exceedance in 50 years is not sufficiently conservative in the central and eastern United States where earthquakes are expected to occur infrequently.

compliance with the groundwater protection standards established by EPA or the state and specified in the permit. (*See* 40 CFR part 264, subpart F.)

Under 40 CFR part 264, subpart F, if the results of the compliance monitoring program indicate exceedances of any of the constituent levels listed in the permit for the groundwater protection standard, the owner or operator would have to initiate corrective action to achieve compliance with the groundwater protection standards.

*3. Storage.* EPA is not proposing to modify the existing 40 CFR parts 264/265/267 storage standards. These regulations establish design and operating requirements for containers, tanks, and buildings used to treat or store hazardous wastes. For containers, the regulations establish requirements for the storage of hazardous waste, including a requirement for secondary containment. However, if the wastes do not contain free liquids, they need not require a secondary containment system, provided the storage area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation or the containers are elevated or otherwise protected from contact with accumulated liquid.

For new tanks, owners or operators must submit to EPA or the authorized states an assessment certified by an independent registered professional engineer that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that the tank will not collapse, rupture, or fail. Tank systems are required to have secondary containment under section 264.193, unless they receive a specific variance; however, tanks that contain no free liquids and are in buildings with an impermeable floor do not require secondary containment. New tanks (that are required to have secondary containment) must have secondary containment when constructed; existing tanks (that are required to have secondary containment) must come into compliance within two years of the rule's effective date (or when the tank has reached fifteen years of age). Section 264.193 specifically describes the secondary containment required, and the variance process.

Containment buildings must be completely enclosed with a floor, walls, and a roof to prevent exposure to the elements (*e.g.,* precipitation, wind, run-on), and to assure containment of the managed wastes. Buildings must be designed so that they have sufficient structural strength to prevent collapse or other failure, and all surfaces to be in contact with hazardous wastes must be chemically compatible with those wastes.

Recently, representatives of the utility industry have stated their view that CCRs cannot be practically or cost effectively managed under the existing 40 CFR parts 264/265/267 storage standards, and that these standards impose significant costs without meaningful benefits when applied specifically to CCRs.[141] In particular, they cite the very large volume of wastes that must be handled on a daily basis, and the extensive storage and other infrastructure already in place that might have to be retrofitted if the existing 40 CFR parts 264/265/267 storage requirements applied. For example, they state that some CCRs are stored prior to disposal in silos which are not located within a building and may contain free liquids. As a result, under the subtitle C requirements, the owner or operator would be required to construct a building with an impermeable floor, or construct a secondary containment system around the silo (alternatively, they could go through a variance process with the regulatory Agency).

EPA believes that the variance process allowing alternatives to secondary containment would address the concerns raised by industry. The Agency, however, recognizes that the variance process imposes time and resource burdens not only on industry, but on the regulatory agencies. EPA notes that, in the case of larger volume, higher toxicity mineral processing materials being reclaimed, the Agency developed special storage standards under RCRA subtitle C, and it solicits comments on whether those or similar-type standards would be appropriate for CCRs.[142]

Namely, in 40 CFR 261.4(a)(17), EPA required that tanks, containers, and buildings handling this material must be free standing and not a surface impoundment (as defined in the definitions section of this proposal) and be manufactured of a material suitable for storage of its contents. (While not specifically mentioned in this section, we would also consider a requirement that such materials meet appropriate specifications, such as those established either by the American Society of Testing Materials (ASTM), the American Petroleum Institute (API), or Underwriters Laboratories, Inc. (UL) standards.) Buildings must be man-made structures and have floors constructed from non-earthen materials, have walls, and have a roof suitable for diverting rainwater away from the foundation. A building may also have doors or removable sections to enable trucks or machines access.

EPA solicits comments on the practicality of the proposed subtitle C storage requirements for CCRs, the workability of the existing variance process, and the alternative requirements based, for example, on the mining and mineral processing wastes storage requirements. EPA has not developed cost estimates for managing CCRs in compliance with the 40 CFR parts 264/265/267 storage standards. EPA solicits specific comments on these potential costs.

*4. Closure and Post-Closure Care.* Under the RCRA subtitle C alternative to this co-proposal, all of the requirements for closure and post-closure care of landfills and surface impoundments would apply to those landfills that continue to receive CCRs, or otherwise actively manage them, and to those surface impoundments that have not completed closure, when the requirements of a final rule become effective. The 40 CFR parts 264/265 landfill and surface impoundment requirements establish cover requirements (*e.g.,* the cover must have a permeability less than or equal to the permeability of any bottom liner system and must minimize the migration of liquids through the closed landfill). These requirements are generally applied through a closure-plan or permit approval process. Also, the regulations require 30 years of post-closure care, including maintenance of the cap and ground-water monitoring, unless an alternative post-closure period is established by EPA or the authorized state.

*5. Corrective action.* EPA is also not proposing to modify the existing corrective action requirements, including the facility-wide corrective action requirements of RCRA under section 3004(u), section 3008(h), and 40 CFR 264.101. Under these requirements, landfills that continue to receive CCRs or otherwise actively manage them, and surface impoundments that have not

[141] While the utility industry did not specifically mention the 40 CFR part 267 storage standards, we presume that they would make the same technical arguments with respect to those standards.

[142] Land Disposal Restrictions Phase IV: Final Rule Promulgating Treatment Standards for Metal Wastes and Mineral Processing Wastes; Mineral Processing Secondary Materials and Bevill Exclusion Issues; Treatment Standards for Hazardous Soils, and Exclusion of Recycled Wood Preserving Wastewaters; Final Rule (*http://www.epa.gov/EPA-WASTE/1998/May/Day-26/f989.htm*).

completed closure on the date the final rule becomes effective, will be requires to characterize, and as necessary remediate, releases of CCRs or hazardous constituents. Section 3004(x) provides EPA the flexibility to modify corrective action requirements for facilities managing CCRs, including facility-wide corrective action (assuming EPA can reasonably determine that an alternative is protective of human health and the environment). The facility-wide corrective action requirement applies to all solid waste management units from which there have been releases of hazardous wastes or hazardous constituents; however, EPA does not *see* a compelling reason to change the corrective action requirements. Imposing corrective action requirements, including facility-wide corrective action, will assure that closed and inactive units at the facility are properly characterized and, if necessary, remediated, especially since many of these closed or inactive units are unlined. Nevertheless, EPA solicits comment on whether EPA should modify the corrective action requirements under section 3004(x) of RCRA. Commenters should specifically address the issue of how other alternatives could be protective without mandating corrective action as needed for all solid waste management units from which there have been releases of hazardous waste or hazardous constituents at the facility.

*6. Financial assurance.* EPA is also not proposing to modify the existing financial assurance requirements at 40 CFR parts 264/265/267, subpart H. Financial assurance must be adequate to cover the estimated costs of closure and post-closure care (including facility-wide corrective action, as needed), and specific levels of financial assurance are required to cover liability for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from operations of the facility. Allowable financial assurance mechanisms are trust funds, surety bonds, letters of credit, insurance policies, corporate guarantees, and demonstrations and documentation that owners or operators of the facility have sufficient assets to cover closure, post-closure care, and liability. The regulations also require financial assurance for corrective action under section 264.101.

As we have estimated that 53 local governments own and operate coal-fired electric utilities, EPA seeks comment on whether a financial test similar to that in 40 CFR 258.74(f) in the Criteria for Municipal Solid Waste Landfills should be established for local governments that own and operate coal-fired power plants.

*7. Permitting requirements.* Under the RCRA subtitle C alternative, facilities that manage CCRs (in this case, facilities with landfills and surface impoundments, and other possible management units used to store or dispose of CCRs, or generating facilities that store CCRs destined for off-site disposal) must obtain a permit from EPA or from the authorized state. The effect of EPA's proposed listing would extend these permitting requirements to those facilities managing special wastes regulated under subtitle C of RCRA. Parts 124, 267 and 270 detail the specific procedures for the issuance and modification of permits, including public participation, and through the permit process regulatory agencies impose technical design and management standards of 40 CFR parts 264/267. Facilities with landfills that are in existence on the effective date of the regulation (which in this case would generally be the effective date of the state regulations establishing the federal CCR requirements)—which receive CCRs or actively manage CCRs—are eligible for "interim status" under federal regulations, providing they comply with the requirements of 40 CFR section 270.70. By contrast, facilities with surface impoundments that have not completed closure as outlined in this proposal would be subject to the existing permitting requirements, irrespective of whether they continue to receive CCRs into the unit or to actively manage CCRs. While facilities are in interim status, they are subject to the largely self-implementing requirements of 40 CFR part 265. As noted previously, in a final regulation, EPA would make conforming changes to these parts of the CFR to make it clear that the requirements apply to facilities that manage either hazardous wastes or special wastes regulated under subtitle C.

*8. EPA is Not Proposing to Apply the Subtitle C Requirements to CCRs from Certain On-Going State or Federally Required Cleanups.* Under the subtitle C alternative, the Agency is proposing to allow state or federally-required cleanups commenced prior to the effective date of the final rule to be completed in accordance with the requirements determined to be appropriate for the specific cleanup. EPA's rationale for this decision is two-fold. First, for state or federally required cleanups that already commenced and are continuing, the state or federal government has entered into an administrative agreement with the facility owner or operator which specifies remedies, clean-up goals, and timelines that were determined to be protective of human health and the environment, based on the conditions at the site. The overseeing Agency will also be able to ensure that the cleanup waste, if sent off-site (which may sometimes be necessary) will go to appropriately designed and permitted facilities. Second, altering the requirements for cleanups currently underway would be disruptive and could cause significant delays in achieving clean-up goals. Once the rule becomes final, EPA or the state will be able to avail themselves of regulations under RCRA designed specifically for cleanup. However, the Agency takes comment on this proposed provision.

### *D. CERCLA Designation and Reportable Quantities*

Under current law and regulations, all hazardous wastes listed under RCRA and codified in 40 CFR 261.31 through 261.33, and special wastes under 261.50 if the proposed special waste listing is finalized, as well as any solid waste that is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) and that exhibits one or more of the characteristics of a RCRA hazardous waste (as defined in §§ 261.21 through 261.24), are hazardous substances under CERCLA, as amended (*see* CERCLA section 101(14)(C)). CERCLA hazardous substances are listed in Table 302.4 at 40 CFR 302.4 along with their reportable quantities (RQs). If a hazardous substance is released in an amount that equals or exceeds its RQ within a 24-hour period, the release must be reported immediately to the National Response Center (NRC) pursuant to CERCLA section 103.

Thus, under this subtitle C alternative, and as EPA does with any other listed waste, the Agency is proposing to also list CCRs as a CERCLA hazardous substance in Table 302.4 of 40 CFR 302.4. The key constituents of concern in CCRs are already listed as hazardous substances under CERCLA (*i.e.,* arsenic, cadmium, mercury, selenium), and therefore persons who spill or release CCRs already have reporting obligations, depending on the volume of the spill. Typically, under current CERCLA requirements, a person releasing CCRs, for example, would report depending on his estimate of the amount of arsenic or other constituents contained in the release.

Typically, when EPA lists a new waste subject to RCRA subtitle C, the statutory one-pound RQ is applied to the waste. However, EPA is proposing two alternative methods to adjust the

one-pound statutory RQ. The first method, one traditionally utilized by the Agency, adjusts the RQ based on the lowest RQ of the most toxic substance present in the waste. The second method, as part of the Agency's effort to review and re-evaluate its methods for CERCLA designation and RQ adjustment, adjusts the one-pound statutory RQ based upon the Agency's characterization and physical properties of the complex mixtures which comprise the waste to be designated as S001. The Agency invites comment on both methods, and may, based upon these comments and further information, decide to go forward with either method or both methods.

1. Reporting Requirements

Under CERCLA section 103(a), the person in charge of a vessel or facility from which a CERCLA hazardous substance has been released in a quantity that is equal to or exceeds its RQ within a 24-hour period must immediately notify the NRC as soon as that person has knowledge of the release. The toll-free telephone number of the NRC is 1–800–424–8802; in the Washington, DC, metropolitan area, the number is (202) 267–2675. In addition to the reporting requirement under CERCLA, section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA) requires owners or operators of certain facilities to report releases of extremely hazardous substances and CERCLA hazardous substances to state and local authorities. The EPCRA section 304 notification must be given immediately after the release of an RQ (or more) within a 24-hour period to the community emergency coordinator of the local emergency planning committee (LEPC) for any area likely to be affected by the release and to the state emergency response commission (SERC) of any state likely to be affected by the release.

Under section 102(b) of CERCLA, all hazardous substances (as defined by CERCLA section 101(14)) have a statutory RQ of one pound, unless and until the RQ is adjusted by regulation. In this rule, EPA is proposing to list CCRs that are generated by electric utility and independent power producers that are intended for disposal (and not beneficially used), as special wastes subject to regulation under subtitle C of RCRA. In order to coordinate the RCRA and CERCLA rulemakings with respect to the new special waste listing, the Agency is also proposing adjustments to the one-pound statutory RQs for this special waste stream.

2. Basis for RQs and Adjustments

EPA's methodology for adjusting the RQs of individual hazardous substances begins with an evaluation of the intrinsic physical, chemical, and toxicological properties of each hazardous substance. The intrinsic properties examined, called "primary criteria," are aquatic toxicity, mammalian toxicity (oral, dermal, and inhalation), ignitability, reactivity, chronic toxicity, and potential carcinogenicity.

Generally, for each intrinsic property, EPA ranks the hazardous substance on a five-tier scale, associating a specific range of values on each scale with an RQ value of 1, 10, 100, 1,000, or 5,000 pounds. The data for each hazardous substance are evaluated using the various primary criteria; each hazardous substance may receive several tentative RQ values based on its particular intrinsic properties. The lowest of the tentative RQs becomes the "primary criteria RQ" for that substance.

After the primary criteria RQ are assigned, the substances are further evaluated for their susceptibility to certain degradative processes, which are used as secondary adjustment criteria. These natural degradative processes are biodegradation, hydrolysis, and photolysis (BHP). If a hazardous substance, when released into the environment, degrades relatively rapidly to a less hazardous form by one or more of the BHP processes, its RQ (as determined by the primary RQ adjustment criteria) is generally raised by one level. Conversely, if a hazardous substance degrades to a more hazardous product after its release, the original substance is assigned an RQ equal to the RQ for the more hazardous substance, which may be one or more levels lower than the RQ for the original substance. Table 7 presents the RQ for each of the constituents of concern in CCRs taken from Table 302.4—List of Hazardous Substances and Reportable Quantities at 40 CFR 302.4.

TABLE 7—REPORTABLE QUANTITIES OF CONSTITUENTS OF CONCERN

| Hazardous waste No. | Constituent of concern | RQ Pounds (Kg) |
|---|---|---|
| S001 | Antimony | 5000 (2270) |
| | Arsenic | 1 (0.454) |
| | Barium | No RQ |
| | Beryllium | 10 (4.54) |
| | Cadmium | 10 (4.54) |
| | Chromium | 5000 (2270) |
| | Lead | 10 (4.54) |
| | Mercury | 1 (0.454) |
| | Nickel | 100 (45.4) |
| | Selenium | 100 (45.4) |
| | Silver | 1000 (454) |
| | Thallium | 1000 (454) |

The standard methodology used to adjust the RQs for RCRA wastes is based on an analysis of the hazardous constituents of the waste streams. EPA determines an RQ for each hazardous constituent within the waste stream and establishes the lowest RQ value of these constituents as the adjusted RQ for the waste stream. EPA is proposing to use the same methodology to adjust RQs for listed special wastes. In this notice, EPA is proposing a one-pound RQ for listed CCRs based on the one pound RQs for arsenic and mercury (*i.e.,* the two constituents within CCRs with the lowest RQ). In this same rule, however, EPA is also proposing that an alternative method for adjusting the RQ of the CCR wastes also can be used in lieu of the one pound RQ.

3. Application of the CERCLA Mixture Rule to Listed CCR

Although EPA is proposing a one-pound RQ for CCRs listed as a special waste, we are also proposing to allow the owner or operator to use the

maximum observed concentrations of the constituents within the listed CCR wastes in determining when to report releases of the waste.

For listed CCR wastes, where the actual concentrations of the hazardous constituents in the CCRs are not known and the waste meets the S001 listing description, EPA is proposing that persons managing CCR waste have the option of reporting on the basis of the maximum observed concentrations that have been identified by EPA (*see* Table 8 below). Thus, although actual knowledge of constituent concentrations may not be known, assumptions can be made of the concentrations based on the EPA identified maximum concentrations. These assumptions are based on actual sampling data, specifically the maximum observed concentrations of hazardous constituents in CCRs.[143] Table 7 identifies the hazardous constituents for CCRs, their maximum observed concentrations in parts per million (ppm), the constituents' RQs, and the number of pounds of CCRs needed to contain an RQ of each constituent for the CCR to be reported.

TABLE 8—POUNDS REQUIRED TO CONTAIN RQ FOR EACH CONSTITUENT OF LISTED CCR

| Waste stream constituent | Maximum ppm | RQ (lbs) | Pounds required to contain RQ |
|---|---|---|---|
| CCR | ..... | 1 | |
| Antimony | 3,100 | 5,000 | 1,612,903 |
| Arsenic | 773 | 1 | 1,294 |
| Barium | 7,230 | No RQ | No RQ |
| Beryllium | 31 | 10 | 322,581 |
| Cadmium | 760 | 10 | 13,158 |
| Chromium | 5,970 | 5,000 | 837,521 |
| Lead | 1,453 | 10 | 6,883 |
| Mercury | 384 | 1 | 2,604 |
| Nickel | 6,301 | 100 | 15,871 |
| Selenium | 673 | 100 | 148,588 |
| Silver | 338 | 1,000 | 2,958,580 |
| Thallium | 100 | 1,000 | 10,000,000 |

For example, if listed CCR wastes are released from a facility, and the actual concentrations of the waste's constituents are not known, it may be assumed that the concentrations will not exceed those listed above in Table 8. Thus, applying the mixture rule, the RQ threshold for arsenic in this waste is 1,294 pounds—that is, 1,294 pounds of listed CCR waste would need to be released to reach the RQ for arsenic. Reporting would be required only when an RQ or more of any hazardous constituent is released.

Where the concentration levels of all hazardous constituents are known, the traditional mixture rule would apply. Under this scenario, if the actual concentration of arsenic is 100 ppm, 10,000 pounds of the listed CCR waste would need to be released to reach the RQ for arsenic. As applied to listed CCR waste, EPA's proposed approach reduces the burden of notification requirements for the regulated community and adequately protects human health and the environment.

The modified interpretation of the mixture rule (40 CFR 302.6) as it applies to listed CCR wastes in this proposal is consistent with EPA's approach in a final rule listing four petroleum refining wastes (K169, K170, K171, and K172) as RCRA hazardous wastes and CERCLA hazardous substances (*see* 63 FR 42110, Aug. 6, 1998). In that rule, the Agency promulgated a change to the regulations and its interpretation of the mixture rule to allow facilities to consider the maximum observed concentrations for the constituents of the petroleum refining wastes in determining when to report releases of the four wastes. EPA codified this change to its mixture rule interpretation in 40 CFR 302.6(b)(1) as a new subparagraph (iii). In another rule, EPA also followed this approach in the final rule listing two chlorinated aliphatic production wastes (K174 and K175) as RCRA hazardous wastes and CERCLA hazardous substances (*see* 65 FR 67068, Nov. 8, 2000). If the proposed subtitle C alternative becomes final, EPA may modify 40 CFR section 302.6(b)(1) to extend the modified interpretation of the mixture rule to include listed CCR wastes.

4. Correction of Table of Maximum Observed Constituent Concentrations Identified by EPA

When the final rule that listed Chlorinated Aliphatics Production Wastes was published in the Code of Federal Regulations (CFR), the existing table that provided the maximum observed constituent concentrations for petroleum refining wastes (K169, K170, K171, and K172) was inadvertently replaced instead of amended to add the maximum observed constituent concentrations for the chlorinated aliphatic production wastes (K174 and K175). Therefore, the Agency is at this time proposing to correct that inadvertent removal of the petroleum refining wastes by publishing a complete table that includes, the petroleum refining wastes, the chlorinated aliphatic production wastes, and now the CCR wastes (*e.g.,* K169, K170, K171, K172, K174, K175, and S001).

*E. Listing of CCR as Special Wastes To Address Perceived Stigma Issue*

Commenters suggested that the listing of CCRs as a hazardous waste will impose a stigma on their beneficial use, and significantly curtail these uses. EPA questions this assertion, in fact, our experience suggests that the increased costs of disposal of CCRs as a result of regulation of CCRs under RCRA subtitle C would create a strong economic incentive for increased beneficial uses of CCRs. We also believe that the increased costs of disposal of CCRs, as a result of regulation of CCR disposal, but not beneficial uses, should achieve increased usage in non-regulated beneficial uses, simply as a result of the economics of supply and demand. The economic driver—availability of a low-cost, functionally equivalent or often

[143] EPA's CCR constituent concentrations database is available in the docket to this notice.

superior substitute for other raw materials—will continue to make CCRs an increasingly desirable product. Furthermore, it has been EPA's experience in developing and implementing RCRA regulation and elsewhere that material inevitably flows to less regulated applications.

However, with that said, the electric utility industry, the states, and those companies that beneficially use CCRs have nevertheless commented that listing of CCRs as a RCRA subtitle C waste will impose a stigma on their beneficial use and significantly curtail these uses. In their view, even an action that regulates only CCRs destined for disposal as RCRA subtitle C waste, but retains the Bevill exemption for beneficial uses, would have this adverse effect. Finally, the states particularly have commented that, by operation of state law, the beneficial use of CCRs would be prohibited under many states' beneficial use programs, if EPA were to designate CCRs destined for disposal as a RCRA subtitle C waste. Unlike the incentive effect introduced by increased disposal costs in which firms rationally try to avoid higher costs or seek lower cost of raw materials, the idea that there will be a stigma effect rests on an assumption that stigma would alter consumer preferences thereby decreasing end-users' willingness to pay for products that include CCPs. This would have the practical effect of shifting the aggregate CCP demand curve downward.

Some of the other comments that have been made include: (1) Beneficially used CCRs are the same material as that which would be considered hazardous; this asymmetry increases confusion and the probability of lawsuits, however, unwarranted, (2) while the supply of CCRs to be beneficially used may increase given the additional incentives to avoid disposal costs, the consumer demand may decrease as negative perceptions are not always based on reason, (3) any negative impact on beneficial use will require more reliance on virgin materials with higher GHG and environmental footprints, (4) state support may be weakened or eliminated, even in states that are friendly to beneficial use, (5) competitors who use virgin or other materials are taking advantage of the hazardous waste designation by using scare tactics and threats of litigation to get customers to stop using products containing CCRs, (6) customers are already raising questions about the safety of products that contain CCRs, and (7) uncertainty is already hurting business as customers are switching to products where there is less regulatory risk and potential for environmental liabilities. For example, one commenter stated that they have received requests to stop selling boiler slag for ice control due to potential liability.

EPA is concerned about potential stigma and, as we have stated previously, we do not wish to discourage environmentally sound beneficial uses of CCRs. In looking to evaluate this issue, we believe it is first important to understand that the proposed rule (if the subtitle C alternative is finalized) would regulate CCRs under subtitle C of RCRA only if they are destined for disposal in landfills and surface impoundments, and would leave the Bevill determination in effect for the beneficial use of CCRs. That is, the legal status of CCRs that are beneficially used would remain entirely unchanged (*i.e.,* they would not be regulated under subtitle C of RCRA as a hazardous waste, nor subject to any federal non-hazardous waste requirements). EPA is proposing to regulate the disposal of CCRs under subtitle C of RCRA because of the specific nature of disposal practices and the specific risks these practices involve—that is, the disposal of CCRs in (often unlined) landfills or surface impoundments, with millions of tons placed in a concentrated location. The beneficial uses that EPA identifies as excluded under the Bevill amendment, for the most part, present a significantly different picture, and a significantly different risk profile. As a result, EPA is explicitly not proposing to change their Bevill status (although we do take comment on whether "unconsolidated uses" of CCRs need to be subject to federal regulation). (For further discussion of the beneficial use of CCRs, *see* section IV. D in this preamble.)

Furthermore, in today's preamble, we make it clear that certain uses of CCRs—*e.g.,* FGD gypsum in wallboard—do not involve "waste" management at all; rather, the material is a legitimate co-product that, under most configurations, has not been discarded in the first place and, therefore, would not be considered a "solid waste" under RCRA. Moreover, EPA's experience suggests that it is unlikely that a material that is not a waste in the first place would be stigmatized, particularly when used in a consolidated form and while continuing to meet long established product specifications.

In fact, EPA's experience with past waste regulation, and with how hazardous waste and other hazardous materials subject to regulation under subtitle C are used and recycled, suggests that a hazardous waste "label" does not impose a significant barrier to its beneficial use and that non-regulated uses will increase as the costs of disposal increase. There are a number of examples that illustrate these points, although admittedly many of these products are not used in residential settings:

- Electric arc furnace dust is a listed hazardous waste (K061), and yet it is a highly recycled material. Specifically, between 2001 and 2007, approximately 42% to 51% of K061 was recycled (according to Biennial Reporting System (BRS) data). Both currently and historically, it has been used as an ingredient in fertilizer and in making steel, and in the production of zinc products, including pharmaceutical materials. Slag from the smelting of K061 is in high demand for use in road construction.[144] In fact, there is little doubt that without its regulation as a hazardous waste, a significantly greater amount of electric arc further dust would be diverted from recycling to disposal in non-hazardous waste landfills.
- Electroplating wastewater sludge is a listed hazardous waste (F006) that is recycled for its copper, zinc, and nickel content for use in the commercial market. In 2007, approximately 35% of F006 material was recycled (according to BRS data). These materials do not appear to be stigmatized in the marketplace.
- Chat, a Superfund mining cleanup waste with lead, cadmium and zinc contamination, is used in road construction in Oklahoma and the surrounding states.[145] In this case, the very waste that has triggered an expensive Superfund cleanup is successfully offered in the marketplace as a raw material in road building. The alternative costs of disposal in this case are a significant driver in the beneficial use of this material, and the Superfund origin of the material has not served as a barrier to its use.
- Used oil is regulated under RCRA subtitle C standards. While used oil that is recycled is subject to a separate set of standards under subtitle C (and is not identified as a hazardous waste), "stigma" does not prevent home do-it-yourselfers from collecting used oil, or automotive shops from accepting it and sending it on for recovery. Collected used oil may be re-refined, reused, or used as fuel in boilers, often at the site

[144] According to the most recently available data, in 2008 *Horsehead* produced about 300,000 tons per year of an Iron-Rich Material (IRM) as a by-product of its dust recycling process, and in 2009 *Inmetco* produced close to 20,000 tons per year. PADEP asserts that these plants cannot meet the demands for use of the slag by PennDOT.

[145] 40 CFR part 260, 39331–39353.

where it is collected. Safety Kleen reported that in 2008, the company recycled 200 million gallons of used oil. (This example is almost directly analogous to the situation with respect to CCRs, although for CCRs, we are not proposing to subject them to any management standards when used or recycled, but, as in the case of used oil, this alternative would avoid labeling CCR's as "hazardous waste," even while relying on subtitle C authority.)

- Spent etchants are directly used as ingredients in the production of a copper micronutrient for livestock; and
- Spent solvents that are generated from metals parts washing and are generally hazardous wastes before reclamation are directly used in the production of roofing shingles.

Furthermore, common products and product ingredients routinely used at home (*e.g.,* motor oil; gasoline; many common drain cleaners and household cleaners; and cathode ray tube monitors for TVs and computers) are hazardous wastes in other contexts. This includes fluorescent lamps (and CFLs) which are potentially hazardous because of mercury. Consumers are generally comfortable with these products, and their regulatory status does not discourage their use. Given this level of acceptance, EPA questions whether CCR-based materials that might be used in the home, like concrete or wallboard, would be likely to raise concerns where they are safely incorporated into a product.

Certain commenters have also expressed the concern that standards-setting organizations might prohibit the use of CCRs in specific products or materials in their voluntary standards. Recently, chairpersons of the American Standards and Testing Materials (ASTM) International Committee C09, and its subcommittee, C09.24, in a December 23, 2009 letter indicated that ASTM would remove fly ash from the project specifications in its concrete standard if EPA determined that CCRs were a hazardous waste when disposed. However, it remains unclear whether ASTM would ultimately adopt this position, in light of EPA's decision not to revise the regulatory status of CCRs destined for beneficial use. Further ASTM standards are developed through an open consensus process, and they currently apply to the use of numerous hazardous materials in construction and other activities. For example, ASTM provides specifications for the reuse of solvents and, thus, by implication, does not appear to take issue with the use of these recycled secondary materials, despite their classification as hazardous wastes.[146]

Others take a different view on how standard-setting organizations will react. Most notably, a U.S. Green Building Council representative was referenced in the New York Times as saying that LEED incentives for using fly ash in concrete would remain in place, even under an EPA hazardous waste determination.[147] If the Green Building Council (along with EPA) continues to recognize fly ash as an environmentally beneficial substitute for Portland cement, the use of this material is unlikely to decrease solely because of "stigma" concerns. Additionally, we believe it is unlikely that ASTM will prohibit the use of fly ash in concrete under its standards solely because of a determination that fly ash is regulated under subtitle C of RCRA when it is discarded, especially given that this use of fly ash is widely accepted throughout the world as a practice that improves the performance of concrete, it is one of the most cost-effective near-term strategies to reduce GHG emissions, and there is no evidence of meaningful risk, nor any reason to think there might be, involved with its use in cement or concrete.

Finally, many states commented that their statutes or regulations prohibit the use of hazardous wastes in their state beneficial use programs and, therefore, that if EPA lists CCRs as hazardous wastes (even if only when intended for disposal), their use would be precluded in those states. EPA reviewed the regulations of ten states with the highest consumption of fly ash and concluded that, while these states do not generally allow the use of hazardous waste in their beneficial use programs, this general prohibition would not necessarily prohibit the beneficial use of CCRs under the proposal that EPA outlines in this rule. Beneficially used CCRs would remain Bevill-exempt solid wastes, or in some cases, would not be considered wastes at all and thus, the legal status of such CCRs may not be affected by EPA's proposed RCRA subtitle C rule. As an example, the use of slag derived from electric furnace dust (K061) is regulated under Pennsylvania's beneficial use program, despite the fact that it is derived from a listed hazardous waste. However, we are also aware that, in the case of Florida, its state definition of hazardous waste would likely prohibit the beneficial use of CCRs were the co-proposed RCRA subtitle C regulation finalized and were there no change to Florida's definition of hazardous waste.

The primary concern raised by these commenters is the fact that CCRs would be labeled a "hazardous waste" (even if only when disposed) and will change the public perception of products made from CCRs. To address this concern, EPA is proposing, as one alternative, to codify the listing in a separate, unique section of the regulations. Currently, hazardous wastes are listed in 40 CFR 261, Subpart D, which identifies the currently regulated industrial wastes, and which is labeled, "Lists of Hazardous Wastes." EPA would create a new Subpart F and label the section as "List of Special Wastes Subject to Subtitle C," to distinguish it from the industrial hazardous wastes. The regulations would identify CCRs as a "Special Waste" rather than a K-listed hazardous waste, so that CCRs would not automatically be identified with all other hazardous wastes. *See* sections V through VII for the full description of our regulatory proposal.

EPA believes that this action could significantly reduce the likelihood that products made from or containing CCRs would automatically be perceived as universally "hazardous." When taken in combination with (1) the fact that beneficially used CCRs will remain exempt and (2) EPA's continued promotion of the beneficial use of CCRs, we believe this will go a long way to address any stigmatic impact that might otherwise result from the regulation of CCRs under subtitle C of RCRA. We are seeking comment on other suggestions on how EPA might promote the beneficial use of CCRs, as well as suggestions that would reduce any perceived impacts resulting from "stigma" due to the identification of CCRs as "special wastes regulated under subtitle C authority."

In summary, based on our experiences, we expect that it will be more likely that the increased costs of disposal of CCRs as a result of regulation of CCR disposal under subtitle C would increase their usage in non-regulated beneficial uses, simply as a result of the economics of supply and demand. The economic driver—availability of a low-cost, functionally equivalent or often superior substitute for other raw materials—would continue to make CCRs an increasingly desirable product.

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[146] *See,* for example, ASTM Volume 15.05, Engine Coolants, Halogenated Organic Solvents and Fire Extinguishing Agents; Industrial and Specialty Chemicals, at *http://www.normas.com/ASTM/BOS/volume1505.html. See also* ASTM D5396—04 Standard Specification for Reclaimed Perchloroethylene, at *http://www.astm.org/Standards/D5396.htm.*

[147] *See http://www.nytimes.com/gwire/2020/01/13/13greenwire-recycling-questions-complicate-epa-coal-ash-de-90614.html.*

**VII. How would the proposed subtitle c requirements be implemented?**

*A. Effective Dates*

If EPA were to finalize the subtitle C regulatory alternative proposed today, the rule, as is the case with all RCRA subtitle C rules, would become effective six months after promulgation by the appropriate regulatory authority—that is, six months after promulgation of the federal rule in States and other jurisdictions where EPA implements the hazardous waste program (Iowa, Alaska, Indian Country, and the territories, except Guam) and in authorized States, six months after the State promulgates its regulations that EPA has approved via the authorization process (unless State laws specify an alternative time). This means that facilities managing CCRs must be in compliance with the provisions of these regulations on their effective date, unless the compliance date is extended. For this proposed regulatory alternative, the compliance dates for several of the proposed requirements for existing units are being extended due to the need for additional time for facilities to modify their existing units. The precise dates that facilities will need to be in compliance with the various requirements will depend on whether they are in a jurisdiction where EPA administers the RCRA subtitle C program or whether they are in a State authorized to administer the RCRA subtitle C program.

To summarize, (1) In States and jurisdictions where EPA administers the RCRA program (Iowa, Alaska, the territories [except Guam], and Indian Country), most of the subtitle C requirements go into effect and are enforceable by EPA six months after promulgation of the final rule. This includes the generator requirements, transporter requirements, including the manifest requirements, permitting requirements for facilities managing CCRs, interim status standards, surface impoundment stability requirements, and the Land Disposal Restriction (LDR) treatment standards for non-wastewaters in 40 CFR part 268. However, we are proposing that existing CCR landfills and surface impoundments (as defined in this regulation) will be given additional time to comply with several of the proposed requirements as specified later in this section. Any new CCR landfills, including lateral expansions (as defined in the regulation), must be in compliance with all the requirements of any final regulation before CCRs can be placed in the unit.

(2) In States that are authorized to administer the RCRA program, the requirements that are part of the RCRA base program (*i.e.,* those promulgated under the authority of RCRA and not the HSWA amendments) will not be effective until the State develops and promulgates its regulations. Once those regulations are effective in the States, they are enforceable as a matter of State law and facilities must comply with those requirements under the schedule established by the State. These RCRA base requirements will become part of the RCRA authorized program and enforceable as a matter of federal law once the State submits and EPA approves a modification to the State's authorized program. (*See* the State Authorization section (section VIII) for a more detailed discussion.) The requirements that are more stringent or broader in scope than the existing regulations and are promulgated pursuant to HSWA authority will become effective and federally enforceable on the effective date of the approved state law designating CCRs as a special waste subject to subtitle C—that is, they are federally enforceable without waiting for authorization of the program revision applicable to the HSWA provisions. On the other hand, any requirements that are promulgated pursuant to HSWA authority, but are less stringent than the existing subtitle C requirements (*e.g.,* modifications promulgated pursuant to Section 3004(x)) will become effective only when the State promulgates those regulations (and federally enforceable when the State program revision is authorized), as the State has the discretion to not adopt those less stringent requirements.

*B. What are the requirements with which facilities must comply?*

It is EPA's intention that this proposed alternative, if finalized, will be implemented in the same manner as previous regulations under RCRA subtitle C have been. The following paragraphs describe generally how this proposal will be implemented. While this notice provides some details on specific requirements, it is EPA's intention that, unless otherwise noted, all current Subtitle C requirements become applicable to the facilities generating, transporting, or treating, storing or disposing of CCRs listed as special wastes. While in this notice EPA has described the major subtitle C requirements, EPA has not undertaken a comprehensive description of all of the subtitle C regulatory requirements which may be applicable; therefore, we encourage commenters to refer to the regulations at 40 CFR parts 260 to 268, 270 to 279, and 124 for details.

1. Generators and Transporters

i. Requirements

Under this proposed regulation, regulated CCRs destined for disposal become a newly listed special waste subject to the subtitle C requirements. Persons that generate this newly identified waste is required to notify EPA within 90 days after the wastes are identified or listed [148] (by EPA or the state) and obtain an EPA identification number if they do not already have one in accordance with 40 CFR 262.12. (If the person who generates regulated CCRs already has an EPA identification number, EPA is proposing not to require that they re-notify EPA; however, EPA is seeking comment on this issue.) Moreover, on the effective date of this rule in the relevant state, generators of CCRs must be in compliance with the generator requirements set forth in 40 CFR part 262. These requirements include standards for waste determination (40 CFR 262.11), compliance with the manifest (40 CFR 262.20 to 262.23), pre-transport procedures (40 CFR 262.30 to 262.34), generator accumulation (40 CFR 262.34), record keeping and reporting (40 CFR 262.40 to 262.44), and the import/export procedures (40 CFR 262.50 to 262.60). It should be noted that the current generator accumulation provisions of 40 CFR 262.34 allow generators to accumulate hazardous wastes without obtaining interim status or a permit only in units that are container accumulation units, tank systems or containment buildings; the regulations also place a limit on the maximum amount of time that wastes can be accumulated in these units. If these wastes are managed in landfills, surface impoundments or other units that are not tank systems, containers, or containment buildings, these units are subject to the permitting requirements of 40 CFR parts 264, 265, and 267 and the generator is required to obtain interim status and seek a permit (or modify interim status or a permit, as appropriate). These requirements would be applied to special wastes as well. Permit requirements are described in Section VII.D below.

Transporters of CCRs destined for disposal will be transporting a special waste subject to subtitle C on the effective date of this regulation. Persons who transport these newly identified wastes will be required to obtain an EPA identification number as described

[148] *See* section 3010 of RCRA.

above and must comply with the transporter requirements set forth in 40 CFR part 263 on the effective date of the final rule. In addition, generators and transporters of CCRs destined for disposal should be aware that an EPA identified waste subject to the EPA waste manifest requirements under 40 CFR part 262 meets the definition for a hazardous material under the Department of Transportation's Hazardous Materials Regulations (HMR; 49 CFR parts 171–180) and must be offered and transported in accordance with all applicable HMR requirements, including materials classification, packaging, and hazard communication.[149]

ii. Effective Dates and Compliance Deadlines

Generators must notify EPA within 90 days after the date that CCRs are identified or listed as special wastes (by EPA or the state). The other requirements for generators and transporters (in 40 CFR parts 262 and 263) are effective and generators and transporters must be in compliance with these requirements on the effective date of the final rules. The effective date of these rules is six months after promulgation of the federal rule in non-authorized States and in authorized States generally six months after promulgation of the State regulations. (*See* previous section for a more detailed discussion of effective dates.)

2. Treatment, Storage, and Disposal Facilities (TSDs)

i. Requirements

Facilities treating, storing, or disposing of the newly listed CCRs are subject to the RCRA 3010 notification requirements, the permit requirements in 40 CFR part 270, and regulations in 40 CFR part 264 or 267 for permitted facilities or part 265 for interim status facilities, including the general facility requirements in subpart B, the preparedness and prevention requirements in subpart C, the contingency plan and emergency procedure requirement in subpart D, the manifest, recordkeeping and reporting requirements in subpart E, the closure and post-closure requirements in subpart G, the corrective action requirements, including facility-wide corrective action in subpart F, and the financial assurance requirements in subpart H.

[149] *See* the definition for "hazardous waste" in 49 CFR 171.8.

*C. RCRA Section 3010 Notification*

Pursuant to RCRA section 3010 and 40 CFR 270.1(b), facilities managing these special wastes subject to subtitle C must notify EPA of their waste management activities within 90 days after the wastes are identified or listed as a special waste. (As noted above, for facilities in States where EPA administers the program, this will be 90 days from the date of promulgation of the final federal regulation; in authorized States, it will be 90 days from the date of promulgation of listing CCRs as a special waste by the state, unless the state provides an alternative timeframe.) This requirement may be applied even to those TSDs that have previously notified EPA with respect to the management of hazardous wastes. The Agency is proposing to waive this notification requirement for persons who handle CCRs and have already: (1) Notified EPA that they manage hazardous wastes, and (2) received an EPA identification number because requiring persons who have notified EPA and received an EPA identification number would be duplicative and unnecessary, although the Agency requests comment on whether it should require such persons to re-notify the Agency that they generate, transport, treat, store or dispose of CCRs. However, any person who treats, stores, or disposes of CCRs and has not previously received an EPA identification number for other waste must obtain an identification number pursuant to 40 CFR 262.12 to generate, transport, treat, store, or dispose of CCRs within 90 days after the wastes are identified or listed as special wastes subject to subtitle C, as described above.

*D. Permit Requirements*

As specified in 40 CFR 270.1(b), six months after promulgation of a new regulation, the treatment, storage or disposal of hazardous waste or special waste subject to subtitle C by any person who has not applied for and received a RCRA permit is prohibited from managing such wastes. Existing facilities, however, may satisfy the permit requirement by submitting Part A of the permit application. Timely submission of Part A and the notification qualifies a facility for interim status under section 3005 of RCRA and facilities with interim status are treated as having been issued a permit until a final decision is made on a permit application.

The following paragraphs provide addition details on how the permitting requirements would apply to various categories of facilities:

1. Facilities Newly Subject to RCRA Permit Requirements

Facilities that treat, store, or dispose of regulated CCRs at the time the rule becomes effective would generally be eligible for interim status pursuant to section 3005 of RCRA. (*See* section 3005(e)(1)(A)(ii) of RCRA).[150] EPA believes most, if not all utilities generating CCRs and most if not all off-site disposal sites will be in this situation. In order to obtain interim status based on treatment, storage, or disposal of such newly listed CCRs, eligible facilities are required to comply with 40 CFR 270.70(a) and 270.10(e) (or more likely with analogous state regulations) by providing notice under RCRA section 3010 (if they do not have an EPA identification number) and submitting a Part A permit application no later than six months after date of publication of the regulations which first require them to comply with the standards. (In most cases, these would be the state regulations implementing the federal program; however, in those States and jurisdictions where EPA implements the program, the deadline will be six months after promulgation of the final federal rule.) Such facilities are subject to regulation under 40 CFR part 265 until EPA or the state issues a RCRA permit. In addition, under section 3005(e)(3) and 40 CFR 270.73(d), not later than 12 months after the effective date of the regulations that render the facility subject to the requirement to have a RCRA permit and which is granted interim status, land disposal facilities newly qualifying for interim status under section 3005(e)(1)(A)(ii) also must submit a Part B permit application and certify that the facility is in compliance with all applicable ground water monitoring and financial responsibility requirements. If the facility fails to submit these certifications and the Part B permit application, interim status will terminate on that date.

2. Existing Interim Status Facilities

EPA is not aware of any utilities or CCR treatment or disposal sites in RCRA interim status currently, and therefore

[150] Section 3005(e) of RCRA states, in part, that "Any person who * * * is in existence on the effective date of statutory or regulatory changes under this Act that render the facility subject to the requirement to have a permit under this section * * * shall be treated as having been issued such permit until such time as final administrative disposition of such application is made, unless the Administrator or other plaintiff proves that final administrative disposition of such application has not been made because of the failure of the applicant to furnish information reasonably required or requested in order to process the application.

EPA does not believe the standard federal rules on changes in interim status will apply. However, in case such a situation exists, EPA describes below the relevant provisions. Again, EPA is describing the federal requirements, but because the proposed requirements that subject these facilities to permitting requirements are part of the RCRA base program, authorized state regulations will govern the process, and the date those regulations become effective in the relevant state will trigger the process.

Pursuant to 40 CFR 270.72(a)(1), all existing hazardous waste management facilities (as defined in 40 CFR 270.2) that treat, store, or dispose of newly identified hazardous wastes and are currently operating pursuant to interim status under section 3005(e) of RCRA, must file an amended Part A permit application with EPA no later than the effective date of the final rule in the State where the facility is located. By doing this, the facility may continue managing the newly listed wastes. If the facility fails to file an amended Part A application by such date, the facility will not receive interim status for management of the newly listed wastes (in this case CCRs) and may not manage those wastes until the facility receives either a permit or a change in interim status allowing such activity (40 CFR 270.10(g)). This requirement, if applicable to any electric utilities, will be applied to those facilities managing CCRs destined for disposal since these facilities will now be managing CCRs subject to the subtitle C requirements.

3. Permitted Facilities

EPA also believes that no electric utilities treating, storing, or disposing of CCRs currently has a RCRA permit for its CCR management unit(s), nor is EPA aware of any on-going disposal of CCRs at permitted hazardous waste TSDs, although the latter situation is a possibility. Federal procedures for how permitted hazardous waste facilities manage newly listed hazardous wastes are described below, but again in practice (with the exception of those jurisdictions in which EPA administers the hazardous waste program), the authorized state regulations will govern the process.

Under 40 CFR 270.42(g), facilities that already have RCRA permits must request permit modifications if they want to continue managing the newly listed wastes (*see* 40 CFR 270.42(g) for details). This provision states that a permittee may continue managing the newly listed wastes by following certain requirements, including submitting a Class 1 permit modification request on or before the date on which the waste or unit becomes subject to the new regulatory requirements (*i.e.,* the effective date of the final federal rule in those jurisdictions where EPA administers the program or the effective date of the State rule in authorized States), complying with the applicable standards of 40 CFR parts 265 and 266 and submitting a Class 2 or 3 permit modification request within 180 days of the effective date of the final rule. Again, these requirements, if applicable to any electric utilities, will be applied to those facilities managing CCRs destined for disposal since they are now subject to the subtitle C requirements.

*E. Requirements in 40 CFR Parts 264 and 265*

The requirements of 40 CFR part 264 and 267 for permitted facilities or part 265 for interim status facilities, including the general facility standards in subpart B, the preparedness and prevention requirements in subpart C, the contingency plan and emergency procedure requirements in subpart D, the manifest, recordkeeping and reporting requirements in subpart E, the corrective action requirements, including facility-wide corrective action in subpart F, and the financial assurance requirements in Subpart H, are applicable to TSDs and TSDs must be in compliance with those requirements on the effective date of the final (usually state) regulation, except as noted below. These requirements will apply to those facilities managing CCRs destined for disposal.

Moreover, all units in which newly identified hazardous wastes are treated, stored, or disposed of after the effective date of the final (usually state) rule that are not excluded from the requirements of 40 CFR parts 264, 265 and 267 will be subject to both the general closure and post-closure requirements of subpart G of 40 CFR parts 264 and 265 and the unit-specific closure requirements set forth in the applicable unit technical standards in subparts 40 CFR parts 264 or 265 (*e.g.,* subpart N for landfill units). In addition, EPA promulgated a final rule that allows, under limited circumstances, regulated landfills or surface impoundments, (or land treatment units which is not used for the management of CCR waste) to cease managing hazardous waste, but to delay subtitle C closure to allow the unit to continue to manage non-hazardous waste for a period of time prior to closure of the unit (*see* 54 FR 33376, August 14, 1989). Units for which closure is delayed continue to be subject to all applicable 40 CFR parts 264 and 265 requirements. Dates and procedures for submittal of necessary demonstrations, permit applications, and revised applications are detailed in 40 CFR 264.113(c) through (e) and 265.113(c) through (e). As stated earlier, these requirements will be applicable to those facilities managing CCRs destined for disposal, since they will be managing a newly listed waste subject to subtitle C requirements.

Except as noted below, existing facilities are required to be in compliance with the surface impoundment stability requirements, the LDR treatment standards for non-wastewaters, and the fugitive dust controls on the effective date of the final rule.

For certain of the other requirements, existing facilities will have:

(a) 60 days from the effective date of the final rule to install a permanent identification marker on each surface impoundment as required by 40 CFR 264.1304(d) and 40 CFR 265.1304(d).

(b) 1 year from the effective date of the final rule:

To submit plans for each surface impoundments as required by 264.1304(b) and 265.1304(b).

To adopt and submit to the Regional Administrator a plan for carrying out the inspection requirements for each surface impoundment in 40 CFR 264.1305 and 40 CFR 265.1305.

To comply with the groundwater monitoring requirements for each landfill and surface impoundment in 40 CFR 264, Subpart F and 265, Subpart F.

(c) 2 years from the effective date of the final rule:

To install, operate, and maintain run-on and run-off controls as required by 264.1304(g) and 265.1304(g) for surface impoundments and by 264.1307(d) and 265.1307(d) for landfills.

(d) 5 years from the effective date of the final rule:

To comply with the LDR wastewater treatment standard.

To stop receiving CCR waste in surface impoundments.

(e) 7 years from the effective date of the final rule to close surface impoundments handling CCRs.

Any new CCR landfills, including lateral expansions of existing landfills (as defined in the regulation), must be in compliance with all the requirements of the final regulation before CCRs can be placed in the unit.

The table below (Table 9) provides a summary of the effective dates for the various requirements:

TABLE 9—CCR RULE REQUIREMENTS

| | Compliance date non authorized state | Compliance date authorized state |
|---|---|---|
| Remove Bevill Exclusion | 6 months after promulgation of final rule | 6 months after State adopts regulations (under State law); federally enforceable when state program revision is authorized. |
| Listing CCRs as a Special Waste Subject to subtitle C. | Same | Same. |
| Notification (generators and TSDs) | 90 days after rule promulgation (that is, the date the CCRs are listed as a Special Waste subject to subtitle C. | 90 days after State rule promulgation (that is, the date the CCRs are listed as a Special Waste subject to subtitle C. |
| Generator requirements (40 CFR part 262) | 6 months after promulgation | On the effective date of the State regulations. |
| Transporter Requirements (40 CFR part 263) | 6 months after promulgation | On the effective date of State regulations. |
| Permit Requirement/Interim Status | File Part A of the permit application within six months of effective date of final rule. | File Part A of the permit application within six months of effective date of State final rule. |
| Facility Standards in Part 264/265 | On effective date unless specifically noted | On effective date of state regulation unless specifically noted. |
| Install a permanent identification marker on each surface impoundment as required by 40 CFR 264.1304(d) and 40 CFR 265.1304(d). | 60 days from the effective date of the final rule. | 60 days from the effective date of the State regulation. |
| Submit plans required by 264.1304(b) and 265.1304(b). | 1 year from the effective date of the final rule | 1 year from the effective date of the State regulation. |
| Adopt and submit to the Regional Administrator a plan for carrying out the inspection requirements in 40 CFR 264.1305 and 40 CFR 265.1305. | 1 year from the effective date of the final rule | 1 year from the effective date of the State regulation. |
| Comply with ground water monitoring requirements in 40 CFR 264 Subpart F and 40 CFR 265 Subpart F. | 1 year from the effective date of the final rule | 1 year from the effective date of the State regulation. |
| Install, operate, and maintain run-on and run-off controls as required by 264.1304 (g) and 265.1304 (g) for surface impoundments and by 264.1307 (d) and 265.1307 (d) for landfills. | 2 years from the effective date of the final rule | 2 years from the effective date of the State regulation. |
| Comply with the LDR wastewater treatment standard. | 5 years from the effective date of the final rule | 5 years from the effective date of the State regulation. |
| Close surface impoundments receiving CCR waste. | 7 years from the effective date of the final rule | 7 years from the effective date of the State regulation. |

## VIII. Impacts of a Subtitle C Rule on State Authorization

### *A. Applicability of the Rule in Authorized States*

Under section 3006 of RCRA, EPA authorizes qualified states to administer their own hazardous waste programs in lieu of the federal program within the state. Following authorization, EPA retains enforcement authority under sections 3008, 3013, and 7003 of RCRA, although authorized states have primary enforcement responsibility. The standards and requirements for state authorization are found at 40 CFR part 271.

Prior to enactment of the Hazardous and Solid Waste Amendments of 1984 (HSWA), a state with final RCRA authorization administered its subtitle C hazardous waste program in lieu of EPA administering the federal program in that state. The federal requirements no longer apply in the authorized state, and EPA could not issue permits for any facilities in that state, since only the state was authorized to issue RCRA permits. When new, more stringent federal requirements are promulgated, the state was obligated to enact equivalent authorities within specified time frames (one to two years). The new more stringent federal requirements did not take effect in the authorized state until the state adopted the federal requirements as state law, and the state requirements are not federally enforceable until EPA authorized the state program. This remains true for all of the requirements issued pursuant to statutory provisions that existed prior to HSWA.

In contrast, under RCRA section 3006(g) (42 U.S.C. 6926(g)), which was added by HSWA, new requirements and prohibitions imposed under HSWA authority take effect in authorized states at the same time that they take effect in unauthorized states. EPA is directed by the statute to implement these requirements and prohibitions in authorized states, until the state is granted authorization to do so. While states must still adopt new more stringent HSWA related provisions as state law to retain final authorization, EPA implements the HSWA provisions in authorized states until the states do so.

Authorized states are required to modify their programs only when EPA enacts federal requirements that are more stringent or broader in scope than the existing federal requirements. RCRA section 3009 allows the states to impose standards more stringent than those in the federal program (*see* also 40 CFR 271.1). Therefore, authorized states may, but are not required to, adopt federal regulations, both HSWA and non-HSWA, that are considered less stringent than previous federal regulations.

This alternative of the co-proposal is considered more stringent and broader in scope than current federal regulations and therefore States would be required to adopt regulations and modify their programs if this alternative is finalized.

### *B. Effect on State Authorization*

If finalized, a subtitle C rule for CCRs would affect state authorization in the same manner as any new RCRA subtitle C requirement; *i.e.,* (1) this alternative of the co-proposal would be considered broader in scope and more stringent than the current federal program, so authorized states must adopt regulations so that their program remains at least as stringent as the federal program; and (2) they must receive authorization from

EPA for these program modifications. The process and requirements for modification of state programs at 40 CFR 271, specifically 271.21, will be used.

However, this process is made more complex due to the nature of this particular rulemaking and the fact that some of the provisions of this alternative, if finalized, would be finalized pursuant to the RCRA base program authority and some pursuant to HSWA authority. For RCRA base program or non-HSWA requirements, the general rule, as explained previously, is that the new requirements do not become enforceable as a matter of federal law in authorized states until states adopt the regulations, modify their programs, and receive authorization from EPA. For HSWA requirements, the general rule is that HSWA requirements are enforceable on the effective date of the final federal rule. If an authorized State has not promulgated regulations, modified their programs, and received authorization from EPA, then EPA implements the requirements until the State receives program authorization.

In accord with 271.2(e)(2), authorized states must modify their programs by July 1 of each year to reflect changes to the federal program occurring during the "12 months preceding the previous July 1." Therefore, for example, if the federal rule is promulgated in December 2011, the states would have until July 1, 2013 to modify their programs. States may have an additional year to modify their programs if an amendment to a state statute is needed. *See* 40 CFR 271.21(e)(2)(v).

As noted above, this alternative to the co-proposal is proposed pursuant in part to HSWA authority and in part to non-HSWA or RCRA base program authority. The majority of this alternative is proposed pursuant to non-HSWA authority. This includes, for example, the listing of CCRs destined for disposal as a special waste subject to subtitle C and the impoundment stability requirements. These requirements will be applicable on the effective date of the final federal rule only in those states that do not have final authorization for the RCRA program. These requirements will be effective in authorized states once a state promulgates the regulations and they will become a part of the authorized RCRA program and thus federally enforceable, once the state has submitted a program modification and received authorization for this program modification.

The prohibition on land disposal unless CCRs meet the treatment standards and modification of the treatment standards in 40 CFR part 268 are proposed pursuant to HSWA authority and would normally be effective and federally enforceable in all States on the effective date of the final federal rule. However, because the land disposal restrictions apply to those CCRs that are regulated under subtitle C, until authorized states revise their programs and become authorized to regulate CCRs as a special waste subject to RCRA subtitle C, the land disposal restriction requirements would apply only in those States that currently do not exclude CCRs from subtitle C regulation (that is, CCRs are regulated under subtitle C if they exhibit one or more of the characteristics) and the CCRs in fact exhibit one or more of the RCRA subtitle C characteristics. However, once the state has the authority to regulate CCRs as a special waste, the LDR requirements become federally enforceable in all States.

In addition, the tailored management standards promulgated pursuant to section 3004(x) of RCRA are also proposed pursuant to HSWA authority. However, as these tailored standards are less stringent than the existing RCRA subtitle C requirements, States would not be required to promulgate regulations for these less stringent standards—should a State decide not to promulgate such regulations, the facilities in that state would be required to comply with the full subtitle C standards. Therefore, the tailored management standards will be effective in authorized States only when States promulgate such regulations.

Therefore, the Agency would add this rule to Table 1 in 40 CFR 271.1(j), if this alternative to the co-proposal is finalized, which identifies the federal program requirements that are promulgated pursuant to HSWA and take effect in all states, regardless of their authorization status. Table 2 in 40 CFR 271.1(j) would be modified to indicate that these requirements are self-implementing. Until the states receive authorization for the more stringent HSWA provisions, EPA would implement them, as described above. In implementing the HSWA requirements, EPA will work closely with the states to avoid duplication of effort. Once authorized, states adopt an equivalent rule and receive authorization for such rule from EPA, the authorized state rule will apply in that state as the RCRA subtitle C requirement in lieu of the equivalent federal requirement.

## IX. Summary of the Co-Proposal Regulating CCRs Under Subtitle D Regulations

### *A. Overview and General Issues*

EPA is co-proposing and is soliciting comment on an approach under which the May 2000 Regulatory Determination would remain in place, and EPA would issue regulations governing the disposal of CCRs under sections 1008(a), 2002, 4004 and 4005(a) of RCRA (*i.e.,* "Subtitle D" of RCRA). Under this approach, the CCRs would remain classified as a non-hazardous RCRA solid waste, and EPA would develop national minimum criteria governing facilities for their disposal. EPA's co-proposed subtitle D minimum criteria are discussed below.

*Statutory standards for Subtitle D approach.* Under RCRA 4005(a), upon promulgation of criteria under 1008(a)(3), any solid waste management practice or disposal of solid waste which constitutes the "open dumping" of solid waste is prohibited. The criteria under RCRA 1008(a)(3) are those that define the act of open dumping, and are prohibited under 4005(a), and the criteria under 4004(a) are those to be used by states in their planning processes to determine which facilities are "open dumps" and which are "sanitary landfills." EPA has in practice defined the two sets of criteria identically. *See, e.g.,* Criteria for Classification of Solid Waste Disposal Facilities and Practices, 44 FR 53438, 53438–39 (Sept. 13, 1979). EPA has designed today's co-proposed subtitle D criteria to integrate with the existing open dumping criteria in this respect, as reflected in the proposed changes to 257.1.

Section 4004(a) of RCRA provides that EPA shall promulgate regulations containing criteria distinguishing which facilities are to be classified as sanitary landfills and which are open dumps. This section provides a standard that varies from that under RCRA subtitle C. Specifically, subtitle C provides that management standards for hazardous waste treatment, storage, and disposal facilities are those "necessary to protect human health or the environment." *See, e.g.,* RCRA 3004(a). By contrast, Section 4004(a) provides that

> *[a]t a minimum,* the such criteria shall provide that a facility may be classified as a sanitary landfill and not an open dump only if there is *no reasonable probability of adverse effects on health or the environment* from disposal of solid waste at such facility. Such regulations may provide for the classification of the types of sanitary landfills.

Thus, under the RCRA subtitle D regulatory standard in 4004, EPA is to

develop requirements based on the adverse effects on health or the environment from disposal of solid waste at a facility, and accordingly, EPA looked at such effects in developing today's co-proposed Subtitle D rule.

At the same time, EPA believes that the differing standards, in particular the reference to the criteria as those which are needed to assure that there is "no reasonable probability" of adverse effects, allows the Agency the ability to adopt standards different from those required under the subtitle C proposal where appropriate. EPA notes that the 4004(a) standard refers to the "probability" of adverse effect on health or the environment. In EPA's view, this provides it the discretion to establish requirements that are less certain to eliminate a risk to health or the environment than otherwise might be required under Subtitle C, and allows additional flexibility in how those criteria may be applied to facilities. At the same time, however, EPA notes that the requirements meeting the "no reasonable probability" standard are those "at a minimum"—thus, EPA is not constrained to limit itself to that standard should it determine that additional protections are appropriate.

Statements in the legislative history of 4004(a) are also consistent with EPA's interpretation of the statutory language. While it provides little in the way of guidance on the meaning of the "reasonable probability" standard, the legislative history does indicate that Congress was aware of effects from solid waste disposal facilities that included surface runoff, leachate contamination of surface- and groundwaters, and also identified concerns over the location and operations of landfills. *See* H. Rep. 94–1491, at 37–8. In addition, the legislative history confirms that the standard in 4004(a) was intended to set a minimum for the criteria. *See* H. Rep. 94–1491, at 40 ("This legislation requires that the Administrator define sanitary landfill as disposal site at which there is no reasonable chance of adverse effects on health and the environment from the disposal of discarded material at the site. *This is a minimum requirement of this legislation and does not preclude additional requirements.*" Emphasis added.)

1. Regulatory Approach

In developing the proposed RCRA subtitle D option for CCRs, EPA considered a number of existing requirements as relevant models for minimum national standards for the safe disposal of CCRs. The primary source was the existing requirements under 40 CFR part 258, applicable to municipal solid waste landfills, which provide a comprehensive framework for all aspects of disposal in land-based units, such as CCR landfills. Based on the Agency's substantial experience with these requirements, EPA believes that the part 258 criteria represent a reasonable balance between ensuring the protection of human health and the environment from the risks of these wastes and the practical realities of facilities' ability to implement the criteria. The engineered structures regulated under part 258 are very similar to those found at CCR disposal facilities, and the regulations applicable to such units would be expected to address the risks presented by the constituents in CCR wastes. Moreover, CCR wastes do not contain the constituents that are likely to require modification of the existing part 258 requirements, such as organics; for example, no adjustments would be needed to ensure that groundwater monitoring would be protective, as the CCR constituents are all readily distinguishable by standard analytical chemistry. As discussed throughout this preamble, each of the provisions adopted for today's subtitle D co-proposal relies, in large measure, on the record EPA developed to support the 40 CFR part 258 municipal solid waste landfill criteria, along with the other record evidence specific to CCRs, discussed throughout the co-proposed subtitle C alternative. EPA also relied on the Agency's Guide for Industrial Waste Management (EPA530–R–03–001, February 2003), to provide information on existing best management practices that facilities have likely adopted.

The Guide was developed by EPA and state and tribal representatives, as well as a focus group of industry and public interest stakeholders chartered under the Federal Advisory Committee Act, and reflects a consensus view of best practices for industrial waste management. It also contains recommendations based on more recent scientific developments, and state-of-the art disposal practices for solid wastes.

In addition, EPA considered that many of the technical requirements that EPA developed to specifically address the risks from the disposal of CCRs as part of the subtitle C alternative, would be equally justified under a RCRA subtitle D regime. Thus, for example, EPA is proposing the same MSHA-based standards for surface impoundments that are discussed as part of the subtitle C alternative. The factual record—*i.e.,* the risk analysis and the damage cases—supporting such requirements is the same, irrespective of the statutory authority under which the Agency is operating. Although the statutory standards under subsections C and D differ, EPA has historically interpreted both statutory provisions to establish a comparable level of protection, corresponding to an acceptable risk level ranging between $1 \times 10–4$ to $1 \times 10–6$. In addition, EPA does not interpret section 4004 to preclude the Agency from establishing more stringent requirements where EPA deems such more stringent requirements appropriate. Thus, several of the provisions EPA is proposing under RCRA subtitle D either correspond to the provisions EPA is proposing to establish for RCRA subtitle C, or are modeled after the existing subtitle C requirements. These provisions include the following regulatory provisions specific to CCRs that EPA is proposing to establish: Scope, and applicability (*i.e.,* who will be subject to the rule criteria/requirements), the Design Criteria and Operating Criteria (including provisions for surface impoundment integrity), and several of the provisions specifying appropriate pollution control technologies. Additional support for EPA's decision to specify appropriate monitoring, corrective action, closure, and post-closure care requirements (since the specific requirements correlate closely with the existing 40 CFR 258 requirements) is found in the risk analysis and damage case information. Finally, many of the definitions are the same in each section.

However, both the RCRA subtitle C proposals and the existing 40 CFR part 258 requirements were developed to be implemented in the context of a permitting program, where an overseeing authority evaluates the requirements, and can adjust them, as appropriate to account for site specific conditions. Because there is no corresponding guaranteed permit mechanism under the RCRA subtitle D regulations proposed today, EPA also considered the 40 CFR part 265 interim status requirements for hazardous waste facilities, which were designed to operate in the absence of a permit. The interim status requirements were particularly relevant in developing the proposed requirements for surface impoundments, since such units are not regulated under 40 CFR part 258. Beyond their self-implementing design, these requirements provided a useful model because, based on decades of experience in implementing these requirements, EPA has assurance that they provide national requirements that have proven to be protective for a variety of wastes, under a wide variety

of site conditions. Past experience also demonstrates that facilities can feasibly implement these requirements.

Taking all of these considerations into account, EPA has generally designed the proposed RCRA subtitle D criteria to create self-implementing requirements. These self-implementing requirements typically consist of a technical design standard (*e.g.,* the composite liner requirement for new CCR landfills and surface impoundments). In addition, for many of these requirements, the Agency also has established performance criteria that the owner or operator can meet, in place of the technical design standard, which provides the facility with flexibility in complying with the minimum national criteria. EPA generally has chosen to propose an alternate performance standard for a number of reasons. In several cases, the alternative standard is intended to address the circumstances where the appropriate requirement is highly dependent on site-specific conditions (such as the spacing and location of ground-water wells); consequently, uniform, national standards that assure the requisite level of protection are extremely difficult to establish. EPA could establish a minimum national requirement, but to do so, EPA would need to establish the most restrictive criteria that would ensure protection of the most vulnerable site conditions. Because this would result in overregulation of less vulnerable sites, EPA questions whether such a restrictive approach would be consistent with the RCRA section 4004 standard of ensuring "no *reasonable* probability of adverse effects." (emphasis added). The existing 40 CFR part 258 requirements provide the flexibility to address this issue by establishing alternate performance standards and relying on the oversight resulting from state permitting processes, and supported by EPA approval of state plans. Indeed, EPA made clear in the final MSWLF rule that this was the reason that several of the individual performance standards in the existing 40 CFR part 258 requirements are available only in states with EPA approved programs. *See, e.g.,* 56 FR 51096 (authorizing alternative cover designs). However, EPA cannot rely on these oversight mechanisms to implement the RCRA 4004 subtitle D requirements. Under these provisions of RCRA, EPA lacks the authority to require state permits, approve state programs, and to enforce the criteria. Moreover as discussed in Section IV, the level of state oversight varies appreciably among states. Consequently, for these provisions EPA is also proposing to require the owner or operator of the facility to obtain certifications by independent registered professional engineers to provide verification that these provisions are properly applied. EPA has also proposed to require certifications by independent professional engineers more broadly as a mechanism to facilitate citizen oversight and enforcement. As discussed in greater detail below, EPA is proposing to require minimum qualifications for the professionals who are relied upon to make such certifications. In general, EPA expects that professionals in the field will have adequate incentive to provide an honest certification, given that the regulations require that the engineer not be an employee of the owner or operator, and that they operate under penalty of losing their license.

EPA believes that these provisions allow facilities the flexibility to account for site conditions, by allowing them to deviate from the specific technical criteria, provided the alternative meets a specified performance standard, yet also provide some degree of third-party verification of facility practices. The availability of meaningful independent verification is critical to EPA's ability to conclude that these performance standards will meet the RCRA section 4004 protectiveness standard. EPA recognizes that relying upon third party certifications is not the same as relying upon the state regulatory authority, and will likely not provide the same level of "independence." For example, although not an employee, the engineer will still have been hired by the utility. EPA therefore broadly solicits comment on whether this approach provides the right balance between establishing sufficient guarantee that the regulations will be protective, and offering facilities sufficient flexibility to be able to feasibly implement requirements that will be appropriate to the site conditions. In this regard, EPA would also be interested in receiving suggestions for other mechanisms to provide facility flexibility and/or verification.

There is a broad range of the extent to which states already have some of these requirements in place under their current RCRA subtitle D waste management programs established under state law, as explained previously in this preamble. EPA and certain commenters, however, have identified significant gaps in state programs and current practices. For example, EPA does not believe that many, if any, states currently have provisions that would likely cause the closure of existing surface impoundments, such as the provisions in today's proposed rule that surface impoundments must either retrofit to meet all requirements, such as installing a composite liner, or stop receiving CCRs within a maximum of five years of the effective date of the regulation. The RCRA subtitle D proposal outlined here is intended to fill such gaps and ensure national minimum standards. EPA intends to provide a complete set of requirements, designed to ensure there will be no reasonable probability of adverse effects on health or the environment caused by CCR landfills or surface impoundments. EPA's co-proposed RCRA subtitle D minimum criteria are discussed below.

2. Notifications

In response to EPA's lack of authority to require a state permit program or to oversee state programs, EPA has sought to enhance the protectiveness of the proposed RCRA subtitle D standards by providing for state and public notifications of the third party certifications, as well as other information that documents the decisions made or actions taken to comply with the performance criteria. As discussed in the section-by-section analysis below, documentation of how the various standards are met must be placed in the operating record and the state notified.

The owner or operator must also maintain a web site available to the public that contains the documentation that the standard is met. EPA is proposing that owners and operators provide notification to the public by posting notices and relevant information on an internet site with a link clearly identified as being a link to notifications, reports, and demonstrations required under the regulations. EPA believes the internet is currently the most convenient and widely accessible means for gathering information and disseminating it to the public. However, the Agency solicits comments regarding the methods for providing notifications to the public and the states. EPA also solicits comments on whether there could be homeland security implications with the requirement to post information on an internet site and whether posting certain information on the internet may duplicate information that is already available to the public through the state.

The co-proposed subtitle D regulation accordingly includes a number of public notice provisions. In particular, to ensure that persons residing near CCR surface impoundments are protected from potential catastrophic releases, we are proposing that when a potentially hazardous condition develops regarding

the integrity of a surface impoundment, that the owner or operator immediately notify potentially affected persons and the state. The Agency is also proposing to require that owners or operators notify the state, and place the report and other supporting materials in the operating record and on the company's internet site of various demonstrations, documentation, and certifications. Accordingly, notice must be provided: (1) Of demonstrations that CCR landfills or surface impoundments will not adversely affect human health or the environment; (2) of demonstrations of alternative fugitive dust control measures; (3) annually throughout the active life and post-closure care period that the landfill or surface impoundment is in compliance with the groundwater monitoring and corrective action provisions; (4) when documentation related to the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices has been placed in the operating record; (5) when certification of the groundwater monitoring system by an independent registered professional engineer or hydrologist has been placed in the operating record; (6) when groundwater monitoring sampling and analysis program documentation has been placed in the operating record; (7) when the use of an alternative statistical method is to be used in evaluating groundwater monitoring data and a justification for the alternative statistical method has been placed in the operating record; (8) when the owner or operator finds that there is a statistically significant increase over background for one or more of the constituents listed in Appendix III of the proposed rule, at any groundwater monitoring well; (9) when a notice of the results of assessment monitoring that may be required under the groundwater monitoring program is placed in the operating record; (10) when a notice is placed in the operating record that constituent levels that triggered assessment monitoring have returned to or below background levels; (11) when a notice of the intent to close the unit has been placed in the operating record; and (12) when a certification, signed by an independent registered professional engineer verifying that post-closure care has been completed in accordance with the post-closure plan, has been placed in the operating record. Please consult the proposed subtitle D regulation provided with this notice for all the proposed notification and documentation requirements.

As explained earlier, the RCRA subtitle D approach relies on state and citizen enforcement. EPA believes that it cannot conclude that the RCRA subtitle D regulations will ensure there is no reasonable probability of adverse effects on health or the environment, unless there is a mechanism for states and citizens to monitor the situation, such as when groundwater monitoring shows exceedances, so that they can determine when intervention is appropriate. EPA also believes that notifications, such as those described above, will minimize the danger of owners or operators abusing the self-implementing system through increased transparency and by facilitating the citizen suit enforcement mechanism.

EPA is proposing that owners and operators provide notification to the public by posting notices and relevant information on an internet site with a link clearly identified as being a link to notifications, reports, and demonstrations required under the regulations. EPA believes the internet is currently the most convenient and widely accessible means for gathering information. However, the Agency solicits comments regarding the methods for providing notifications to the public and the states.

*B. Section-by-Section Discussion of RCRA Subtitle D Criteria*

1. Proposed Modifications to Part 257, Subpart A

EPA is proposing to modify the existing open dumping criteria found in 40 CFR 257.1, *Scope and Purpose,* to recognize the creation of a new subpart D, which consolidates all of the criteria adopted for determining which CCR Landfills and CCR Surface impoundments pose a reasonable probability of adverse effects on health or the environment under sections 1008(a)(3) and 4004(a) of the Act. Facilities and practices failing to satisfy these consolidated subpart D criteria violate RCRA's prohibition on open dumping. The proposed regulation also excludes CCR landfills and surface impoundments subject to proposed subpart D from subpart A, except as otherwise provided in subpart D.

In general, these provisions are intended to integrate the new requirements with the existing open dumping criteria, and have only been modified to clarify that the proposed RCRA subtitle D regulations define which CCR landfills and surface impoundments violate the federal standards, and therefore may be enforced by citizen suit under RCRA 4005(a) and 7002. EPA has also proposed language to make clear that those CCR landfills and surface impoundments that are subject to the new proposed Subpart D would not also be subject to Subpart A, with the exception of three of the existing Subpart A criteria (257.3–1, *Floodplains,* 257.3–2 *Endangered Species,* 257.3–3 *Surface water*) that would continue to apply to these facilities. The applicability of these three provisions to CCR disposal facilities is discussed later in this preamble.

Finally, EPA also notes that its intent in excluding CCR landfills and surface impoundments from 40 CFR 257 Subpart A in this manner is to consolidate the requirements applicable to those particular facilities in one set of RCRA subtitle D regulations. EPA does not intend to modify the coverage of 40 CFR 257 subpart A as to other disposal facilities and practices for CCRs, such as beneficial uses of CCRs when they are applied to the land used for food-chain crops. It is EPA's intent that such activities would continue to be subject to the existing criteria under Subpart A.

2. General Provisions

The proposed general provisions address the applicability of the new proposed RCRA Subpart D requirements, the continuing applicability of certain of the existing open dumping criteria, provide for an effective date of 180 days after promulgation, and define key terms for the proposed criteria.

*Applicability.* The applicability provisions identify those solid waste disposal facilities subject to the new proposed RCRA Subpart D (*i.e.,* CCR landfills and CCR surface impoundments as defined under proposed 257.40(b)). The applicability section also identifies three of the existing subpart A criteria that would continue to apply to these facilities: 257.3–1, *Floodplains,* 257.3–2 *Endangered Species,* 257.3–3 *Surface water.* The applicability of these provisions to CCR disposal facilities is discussed later in this preamble.

The applicability section also specifies an effective date of 180 days after publication of the final rule. EPA believes that, with the specific exceptions discussed below, this time frame strikes a reasonable balance between the time that owners and operators of CCR units would need in order to come into compliance with the rule's requirements, and the need to implement the proposed requirements in a timeframe that will maximize protection of health and the environment. We note that 180 days is

the timeframe for persons to come into compliance with most of the requirements under RCRA subtitle C, and believe that if persons can meet the hazardous waste provisions within this time period under RCRA subtitle C, that it is reasonable to conclude that persons should be able to meet those same or similar requirements under RCRA subtitle D. EPA also notes that pending finalization of any regulations, facilities continue to be subject to the existing part 257 open dumping criteria as they may apply.

3. Definitions

This section of the proposed regulation discusses the definitions of some of the key terms used in the proposed RCRA subtitle D rule that are necessary for the proper interpretation of the proposed criteria. Because EPA is creating a separate section of the regulations specific to CCR units, EPA is also consolidating the existing definitions in this section. However, by simply incorporating these unmodified definitions into this new section of the regulations, EPA is not proposing to reopen, or soliciting comments on these requirements. Nor, for definitions where the only modification relates to an adjustment specific to CCRs, is EPA proposing to revise or reopen the existing part 257 or part 258 definitions as they apply to other categories of disposal facilities, as those will remain unaltered. Accordingly, EPA will not respond to any comments on these definitions.

*Aquifer.* EPA has defined aquifer for this proposal as a geologic formation, group of formations, or portion of a formation capable of yielding significant quantities of ground water to wells or springs. This is the same definition currently used in EPA's hazardous waste program and MSWLF criteria in 40 CFR 258.2 and differs from the original criteria definition (40 CFR 257.3–4(c)(1)) only in that it substitutes the term "significant" for "usable." The Agency is proposing to adopt the modified definition to make the subtitle C and subtitle D alternatives consistent.

*Coal Combustion Residuals (CCRs)* means fly ash, bottom ash, boiler slag, and flue gas desulfurization wastes. CCRs are also known as coal combustion wastes (CCWs) and fossil fuel combustion (FFC) wastes.

*CCR Landfill.* The co-proposed criteria includes a definition of "CCR landfill" to mean an area of land or an excavation, including a lateral expansion, in which CCRs are placed for permanent disposal, and that is not a land application unit, surface impoundment, or injection well. For purposes of this proposed rule, landfills also include piles, sand and gravel pits, quarries, and/or large scale fill operations. EPA modeled this definition after the definition of "Municipal solid waste landfill (MSWLF) unit" contained in the existing criteria for those facilities. Although this is somewhat different than the definition proposed under the subtitle C alternative (which is based on the existing part 260 definition), EPA intends for this proposed definition to capture those landfills and other large-scale disposal practices that are described in EPA's damage cases and risk assessments discussed in sections II, VI, and the RIA.

*CCR Surface Impoundment.* EPA has proposed to define this term to mean a facility or part of a facility, including a lateral expansion, that is a natural topographic depression, human-made excavation, or diked area formed primarily of earthen materials (although it may be lined with human-made materials), that is designed to hold an accumulation of liquid CCR wastes or CCR wastes containing free liquids and that is not an injection well. EPA has included as examples of surface impoundments settling and aeration pits, ponds, and lagoons. This is the same definition that EPA is proposing as part of the subtitle C alternative, and is generally consistent with the definition of "surface impoundment or impoundment" contained in the existing 257.2 criteria.

EPA further proposes in the definition a description of likely conditions at a CCR surface impoundment, stating that CCR surface impoundments often receive CCRs that have been sluiced (flushed or mixed with water to facilitate movement), or wastes from wet air pollution control devices. EPA intends for this proposed definition to capture those surface impoundments that are described in EPA's damage cases and risk assessments described in sections II, VI, and the RIA.

*Existing CCR Landfill/Existing CCR Surface Impoundment.* EPA has included a proposed definition of this term to mean a CCR landfill or surface impoundment, which was in operation on, or for which construction commenced prior to the effective date of the final rule. The proposed definition states that a CCR landfill or surface impoundment has commenced construction if: (1) The owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and (2) either (i) a continuous on-site, physical construction program has begun; or (ii) the owner or operator has entered into contractual obligations—which cannot be cancelled or modified without substantial loss—for physical construction of the CCR landfill or surface impoundment to be completed within a reasonable time. These definitions are identical to the co-proposed subtitle C definitions, described in section VI. EPA sees no reason to establish separate definitions of these units for purposes of RCRA subtitle D since the question of whether these units are existing should not differ between whether they are regulated under RCRA subtitles C or D.

*Factor of Safety (Safety Factor).* The proposed definition is the ratio of the forces tending to resist the failure of a structure to the forces tending to cause such failure as determined by accepted engineering practice. This definition is the same as the co-proposed subtitle C definitions, described in section VI. EPA sees no reason to establish a separate definition for this term for purposes of RCRA subtitle D since the question of "Factor of safety" should not differ between units that would be regulated under RCRA subtitles C or D.

*Hazard potential classification.* This term is proposed to be defined as the possible adverse incremental consequences that result from the release of water or stored contents due to failure of a dam (or impoundment) or misoperation of the dam or appurtenances.

The proposed definition further delineates the classification into four categories:

—*High hazard potential surface impoundment* which is a surface impoundment where failure or misoperation will probably cause loss of human life;

—*Significant hazard potential surface impoundment* which is a surface impoundment where failure or misoperation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns; and

—*Low hazard potential surface impoundment* means a surface impoundment where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

—*Less than low hazard potential surface impoundment* means a surface impoundment not meeting the definitions for High, Significant, or Low Hazard Potential.

This definition, just like the proposed RCRA subtitle C definition, follows the

Hazard Potential Classification System for Dams, developed by the U.S. Army Corps of Engineers for the National Inventory of Dams. This system is a widely-used definitional scheme for classifying the hazard potential posed by dams, and EPA expects that the regulated community's familiarity with these requirements will make their application to CCR surface impoundments relatively straightforward.

*Independent registered professional engineer or hydrologist.* This term is defined as a scientist or engineer who is not an employee of the owner or operator of a CCR landfill or surface impoundment who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

Because the proposed RCRA subtitle D requirements cannot presuppose the existence of a permit or state regulatory oversight, the criteria in today's proposed rule are self-implementing. However, as discussed earlier, to try to minimize the potential for overregulation, and to provide some degree of flexibility, EPA is proposing to allow facilities to deviate from the criteria upon a demonstration that the alternative meets a specified performance standard. But to provide for a minimum level of verification and to reduce the opportunity for abuse, the Agency believes it is imperative to have an independent party review, and certify the facility's demonstrations. The Agency also believes that those professionals certifying the requirements of today's proposed rule should meet certain minimum qualifications. The Agency is proposing to define a "qualified ground-water scientist" to be a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in ground-water hydrology and related fields as may be demonstrated by State registration, professional certification, or completion of accredited university programs that enable that individual to make sound professional judgments regarding ground-water monitoring, contaminant fate and transport, and corrective action. This requirement is the same as the current requirement at § 258.50(f). The Agency believes that specialized coursework and training should include, at a minimum, physical geology, ground-water hydrology or hydrogeology, and environmental chemistry (*e.g.,* soil chemistry or low temperature geochemistry). Some national organizations, such as the American Institute of Hydrology and the National Water Well Association, currently certify or register ground-water professionals. States may of course establish more stringent requirements for these professionals, including mandatory licensing or certification. As discussed above, EPA seeks comment on the proposed reliance on independent professionals in implementing the proposed flexibility of performance standards.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing CCR landfill, or existing CCR surface impoundment made after the effective date of the final rule. This definition is identical to the co-proposed subtitle C definition, described in section VI. EPA sees no reason to establish a separate definition of this term for purposes of RCRA subtitle D since whether a lateral expansion has occurred at a CCR landfill or surface impoundment should not differ between those units regulated under RCRA subtitles C or D.

*New CCR landfill* means a CCR landfill from which there is placement of CCRs without the presence of free liquids, which began operation, or for which the construction commenced after the effective date of the rule. This definition is identical to the co-proposed subtitle C definition, described in section VI. EPA sees no reason to establish a separate definition for this term for purposes of RCRA subtitle D since whether a landfill is new should not differ between those landfills that are regulated under RCRA subtitles C or D.

*New CCR surface impoundment* means a CCR surface impoundment into which CCRs with the presence of free liquids have been placed, which began operation, or for which the construction commenced after the effective date of the rule. EPA sees no reason to establish a separate definition for this term for purposes of RCRA subtitle D since whether a surface impoundment is new should not differ between those surface impoundments that are regulated under RCRA subtitles C or D.

*Recognized and generally accepted good engineering practices* means engineering maintenance or operation activities based on established codes, standards, published technical reports, recommended practice, or similar document. Such practices detail generally approved ways to perform specific engineering, inspection, or mechanical integrity activities. In several provisions, EPA requires that the facility operate in accordance with "recognized and generally accepted good engineering practices," or requires an independent engineer to certify that a design or operating parameter meets this standard. The definition references but does not attempt to codify any particular set of engineering practices, but to allow the professional engineer latitude to adopt improved practices that reflect the state-of-the art practices, as they develop over time. This definition is the same as the definition EPA is proposing under the subtitle C alternative.

4. Location Restrictions

To provide for no reasonable probability of adverse effects on health or the environment from the disposal of CCRs at CCR landfills and surface impoundments, EPA believes that any RCRA subtitle D regulation would need to ensure that CCR disposal units were appropriately sited. The proposed location restrictions include requirements relating to placement of the CCRs above the water table, wetlands, fault areas, seismic impact zones, and unstable areas. In addition, as previously noted, the location standards in subpart A of 40 CFR part 257 for floodplains, endangered species, and surface waters would also continue to apply. Finally, the proposed regulations also address the closure of existing CCR landfills and surface impoundments.

The location standards in this proposal are primarily based on the location standards developed for municipal solid waste landfill units, and represent provisions to ensure that the structure of the disposal unit is not adversely impacted by conditions at the site, or that the location of a disposal unit at the site would not increase risks to human health or the environment. The criteria for municipal solid waste landfills provide restrictions on siting units in wetlands, fault areas, seismic impact zones, and unstable areas.[151]

[151] The proposed definition of seismic impact zone was modified from the part 258 definition as explained in the "Discussion of Individual Location Requirements" section below. The part 258 criteria also include location restrictions relating to airport safety and floodplains, in 258.10 and 258.11, respectively. EPA has not proposed an analogue to 258.10 because the hazard addressed by that criterion, bird strikes to aircraft, is inapplicable in the context of CCR disposal units, which do not tend to attract birds to them. As discussed in the

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Each of those factors is generally recognized as having the potential to impact the structure of a disposal unit negatively or increase the risks to human health and the environment. As discussed below in more detail, each of these provisions adopted for today's RCRA subtitle D co-proposal relies in large measure, on the record EPA developed to support the 40 CFR part 258 municipal solid waste landfill criteria. EPA's Guide for Industrial Waste Management (EPA530–R–03–001, February 2003) also identifies these location restrictions as appropriate for industrial waste management. These proposed requirements are all discussed in turn below, after a general explanation of the Agency's proposed treatment of new CCR disposal units compared to existing CCR disposal units.

*a. Differences in Location Restrictions for Existing and New CCR Landfills and Surface Impoundments, and Lateral Expansions.* EPA is proposing different sets of location restrictions under the Subtitle D approach, depending on whether a unit is a CCR landfill or surface impoundment, and whether it is an existing or new unit. Lateral expansions fall within the definitions of new units, and are treated accordingly.

While new landfills would be required to comply with all of the location restrictions, EPA is proposing to subject existing landfills to only two of the location restrictions—floodplains, and unstable areas—in today's rule. Existing landfills are already subject to the floodplains location restriction because it is contained in the existing 40 CFR part 257, subpart A criteria, which have been in effect since 1979. Because owners and operators of existing landfills already should be in compliance with this criterion, applying this location restriction will have no impact to the existing disposal capacity, while continuing to provide protection of human health and the environment.

The Agency decided to apply today's final unstable area location restriction to existing CCR landfills, because the Agency believes that the impacts to human health and the environment that would result from the rapid and catastrophic destruction of these units outweighs any disposal capacity concerns resulting from the closure of existing CCR disposal units.

On the other hand EPA is not proposing to impose requirements on existing CCR landfills in wetlands, fault areas, or seismic impact areas. We base this decision on the possibility that a significant number of CCR landfills may be located in areas subject to this requirement. The Agency believes that such landfills pose less risks and are structurally less vulnerable than surface impoundments, and disposal capacity shortfalls, which could result if existing CCR landfills in these locations were required to close, raise greater environmental and public health concerns than the potential risks caused by existing units in these locations. For example, if existing CCR landfills located in wetlands were required to close, there would be a significant decrease in disposal capacity, particularly given the Agency's expectation that many existing surface impoundments will choose to close, in response to this proposed rule. In addition, wetlands are more prevalent in some parts of the country (*e.g.,* Florida and Louisiana). In these States, the closure of all existing CCR landfills located in wetlands could potentially significantly disrupt statewide solid waste management. Therefore, the Agency believes that it may be impracticable to require the closure of existing CCR landfills located in wetlands. However, EPA seeks comment and additional information regarding the number of existing CCR landfills that are located in such areas.

Concern about impacts on solid waste disposal capacity as well as the lower level of risks and the structural vulnerability of landfills, as compared to surface impoundments, were also the primary reasons the Agency is not proposing to subject existing CCR landfills to today's proposed fault area location restrictions. The closure of a significant number of existing CCR landfills located in fault areas could result in a serious reduction of CCR landfill capacity in certain regions of the U.S. where movement along Holocene faults is common, such as along the Gulf Coast and in much of California and the Pacific Northwest. The Agency, however, does not have specific data showing the number of units and the distance between these disposal units and the active faults, and therefore, is unable to precisely estimate the number of these existing CCR landfills that would not meet today's fault area restrictions. EPA therefore solicits comment and additional data and information regarding the extent to which existing CCR landfills are currently located in such locations. However, given the potential for impacts on solid waste capacity and the lower levels of risk associated with landfills compared to surface impoundments, EPA has concluded that it may not be appropriate to subject existing CCR landfills to the proposed fault area requirements.

Similarly, the Agency is not proposing to impose the seismic impact zone restrictions on existing CCR landfills located in these areas. As with the other location restrictions, the Agency anticipates that a significant number of existing CCR disposal units are located in these areas. EPA is concerned that such facilities would be unable to meet the requirements, because retrofitting would be prohibitively expensive and technically very difficult in most cases, and would therefore be forced to close.

EPA generally seeks comment and additional information regarding the extent to which CCR landfill capacity would be affected by applying these location restrictions to existing CCR landfills. Information on the prevalence of existing CCR landfills in such areas would be of particular interest to the Agency. EPA also notes that the proposed location requirements do not reflect a complete prohibition on siting facilities in such areas, but provide a performance standard that facilities must meet in order to site a unit in such a location. EPA therefore solicits comment on the extent to which facilities could comply with these performance standards, and the necessary costs that would be incurred to retrofit the unit to meet these standards.

As discussed earlier in this preamble, this proposed approach is generally consistent with the proposed approach to existing landfills under subtitle C of RCRA, and with Congressional distinctions between the risks presented by landfills and surface impoundments. Existing landfills that are brought into the hazardous waste system because they are receiving newly listed hazardous wastes are not generally required to be retrofitted with a new minimum-technology liner/leachate collection and removal system (or to close), and they would not be subject to such requirements under today's proposal. EPA sees no reason or special argument to adopt more stringent requirements under the co-proposed subtitle D criteria for CCR landfills, particularly given the volume of the material and the disruption that could be involved if these design requirements were applied to existing landfills.

By contrast, and consistent with its approach to existing surface impoundments under subtitle C, the proposed regulations would apply all of the location restrictions to existing surface impoundments. This means that facilities would need to either

main text, EPA is proposing to maintain the existing criterion in 257, subpart A for floodplains.

demonstrate that the surface impoundment meets the performance standard that serves as the alternative to the prohibition, retrofit the unit so that it can meet the performance standard, or close. EPA is making this distinction because, as discussed in sections IV–VI, the record indicates that the risks associated with CCR surface impoundments are substantially higher than the risks posed by CCR landfills. The impacts to human health and the environment that would result from the rapid and catastrophic destruction of these units could result in injuries to human health and the environment, that are far more significant, as illustrated by the impacts of the recent TVA spill in Tennessee. The risks to human health and the environment of such a catastrophic collapse far outweigh the costs of requiring surface impoundments to retrofit or close. Moreover, there are significant economic costs associated with the failure of a surface impoundment; as noted earlier, the direct cost to clean up the TVA spill is currently estimated to exceed one billion dollars. Surface impoundments also are more vulnerable to structural problems if located in unstable areas, fault areas and seismic impact areas. Finally, as already noted, the distinction EPA is making between existing landfills and existing surface impoundments is also consistent with Congressional direction; as discussed in section VI, Congress specifically required existing surface impoundments receiving hazardous wastes to retrofit to meet the new statutory requirements or to close, in direct contrast to their treatment of existing landfills.

Although many surface impoundments may close as a result of these requirements, EPA believes that it is proposing to take a number of actions to alleviate concerns that this will present significant difficulties with regard to disposal capacity in the short-term: *e.g.,* "grandfathering" in existing CCR landfills, allowing CCR landfills to vertically expand without retrofitting, and delayed implementation dates. At the same time, as discussed in greater detail in section VI, with regard to the subtitle C co-proposal, EPA is soliciting comment on the appropriate amount of time necessary to meet these time frames as well as measures that could help to address the potential for inadequate disposal capacity. EPA notes, however, that unlike under the subtitle C co-proposal, EPA is not proposing to require facilities to cease wet handling. Thus EPA expects that both the impacts and the time frames needed for facilities to come into compliance would be lower.

While the proposed requirements relating to the placement above the water table, wetlands, fault areas, and seismic impact zones would not apply to existing CCR disposal units, all of these restrictions apply to lateral expansions of existing CCR disposal units, as well as new CCR disposal units. Therefore, under the proposal, owners and operators of existing CCR landfills could vertically expand their existing facilities in these locations, but must comply with the provisions governing new units if they wish to laterally expand. EPA expects that allowing such vertical expansion will allow for increased capacity, which will be particularly important, if, as EPA expects, many surface impoundments would close, should this regulation be adopted. At the same time, EPA believes that the risks to human health or the environment will be mitigated because facilities will be required to otherwise comply with the more stringent environmental restrictions, such as the corrective action and closure provisions proposed below.

b. Discussion of Individual Location Requirements

*Placement above the water table.* The co-proposed subtitle D regulations would prohibit new CCR landfills and all surface impoundments from being located within two feet of the upper limit of the natural water table. EPA is proposing to define the natural water table as the natural level at which water stands in a shallow well open along its length and penetrating the surficial deposits just deeply enough to encounter standing water at the bottom. This is the level of water that exists, when uninfluenced by groundwater pumping or other engineered activities.

*Floodplains.* CCR landfills and surface impoundments are currently subject to the open dumping criteria contained in 40 CFR 257, Subpart A. These minimum criteria include restrictions on floodplain impacts under 257.3–1. As facilities should already be complying with this requirement, EPA is not proposing to modify it as part of today's rule. Accordingly, EPA is not reopening this requirement.

*Wetlands.* The regulations require that the facility prepare and make available a written demonstration that such engineering measures have been incorporated into the unit's design to mitigate any potential adverse impact, and require certification by an independent registered professional engineer either that the new CCR disposal unit is not in a prohibited area, as defined by the regulation, or that the demonstration meets the regulatory standards.

Today's proposed wetland provisions would apply only to new CCR landfills, including lateral expansions of existing CCR disposal units, and all surface impoundments. New CCR landfills, which include lateral expansions, as well as all surface impoundments, are barred from wetlands unless the owner or operator of the disposal unit can make the following demonstrations certified by an independent registered professional engineer or hydrologist. First, the owner or operator must rebut the presumption that a practicable alternative to the proposed CCR disposal unit or lateral expansion is available that does not involve wetlands. Second, the owner or operator must show that the construction or operation of the unit will not cause or contribute to violations of any applicable State water quality standard, violate any applicable toxic effluent standard or prohibition, jeopardize the continued existence of endangered or threatened species or critical habitats, or violate any requirement for the protection of a marine sanctuary. Third, the owner or operator must demonstrate that the CCR disposal unit or lateral expansion will not cause or contribute to significant degradation of wetlands. To this end, the owner or operator must ensure the integrity of the CCR disposal unit, and its ability to protect ecological resources by addressing: erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the unit; erosion, stability, and migration potential of dredged and fill materials used to support the unit; the volume and chemical nature of the CCRs; impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCRs; the potential effects of catastrophic release of CCRs to the wetland and the resulting impacts on the environment; and any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected. Fourth, the owner or operator must demonstrate that steps have been taken to attempt to achieve no net loss of wetlands by first avoiding impacts to wetlands to the maximum extent practicable, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions. The owner or operator must place the demonstrations in the operating record and the

company's Internet site, and notify the state that the demonstrations have been placed in the operating record.

For facilities that cannot make such a demonstration, this proposed provision effectively bans the siting of new CCR landfills or surface impoundments in wetlands, and would require existing surface impoundments to close.

EPA notes that this section of the proposal is consistent with regulatory provisions currently governing the CWA section 404 program, including the definition of wetlands contained in proposed 257.61. *See* 40 CFR 232.2(r). EPA believes that wetlands are very important, fragile ecosystems that must be protected, and has identified wetlands protection as a top priority. Nevertheless, EPA has proposed to continue to allow existing CCR landfills to be sited in wetlands to minimize the disruption to existing CCR disposal facilities, as it is EPA's understanding that many existing CCR landfills are located near surface water bodies, in areas that also may qualify as wetlands under the proposed criteria. Likewise, EPA is concerned that an outright ban of new CCR landfills in wetlands would severely restrict the available sites or expansion possibilities, given that EPA is proposing to impose other conditions on surface impoundments that may cause many to ultimately close. As noted in section VI, concerns have been raised regarding the potential for disposal capacity shortfalls, which could lead to other health and environmental impacts, such as the transportation of large volumes of CCRs over long distances to other sites. Accordingly to provide additional flexibility in the proposed RCRA Subtitle D rules, and to address concerns regarding the potential for disposal capacity shortfalls, EPA is not proposing an outright ban on siting of existing CCR disposal units in wetlands.

However, EPA continues to believe that siting new CCR disposal units in wetlands should only be done under very limited conditions. The Agency is therefore proposing a comprehensive set of demonstration requirements. In addition, the Agency believes that when such facilities are sited in a wetland, that the owner or operator should offset any impacts through appropriate and practicable compensatory mitigation actions (*e.g.,* restoration of existing degraded wetlands or creation of man-made wetlands). This approach is consistent with the Agency's goal of achieving no overall net loss of the nation's remaining wetland base, as defined by acreage and function. Specifically, § 257.61(a)(4) requires owners or operators of new CCR landfills and surface impoundments to demonstrate that steps have been taken to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands and then minimizing such impacts to the maximum extent feasible, and finally, offsetting any remaining wetland impacts through all appropriate and feasible compensatory mitigation actions (*e.g.,* restoration of existing degraded wetlands or creation of man-made wetlands).

The Agency has also included other requirements to ensure that the demonstrations required under the proposed rule are comprehensive and ensure no reasonable probability of adverse effects to human health and the environment. First, EPA has included language in § 257.61(a)(2) clarifying that the owner or operator must demonstrate that both the construction and operation of the unit will not result in violations of the standards specified in § 257.61(a)(2)(i)–(iv). Second, in § 257.61(a)(3) EPA proposes to identify the factors the owner or operator must address in demonstrating that the unit will not cause or contribute to significant degradation of wetlands. These factors, which were partially derived from the section 404(b)(1) guidelines, address the integrity of the CCR unit and its ability to protect the ecological resources of the wetland. In addition, EPA is proposing requirements for third-party certification and state/public notice, to provide some verification of facility practices, and to generally assist citizens' ability to effectively intervene and enforce the requirements, as necessary.

*Fault Areas.* The proposed rule would ban the location of new CCR landfills and any surface impoundment within 200 feet (60 meters) of faults that have experienced displacement during the Holocene Epoch. The Holocene is a unit of geologic time, extending from the end of the Pleistocene Epoch to the present and includes the past 11,000 years of the Earth's history. EPA is proposing to define a fault to include a zone or zones of rock fracturing in any geologic material along which there has been an observable amount of displacement of the sides relative to each other. Faulting does not always occur along a single plane of movement (a "fault"), but rather along a zone of movement (a "fault zone"). Therefore, "zone of fracturing," which means a fault zone in the context of the definition, is included as part of the definition of fault, and thus the 200-foot setback distance will apply to the outermost boundary of a fault or fault zone.

The 200-foot setback was first adopted by EPA in the criteria for municipal solid waste landfills (MSWLFs), codified at 40 CFR part 258. In the course of that proceeding, EPA documented that seismologists generally believed that the structural integrity of MSWLFs could not be unconditionally guaranteed when they are built within 200-feet of a fault along which movement is highly likely to occur. Moreover, EPA relied on a study that showed that damage to engineered structures from earthquakes is most severe when the structures were located within 200-feet of the fault along which displacement occurred. Because the engineered structures found at MSWLFs are similar to those found in CCR disposal units, EPA expects that the potential for damage to those structures would be similar in the event of an earthquake near a CCR landfill or surface impoundment. Therefore, EPA is proposing a similar setback requirement for new CCR landfills and all surface impoundments. In general, EPA believes that the 200-foot buffer zone is necessary to protect engineered structures from seismic damages. EPA also expects that the 200-foot buffer is appropriate for CCR surface impoundments, but seeks comment and data on whether the buffer zone should be greater for such units.

However, the Agency is also concerned that the 200-foot setback may be overly protective in some geologic formations, but it is unable to provide a clear definition of these geologic formations. Therefore, the Agency is proposing to allow the opportunity for an owner or operator of a new CCR disposal unit to demonstrate that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of facility and will be protective of human health and the environment. The demonstration must be certified by an independent registered professional engineer and the owner or operator of the CCR disposal unit must notify the state that the demonstration has been placed in the operating record and on the company's internet site. This approach is consistent with other sections of today's RCRA subtitle D co-proposal for alternatives to the specified self-implementing requirement.

*Seismic Impact Zones.* As noted, the proposed rule would also ban the location of new CCR landfills and any surface impoundments in seismic impact zones, unless owners or operators demonstrate that the unit is designed to resist the maximum horizontal acceleration in lithified earth material for the site. The design features

to be protected include all containment structures (*i.e.,* liners, leachate collection systems, and surface water control systems). The demonstration must be certified by an independent registered professional engineer and the owner or operator must notify the state that the demonstration has been placed in the operating record and on the company's internet site. For purposes of this requirement, EPA is proposing to define seismic impact zones as areas having a 10 percent or greater probability that the maximum expected horizontal acceleration in hard rock, expressed as a percentage of the earth's gravitation pull (g), will exceed 0.10g in 250 years. This is based on the existing part 258.14 definition of seismic impact. The maps for the 250-year intervals are readily available for all of the U.S. in the U.S. Geological Survey Open-File Report 82–1033, entitled "Probabilistic Estimates of Maximum Acceleration and Velocity in Rock in the Contiguous United States."

Another approach would be to adopt criteria of the National Earthquake Hazards Reduction Program (NEHRP) of the U.S. Geological Survey used to develop national seismic hazard maps. The NEHRP uses ground motion probabilities of 2, 5, and 10% in 50 years to provide a relative range of seismic hazard across the country. The larger probabilities indicate the level of ground motion likely to cause problems in the western U.S. The smaller probabilities show how unlikely damaging ground motions are in many places of the eastern U.S. The maps are available at *http://earthquake.usgs.gov/hazards/products/.* A 50 year time period is commonly used because it represents the typical lifespan of a building, and a 2% probability level is generally considered an acceptable hazard level for building codes. For areas along known active faults, deterministic and scenario ground motion maps could be used to describe the expected ground motions and effects of specific hypothetical large earthquakes (*see* http://earthquake.usgs.gov/hazards/products/scenario/). The Agency solicits comments on the proposed definition and whether there are variants like those used to develop the national seismic hazard maps that could lessen the burden on the industry and the geographic areas covered by the proposed definition. For additional information on the National Seismic Hazard Mapping Project, *see http://earthquake.usgs.gov/hazards/about/.*

*Unstable Areas.* EPA is proposing to require owners or operators of all CCR landfills, surface impoundments and lateral expansions located in unstable areas to demonstrate that the integrity of the structural components of the unit will not be disrupted. EPA's damage cases have provided indirect evidence of the kind of environmental and human health risks that would be associated with failure of the structural components of the surface impoundment from subsidence or other instability of the earth at a CCR disposal unit. Accordingly, EPA believes that, to provide a reasonable probability of preventing releases and consequent damage to health and the environment from CCRs released from landfills or surface impoundments, limits on the siting of such disposal units is appropriate.

The proposed Subtitle D rule provides that "unstable areas" are locations that are susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the CCR disposal unit's structural components responsible for preventing releases from such units. Unstable areas are characterized by localized or regional ground subsidence, settling (either slowly, or very rapidly and catastrophically) of overburden, or by slope failure. The owner or operator must consider the following factors when determining whether an area is unstable: (1) On-site or local soil conditions that may result in significant differential settling; (2) on-site or local geologic or geomorphologic features; and (3) on-site or local human-made features or events (on both the surface and subsurface). The structural components include liners, leachate collection systems, final cover systems, run-on and run-off control systems, and any other component used in the construction and operation of the CCR landfill, surface impoundment or lateral expansion that is necessary for protection of human health and the environment.

Unstable areas generally include:

(1) Poor foundation conditions—areas where features exist that may result in inadequate foundation support for the structural components of the CCR landfill, surface impoundment or lateral expansion (this includes weak and unstable soils);

(2) Areas susceptible to mass movement—areas where the downslope movement of soil and rock (either alone or mixed with water) occurs under the influence of gravity; and

(3) Karst terraces—areas that are underlain by soluble bedrock, generally limestone or dolomite, and may contain extensive subterranean drainage systems and relatively large subsurface voids whose presence can lead to the rapid development of sinkholes.

Karst areas are characterized by the presence of certain physiographic features such as sinkholes, sinkhole plains, blind valleys, solution valleys, losing streams, caves, and big springs, although not all these features are always present. EPA's intent in this proposed requirement is to include as an unstable area only those karst terraces in which rapid subsidence and sinkhole development have been a common occurrence in recent geologic time. Many of the karst areas are shown on the U.S. Geological Survey's National Atlas map entitled "Engineering Aspects of Karst," published in 1984.

Specific examples of such natural or human-induced phenomena include: Debris flows resulting from heavy rainfall in a small watershed; the rapid formation of a sinkhole as a result of excessive local or regional ground-water withdrawal; rockfalls along a cliff face caused by vibrations set up by the detonation of explosives, sonic booms, or other mechanisms; or the sudden liquefaction of a soil with the attendant loss of shear strength following an extended period of constant wetting and drying. Various naturally-occurring conditions can make an area unstable and these can be very unpredictable and destructive, especially if amplified by human-induced changes to the environment. Such conditions can include the presence of weak soils, over steepened slopes, large subsurface voids, or simply the presence of large quantities of unconsolidated material near a watercourse.

The Agency recognizes that rapid sinkhole formation that occurs in some karst terraces can pose a serious threat to human health and the environment by damaging the structural integrity of dams, liners, caps, run-on/run-off control systems, and other engineered structures. However, EPA is not proposing an outright ban of CCR landfills and surface impoundments in all karst terraces because of concerns regarding the impacts of such a ban in certain regions of the country. For example, several States (*i.e.,* Kentucky, Tennessee) are comprised mostly of karst terraces and banning all CCR disposal facilities in karst terraces would cause severe statewide disruptions in capacity available for CCR disposal. Moreover, the Agency believes that some karst terraces may provide sufficient structural support for CCR disposal units and has accordingly tried to provide flexibility for siting in these areas. Therefore, EPA is proposing to allow the construction of new CCR units, and the continued operation of

existing CCR landfills and surface impoundments in karst terraces where the owner or operator can demonstrate that engineering measures have been incorporated into the landfill, surface impoundment, or lateral expansion design to ensure that the integrity of the structural components of the landfill or surface impoundment will not be disrupted. The demonstration must be certified by an independent registered professional engineer, and the owner or operator must notify the state that the demonstration has been placed in the operating record and on the company's internet site.

*Closure of Existing CCR Landfills and Surface Impoundments.* The proposed rule would require owners and operators of existing CCR landfills and surface impoundments that cannot make the demonstrations required under § 257.62(a) after the effective date of the rule, to close the landfill or surface impoundment within five years of the date of publication of the final rule. Closure and post-closure care must be done in accordance with § 257.100 and § 257.101. The proposed rule would also allow for a case-by-case extension for up to two more years if the facility can demonstrate that there is no alternative disposal capacity and there is no immediate threat to health or the environment. This demonstration must be certified by an independent registered professional engineer or hydrologist. The owner or operator must place the demonstration in the operating record and on the company's internet site and notify the state that this action was taken.

Thus, the proposed rule allows a maximum of 7 years from the effective date of the final rule if this alternative is finally promulgated for existing CCR landfills to comply with the unstable area restrictions, and existing CCR surface impoundments to comply with the location restrictions or to close. As discussed under the subtitle C option, EPA believes that five years will, in most cases, be adequate time to complete proper and effective facility closure and to arrange for alternative waste management. However, there may be cases where alternative waste management capacity may not be readily available or where the siting and construction of a new facility may take longer than five years. EPA believes the two-year extension should provide sufficient time to address these potential problems. EPA continues to believe that impacts on human health and the environment need to be carefully considered, and therefore, today's proposed rule requires the owner or operator to demonstrate that there is no available alternative disposal capacity and there is no potential threat to human health and the environment before adopting the two-year extension. These time frames are consistent with those EPA is proposing under its subtitle C co-proposal for surface impoundments. EPA is aware of no reason that the time frames would need to differ under subtitle D, but solicits comment on this issue.

5. Design Requirements

The CCR damage cases and EPA's quantitative groundwater risk assessment clearly show the need for effective liners—namely composite liners—to very significantly reduce the probability of adverse effects. The co-proposed subtitle D design standards would require that new landfills and all surface impoundments that have not completed closure prior to the effective date of the rule, can only continue to operate if composite liners and leachate collection and removal systems have been installed. Units must be retrofitted or closed within five years of the effective date of the final rule, which is the time frame EPA is proposing for surface impoundments to retrofit or close under the subtitle C alternative. EPA is proposing to require the same liner and leachate collection and removal systems as part of the subtitle D criteria that are being proposed under the RCRA subtitle C co-proposal. The technical justification for these requirements is equally applicable to the wastes and the units, irrespective of the statutory authority under which the requirement is proposed.

EPA is also proposing to adopt the same approach to new and existing units under RCRA subtitle D that it is proposing under RCRA subtitle C. EPA would only require new landfills (or new portions of existing landfills) to meet these minimum technology requirements for liners and leachate collection and removal systems. Existing landfills that continue to receive CCRs after the effective date of the final rule, would not be required to be retrofitted with a new minimum-technology liner/leachate collection and removal system (or to close). They can continue to receive CCRs, and continue to operate as compliant landfills, without violating the open dumping prohibition. However, existing landfills would have to meet groundwater monitoring, corrective action, and other requirements (except as noted) of the subtitle D criteria, to assure that any groundwater releases from the unit were identified and promptly remediated. EPA sees no reason or special argument to adopt any different approach under the co-proposed subtitle D regulations for CCR landfills, particularly given the volume of the material and the disruption that would be involved if these design requirements were applied to existing landfills.

By contrast, existing surface impoundments that have not completed closure by the effective date of the final rule would be required to retrofit to install a liner. This is consistent with, but not identical to, the approach proposed under the RCRA subtitle C alternative. Under the subtitle C alternative, EPA is not proposing to require existing surface impoundments to install the proposed liner systems because the impoundments would only continue to operate for a limited period of time. EPA's proposed treatment standards—dewatering the wastes—will effectively phase out wet handling of CCRs. During this interim period (seven years as proposed), EPA believes that it would be infeasible to require surface impoundments to retrofit, and that compliance with the groundwater monitoring and other subtitle C requirements would be sufficiently protective. EPA lacks the authority under RCRA subtitle D to establish a comparable requirement; EPA only has the authority under RCRA section 4004 to establish standards relating to "disposal," not treatment, of solid wastes. Although EPA expects that many surface impoundments will choose to close rather than install a liner, wet-handling of CCRs can continue, even in existing units, and EPA's risk assessment confirms that the long-term operation of such units would not be protective without the installation of the composite liner and leachate collection system described below.

The composite liner would consist of two components: An upper component consisting of a minimum 30-mil flexible membrane liner (FML), and a lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1\times10^{-7}$cm/sec. The FML component would be required to be installed in direct and uniform contact with the compacted soil component. (In other words, the new landfill or new surface impoundment would be required to have a liner and leachate collection and removal system meeting the same design standard now included in EPA's municipal solid waste landfill criteria.) EPA solicits comment, however, on whether any subtitle D option should allow facilities to use an alternative design for new disposal units, so long as the owner or operator of a unit could obtain certification from an independent

registered professional engineer or hydrologist that the alternative design would ensure that the appropriate concentration values for a set of constituents typical of CCRs will not be exceeded in the uppermost aquifer at the relevant point of compliance—*i.e.,* 150 meters from the unit boundary down gradient from the unit, or the property boundary if the point of compliance (*i.e.,* the monitoring well) is beyond the property boundary. Although the existing part 258 requirements allow for such a demonstration, EPA is not proposing such a requirement in today's rule. EPA's risk assessment shows that only a composite liner would ensure that disposal of CCR will meet the RCRA section 4004 standard on a national level, even though site specific conditions could support the use of alternate liner designs in individual instances. In the absence of a strong state oversight mechanism, such as a permit, EPA is reluctant to allow facilities to modify this key protection. Nevertheless, EPA would be interested in receiving data and information that demonstrates whether under other site conditions, an alternative liner would be equally protective. In this regard, EPA would also be interested in information documenting the extent to which such conditions currently exist at CCR units. If EPA adopts such a performance standard, EPA anticipates adopting a requirement that is as consistent as possible with the existing part 258 requirements, and would require the same documentation and notification procedures as with the other self-implementing provisions in the co-proposed subtitle D option.

—*Stability requirements for surface impoundments.* In our recent assessment of surface impoundments managing CCRs, EPA has identified deficiencies in units currently receiving wet-handled CCRs.[152] The damage cases also demonstrate the need for requirements to address the stability of surface impoundments, to prevent the damages associated with a catastrophic failure, such as occurred at the TVA facility in 2008. EPA is therefore proposing to adopt as part of the subtitle D operating criteria for surface impoundments, the same stability requirements that are proposed as part of the subtitle C alternative. As explained in that section, these are based on the long-standing MSHA requirements, with only minor modifications necessary to tailor the requirements to CCR unit conditions.

For those surface impoundments which continue to operate, (*i.e.,* both new and existing) the proposed regulation would require that an independent registered professional engineer certify that the design of the impoundment is in accordance with recognized and generally accepted good engineering practices for the maximum volume of CCR slurry and wastewater that will be impounded therein, and that together design and management features ensure dam stability. The proposed regulation also requires the facility to conduct weekly inspections to ensure that any potentially hazardous condition or structural weakness will be quickly identified. As with the co-proposed RCRA subtitle C option, the proposed RCRA subtitle D regulation also requires that existing and new CCR surface impoundments be inspected annually by an independent registered professional engineer to assure that the design, operation, and maintenance of the surface impoundment is in accordance with current, prudent engineering practices for the maximum volume of CCR slurry and CCR waste water which can be impounded. EPA has concluded, subject to consideration of public comment, that these requirements are necessary to ensure that major releases do not occur that would cause adverse effects on health or the environment.

6. Operating Requirements

EPA is proposing to establish specific criteria to address the day-to-day operations of the CCR landfill or surface impoundment. The criteria were developed to prevent the health and environmental impacts from CCR landfills and surface impoundments identified in EPA's quantitative risk groundwater risk assessment and the damage cases. Included among these criteria are controls relating to runon and runoff from the surface of the facilities, discharges to surface waters, and pollution caused by windblown dust from landfills, and recordkeeping.

—*Existing criteria for Endangered Species and Surface Water.* CCR landfills and surface impoundments are currently subject to the open dumping criteria contained in 40 CFR 257, Subpart A. These minimum criteria include restrictions on impacts to endangered species under 257.3–2, and impacts to surface water under 257.3–3. As facilities should already be complying with these requirements, EPA is not proposing to modify these existing requirements in today's co-proposal. EPA notes that the surface water criterion is not enforceable by RCRA citizen suit. The extent to which this criterion may be enforced is governed by the remedies available under the CWA, which is the source of the requirement, rather than RCRA. *See, e.g., Arc Ecology* v. *U.S. Maritime Admin.,* No. 02:07–cv–2320 (E.D. Cal. Jan. 21, 2010); Guidelines for the Development and Implementation of State Solid Waste Management Plans and Criteria for Classification of Solid Waste Disposal Facilities and Practices, 46 Fed. Reg. 47048, 47050 (Sept. 23, 1981).

—*Run-on and run-off controls.* The purpose of the run-on standard is to minimize the amount of surface water entering the landfill and surface impoundment facility. Run-on controls prevent (1) Erosion, which may damage the physical structure of the landfill; (2) the surface discharge of wastes in solution or suspension; and (3) the downward percolation of run-on through wastes, creating leachate. The proposed regulation requires run-on control systems to prevent flow onto the active portion of the CCR landfill or surface impoundment during the peak discharge from a 24-hour, 25-year storm. This helps to ensure that run-off does not cause an overflow of the surface impoundment or scouring of material from a landfill or the materials used to build the surface impoundment.

Run-off is one of the major sources of hazardous constituent releases from mismanaged waste disposal facilities, including CCR landfills and surface impoundments. Additionally, run-off control systems from the active portion of CCR disposal units are required to collect and control at least the water volume resulting from a 24-hour, 25-year storm. This protects surface water that would otherwise flow untreated into a body of water. The facility is required to prepare a report, available to the public, documenting how relevant calculations were made, and how the control systems meet the standard. A registered professional engineer must certify that the design of the control systems meet the standard. Also, the owner or operator is required to prepare a report, certified by an independent registered professional engineer, and documenting how relevant calculations were made, and how the control systems meet the standard. The state must be notified that the report was placed in the operating record for the site, and the owner or operator must make it available to the public on the owner's or operator's internet site. Under the existing part 257 requirements, to which CCR units are currently subject, runoff must not cause

[152] For the findings of the assessment, *see: http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/surveys/index.htm#surveyresults.*

a discharge of pollutants into waters of the United States that is in violation of the National Pollutant Discharge Elimination System (NPDES) under section 402 of the Clean Water Act. (40 CFR 257.3–3). EPA is not proposing to revise the existing requirement, but is merely incorporating it here for ease of the regulated community.

The Agency chose the 24-hour period because it is an average that includes storms of high intensity with short duration and storms of low intensity with long duration. EPA believes that this is a widely used standard, and is also the current standard used for hazardous waste landfills and municipal solid waste landfill units under 40 CFR Part 258. EPA has no information that warrants a more restrictive standard for CCR landfills and surface impoundments than for MSWLFs and hazardous waste landfills.

*Fugitive dust requirements.* EPA has included under the co-proposed RCRA subtitle D regulation requirements similar to those included under the Subtitle C co-proposal, based upon its risk assessment findings that fugitive dust control at 35 μg/m3 or less is protective of human health or the environment. This is discussed in section VI above. Due to the lack of a permitting oversight mechanism under the RCRA Subtitle D alternative, and to facilitate citizen-suit enforcement of the criteria, EPA has provided for certification by an independent registered professional engineer, notification to the state that the documentation has been placed in the operating record, and provisions making available to the public on the owner's or operator's internet site documentation of the measures taken to comply with the fugitive dust requirements.

*Recordkeeping requirements.* EPA believes that it is appropriate for interested states and citizens to be able to access all of the information required by the proposed rule in one place. Therefore, the co-proposed Subtitle D alternative requires the owner or operator of a CCR landfill or surface impoundment to record and retain near the facility in an operating record which contains all records, reports, studies or other documentation required to demonstrate compliance with §§ 257.60 through 257.83 (relating to the location restrictions, design criteria, and operating criteria) and 257.90 through 257.101 (relating to ground water monitoring and corrective action, and closure and post-closure care).

The proposed rule would also require owners and operators of CCR surface impoundments that have not been closed in accordance with the closure criteria to place in the operating record a report containing several items of information. The reports would be required beginning every twelfth months after existing CCR surface impoundments would be required to comply with the design requirements in section 257.71 (that is, no later than seven years after the effective date of the final rule) and every twelfth month following the date of the initial plan for the design, construction, and maintenance of new surface impoundments and lateral expansions required under § 257.72(b)) to address:

(1) Changes in the geometry of the impounding structure for the reporting period;

(2) Location and type of installed instruments and the maximum and minimum recorded readings of each instrument for the reporting period;

(3) The minimum, maximum, and present depth and elevation of the impounded water, sediment, or slurry for the reporting period;

(4) Storage capacity of the impounding structure;

(5) The volume of the impounded water, sediment, or slurry at the end of the reporting period;

(6) Any other change which may have affected the stability or operation of the impounding structure that has occurred during the reporting period; and

(7) A certification by an independent registered professional engineer that all construction, operation, and maintenance were in accordance with the plan. The owner or operator would be required to notify the state that the report has been placed in the operating record and on the owner's or operator's internet site.

These reporting requirements are similar to those required under MSHA regulations for coal slurry impoundments (30 CFR 77.216–4). As the Agency has stated previously, MSHA has nearly 40 years of experience writing regulations and inspecting dams associated with coal mining, which is directly relevant to the issues presented by CCRs in this proposal. In our review of the MSHA regulations, we found them to be comprehensive and directly applicable to and appropriate for the dams used in surface impoundments at coal-fired utilities to manage CCRs.

The proposed rule would also allow the owner or operator to submit a certification by an independent registered professional engineer that there have been no changes to the information in items (1)–(6) above to the surface impoundment instead of a full report, although a full report would be required at least every 5 years.

7. Groundwater Monitoring/Corrective Action

EPA's damage cases and risk assessments all indicate the potential for CCR landfills and surface impoundments to leach hazardous constituents into groundwater, impairing drinking water supplies and causing adverse impacts on human health and the environment. Indeed, groundwater contamination is one of the key environmental risks EPA has identified with CCR landfills and surface impoundments. Furthermore, as mentioned previously, the legislative history of RCRA section 4004 specifically evidences concerns over groundwater contamination from open dumps. To this end, groundwater monitoring is a key mechanism for facilities to verify that the existing containment structures, such as liners and leachate collection and removal systems, are functioning as intended. Thus, EPA believes that, in order for a CCR landfill or surface impoundment to show no reasonable probability of adverse effects on health or the environment, a system of routine groundwater monitoring to detect any such contamination from a disposal unit, and corrective action requirements to address identified contamination, is necessary.

Today's co-proposed subtitle D criteria require a system of monitoring wells be installed at new and existing CCR landfills and surface impoundments. The co-proposed criteria also provide procedures for sampling these wells and methods for statistical analysis of the analytical data derived from the well samples to detect the presence of hazardous constituents released from these facilities. The Agency is proposing a groundwater monitoring program consisting of detection monitoring, assessment monitoring, and a corrective action program. This phased approach to groundwater monitoring and corrective action programs provide for a graduated response over time to the problem of groundwater contamination as the evidence of such contamination increases. This allows for proper consideration of the transport characteristics of CCR constituents in ground water, while protecting human health and the environment, and minimizing unnecessary costs.

In EPA's view, the objectives of a groundwater monitoring and corrective action regime and analytical techniques for evaluating the quality of groundwater are similar regardless of the particular wastes in a disposal unit, and regardless of whether the unit is a

landfill or surface impoundment. Therefore, EPA has largely modeled the proposed groundwater monitoring and corrective action requirements for CCR landfills and surface impoundments after those for MSWLFs in the 40 CFR part 258 criteria, and for disposal units that may receive conditionally-exempt small quantity generator (CESQG) hazardous waste under 40 CFR part 257, subpart B. EPA believes that the underlying rationale for those requirements is generally applicable to groundwater monitoring and corrective action for CCR landfills and surface impoundments. Accordingly, EPA does not discuss these requirements at length in today's preamble. Rather, EPA refers the reader to the detailed discussions of these requirements in the preambles to the final and proposed rules for the MSWLF criteria for more information.[153] *See* Solid Waste Disposal Facility Criteria, 56 Fed. Reg. 50978 (Oct. 9, 1991) (final rule); Solid Waste Disposal Facility Criteria, 53 Fed. Reg. 33314 (Aug. 30, 1988) (proposed rule).

However, for a number of the requirements, EPA is proposing to modify or revise these requirements. Below, EPA discusses the particular areas where the Agency is proposing to make modifications, and solicits comment on those specific differences. EPA, more generally, solicits comment on whether relying on the existing groundwater monitoring and corrective action requirements for MSWLFs and CESQG facilities, as modified in today's proposal, are appropriate for CCR landfills and surface impoundments.

Relying on the existing criteria in 40 CFR 258 and 257 Subpart B has several advantages. Specifically, like the co-proposed Subtitle D regulations for CCR disposal, these requirements are structured to be largely self-implementing. In addition, states and citizens should already be familiar with those processes, which have been in place since 1991, and EPA expects that this familiarity with the processes may facilitate the states' creation of regulatory programs for CCR disposal facilities under state law, to the extent they do not already exist, and thus providing oversight (which EPA believes is important in implementing these rules) that is already found through MSWLFs and CESQG landfill permitting programs. Furthermore, familiarity with the overall approach may facilitate the states' and citizens' oversight of CCR disposal activities through the citizen suit mechanism, which is available, regardless of whether a state has adopted a regulatory program under state law for CCR disposal facilities.

At the same time, however, EPA is mindful of the differences in the statutory authorities for establishing criteria for CCR landfills and surface impoundments versus MSWLFs and CESQG facilities, and in particular, the possibility that a state may lack a permit program for CCR disposal units. Accordingly, EPA has sought to tailor these proposed requirements in the CCR disposal context, in particular by including in several of the proposed requirements a certification by an independent registered professional engineer or, in some cases, hydrologist, in lieu of the state approval mechanisms that are used in the 40 CFR part 258/257, Subpart B criteria. Such certifications are found in proposed §§ 257.95(h) (establishment of an alternative groundwater protection standard for constituents for which MCLs have not been established); and 257.97(e) (determination that remediation of a release of an Appendix IV constituent from a CCR landfill or surface impoundment is not necessary). As discussed earlier in this preamble, EPA believes that this provides an important independent validation of the particular route chosen. EPA solicits comment in particular on the appropriateness of relying on such a mechanism under the proposed groundwater monitoring and corrective action criteria.

In other instances, however, EPA has decided not to propose to allow facilities to operate under an alternative standard, such as the existing provisions under 257.21(g) and 258.50(h) (establishing alternative schedules for groundwater monitoring and corrective action); and 258.54(a)(1) and (2), and 257.24(a)(1) and (2), which allow the Director of an approved State to delete monitoring parameters, and establish an alternative list of indicator parameters, under specified circumstances. EPA is proposing not to adopt these alternatives for CCR disposal facilities because groundwater monitoring is the single most critical set of protective measures on which EPA is relying to protect human health and the environment. EPA is not proposing to require existing landfills to retrofit to install a composite liner. Since these units will continue to operate in the absence of a composite liner, groundwater monitoring is the primary means to prevent groundwater contamination. Although EPA is proposing to require existing surface impoundments to retrofit with composite liners, these units are more susceptible to leaking, and thus the need for a rigorous groundwater monitoring program is correspondingly high. Moreover, EPA is concerned that provisions allowing such modification of these requirements are particularly susceptible to abuse, since such provisions would allow substantial cost avoidance. Therefore, in the absence of a state oversight mechanism in place to ensure such modifications are technically appropriate, such a provision may operate at the expense of protectiveness. In addition, given the extremely technical nature of these requirements, EPA is concerned that such provisions would render the requirements appreciably more difficult for citizens to effectively enforce. In some instances, including these alternative standards would not be workable. For example, establishing alternative schedules under the groundwater monitoring and corrective action provisions (as currently provided under 257.21(g) and 258.50(h)) the Agency believes would not be workable in the context of a self-implementing rule, because there is no regulatory entity to judge the reasonableness of the desired alternatives. The Agency thus solicits comments on these omissions from today's proposed rule, and also on whether a more prescriptive approach could or should be developed under subtitle D of RCRA. EPA also solicits comment on whether the requirement for certification by an independent professional engineer would be effective or appropriate in such a case.

*Applicability.* The co-proposed subtitle D criteria require facilities to install a groundwater monitoring system at existing landfills and surface impoundments within one year of the effective date of the regulation so that any releases from these units will be detected, thus providing an opportunity to detect and, if necessary, take corrective action to address any releases from the facilities. The proposed rule also provides that new CCR landfills and surface impoundments comply with the groundwater monitoring requirements in the rule before CCRs can be placed in the units. EPA expects that the one-year timeframe for existing units is a reasonable time for facilities to install the necessary systems. This is the same time frame provided to

[153] The preambles to the CESQG rules have more limited discussions of these requirements. See Criteria for Classification of Solid Waste Disposal Facilities and Practices; Identification and Listing of Hazardous Waste; Requirements for Authorization of State Hazardous Waste Programs, 61 FR 34252, 34259–61 (July 1, 1996) (final rule); Criteria for Classification of Solid Waste Disposal Facilities and Practices; Identification and Listing of Hazardous Waste; Requirements for Authorization of State Hazardous Waste Programs, 60 FR 30964, 30975–77 (June 12, 1995) (proposed rule).

facilities under the existing part 265 interim status regulations, and past experience demonstrates this implementation schedule would generally be feasible. Although one year for the installation of groundwater monitoring is a shorter time frame than EPA provided to facilities as part of the original part 258 or part 257 subpart A requirements, there are good reasons to establish a shorter time frame here. As discussed in section IV, many of the existing units into which much of the CCR is currently disposed are unlined, and they are aging. Under these circumstances, EPA believes that installation of groundwater monitoring is critical to ensure that releases from these units are detected and addressed appropriately. Moreover, EPA offered a longer implementation period in 1991 based on a factual finding that a shortage of drilling contractors existed; in the 1995 rule establishing groundwater monitoring requirements for CESQG facilities, EPA determined that this shortage had ended. EPA is aware of no information to suggest that a similar shortage exists today, but specifically solicits comment on this issue.

EPA has not included provisions for suspension of ground water monitoring that is currently allowed under 257.21(b) and 258.50(b). This is one of those provisions discussed above, that EPA believes are potentially, particularly susceptible to abuse, and EPA is reluctant to adopt a comparable provision in the absence of an approved state permit program. In addition, since these proposed criteria are designed to be applied even in the absence of state action, EPA has not included provisions for state establishment of a compliance schedule under 257.21(d) and 258.50(d). EPA solicits comment on whether these types of provisions are appropriate for CCR landfills and surface impoundments.

Section 257.90 also requires that the owner or operator of the CCR landfill or surface impoundment must notify the state once each year throughout the active life and post-closure care period that such landfill or surface impoundment is in compliance with the groundwater monitoring and corrective action provisions of this subpart. This notification must also be placed on the owner or operator's internet site. EPA believes that annual notification will facilitate state oversight of the groundwater monitoring and corrective action provisions.

*Groundwater monitoring systems.* The co-proposed subtitle D criteria require facilities to install, at a minimum, one up gradient and three down gradient wells at all CCR units. EPA is proposing this requirement based on the subtitle C interim status self-implementing requirements.

The design of an appropriate groundwater monitoring system is particularly dependent on site conditions relating to groundwater flow, and the development of a system must have a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that represents the quality of background groundwater that has not been affected by contaminants from CCR landfills or surface impoundments. EPA's existing requirements under parts 257, Subpart B, 258, and 264 all recognize this, and because they operate in a permitting context, these requirements do not generally establish inflexible minimum requirements. Because the same guarantee of permit oversight is not available under the criteria developed for this proposal, EPA believes that establishing a minimum requirement is necessary. Past experience demonstrates that these monitoring requirements will be protective of a wide variety of conditions and wastes, and that facilities can feasibly implement these requirements. Moreover, in many instances a more detailed groundwater monitoring system may need to be in place, and EPA is therefore requiring a certification by the independent registered professional engineer or hydrologist that the groundwater monitoring system is designed to detect all significant groundwater contamination.

*Groundwater sampling and analysis requirements.* Owners and operators need to ensure that consistent sampling and analysis procedures are in place to determine whether a statistically significant increase in the level of a hazardous constituent has occurred, indicating the possibility of groundwater contamination. The co-proposed subtitle D criteria would require the same provisions addressing groundwater sampling and analysis procedures with those already in use for CESQG and MSWLF facilities, since generally the same constituents and analysis procedures would be appropriate in both instances. However, EPA is requesting comment on one issue in particular. In the final MSWLF criteria, EPA noted that in order to ensure protection of human health and the environment at MSWLFs, it was important to make sure that the right test methodology from among those listed in this section was selected for the conditions present at a particular MSWLF. At the time, EPA indicated its expectation that as states gained program approval, they would take on the responsibility of approving alternate statistical tests proposed by the facilities. *See* 56 Fed. Reg. 51071. Because states may choose not to create a regulatory oversight mechanism under the co-proposed subtitle D rule for CCR landfills and surface impoundments, however, EPA is requesting comment on whether the lack of such an oversight mechanism will impair selection of appropriate test methodologies, and whether EPA should instead adopt a different approach to ensure the protection of human health and the environment at CCR disposal facilities. For example, one approach might be for EPA to tailor a list of methodologies to particular site conditions. EPA would welcome suggestions from commenters on alternative approaches to this issue.

*Detection monitoring program.* The parameters to be used as indicators of groundwater contamination are the following: boron, chloride, conductivity, fluoride, pH, sulphate, sulfide, and total dissolved solids (TDS). In selecting the parameters for detection monitoring, EPA selected constituents that are present in CCRs, and would rapidly move through the subsurface and thus provide an early detection as to whether contaminants were migrating from the disposal unit. EPA specifically solicits comment on the appropriateness of this list of parameters.

In this provision of the proposed RCRA subtitle D co-proposed rule, EPA has decided not to include provisions parallel to 258.54(a)(1) and (2), and 257.24(a)(1) and (2) which allow the Director of an approved State to delete monitoring parameters, and establish an alternative list of indicator parameters, under specified circumstances. EPA is not including these provisions because it believes that a set of specified parameters are necessary to ensure adequate protectiveness, since EPA's information on CCRs indicates that their composition would not be expected to vary such that the parameters are inappropriate. Under the proposed rule, monitoring would be required no less frequently than semi-annually. EPA has again decided not to include a provision that would allow an alternative sampling frequency, because of the lack of guaranteed state oversight and potential for this provision to diminish protection of human health and the environment, as mentioned in the introductory discussions above. EPA solicits comments on whether it should allow deletion of monitoring parameters and alternative sampling frequencies, based on compliance with a performance standard that has been

documented by an independent registered professional engineer or hydrologist. Commenters interested in supporting such an option are encouraged to provide data to demonstrate the conditions under which such alternatives would be protective, as well as information to indicate the prevalence of such conditions at CCR facilities.

*Assessment monitoring program.* When a statistically significant increase over background levels is detected for any of the monitored constituents, the rule would require the facility to begin an assessment monitoring program to detect releases of CCR constituents of concern including aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chloride, chromium, copper, fluoride, iron, lead, manganese, mercury, molybdenum, pH, selenium, sulphate, sulfide, thallium, and total dissolved solids.

EPA specifically solicits comment on the appropriateness of this list of parameters. For the same reasons as discussed under the proposed requirements for detection monitoring, EPA has chosen not to include in the proposed requirements for assessment monitoring provisions for allowing a subset of wells to be sampled, the deletion of assessment monitoring parameters, or alternative sampling frequencies. EPA again solicits comment on whether these options are appropriate for CCR landfills and surface impoundments.

*Assessment of corrective measures.* The proposed rule also requires that whenever monitoring results indicate a statistically significant level of any appendix IV constituent exceeding the groundwater protection standard, the owner or operator must initiate an assessment of corrective action remedies. Unlike for the MSWLF and CESQG criteria, the proposed rule provides a discrete time frame for completion of the assessment, at 90 days, while the earlier criteria provided for its completion within a "reasonable period of time." EPA believes that without a state oversight mechanism, a finite time frame is appropriate. EPA selected 90 days as the period over which the assessment must be completed because it expects that this will be a sufficient length of time to complete the required activities. EPA solicits comment on the appropriateness of the 90-day timeframe.

*Selection of Remedy.* The proposed rule establishes a framework for remedy selection based upon the existing requirements for MSWLFs and CESQG facilities. These provisions have been modified to eliminate consideration of "practicable capabilities" where such considerations have been included in the MSWLF and CESQG criteria. EPA believes that it does not have the discretion to include this consideration under the RCRA subtitle D co-proposal, because this consideration is explicitly required under the terms of RCRA section 4010. That section by its terms applies to facilities that may receive household hazardous wastes and CESQG wastes, and so is inapplicable to today's co-proposed standards for CCR landfills and surface impoundments. *See* 42 U.S.C. 6949a(c)(1). EPA solicits comment on these modifications, specifically, on how this modification may affect the ability of the regulated community to comply with the proposed criteria, and on how this modification may affect the protectiveness of the proposed standards for human health and the environment.

In the provisions discussing factors to be considered in determining whether interim measures are necessary, EPA has modified proposed 257.98(a)(3)(vi), to eliminate consideration of risks of fire or explosion, since EPA does not expect that these risks would be relevant to the disposal of CCRs in CCR landfills and surface impoundments.

*Implementation of the corrective action remedy.* The co-proposed subtitle D criteria require that the owner or operator comply with several requirements to implement the corrective action program, again modeled after the existing requirements for MSWLFs and CESQG facilities. Similar to proposed section 257.97, these provisions have been made consistent with the underlying statutory authorities for this proposed rule. *See* discussions above.

In these provisions, EPA has decided not to include a provision that is included in the MSWLF criteria in 258.58(e)(2) and 257.28(e)(2), allowing an alternative length of time during which the owner or operator must demonstrate that concentrations of constituents have not exceeded the ground water protection standards, in support of a determination that the remedy is complete. *See* proposed 257.98(e)(2). Instead, the proposed rule would require a set period of three consecutive years. EPA solicits comment on whether to allow for a different period of time. EPA is particularly concerned with whether such a provision would provide protection to human health or the environment because of the lack of a guaranteed state oversight mechanism.

8. Closure and Post-Closure Care

Effective closure and post-closure care requirements, such as requirements to drain the surface impoundment, are essential to ensuring the long-term safety of disposal units. Closure requirements, such as placing the cover system on the disposal unit, ensure that rainfall is diverted from the landfill or surface impoundment, minimizing any leaching that might occur based on the hydraulic head placed on the material in the unit. EPA's Guide for Industrial Waste Management, prepared in consultation with industry experts, a Tribal representative, state officials, and environmental groups, documents the general consensus on the need for effective closure and post-closure requirements.[154] Post-closure care requirements are also particularly important for CCR units because the time to peak concentrations for selenium and arsenic, two of the more problematic constituents contained in CCR wastes, is particularly long, and therefore the peak concentrations in groundwater may not occur during the active life of the unit. Continued groundwater monitoring is therefore necessary during the post-closure care period to ensure the continued integrity of the unit and the safety of human health and the receiving environment. For these provisions, then, EPA has again modeled its proposed requirements for CCR landfills on those already in place for MSWLFs with modifications to reflect the lack of a mandatory permitting mechanism, and other changes that it believes are appropriate to ensure that there is no reasonable probability of adverse effects from the wastes that remain after a unit has closed. For surface impoundments, EPA has modeled its proposed requirements on the part 265 interim status closure requirements for surface impoundments, as well as the MSHA requirements. EPA solicits comment on whether these proposed requirements are appropriate for CCR landfills and surface impoundments.

Requirements specific to closure of CCR landfills and surface impoundments include proposed 257.100(a)–(c). These provisions provide that prior to closure of any CCR unit, the owner or operator must develop a plan describing the closure of the unit, and a schedule for implementation. The plan must describe the steps necessary to close the CCR landfill or surface impoundment at any point during the active life in

[154] Guide for Industrial Waste Management, *available at http://www.epa.gov/epawaste/nonhaz/industrial/guide/index.htm.*

accordance with the requirements in paragraphs (c) and (d) or (e) of this section, as applicable, and based on recognized and generally accepted good engineering practices. EPA is proposing to define recognized and generally accepted good engineering practices in the same manner as it is proposing under the subtitle C alternative. The definition references but does not attempt to codify any particular set of engineering practices, but to allow the professional engineer latitude in adopting improved practices that reflect the state-of-the art practices, as they develop over time. The plan must be certified by an independent registered professional engineer. In addition, the owner or operator must notify the state that a plan has been placed in the operating record and on the owner's or operator's publically accessible Internet site.

These provisions are modeled after the closure plan requirements in 258.60(c). Of note here is that, while EPA rejected a certification requirement for MSWLF closure plans, EPA is proposing to require one here to increase the ability of citizens to effectively enforce the rules. In the MSWLF rule, EPA rejected a certification requirement because "it will be relatively easy to verify that the plan meets the requirements," due to the specific design criteria specified in the rule. However, this was in the context of a state program, where EPA could assure that states would play an active role in overseeing and enforcing the facility's implementation of the requirements.

EPA is also proposing that the closure plan provide, at a minimum, the information necessary to allow citizens and states to determine whether the facility's closure plan is reasonable. This includes an estimate of the largest area of the CCR unit ever requiring a final cover during the active life of the unit, and an estimate of the maximum inventory of CCRs ever on-site during the active life of the unit.

Proposed 257.100(b) of the rule allows closure of a CCR landfill or surface impoundment with CCRs in place or through CCR removal and decontamination of all areas affected by releases from the landfill or surface impoundment. Proposed paragraph (c) provides that CCR removal and decontamination are complete when constituent concentrations throughout the CCR landfill or surface impoundment and any areas affected by releases from the CCR landfill or surface impoundment do not exceed the numeric cleanup levels for those CCR constituents, to the extent that the state has established such clean up levels in which the CCR landfill or surface impoundment is located. These "clean-closure" provisions are modeled after EPA's "Guide for Industrial Waste Management," found at *http://www.epa.gov/epawaste/nonhaz/industrial/guide/chap11s.htm.* As previously noted, the Guide represents a consensus view of best practices for industrial waste management, based on involvement from EPA, and state and tribal representatives, as well as a focus group of industry and public interest stakeholders chartered under the Federal Advisory Committee Act. EPA has included this provision to allow some flexibility in the self-implementing scheme for facilities in their closure options, while providing protection for health and the environment under either option. Although EPA anticipates that facilities will mostly likely not clean close their units, given the expense and difficulty of such an operation, EPA believes that they are generally preferable from the standpoint of land re-use and redevelopment, and so wishes explicitly to allow for such action in the proposed subtitle D rule. EPA is also considering whether to adopt a further incentive for clean closure, under which the owner or operator of the CCR landfill or surface impoundment could remove the deed notation required under proposed 257.100(m), if all CCRs are removed from the facility, and notification is provided to the state. In the absence of state cleanup levels, metals should be removed to either statistically equivalent background levels, or to maximum contaminant levels (MCLs), or health-based numbers. One tool that can be used to help evaluate whether waste removal is appropriate at the site is the risk-based corrective action process (RBCA) using recognized and generally accepted good engineering practices such as the ASTM Ec0–RBCA process. EPA solicits comment on the appropriateness of this provision under a RCRA subtitle D rule, and information on the number of facilities that may take advantage of a clean-closure option.

For closure of surface impoundments with CCRs in place, EPA has developed substantive requirements modeled on a combination of the existing 40 CFR part 265 interim status requirements for surface impoundments, and the long-standing MSHA standards. At closure, the owner or operator of a surface impoundment would be required to either drain the unit, or solidify the remaining wastes. EPA is also proposing to require that the wastes be stabilized to a bearing capacity sufficient to support the final cover. The proposed criteria further require that, in addition to the technical cover design requirements applicable to landfills, any final cover on a surface impoundment would have to meet requirements designed to address the nature of the large volumes of remaining wastes. Specifically, EPA is proposing that the cover be designed to minimize, over the long-term, the migration of liquids through the closed impoundment; promote drainage; and accommodate settling and subsidence so that the cover's integrity is maintained. Finally, closure of the unit is also subject to the general performance standard that the probability of future impoundment of water, sediment, or slurry is precluded. This general performance standard is based on the MSHA regulations, and is designed to ensure the long-term safety of the surface impoundment.

The proposed RCRA subtitle D regulation requires that CCR landfills and surface impoundments have a final cover system designed and constructed to have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than $1 \times 10^{-5}$ cm/sec, whichever is less; it also requires an infiltration layer that contains a minimum of 18 inches of earthen material. The regulation also requires an erosion layer that contains a minimum of 6 inches of earthen material that is capable of sustaining native plant growth as a way to minimize erosion of the final cover. These requirements are generally modeled after the performance standard and technical requirements contained in the existing RCRA subtitle D rules for MSWLFs, in 258.60. EPA is also proposing, however a fourth requirement not found in those criteria modeled after the interim status closure requirements of 265.228(a)(iii)(D) that accounts for the conditions found in surface impoundments. Specifically, EPA is proposing that the final cover be designed to minimize the disruption of the final cover through a design that accommodates settling and subsidence. EPA believes that these requirements strike a reasonable balance between the costs of a protective final cover, and avoiding risks to health and the environment from the remaining wastes at the CCR landfill or surface impoundment. The regulation requires certification by an independent registered professional engineer that these standards were met. The design of the final cover system, including the certification, must be placed in the operating record and on the owner's or

operator's Internet site. Based on the MSHA standards, EPA is also proposing that unit closure must provide for major slope stability to prevent the sloughing of the landfill over the long term.

Alternatively, the rule allows the owner or operator of the CCR landfill or surface impoundment to select an alternative final cover design, provided the alternative cover design is certified by an independent registered professional engineer and notification is provided to the state that the alternative cover design has been placed in the operating record and on the owner's or operator's Internet site. The alternative final cover design must include a infiltration layer that achieves an equivalent reduction in infiltration, and an erosion layer that provides equivalent protection from wind and water erosion, as the infiltration and erosion layers specified in the technical standards in paragraph (d). Under this alternative, EPA expects that evapo-transpiration covers may be an effective alternative, which are not appropriately evaluated based on permeability alone. For example, an independent registered professional engineer might certify an alternative cover design that prevents the same level of infiltration as the system described above (*i.e.,* no greater than $1 \times 10^{-5}$ cm/sec, etc), based on: (1) hydrologic modeling and lysimetry or instrumentation using a field scale test section, or (2) Hydrologic modeling and comparison of the soil and climatic conditions at the site with the soil and climatic conditions at an analogous site with substantially similar cover design. In this case, the owner or operator of the disposal unit must obtain certification from an independent registered professional engineer that the alternative cover would minimize infiltration at least as effectively as the "design" cover described above. As with the other final covers, the design of the evapo-transpiration cover must be placed on the owner's or operator's Internet site.

EPA has included this alternative cover requirement to increase the flexibility for the facility to account for site-specific conditions. However, EPA is specifically soliciting comment on whether this degree of flexibility is appropriate, given the lack of guaranteed state oversight. In the final MSWLF rule, EPA adopted a comparable provision, but concluded that this alternative would not be available in States without approved programs. *See,* 56 FR 51096. Given that EPA can neither approve state programs, nor rely on the existence of a state permit process, EPA questions whether this kind of requirement is appropriate. Commenters who believe this requirement would be appropriate are encouraged to include examples documenting the need for flexibility in developing cover requirements, as well as data and information to demonstrate that alternative cover designs would be protective. EPA would also welcome suggestions for other methods to allow owners and operators of CCR landfills and surface impoundment facilities to account for site-specific conditions that provide a lower degree of individual facility discretion, such as a list of approved cover designs.

The proposed rule includes the same 30- and 180-day deadlines for beginning and completing closure, respectively, that are contained in existing section 258.60(f) and (g) for MSWLFs. However, EPA has decided not to propose to include a provision under which the owner and operator could extend those deadlines under the MSWLF criteria. EPA believes that extending the closure deadlines in this context is inappropriate because, in the absence of an approved State program, the owner or operator could unilaterally decide to extend the time for closure of the unit, without any basis, or oversight by a regulatory authority.

The proposed closure requirements also include a provision addressing required deed notations. In this regard, EPA is considering whether to include a provision for removing the deed notation once all CCRs are removed from the facility, and notification is provided to the state of this action. In the MSWLF rule, we adopted such a provision, but determined that state oversight of such a provision was essential, given the potential for abuse. As we noted in the final MSWLF rule, "EPA strongly believes that a decision to remove the deed notation must be considered carefully and that in practice very few owners or operators will be able to take advantage of the provision." EPA solicits comment on the propriety of such a provision, and encourages commenters who are interested in supporting such an option, to suggest alternatives to state oversight to provide for facility accountability.

Following closure of the CCR management unit, the co-proposed subtitle D approach requires post-closure care modeled after the requirements in 258.60. The owner or operator of the disposal unit must conduct post-closure care for 30 years. EPA is proposing to allow facilities to conduct post-closure care for a decreased length of time if the owner or operator demonstrates that (1) the reduced period is sufficient to protect human health and the environment, as certified by an independent registered professional engineer; (2) notice is provided to the state that the demonstration has been placed in the operating record and on the owner's or operator's Internet site; and (3) the owner or operator notifies the state of the company's findings. The proposed rule also allows an increase in this period, again, with notification to the state, if the owner or operator of the CCR landfill or surface impoundment determines that it is necessary to protect human health and the environment. The 30-year period is consistent with the period required under the criteria for MSWLFs, as well as under the subtitle C interim status requirements. EPA has no information to indicate that a different period would be appropriate for post-closure care for CCR disposal units. EPA recognizes that state oversight can be critical to ensure that post-closure care is conducted for the length of time necessary to protect human health and the environment; however, EPA also recognizes that there is no set length of time for post-closure care that will be appropriate for all possible sites, and all possible conditions. EPA therefore solicits comment on alternative methods to account for different conditions, yet still provide methods of oversight to assure facility accountability.

During post-closure care, the owner or operator of the disposal unit is required to maintain the integrity and effectiveness of any final cover, maintain and operate the leachate collection and removal system in accordance with the leachate collection and removal system requirements described above, maintain the groundwater monitoring system and monitor the groundwater in accordance with the groundwater monitoring requirements described above, and place the maintenance plan in the operating record and on the company's Internet site.

EPA is also considering whether to adopt a number of provisions to increase the flexibility available under these requirements. For example, EPA is considering a self-certified stoppage of leachate management, such as provided for in 258.61(a)(2), and is soliciting public comment on the need for such a provision, as well as its propriety, in light of the absence of guaranteed state oversight. EPA is also considering whether to adopt a provision to allow any other disturbance, provided that the owner or operator of the CCR landfill or surface impoundment demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of CCRs,

will not increase the potential threat to human health or the environment. The demonstration would need to be certified by an independent registered professional engineer, and notification provided to the state that the demonstration had been placed in the operating record and on the owner's or operator's Internet site. In the MSWLF rule, EPA limited this option to approved states, on the ground that, "under very limited circumstances it may be possible or desirable to allow certain post-closure uses of land, including some recreational uses, without posing a significant threat to human health and the environment, but such situations are likely to be very limited and need to be considered very carefully." Commenters interested in supporting such an option should address why such a provision would nevertheless be appropriate in this context. In this regard, EPA would also be interested in suggestions for other mechanisms providing facility flexibility and/or oversight.

9. Financial Assurance

EPA currently requires showings of financial assurance under multiple programs, including for RCRA subtitle C hazardous waste treatment, storage and disposal facilities; the RCRA subtitle I underground storage tank program; and under other statutory authorities. Financial assurance requirements generally help ensure that owners and operators adequately plan for future costs, and help ensure that adequate funds will be available when needed to cover these costs if the owner or operator is unable or unwilling to do so; otherwise, additional governmental expenditures may otherwise be necessary to ensure continued protection of human health and the environment. Financial assurance requirements also encourage the development and implementation of sound waste management practices both during and at the end of active facility operations, since the associated costs of any financial assurance mechanism should be less when activities occur in an environmentally protective manner.

Today's proposed RCRA subtitle D alternative does not include proposed financial responsibility requirements. Any such requirements would be proposed separately. Specifically, on January 6, 2010, EPA issued an advance notice of proposed rulemaking ("ANPRM"), identifying classes of facilities within the Electric Power Generation, Transmission, and Distribution industry, among others, as those for which it plans to develop, as necessary, financial responsibility requirements under CERCLA § 108(b). *See* Identification of Additional Classes of Facilities for Development of Financial Responsibility Requirements under CERCLA Section 108(b), 75 FR 816 (January 6, 2010). EPA solicits comments on whether financial responsibility requirements under CERCLA § 108(b) should be a key Agency focus should it regulate CCR disposal under a RCRA subtitle D approach. (By today's proposed rule, EPA is not reopening the comment period on the January 2010 ANPRM, which closed on April 6, 2010. *See* Identification of Additional Classes of Facilities for Development of Financial Responsibility Requirements under CERCLA Section 108(b), 75 FR 5715 (Feb. 4, 2010) (extending comment period to April 6, 2010).) However, EPA also solicits comment on existing state waste programs for financial assurance for CCR disposal facilities, and whether and how the co-proposed RCRA subtitle D regulatory approach might integrate with those programs.

10. Off-Site Disposal

Under a subtitle D regulation, regulated CCR wastes shipped off-site for disposal would have to be sent to facilities that meet the standards above.

11. Alternative RCRA Subtitle D Approaches

A potential modification to the subtitle D option that was evaluated in our Regulatory Impact Analysis (RIA) is what we have termed a subtitle "D prime" option. Under this modification, the regulations would not require the closure or installation of composite liners in existing surface impoundments; rather, these surface impoundments could continue to operate for the remainder of their useful life. New surface impoundments would be required to have composite liners. The other co-proposed subtitle D requirements would remain the same. This modification results in substantially lower costs, but also lower benefits as described in section XII, which presents costs and benefits of the RCRA subtitle C, D, and D prime options. EPA solicits comments on this approach.

Finally, another approach that has been suggested to EPA is a subtitle D regulation with the same requirements as spelled out in the co-proposal, for example, composite liners for new landfills and surface impoundments, groundwater monitoring, corrective action, closure, and post-closure care requirements as co-proposed in this notice; however, in lieu of the phase-out of surface impoundments, EPA would establish and fund a program for conducting annual (or other frequency) structural stability (assessments) of impoundments having a "High" or "Significant" hazard potential rating as defined by criteria developed by the U.S. Army Corps of Engineers for the National Inventory of Dams. EPA would conduct these assessments and, using appropriate enforcement authorities already available under RCRA, CERCLA, and/or the Clean Water Act, would require facilities to respond to issues identified with their surface impoundments. The theory behind this suggested approach is that annual inspections would be far more cost effective than the phase-out of surface impoundments—approximately $3.4 million annually for assessments versus $876 million annually for phase-out. EPA also solicits comments on this approach and its effectiveness in ensuring the structural integrity of CCR surface impoundments.

## X. How would the proposed subtitle D regulations be implemented?

### *A. Effective Dates*

The effective date of the proposed RCRA subtitle D alternative, if this alternative is ultimately promulgated, would be 180 days after promulgation of a final rule. Thus, except as noted below, owners and operators of CCR landfills and surface impoundments would need to meet the proposed minimum federal criteria 180 days after promulgation of the final rule. As noted elsewhere in today's preamble (*see* Section XI.), facilities would need to comply with the RCRA subtitle D criteria, irrespective of whether or not the states have adopted the standards. For the remaining requirements, the compliance dates would be as follows:

- For new CCR landfills and surface impoundments that are placed into service after the effective date of the final rule, the location restrictions and design criteria would apply the date that such CCR landfills and surface impoundments are placed into service.
- For existing CCR surface impoundments, the compliance date for the liner requirement is five years after the effective date of the final rule.
- For existing CCR landfills and surface impoundments, the compliance date for the groundwater monitoring requirements is one year after the effective date of the final rule.
- For new CCR landfills and surface impoundments, and lateral expansions of existing CCR landfills and surface impoundments, the groundwater monitoring requirement must be in place and in compliance with the

groundwater monitoring requirements before CCRs can be placed in the unit.

**Note:** As discussed in Section IX, if EPA determines that financial assurance requirements would be implemented pursuant to CERCLA 108(b) authority, the compliance date for this provision would be the date specified in those regulations.

*B. Implementation and Enforcement of Subtitle D Requirements*

As stated previously, EPA has no authority to implement and enforce the co-proposed RCRA subtitle D regulation. Therefore, the proposed RCRA subtitle D standards have been drafted so that they can be self implementing—that is, the facilities can comply without interaction with a regulatory agency. EPA can however take action under section 7003 of RCRA to abate conditions that "may present an imminent and substantial endangerment to health or the environment." EPA could also use the imminent and substantial endangerment authorities under CERCLA, or under other federal authorities, such as the Clean Water Act, to address those circumstances where a unit may pose a threat.

In addition, the federal RCRA subtitle D requirements would be enforceable by states and by citizens using the citizen suit provisions of RCRA 7002. Under this section, any person may commence a civil action on his own behalf against any person, who (1) is alleged to be in violation of any permit, standard, regulation * * * which has become effective pursuant to this chapter" Because a RCRA subtitle D proposal relies heavily on citizen enforcement, our proposal requires facilities to make any significant information related to their compliance with the proposed requirements publicly available.

## XI. Impact of a Subtitle D Regulation on State Programs

Under today's co-proposal, EPA is proposing to establish minimum nationwide criteria under RCRA subtitle D as one alternative. If the Agency were to choose to promulgate such nationwide criteria, EPA would encourage the states to adopt such criteria; however, the Agency has no authority to require states to adopt such criteria, or to implement the criteria upon their finalization. Nor does EPA have authority in this instance to require federal approval procedures for state adoption of the minimum nationwide criteria. States would be free to develop their own regulations and/or permitting programs using their solid waste laws or other state authorities. While states are not required to adopt such minimum nationwide criteria, some states (about 25) incorporate federal regulations by reference or have specific state statutory requirements that their state program can be no more stringent than the federal regulations (about 12, with varying degrees of exceptions). In those cases, EPA would expect that if the minimum nationwide criteria were promulgated, these states would adopt them, consistent with their state laws and administrative procedures.

If the states do not adopt or adopt different standards for the management of CCRs, facilities would still have to comply with the co-proposed subtitle D criteria, if finalized, independently of those state regulations. Thus, even in the absence of a state program, CCR landfills and CCR surface impoundments would be required to meet the proposed federal minimum criteria as set out in 40 CFR part 257, subpart D. As a result and to make compliance with the requirements as straightforward as possible, we have drafted the proposed criteria so that facilities are able to implement the standards without interaction with regulatory officials—that is, the requirements are self-implementing. Also, even in the absence of a state regulatory program for CCRs, these federal minimum criteria are enforceable by citizens and by states using the citizen suit provision of RCRA (Section 7002). EPA is also able to take action under RCRA Section 7003 to abate conditions that may pose an imminent and substantial endangerment to human health or the environment or and can rely on other federal authorities. *See* the previous section for a full discussion of this issue.

## XII. Impacts of the Proposed Regulatory Alternatives

*A. What are the economic impacts of the proposed regulatory alternatives?*

EPA prepared an analysis of the potential costs and benefits associated with this action contained in the "Regulatory Impact Analysis" (RIA). A copy of the RIA is available in the docket for this action and the analysis is briefly summarized here. For purposes of evaluating the potential economic impacts of the proposed rule, the RIA evaluated baseline (*i.e.,* current) management of CCRs consisting of two baseline components: (1) The average annual cost of baseline CCR disposal practices by the electric utility industry, and (2) the monetized value of existing CCR beneficial uses in industrial applications. Incremental to this baseline, the RIA estimated (1) future industry compliance costs for CCR disposal associated with the regulatory options described in today's action, and (2) although not completely quantified or monetized, three categories of potential future benefits from RCRA regulation of CCR disposal consisting of (a) Groundwater protection benefits at CCR disposal sites, (b) CCR impoundment structural failure prevention benefits, and (c) induced future annual increases in CCR beneficial use. The findings from each of these main sections of the RIA are summarized below. These quantified benefit results are based on EPA's initial analyses using existing information and analytical techniques.

1. Characterization of Baseline Affected Entities and CCR Management Practices

Today's action will potentially affect CCRs generated by coal-fired electric utility plants in the NAICS industry code 221112 (*i.e.,* the "Fossil Fuel Electric Power Generation" industry within the NAICS 22 "Utilities" sector code). Based on 2007 electricity generation data published by the Energy Information Administration (EIA), the RIA estimated a total of 495 operational coal-fired electric utility plants in this NAICS code could be affected by today's action. These plants are owned by 200 entities consisting of 121 companies, 18 cooperative organizations, 60 state or local governments, and one Federal Agency. A sub-total of 51 of the 200 owner entities (*i.e.,* 26%) may be classified as small businesses, small organizations, or small governments.

Based on the most recent (2005) EIA data on annual CCR tonnages generated and managed by electric utility plants greater than 100 megawatts nameplate capacity in size, supplemented with additional estimates made in the RIA for smaller sized electric utility plants between 1 and 100 megawatts capacity, these 495 plants generate about 140 million tons of CCRs annually, of which 311 plants dispose 57 million tons in company-owned landfills, 158 plants dispose 22 million tons in company-owned surface impoundments, and an estimated 149 plants may send upwards of 15 million tons of CCRs to offsite disposal units owned by other companies (*e.g.,* NAICS 562 commercial waste management service companies). Based on lack of data on the type of offsite CCR disposal units, and the fact that it costs much more to transport wet CCRs than dry CCRs (*i.e.,* CCRs which have been de-watered), the RIA assumes all offsite CCR disposal units are landfills. Because some plants use more than one CCR management method, these management plant counts exceed 495 total plants. Based on the estimates

developed for the RIA, total CCR disposal is about 94 million tons annually which is two-thirds of annual CCR generation. (EPA notes that the alternative, lower CCR generation and disposal estimates of 131 million tons and 75 million tons cited elsewhere in today's notice were derived from different and less comprehensive ACAA and EIA survey data sources, respectively, that do not include tonnage estimates for plants between 1 and 100 megawatt capacity.) In addition, 272 of the 495 plants supply CCRs which are not disposed for beneficial uses in at least 14 industries, of which 28 of the 272 plants solely supply CCRs for beneficial uses. As of 2005, CCR beneficial uses (*i.e.,* industrial applications) involved about 47 million tons annually representing one-third of annual CCR generation, which the RIA estimates may grow to an annual quantity of 62 million tons by 2009. For 2008, the American Coal Ash Association estimates CCR beneficial use has grown to 60.6 million tons.[155]

2. Baseline CCR Disposal

For each of the 467 operating electric utility plants which dispose CCRs onsite or offsite (28 of the 495 total plants solely send their CCRs for beneficial use and not disposal), the RIA estimated baseline engineering controls at CCR disposal units and associated baseline disposal costs for two types of CCR disposal units: landfills and surface impoundments. Impoundments are sometimes named by electricity plant personnel as basins, berms, canals, cells, dams, embankments, lagoons, pits, ponds, reservoirs, or sumps. The baseline is defined as existing (current) conditions with respect to the presence or absence of 10 types of environmental engineering controls and eight ancillary regulatory elements, plus projection of future baseline conditions of CCR disposal units without regulation over the 50-year future period-of-analysis—2012 to 2061—applied in the RIA. A 50-year future period was applied in the RIA to account for impacts of the proposed regulatory options which are specific only to future new disposal units given average lifespans of over 40-years. Existing conditions were determined based on review of a sample of current state government regulations of CCR disposal in 34 states, as well as limited survey information on CCR disposal units from studies published in 1995, 1996, and 2006 about voluntary engineering controls installed for CCR disposal units at some electric utility plants. The 10 baseline engineering controls evaluated in the RIA are (1) Groundwater monitoring, (2) bottom liners, (3) leachate collection and removal systems, (4) dust controls, (5) rainwater run-on and run-off controls, (6) financial assurance for corrective action, disposal unit closure, and post-closure care, (7) disposal unit location restrictions, (8) closure capping of disposal units, (9) post-closure groundwater monitoring, and (10) CCR storage design and operating standards prior to disposal (**Note:** Although listed here, this 10th element was not estimated in the RIA because of EPA's lack of information on baseline CCR storage practices). This specific set of engineering controls represents the elements of the RCRA 3004(x) custom-tailored technical standards proposed in today's notice for the RCRA subtitle C option. The eight ancillary elements evaluated in the RIA are (11) offsite transport and disposal, (12) disposal unit structural integrity inspections, (13) electricity plant facility-wide environmental investigations, (14) facility-wide corrective action requirements, (15) waste disposal permits, (16) state government regulatory enforcement inspections, (17) environmental release remediation requirements, and (18) recordkeeping and reporting to regulatory agencies. Some states require many of these technical standards for future newly-constructed CCR disposal units, some states require them for existing units, and some states have few or no regulatory requirements specific to CCR disposal and thus were not estimated in the baseline cost. Furthermore, some of the ancillary elements are only relevant to the regulatory options based on subtitle C as co-proposed in today's notice. The percentage of CCR landfills with baseline controls ranged from 61% to 81%, and the percentage of CCR surface impoundments with baseline controls ranged from 20% to 49%, depending upon the type of control. Based on this estimation methodology, the RIA estimates the electric utility industry spends an average of $5.6 billion per year for meeting state-required and company voluntary environmental standards for CCR disposal. Depending upon state location for any given electricity plant (which determines baseline regulatory requirements), and whether any given plant disposes CCRs onsite or offsite, this baseline cost is equivalent to an average cost range of $2 to $80 per ton of CCRs disposed of.

3. Baseline CCR Beneficial Use

In addition to evaluating baseline CCR disposal practices, the RIA also estimated the baseline net benefits associated with the 47 million tons per year (2005) of industrial beneficial uses of CCRs. CCRs are beneficially used nationwide as material ingredients in at least 14 industrial applications according to the American Coal Ash Association: (1) Concrete, (2) cement, (3) flowable fill, (4) structural fill, (5) road base, (6) soil modification, (7) mineral filler in asphalt, (8) snow/ice control, (9) blasting grit, (10) roofing granules, (11) placement in mine filling operations,[156] (12) wallboard, (13) waste solidification, and (14) agriculture. The baseline annual sales revenues (as of 2005) received by the electric utility industry for sale of CCRs used in these industrial applications are estimated at $177 million per year. In comparison, substitute industrial ingredient materials (*e.g.,* portland cement, quarried stone aggregate, limestone, gypsum) would cost industries $2,477 million per year. Thus, the beneficial use of CCRs provides $2,300 million in annual cost savings to these industrial applications, labeled economic benefits in the RIA. Based on the lifecycle materials and energy flow economic framework presented in the RIA, although only based on limited data representing 47% of annual CCR beneficial use tonnage involving only three of the 14 industrial applications (*i.e.,* concrete, cement and wallboard), baseline lifecycle benefits of beneficially using CCRs compared to substitute industrial materials are (a) $4,888 million per year in energy savings, (b) $81 million per year in water consumption savings, (c) $365 million per year in greenhouse gas (*i.e.,* carbon dioxide and methane) emissions reductions, and (d) $17,772 million per year in other air pollution reductions. Altogether, industrial beneficial uses of CCRs provide over $23 billion in annual environmental benefits as of 2005. In addition, baseline CCR beneficial use provides $1,830 million per year in industrial raw materials costs savings to beneficial users, and $2,927 million per year in avoided CCR disposal cost to the electric utility industry as of 2005. The sum of environmental benefits,

[155] Note that ACAA's definition of beneficial use does not align with that used by EPA in this rulemaking. For example, ACAA includes minefilling as a beneficial use, where EPA classifies it as a separate category of use.

[156] While today's proposed rule does not deal directly with the mine filling of CCRs, the RIA includes it as a baseline beneficial use because the RIA uses the categories identified by the American Coal Ash Association (*http://acaa.affiniscape.com/displaycommon.cfm?an=1&subarticlenbr=3*). However, as noted previously in today's notice, the Agency is working with OSM of the Department of Interior on the placement of CCRs in mine fill operations.

industrial raw materials costs savings, and CCR disposal cost savings, $27.9 billion per year, gives the baseline level of what the RIA has labeled social benefits from the beneficial use of CCRs.

4. Estimated Costs for RCRA Regulation of CCR Disposal

The RIA includes estimates of the costs associated with the options described in today's notice are summarized here: (1) RCRA subtitle C regulation of CCRs as a "special waste"; (2) RCRA subtitle D regulation as "non-hazardous waste"; and (3) the subtitle "D prime" options. Full descriptions of each option are presented in a prior section of today's notice. The RIA assumes that the engineering controls that would be established under the RCRA subtitle C option would be tailored on the basis of RCRA section 3004(x). The controls for the RCRA subtitle D option are identical to the subtitle C option. The controls under the subtitle "D prime" option would be identical as well, except that existing surface impoundments would not have to close or be dredged and have composite liners installed within five years of the effective date of the regulation. The RIA also assumes all three options retain the existing Bevill exemption for CCR beneficial uses.

The estimated costs for each option are incremental to the baseline, and are estimated in the RIA using both an average annualized and a present value equivalent basis over a 50-year period-of-analysis (2012 to 2061) using both a 7% and an alternative 3% discount rate. These two alternative discount rates are required by the Office of Management and Budget's September 2003 "Regulatory Analysis" Circular A–4. For the purpose of summary here, only the 7% discount rate results are presented for each option because the 7% rate represents the "base case" in the RIA for the reason that most of the regulatory compliance costs will be incurred by industry (*i.e.,* private capital). On an average annualized basis, the estimated regulatory compliance costs for the three options are $1,474 million (subtitle C special waste), $587 million (subtitle D), and $236 million (subtitle "D prime") per year. On a present value basis discounted at 7% over the 50-year future period-of-analysis applied in the RIA, estimated future regulatory compliance costs for the three options total $20,349 million, $8,095 million, and $3,259 million present value, respectively. EPA requests public comment on all data sources and analytical approaches.

5. Benefits for RCRA Regulation of CCR Disposal

The potential environmental and public health benefits of CCR regulation estimated and monetized in the RIA include three categories:

1. Groundwater protection benefits consisting of (a) human cancer prevention benefits and (b) avoided groundwater remediation costs at CCR disposal sites;

2. CCR impoundment structural failure prevention benefits (*i.e.,* cleanup costs avoided); and

3. Induced future increase in industrial beneficial uses of CCRs.

As was done with the cost estimates described above, the RIA estimated benefits both at the 7% and 3% discount rates using the same 50-year period-of-analysis. However, only the benefit estimates based on the 7% rate are summarized here. While the RIA focused on monetizing these three impact categories, there are also human non-cancer prevention benefits, ecological protection benefits, surface water protection benefits, and ambient air pollution prevention benefits, which are not monetized in the RIA, but qualitatively described below.

i. Groundwater Protection Benefits

The RIA estimated the benefits of reduced human cancer risks and avoided groundwater remediation costs associated with controlling arsenic leaching from CCR landfills and surface impoundments. These estimates are based on EPA's risk assessment (described elsewhere in today's notice), which predicts arsenic leaching rates using SPLP and TCLP data. Furthermore, recent research and damage cases indicate that these leaching tests under-predict risks from dry disposal.[157] Therefore, the groundwater protection benefits may be underestimated in the RIA. The RIA based estimation of future human cancer cases avoided on the individual "excess" lifetime cancer probabilities reported in the EPA risk assessment, although the RIA also used more recent (2001) science published by the National Research Council on arsenic carcinogenicity.

The RIA estimated groundwater protection benefits by categorizing electric utility plants according to their individual types of CCR disposal units (*i.e.,* landfill or impoundment) and presence/types of liners in those units. For each category, GIS data were used to determine the potentially affected populations of groundwater drinkers residing within 1-mile of the disposal units. Results from the risk assessment were applied to these populations by using a linear extrapolation, starting from a risk of zero to the peak future risk as demonstrated by the risk assessment. The count of people who might potentially get cancer was then adjusted upward to account for the more recent and more widely accepted arsenic carcinogenicity research by the National Research Council.[158] The RIA then segregated the future cancer counts into lung cancers and bladder cancers, as well as into those that were predicted to result in death versus those that were not. The RIA monetized each of these cancer sub-categories using EPA-published economic values for statistical life and cost of illness.

The RIA further adjusted these monetized future cancer counts, to take into account existing state requirements for groundwater monitoring at CCR disposal units, such that fewer cancer

[157] Recent EPA research demonstrates that CCRs can leach significantly more aggressively under different pH conditions potentially present in disposal units. In the EPA Office of Research & Development report "Characterization of Coal Combustion Residues from Electric Utilities—Leaching and Characterization Data," EPA–600/R–09/151, Research Triangle Park, NC, December 2009, CCRs from 19 of the 34 facilities evaluated in the study exceeded at least one of the Toxicity Characteristic regulatory values for at least one type of CCR (*e.g.,* fly ash or FGD residue) at the self-generated pH of the material. This behavior likely explains the rapid migration of constituents from disposal sites like Chesapeake, VA and Gambrills, MD. *See also* the EPA Office of Research & Development reports (a) "Characterization of Mercury-Enriched Coal Combustion Residues from Electric Utilities Using Enhanced Sorbents for Mercury Control," EPA 600/R–06/008, January 2006; and (b) Characterization of Coal Combustion Residues from Electric Utilities Using Wet Scrubbers for Multi-Pollutant Control, EPA/600/R–08/077, July 2008.

[158] EPA's current Integrated Risk Information System (IRIS) has a cancer slope factor for arsenic developed in 1995. This slope factor is based on skin cancer incidence and was used in the 2010 EPA risk assessment. Skin cancer is a health endpoint associated with lower fatality risk than lung and bladder cancers induced by arsenic. Since the IRIS slope factors were developed, quantitative data on lung and bladder cancers have become available, and the skin cancer based slope factors no longer represent the current state of the science for health risk assessment for arsenic. The National Research Council (NRC) published the report, "Arsenic in Drinking Water: 2001 Update" (2001) which reviewed the available toxicological, epidemiological, and risk assessment literature on the health effects of inorganic arsenic, building upon the NRC's prior report, "Arsenic in Drinking Water" (NRC 1999). The 2001 report, developed by an eminent committee of scientists with expertise in arsenic toxicology and risk assessment provides a scientifically sound and transparent assessment of risks of bladder and lung cancers from inorganic arsenic. EPA's Science Advisory Board is currently reviewing EPA's new proposed IRIS cancer slope factors based on bladder and lung cancer. Because the more recent NRC scientific information is available, the RIA (2010) uses the NRC arsenic cancer data for the estimate of benefits associated with cancers avoided by the proposed regulation of CCR.

cases than initially projected would ultimately occur from early detection of groundwater contamination in those states. Therefore, a baseline was established for the operation of state regulatory and remedial programs which led to a reduction in expected cancer cases in states with existing groundwater protection requirements. However, once groundwater contamination was found in those states, remediation costs would be incurred. Thus, the RIA also accounted for these costs under each of the regulatory options as well, thus avoiding possible double-counting of cancer cases and remediation costs. On an average annualized basis, the human cancer prevention component of the groundwater protection benefit category for the three options are $37 million (RCRA subtitle C special waste), $15 million (RCRA subtitle D), and $8 million (subtitle "D prime") per year. On a present value basis, the human cancer prevention benefit totals $504 million, $207 million, and $104 million present value, respectively. On an average annualized basis, the estimated avoided groundwater remediation cost benefit component of the groundwater protection benefit category for the three options are $34 million (RCRA subtitle C special waste), $12 million (RCRA subtitle D), and $6 million (subtitle "D prime") per year. On a present value basis, the avoided remediation cost benefit totals to $466 million, $168 million, and $84 million present value, respectively. Added together on an average annualized basis, these two groundwater protection benefit components total to $71 million (RCRA subtitle C special waste), $27 million (RCRA subtitle D), and $14 million (subtitle "D prime") per year. On a present value basis, the groundwater protection benefit category totals to $970 million, $375 million, and $188 million present value, respectively.

ii. Impoundment Structural Failure Prevention Benefits

The December 2008 CCR surface impoundment collapse at the Tennessee Valley Authority's Kingston, Tennessee coal-fired electricity plant illustrated that structural failures of large CCR impoundments can lead to catastrophic environmental releases and large cleanup costs. The RIA estimated the benefit of avoiding future cleanup costs for impoundment failures, which the structural integrity inspection requirement of all regulatory options, and the future conversion or retrofitting of existing or new impoundments (under the subtitle C, subtitle D, and subtitle "D prime" options) would be expected to prevent.

The RIA based the estimate of future cleanup costs avoided on information contained in EPA's 2009 mail survey [159] of 584 CCR impoundments operated by the electric utility industry. In response to the survey request for information on known spills or non-permitted releases from CCR impoundments within the last 10 years, revealed 42 CCR impoundment releases spanning 1995 to 2009. Particularly, there were five significant releases between 4,950 cubic yards and 5.4 million cubic yards of CCRs, and one catastrophic release of 5.4 million cubic yards of CCRs during this time period at coal fired power plants. Given these historic releases, the RIA projected the probability of future impoundment releases using a Poisson distribution. In addition to this approach, the RIA formulated two alternative failure scenarios based on 96 high-risk CCR impoundments identified as at least 40 feet tall and at least 25 years old. The two alternative failure scenarios assumed impoundment failure rates involving these 96 impoundments of 10% and 20%, respectively. On an average annualized basis ranging across these three alternative failure probability estimation methods (scenarios), the avoided cleanup cost benefit category for the three options is estimated at $128 million to $1,212 million (subtitle C special waste), $58 million to $550 million (subtitle D), and $29 million to $275 million (subtitle "D prime") per year. On a present value basis, the avoided cleanup cost benefit category totals $1,762 million to $16,732 million (RCRA subtitle C special waste), $793 million to $7,590 million (RCRA subtitle D), and $405 million to $3,795 million present value (RCRA subtitle "D prime"), respectively.

iii. Benefit of Induced Future Increase in Industrial Beneficial Uses of CCRs

The third and final potential benefit category evaluated in the RIA includes the potential effects of RCRA regulation of CCR disposal on future annual tonnages of CCR beneficial use. As its base case, the RIA estimates an expected future increase in beneficial use induced by the increased costs of disposing CCR in RCRA-regulated disposal units. The RIA also evaluates the potential magnitude of a future decrease in beneficial use as a result of a potential "stigma" effect under the subtitle C option. Both scenarios are based on a baseline consisting of (a) projecting the future annual tonnage of CCR generation by the electric utility industry in relation to the Energy Information Administration's (EIA) future annual projection of coal consumption by the electric utility industry, and (b) projecting the future baseline growth in CCR beneficial use relative to the historical growth trendline (*i.e.,* absent today's proposed regulation).

For the induced increase "base case" scenario, the compliance costs for each regulatory option represent an "avoided cost incentive" to the electric utility industry to shift additional CCRs from disposal to beneficial use. Proportional to the estimated cost for each option, the RIA applied a beneficial use market elasticity factor to the projected baseline future growth in beneficial use to simulate the induced increase. On an average annualized basis, the monetized value—based on the same unitized (*i.e.,* per-ton) monetized social values assigned to the lifecycle benefits of baseline CCR beneficial uses—of the estimated potential induced increases in future annual CCR beneficial use tonnage for the three options are $6,122 million (RCRA subtitle C special waste), $2,450 million (RCRA subtitle D), and $980 million (subtitle "D prime") per year. On a present value basis, the potential induced increases in beneficial use totals to $84,489 million (RCRA subtitle C special waste), $33,796 million (RCRA subtitle D), and $13,518 million (subtitle "D prime") present value, respectively.

The RIA also monetized the alternative "stigma" scenario of future reduction in beneficial use induced by the RCRA subtitle C option. The RIA formulated assumptions about the percentage future annual tonnage reductions which might result to some of the 14 beneficial use markets. For example, federally purchased concrete was assumed to stay at baseline levels because of the positive influence of comprehensive procurement guidelines that are already in place to encourage such types of beneficial uses. Conversely, the levels of non-federally purchased concrete were assumed to decrease relative to the baseline. On an average annualized basis, the monetized value—based on the same unitized (*i.e.,* per-ton) monetized social values assigned to the lifecycle benefits of baseline CCR beneficial uses—of the potential "stigma" reduction in future annual CCR beneficial use for the RCRA subtitle C option is $16,923 million per year cost. On a present value basis, the potential "stigma" reduction in beneficial use totals to $233,549 million

[159] Descriptive information and electric utility industry responses to EPA's 2009 mail survey is available at the survey webpage *http://www.epa.gov/waste/nonhaz/industrial/special/fossil/surveys/.*

present value cost. The RIA did not estimate a potential "stigma" reduction effect on the RCRA subtitle D or subtitle "D prime" regulatory options.

*B. Benefits Not Quantified in the RIA*

1. Non-Quantified Plant and Wildlife Protection Benefits

EPA's risk assessment estimated significant risks of adverse effects to plants and wildlife, which are confirmed by the existing CCR damage cases and field studies published in peer-reviewed scientific literature. Such reported adverse effects include: (a) Elevated selenium levels in migratory birds, (b) wetland vegetative damage, (c) fish kills, (d) amphibian deformities, (e) snake metabolic effects, (f) plant toxicity, (g) elevated contaminant levels in mammals as a result of environmental uptake, (h) fish deformities, and (i) inhibited fish reproductive capacity. Requirements in the proposed rule should prevent or reduce these impacts in the future by limiting the extent of environmental contamination and thereby reducing the levels directly available.

2. Non-Quantified Surface Water Protection Benefits

In EPA's risk assessment, recreational fishers could be exposed to chemical constituents in CCR via the groundwater-to-surface water exposure pathway. Furthermore, State Pollutant Discharge Elimination System (SPDES) and National Pollutant Discharge Elimination System (NPDES) discharges from CCR wet disposal (*i.e.,* impoundments) likely exceed the discharges from groundwater to surface water. Thus, exposure to arsenic via fish consumption could be significant. However, EPA expects that most electric utility plants will eventually switch to dry CCR disposal (or to beneficial use), a trend which is discussed in the RIA. Such future switchover will reduce potential future exposures to these constituents from affected fish.

3. Non-Quantified Ambient Air Protection Benefits

Another impact on public health not discussed in the RIA is the potential reduction of excess cancer cases associated with hexavalent chromium inhaled from the air. As estimated in the RIA, over six million people live within the Census population data "zip code tabulation areas" for the 495 electric utility plant locations. Thus, the potential population health benefits of RCRA regulation may be quite large. Inhalation of hexavalent chromium has been shown to cause lung cancer.[160] By requiring fugitive dust controls, the proposed rule would reduce inhalation exposure to hexavalent chromium near CCR disposal units that are not currently required to control fugitive dust.

Furthermore, several non-cancer health effects associated with CCRs are a result of particulate matter inhalation due to dry CCR disposal. Human health effects for which EPA is evaluating causality due to particulate matter exposure include (a) Cardiovascular morbidity, (b) respiratory morbidity, (c) mortality, (d) reproductive effects, (e) developmental effects, and (f) cancer.[161] The potential for and extent of adverse health effects due to fugitive dusts from dry CCR disposal was demonstrated in the 2009 EPA report "Inhalation of Fugitive Dust: A Screening Assessment of the Risks Posed by Coal Combustion Waste Landfills—DRAFT," which is available in the docket for today's co-proposed rules. The co-proposed rules' fugitive dust controls would serve to manage such potential risks by bringing them to acceptable levels.

CCR dust (and other types of particulate matter) can also be carried over long distances by wind and then settle on ground or water. The effects of this settling could include: (a) Changing the pH of lakes and streams; (b) changing the nutrient balance in coastal waters and large river basins; (c) depleting nutrients in soil; (d) damaging sensitive forests and farm crops; and (e) affecting the diversity of ecosystems.[162] Additionally, fine particulates are known to contribute to haze.[163] Thus, the fugitive dust controls contained in the proposed rule would improve visibility, and reduce the environmental impacts discussed above.

*C. Comparison of Costs to Benefits for the Regulatory Alternatives*

For purposes of comparing the estimated regulatory compliance costs to the monetized benefits for each regulatory option, the RIA computed two comparison indicators: Net benefits (*i.e.,* benefits minus costs), and benefit/cost ratio (*i.e.,* benefits divided by costs). The results of each indicator are displayed in the following tables (Table 10, Table 11 and Table 12) for three regulatory options, based on the 7% discount rate and the 50-year period-of-analysis applied in the RIA. There are three tables because three different scenarios were analyzed concerning potential impacts on beneficial use of CCRs impact under the regulatory options.

The three tables below represent three possible outcomes regarding impacts of the rule upon the beneficial use of CCR. In the first table, EPA presents the potential impact scenario that we view to be most likely. This first scenario assumes that the increased cost of disposal from regulation under subtitle C will encourage industry to seek out additional markets and greatly increase their beneficial use of CCRs. In the second table, EPA presents a negative effect on beneficial use, based on stigma, and the possibility of triggering use restrictions under state regulation and private sector standards due to subtitle C regulation. In the final table, EPA presents a scenario where beneficial use continues on its current path, without any changes as a result of the rule. On the basis of past experience, EPA believes that it is likely that recycling rates will increase as presented in the first scenario. Comments are requested on the impact of stigma on the beneficial use of CCRs.

TABLE 10—COMPARISON OF REGULATORY BENEFITS TO COSTS

[$Millions @ 2009$ prices and @ 7% discount rate over 50-year future period-of-analysis 2012 to 2061]

| | Subtitle C "Special Waste" | Subtitle D | Subtitle "D prime" |
|---|---|---|---|
| A. Present Values: | | | |
| 1. Regulatory Costs (1A+1B+1C): | $20,349 | $8,095 | $3,259. |
| 1A. Engineering Controls | $6,780 | $3,254 | $3,254. |

[160] ATSDR Texas. *Available at: http://www.atsdr.cdc.gov/toxfaq.html.*

[161] Source: EPA Office of Research & Development report "Integrated Science Assessment for Particulate Matter: First External Review Draft," EPA/600/R–08/139, 2008.

[162] Source: U.S. EPA Office of Air & Radiation, Particulate Matter "Health and Environment" Web site at *http://www.epa.gov/particles/health.html.*

[163] *Ibid;* and also *see http://www.intheairwebreathe.com/html/photo_gallery.html.*

TABLE 10—COMPARISON OF REGULATORY BENEFITS TO COSTS—Continued

[$Millions @ 2009$ prices and @ 7% discount rate over 50-year future period-of-analysis 2012 to 2061]

| | Subtitle C "Special Waste" | Subtitle D | Subtitle "D prime" |
|---|---|---|---|
| 1B. Ancillary Regulatory Requirements. | $1,480 | $5 | $5. |
| 1C. Conversion to Dry CCR Disposal. | $12,089 | $4,836 | $0. |
| 2. Regulatory Benefits (2A+2B+2C+2D): | $87,221 to $102,191 | $34,964 to $41,761 | $14,111 to $17,501. |
| 2A. Monetized Value of Human Cancer Cases Avoided. | $504 | $207 | $104. |
| 2B.Groundwater Remediation Costs Avoided. | $466 | $168 | $84. |
| 2C. CCR Impoundment Failure Cleanup Costs Avoided. | $1,762 to $16,732 | $793 to $7,590 | $405 to $3,795. |
| 2D. Included Future Increase in CCR Beneficial Use. | $84,489 | $33,796 | $13,518. |
| 3. Net Benefits (2–1) | $66,872 to $81,842 | $26,869 to $33,666 | $10,852 to $14,242. |
| 4. Benefit/Cost Ratio ( 2/1 ) | 4.286 to 5.022 | 4.319 to 5.159 | 4.330 to 5.370. |
| B. Average Annualized Equivalent Values:*. | | | |
| 1. Regulatory Costs (1A+1B+1C) | $1,474 | $587 | $236. |
| 1A. Engineering Controls | $491 | $236 | $236. |
| 1B. Ancillary Regulatory Requirements. | $107 | <$1 | <$1. |
| 1C. Conversion to Dry CCR Disposal. | $876 | $350 | $0. |
| 2. Regulatory Benefits (2A+2B+2C+2D): | $6,320 to $7,405 | $2,533 to $3,026 | $1,023 to $1,268. |
| 2A. Monetized Value of Human Cancer Cases Avoided. | $37 | $15 | $8. |
| 2B. Groundwater Remediation Costs Avoided. | $34 | $12 | $6. |
| 2C. CCR Impoundment Failure Cleanup Costs Avoided. | $128 to $1,212 | $58 to $550 | $29 to $275. |
| 2D. Included Future Increase in CCR Beneficial Use. | $6,122 | $2,450 | $980. |
| 3. Net Benefits (2–1) | $4,845 to $5,930 | $1,947 to $2,439 | $786 to $1,032. |
| 4. Benefit/Cost Ratio (2/1) | 4.286 to 5.022 | 4.319 to 5.159 | 4.330 to 5.370. |

* **Note:** Average annualized equivalent values calculated by multiplying the 50-year present values by a 50-year 7% discount rate "capital recovery factor" of 0.07246.

TABLE 11—COMPARISON OF REGULATORY BENEFITS TO COSTS UNDER SCENARIO #2—INDUCED BENEFICIAL USE DECREASE

[$Millions @ 2009$ prices @ 7% discount rate over 50-year future period-of-analysis 2012 to 2061]

| | Subtitle C "Special Waste" | Subtitle D | Subtitle "D prime" |
|---|---|---|---|
| A. Present Values: | | | |
| 1. Regulatory Costs (1A+1B+1C): | $20,349 | $8,095 | $3,259. |
| 1A. Engineering Controls | $6,780 | $3,254 | $3,254. |
| 1B. Ancillary Costs | $1,480 | $5 | $5. |
| 1C. Conversion to Dry CCR Disposal. | $12,089 | 4,836 | $0. |
| 2. Regulatory Benefits (2A+2B+2C+2D): | ($230,817) to ($215,847) | $1,168 to $7,965 | $593 to $3,983. |
| 2A. Monetized Value of Human Cancer Risks Avoided. | $504 | $207 | $104. |
| 2B. Groundwater Remediation Costs Avoided. | $466 | $168 | $84. |
| 2C. CCR Impoundment Failure Cleanup Costs Avoided. | $1,762 to $16,732 | $793 to $7,590 | $405 to $3,795. |
| 2D. Induced Impact on CCR Beneficial Use. | ($233,549) | N/A | N/A. |
| 3. Net Benefits (2–1) | ($251,166) to ($236,196) | ($6,927) to ($130) | ($2,666) to $724. |
| 4. Benefit/Cost Ratio (2/1) | (11.343) to (10.607) | 0.144 to 0.984 | 0.182 to 1.222. |
| B. Average Annualized Equivalent Values*. | | | |
| 1. Regulatory Costs (1A+1B+1C): | $1,474 | $587 | $236. |
| 1A. Engineering Controls | $491 | $236 | $236. |
| 1B. Ancillary Costs | $107 | $0.36 | $0.36. |

TABLE 11—COMPARISON OF REGULATORY BENEFITS TO COSTS UNDER SCENARIO #2—INDUCED BENEFICIAL USE DECREASE—Continued

[$Millions @ 2009$ prices @ 7% discount rate over 50-year future period-of-analysis 2012 to 2061]

| | Subtitle C "Special Waste" | Subtitle D | Subtitle "D prime" |
|---|---|---|---|
| 1C. Conversion to Dry CCR Disposal. | $876 | $350 | $0. |
| 2. Regulatory Benefits (2A+2B+2C+2D): | ($16,725) to ($15,640) | $85 to $577 | $43 to $289. |
| 2A. Monetized Value of Human Cancer Risks Avoided. | $37 | $15 | $8. |
| 2B. Groundwater Remediation Costs Avoided. | $34 | $12 | $6. |
| 2C. CCR Impoundment Failure Cleanup Costs Avoided. | $128 to $1,212 | $57 to $550 | $29 to $275. |
| 2D. Induced Impact on CCR Beneficial Use. | ($16,923) | NA | NA. |
| 3. Net Benefits (2–1) | ($18,199) to ($17,115) | ($502) to ($9) | ($193) to $52. |
| 4. Benefit/Cost Ratio (2/1) | (11.347) to (10.610) | 0.145 to 0.983 | 0.182 to 1.225. |

* **Note:** Average annualized equivalent values calculated by multiplying 50-year present values by a 50-year 7% discount rate "capital recovery factor" of 0.07246.

TABLE 12—COMPARISON OF REGULATORY BENEFITS TO COSTS UNDER SCENARIO #3—NO CHANGE TO BENEFICIAL USE

[$Millions @ 2009$ prices @ 7% discount rate over 50-year future period-of-analysis 2012 to 2061]

| Costs | Subtitle C "Special Waste" | Subtitle D | Subtitle "D prime" |
|---|---|---|---|
| A. Present Values: | | | |
| 1. Regulatory Costs (1A+1B+1C): | $20,349 | $8,095 | $3,259. |
| 1A. Engineering Controls | $6,780 | $3,254 | $3,254. |
| 1B. Ancillary Costs | $1,480 | $5 | $5. |
| 1C. Dry Conversion | $12,089 | 4,836 | $0. |
| 2. Regulatory Benefits (2A+2B+2C+2D): | $2,732 to $17,702 | $1,168 to $7,965 | $593 to $3,983. |
| 2A. Monetized Value of Human Cancer Risks Avoided. | $504 | $207 | $104. |
| 2B. Groundwater Remediation Costs Avoided. | $466 | $168 | $84. |
| 2C. CCR Impoundment Failure Cleanup Costs Avoided. | $1,762 to $16,732 | $793 to $7,590 | $405 to $3,795. |
| 2D. Induced Impact on CCR Beneficial Use. | $0 | $0 | $0. |
| 3. Net Benefits (2–1) | ($17,617) to ($2,647) | ($6,927) to ($130) | ($2,666) to $724. |
| 4. Benefit/Cost Ratio (2/1) | 0.134 to 0.870 | 0.144 to 0.984 | 0.182 to 1.222. |
| B. Average Annualized Equivalent Values. | | | |
| 1. Regulatory Costs (1A+1B+1C): | $1,474 | $587 | $236. |
| 1A. Engineering Controls | $491 | $236 | $236. |
| 1B. Ancillary Costs | $107 | $0.36 | $0.36. |
| 1C. Dry Conversion | $876 | $350 | $0. |
| 2. Regulatory Benefits (2A+2B+2C+2D): | $198 to $1,283 | $85 to $577 | $43 to $289. |
| 2A. Monetized Value of Human Cancer Risks Avoided. | $37 | $15 | $8. |
| 2B. Groundwater Remediation Costs Avoided. | $34 | $12 | $6. |
| 2C. CCR Impoundment Failure Cleanup Costs Avoided. | $128 to $1,212 | $57 to $550 | $29 to $275. |
| 2D. Induced Impact on CCR Beneficial Use. | $0 | $0 | $0. |
| 3. Net Benefits (2–1) | ($1,277) to ($192) | ($502) to ($9) | ($193) to $52. |
| 4. Benefit/Cost Ratio (2/1) | 0.134 to 0.870 | 0.145 to 0.983 | 0.182 to 1.225. |

* **Note:** Average annualized equivalent values calculated by multiplying 50-year present values by a 50-year 7% discount rate "capital recovery factor" of 0.07246.

EPA seeks comment on data and findings presented in the RIA, as well as on the cost and benefit estimation uncertainty factors identified in the RIA.

*D. What are the potential environmental and public health impacts of the proposed regulatory alternatives?*

The potential environmental and public health impacts of CCR regulation assessed within the RIA include the following three categories:

- Groundwater Benefits (human health benefits and cleanup costs avoided)
- Catastrophic Failure Benefits (catastrophic and significant releases avoided)
- Beneficial Use Benefits

The analyses of the groundwater impacts for the RIA were derived based on results from the risk assessment that was conducted for coal combustion residue landfills and surface impoundments. The second category of catastrophic impacts in the RIA was assessed, primarily based upon data on releases, as reported in EPA's 2009 Information Collection Request. And finally, the RIA assessment of beneficial use impacts was conducted using life-cycle analyses of current types and quantities of CCR beneficial use in the U.S. While the RIA focuses on monetizing these three impact categories, EPA notes that there are also likely noncancer health impacts, ecological impacts, other surface water impacts, and impacts on the ambient air, which are not monetized in this RIA.

1. Environmental and Public Health Impacts Estimated in the RIA

Groundwater Impacts

In the RIA, EPA estimated the benefits of reduced cancer risks and avoided groundwater remediation costs associated with controlling arsenic from landfills and surface impoundments that manage coal combustion residuals (CCRs). These estimates are based on EPA's risk assessment, which predicts leaching behavior using SPLP and TCLP data. Furthermore, recent research and damage cases indicate that these leaching tests may under-predict risks from dry disposal.[164] Therefore, the benefits estimated in this section are likely to underestimate the actual benefits provided by the proposed rule. EPA bases the cancer cases avoided on the individual "excess" lifetime cancer probabilities reported in the risk assessment, although for the present analysis, EPA uses more recent science on arsenic carcinogenicity, reflected in more recent NRC research.

The RIA began its groundwater impacts assessment by first segregating facilities by their individual type of liner and their respective Waste Management Unit (WMU) designations. For each class of facility, GIS data were used to determine the potentially affected populations of groundwater drinkers within 1-mile of the WMU. Results from the risk assessment were applied to these populations by using a linear extrapolation, starting from a risk of zero—to the peak future risk as demonstrated by the risk assessment. The number of people who might potentially get cancer was then adjusted to account for more recent research by the NRC.

Given the number of total potential cancers, EPA was able to use the same NRC data to split these cancers into lung cancers and bladder cancers, as well as into those that resulted in death versus those that did not. Once this subdivision was complete, EPA was then able to monetize these cancers using accepted economic values for a statistical life and cost of illness. In doing so, EPA was able to take account of both the potential lag in cancer cessation and the increase in value of a statistical life due to increases in income.

EPA also recognized that due to the relevant pre-existing state regulations in this area, fewer cancers than the number projected would ultimately occur. Therefore, a baseline was established for the operation of state regulatory and remedial programs. This led to the exclusion of some cancers where states would likely fill the gap in the absence of any EPA regulations. However, once contamination was found by states, cleanup costs would be incurred. Thus, EPA accounted for these costs under each of the regulatory options as well.

Once groundwater remediation costs and cancer costs under the baseline and each regulatory option were estimated, the aggregate benefits from each regulatory option were calculated (in comparison to the baseline). Net present value estimates were generated both at the 3% and 7% discount rate, as discussed in further detail within the RIA. To summarize, at a discount rate of 7%, the net present value of the groundwater benefits (including both the avoided cleanup costs and the value of cancer cases avoided) from the proposed rule totaled $970 million under the subtitle C option, and $375 million under the subtitle D option.

Catastrophic Failure Impacts

The 2008 surface impoundment failure at the TVA's Kingston, TN power plant illustrated that the improper handling of CCRs can lead to catastrophic releases. EPA's co-proposal for the management of CCRs includes requirements that would lead to all plants with surface impoundments converting to dry handling in landfills within 5-years of rule implementation. In the RIA, EPA estimated the avoided catastrophic failures and associated cleanup cost savings resulting from this provision of the rule.

First, EPA began by characterizing the releases reported in its 2009 Information Collection Request. In this data set, 42 releases were reported for the years 1995 through 2009. Particularly, there were 5 significant releases of between 1 million and 1 billion gallons, and one catastrophic release of over 1 billion gallons during this time period at coal fired power plants. Given these historic releases, EPA projected the occurrence of future releases using a Poisson distribution. EPA then estimated future avoided cleanup costs under the two proposed rules, and determined net present values of these benefits using both a 3% and 7% discount rate across the average and upper percentiles of risk demonstrated by the results of the Poisson distribution. The full details of these analyses are reported in the RIA. To summarize the results here at the 7% discount rate, the estimated net present value of avoided releases under the subtitle C requirements total $1,762 million on average (with the upper-bound estimates reaching from $3,140 to $4,177 million for the 90th and 99th percentiles). And under the subtitle D requirements and discount rate of 7%, the estimated net present value of avoided releases total $793 million on average (with the upper-bound estimates reaching from $1,413 to $1,880 million for the 90th and 99th percentiles).

In addition, a second Poisson distribution was developed as a sensitivity analysis, using an alternative historical rate of occurrence. This was done to see to what extent an increased release rate would pose in terms of greater risks. Given the age of many CCR surface impoundments, an increase in the release rate might be expected. The cleanup costs avoided under the two co-proposed rules were again calculated as described above and included in the

[164] Recent EPA research demonstrates that CCRs can leach significantly more aggressively under different pH conditions potentially present in disposal units. In U.S. EPA (2009c), a recent ORD study of 34 facilities, CCRs from 19 facilities exceeded at least one of the Toxicity Characteristic regulatory values for at least one type of CCR (*e.g.,* fly ash or FGD residue) at the self-generated pH of the material. This behavior likely explains the rapid migration of constituents from disposal sites like Chesapeake, VA and Gambrills, MD. *See also* U.S. EPA (2006, 2008b).

RIA, given this alternative higher occurrence rate. To summarize the results of this sensitivity analysis, at a 7% discount rate the estimated net present value of avoided releases under the subtitle C requirements total $5,154 million on average (with the upper-bound estimates reaching from $7,356 to $9,423 million for the 90th and 99th percentiles). And under the subtitle D requirements and same discount rate of 7%, the estimated net present value of avoided releases total $2,319 million on average (with the upper-bound estimates reaching from $3,310 to $4,240 million for the 90th and 99th percentiles).

Finally, a further sensitivity analysis was also performed to determine the extent to which these benefits would change if the catastrophic failures occurred sooner than projected by the Poisson distribution. Here, 96 impoundments were identified that were at least 40 feet tall and at least 25 years old. For the purposes of the assessment, benefit estimates were calculated based on assumed impoundment failure rates of both 10% and 20%. The RIA includes net present value estimates of the avoided cleanup costs under the two co-proposed rules for these two assumed failure rates, which are calculated using both 3% and 7% discount rates. Given the potential earlier releases, the analyses in the RIA find that at a 7% discount rate and a 10% failure rate, the net present value of avoided catastrophic failure costs is $8,366 under subtitle C, versus $3,795 million under subtitle D. Furthermore, when assuming a failure rate of 20% rather than 10%, the estimated net present value of avoided catastrophic failure costs increases to $16,732 million under Subtitle C, versus $7,590 million under subtitle D.

Beneficial Use Impacts

The last category of such impacts assessed within the RIA includes the potential effects that the different regulatory options for disposal of coal combustion residuals (CCRs) may have upon the quantities of CCRs that are being beneficially used. In the RIA, EPA estimates the expected increase in beneficial use associated with the increased costs of disposing CCRs, and also evaluates potential future changes in the beneficial uses of CCRs as a result of a potential "stigma" effect.

To begin, EPA projected the quantity of CCRs that will be produced in the future, based upon Energy Information Administration's (EIA) estimates of future coal supply and demand. At the same time, EPA also projected the growth in the percent of beneficial use that would take place absent any EPA rule. Combining these, EPA was able to project the total quantities of beneficially used CCRs under the baseline of no federal rule.

However, it is anticipated that the increased CCR disposal costs associated with a federal RCRA subtitle C rule, and the continued application of the Bevill exclusion to CCRs that are beneficially used, would provide significant incentive to electric utilities avoid higher disposal costs by increasing the quantity of CCRs going to beneficial use. Using the cost projections from the RIA for CCR disposal, EPA assumed that there would initially be unit elasticity with respect to cost, but that the elasticity would decrease with increasing market saturation. Based upon these assumptions, EPA projected the increased growth in beneficial use under a subtitle C rule. EPA then took the monetized benefits of current beneficial use, and applied them to our projected increases in beneficial use under the rule.

When monetized, the values of these increases are extremely large, summing to a net present value of $5,560 million in economic benefits at a 7% discount rate. Furthermore, when considering total social benefits (*e.g.,* decreased GHG emissions) the numbers are even greater, resulting in $84,489 million at a 7% discount rate. (Please note that because the total social benefits overlap with the economic benefits, these numbers should not be added together.) This number represents EPA's lower-bound estimate of the potential increase that it anticipates will occur.

On the basis of past experience, EPA believes it is realistic to expect that there is a possibility that recycling rates will increase under a subtitle C rule, increasing the beneficial use of CCRs. However, stakeholders have raised the potential issue of "stigma." Thus, the RIA also assesses this potential stigma effect and develops estimates of its potential impacts. Here, assumptions were made about what losses or reductions might result among the various sectors involved in the beneficial use of CCRs. For example, federally purchased concrete was assumed to stay at baseline levels because of the positive influence of comprehensive procurement guidelines that are already in place to encourage such types of beneficial uses. Conversely, for the purposes of assessing potential stigma effects, the levels of non-federally purchased concrete were assumed to decrease relative to the baseline.

When monetized, the values of these decreases are also large, summing to a net present value of $18,744 million in economic costs at a 7% discount rate. Furthermore, when considering total social benefits (*e.g.,* GHG emissions) the numbers are even greater, resulting in $233,549 million in economic costs at a 7% discount rate. This number represents EPA's estimate of the potential worst-case decrease that could occur in the event of potential stigma effect.

Since the potential increases in beneficial use as discussed above are driven largely by increases in disposal costs under the subtitle C option, EPA further estimated the effects that would result under a subtitle D rule by applying a ratio of the rule's respective costs under both the C and D options. Using the ratio of the subtitle D costs to the subtitle C costs (a ratio of 0.40:1); the net present value of social benefits associated with increased beneficial use under subtitle D would be approximately $33,796 million (at an assumed discount rate of 7%). It is important to note further that under the subtitle D option for the proposed rule, no such stigma effect would exist and is, therefore, not accounted for in our analyses. However, to the extent that a stigma effect is real, it could just as easily decrease beneficial use under a subtitle D option.

2. Environmental and Public Health Impacts Not Estimated in the RIA

Impacts on Plants and Wildlife

The risk assessment estimated significant risk of adverse effects to plants and wildlife, which is confirmed by the many impacts seen in the existing damage cases and field studies published in the peer-reviewed scientific literature. These include: elevated selenium levels in migratory birds, wetland vegetative damage, fish kills, amphibian deformities, snake metabolic effects, plant toxicity, elevated contaminant levels in mammals as a result of environmental uptake, fish deformities, and inhibited fish reproductive capacity. Requirements in the proposed rule should prevent or reduce these impacts in the future by limiting the extent of environmental contamination and thereby reducing the levels directly available.

Impacts on Surface Water Not Captured in the RIA

In EPA's risk assessment, recreational fishers could be exposed to constituents via the groundwater to surface water pathway. Furthermore, State Pollutant Discharge Elimination System (SPDES) and National Pollutant Discharge

Elimination System (NPDES) discharges from wet handling likely exceed the discharges from groundwater to surface water. Thus, exposure to arsenic via fish consumption could be significant. However, EPA expects that most facilities will eventually switch to dry handling of CCRs, a trend which is discussed in the RIA. This will reduce potential exposures to these constituents from affected fish.

Impacts on Ambient Air

Another impact on public health not discussed in the RIA is the potential reduction of excess cancer cases associated with hexavalent chromium inhaled from the air. Since over six million individuals are estimated to live within the Census population data "zip code tabulation areas" for the plant location zip codes of coal-fired power plants affected by this proposed rule,[165] the potential population health effects may be quite large. Inhalation of hexavalent chromium has been shown to cause lung cancer.[166] By requiring fugitive dust controls, the proposed rule would reduce inhalation exposure to hexavalent chromium near waste management units that are not currently required to control fugitive dust.

Non-Cancer Health Effects Associated With CCR Particulate Matter

There are several non-cancer health effects associated with CCRs are a result of particulate matter inhalation due to dry handling. Human health effects for which EPA is evaluating causality due to particulate matter exposure include cardiovascular morbidity, respiratory morbidity, and mortality, reproductive and developmental effects, and cancer.[167] The potential for and extent of adverse health effects due to fugitive dusts from dry handling of CCRs was demonstrated in U.S. EPA 2010b, "Inhalation of Fugitive Dust: A Screening Assessment of the Risks Posed by Coal Combustion Waste Landfills—DRAFT." The proposed rule's fugitive dust controls would serve to manage such potential risks by bringing them to acceptable levels.

Particles can also be carried over long distances by wind and then settle on ground or water. The effects of this settling include: changing the pH of lakes and streams; changing the nutrient balance in coastal waters and large river basins; depleting nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.[168] Additionally, fine particulates are known to contribute to haze.[169] Thus, the fugitive dust controls contained in the proposed rule would improve visibility, and reduce the environmental impacts discussed above.

## XIII. Other Alternatives EPA Considered

In determining the level of regulation appropriate for the management of CCRs, taking into account both the need for regulations to protect human health and the environment and the practical difficulties associated with implementation of such regulations, the Agency considered a number of approaches in addition to regulating CCRs under subtitle C or subtitle D of RCRA. Specifically, the Agency also considered several combination approaches, such as regulating surface impoundments under subtitle C of RCRA, while regulating landfills under subtitle D of RCRA.

Under all of the approaches EPA considered, CCRs that were beneficially used would retain the Bevill exemption. In addition, under all the approaches, requirements for liners and ground water monitoring would be established, as well as annual inspections of all CCR surface impoundments by an independent registered professional engineer to ensure that the design, operation, and maintenance of surface impoundments are in accordance with recognized and generally accepted good engineering standards. However, the degree and extent of EPA's authority to promulgate certain requirements, such as permitting, financial assurance, facility-wide corrective action, varies under RCRA subtitle C versus subtitle D. In addition, the degree and extent of federal oversight, including enforcement, varies based on whether a regulation is promulgated under RCRA subtitle C or subtitle D authority. (*See* Section IV. for a more detailed discussion on the differences in EPA's authorities under RCRA subtitle C and subtitle D.)

Under one such approach, wet-handled CCRs—that is, those CCRs managed in surface impoundments or similar management units—would be regulated as a hazardous or special waste under RCRA subtitle C, while dry handled CCRs—that is, those CCRs managed in landfills—would be regulated under RCRA subtitle D. Wet-handled CCR wastes would be regulated under the co-proposed subtitle C alternative described earlier in the preamble (*see* section VI), while dry-handled CCRs would be regulated under the co-proposed RCRA subtitle D alternative described earlier in the preamble (*see* section IX). In addition, EPA would retain the existing Bevill exemption for CCRs that are beneficially used. Under this approach, EPA would establish modified requirements for wet-handled CCRs, pursuant to RCRA 3004(x), as laid out in the co-proposed subtitle C alternative.

This approach would have many of the benefits of both of today's co-proposed regulations. For example, this approach provides a high degree of federal oversight, including permit requirements and federally enforceable requirements, for surface impoundments and similar units that manage wet CCRs. Based on the results of our ground water risk assessment, it would also provide a higher level of protection for those wastes whose method of management presents the greatest risks (*i.e.,* surface impoundments). On the other hand, dry CCRs managed in landfills, while still presenting a risk if the CCRs are not properly managed, clearly present a lower risk, according to the risk assessment and, therefore, a subtitle D approach might be more appropriate. Also, landfills that manage CCRs are unlikely to present a risk of catastrophic failure, such as that posed by surface impoundments that contain large volumes of wet-handled CCRs. EPA also believes this approach could address the concerns of many commenters who expressed their views that subtitle C regulations would overwhelm off-site disposal capacity and would place a stigma on beneficial uses of CCRs.

Of course, this approach also shares the disadvantages of the subtitle C approach, as it applies to surface impoundments, and of the subtitle D approach, as it applies to landfills. For example, portions of the rules applicable to surface impoundments would not become enforceable until authorized states adopt the subtitle C regulations and become authorized; and rules applicable to landfills would not be directly federally enforceable. For a full discussion of the advantages and disadvantages of the subtitle C and subtitle D options *see* sections VI and IX.

Under another approach considered by EPA, the Agency would issue the proposed subtitle C regulations, but they would not go into effect for some time

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[165] U.S. EPA. Regulatory Impact Analysis for EPA's Proposed Regulation of Coal Combustion Wastes Generated by the Electric Utility Industry, 2009. Office of Resource Conservation and Recovery.

[166] ATSDR Texas. *Available at: http://www.atsdr.cdc.gov/toxfaq.html.*

[167] Integrated Science Assessment for Particulate Matter: First External Review Draft. EPA/600/R–08/139. Research Triangle Park, NC: U.S. Environmental Protection Agency, Office of Research and Development. 2008.

[168] *http://www.epa.gov/particles/health.html.*

[169] *Ibid.*

period, such as three years, as an example, after promulgation. The rule would include a condition that would exclude CCRs from regulation under subtitle C of RCRA in states that: (l) Had developed final enforceable subtitle D regulations that are protective of human health and the environment,[170] (2) had submitted those regulations to EPA for review within two years after the promulgation date of EPA's subtitle C rule, and (3) EPA had approved within one year, through a process allowing for notice and comment, possibly comparable to the current MSW subtitle D approval process. If a state failed to develop such a program within the two year timeframe for state adoption of the regulations or if EPA did not approve a state program within the one-year timeframe for state approval, the hazardous waste or special waste listing would become effective. Under this alternative, each state would be evaluated individually, which could lead to a situation where CCRs were managed as hazardous or special wastes in certain states, while in other states, they would be managed as non-hazardous wastes. Such an approach could present some implementation issues, particularly if CCRs were transported across state lines. In addition, EPA has serious questions as to whether RCRA, as currently drafted, would allow EPA to promulgate such a regulation. However, EPA solicits comments on this option, both generally and with respect to the specific time frames.

Commenters also have suggested an approach similar to that proposed for cement kiln dust (CKD) in an August 20, 1999 proposed rule (*see* 64 FR 45632 *available at http://www.epa.gov/fedrgstr/EPA–WASTE/1999/August/Day-20/f20546.htm*). Under the CKD approach, the Agency would establish detailed management standards under subtitle D of RCRA. CCRs managed in accordance with the standards would not be a hazardous or special waste. However, CCRs that were in egregious violation of these requirements, such as disposal in land-based disposal units that were not monitored for groundwater releases or in new units built without liners, would be considered listed hazardous or special waste and subject to the tailored subtitle C requirements. (EPA is soliciting comment on this approach because commenters have suggested it; interested commenters may wish to consult the CKD proposal for more detail on how it would work. *See* 64 FR 45632 *available at http://www.epa.gov/epawaste/nonhaz/industrial/special/ckd/ckd/ckd-fr.pdf*). Like the previous approach, EPA is evaluating (and in fact is re-evaluating) this approach, and whether RCRA provides EPA the authority to promulgate such a rule.

Other commenters suggested yet another approach whereby EPA would regulate CCRs going for disposal under RCRA subtitle C, but they assert that EPA would not have to specifically list CCR as a hazardous waste using the criteria established in 40 CFR 261.11. These commenters believe that RCRA § 3001(b)(3)(A) (the so-called Bevill Amendment) authorizes the Agency to regulate CCRs under subtitle C as long as the Agency determines that subtitle C regulation is warranted based on the consideration of the eight factors identified in RCRA § 8002(n). The commenters analysis of their approach is set forth in a memorandum submitted to the Agency and is in the docket for today's notice. EPA has not adopted the commenters suggested reading of the statute, but solicits comments on it. (*See* "EPA Has Clear Authority to Regulate CCW under RCRA's Subtitle C without Making a Formal Listing Determination," White Paper from Eric Schaeffer, Environmental Integrity Project which is available in the docket for this proposal.)

Finally, some commenters have suggested that EPA not promulgate any standards, whether it be RCRA subtitle C or D, but continue to rely on the states to regulate CCRs under their existing or new state authority, and that EPA could rely on RCRA section 7003 (imminent and substantial endangerment) authority, to the extent the Agency had information that a problem existed that it needed to address. The Agency does not believe that such an approach is at all acceptable, and that national regulations whether it be under RCRA subtitle C or D needs to be promulgated. First, RCRA was designed as a preventative statute and not one where EPA would get involved only after a problem has been discovered. Thus, such an approach would not be consistent with the purpose and objectives of RCRA. In addition, this approach would basically implement the status quo—that is, the control of CCRs over the last decade, which the Agency believes has not shown to be at all acceptable. Furthermore, imminent and substantial endangerment authority is facility-specific and resource intensive. That is, such authority can only be used when EPA has sufficient information to determine that disposal of CCRs are contributing to an imminent and substantial endangerment. Thus, relying on this authority, without national regulations, is poorly suited to address the many problems that have occurred, and are likely to occur in the future. Nevertheless, the Agency solicits comment on such an approach.

EPA solicits comments on all of the approaches discussed above. The Agency is still considering all of these approaches, as well as our legal authorities to promulgate them, and will continue to do so as we move toward finalizing the regulations applicable to the disposal of CCRs.

## XIV. Is the EPA soliciting comments on specific issues?

Throughout today's preamble, the Agency has identified many issues for which it is soliciting comment along with supporting information and data. In order to assist readers in providing EPA comments and supporting information, in this section EPA is identifying many of the major issues on which comments with supporting information and data are requested.

*Management of CCRs*

- Whether regulatory approaches should be established individually for the four Bevill CCR wastes (fly ash, bottom ash, boiler slag, and FGD sludges) when destined for disposal.
- The extent to which the information currently available to EPA reflects current industry practices at both older and new units.
- The regulatory approaches proposed in the notice and the alternative approaches EPA is considering as discussed in Section XIII of the preamble.
- The Agency has documented, through proven damage cases and risk analyses, that the wet handling of CCRs in surface impoundments poses higher risks to human health and the environment than the dry handling of CCRs in landfills. EPA seeks comments on the standards proposed in this notice to protect human health and the environment from the wet handling of CCRs. For example, in light of the TVA Kingston, Tennessee, and the Martins Creek, Pennsylvania CCR impoundment failures, should the Agency require that owners or operators of existing and new CCR surface impoundments submit emergency response plans to the regulatory authority if wet handling of CCRs is practiced?
- The degree to which coal refuse management practices have changed and the impacts of those changes or, for

[170] Under this approach, EPA also would establish minimum national standards that ensure that CCRs that are managed under the "D" regulations would be protective of human health and the environment.

example, groundwater monitoring and the use of liners.

• Information and data on CCRs that are generated by non-utility industries, such as volumes generated, characteristics of the CCRs, and whether they are co-managed with other wastes generated by the non-utility industry.

*Risk Assessment*

• Are there any additional data that are representative of CCR constituents in surface impoundment or landfill leachate (from literature, state files, industry or other sources) that EPA has not identified and should be used in evaluating the risks presented by the land disposal of CCRs?

• The screening analysis conducted to estimate risks from fugitive CCR dust; data from any ambient air monitoring for particulate matter that has been conducted; where air monitoring stations are located near CCR landfills or surface impoundments; and information on any techniques, such as wetting, compaction, or daily cover that are or can be employed to reduce such exposures.

• Whether site-averaged porewater data used in model runs in EPA's risk analyses are representative of leachate from surface impoundments.

• Information and data regarding the existence of drinking water wells that are down-gradient of CCR disposal units, any monitoring data that exists on those monitoring wells and the potential of these wells to be intercepted by surface water bodies.

*Liners*

• Whether, in addition to the flexibility provided by section 3004(o)(2), regulations should also provide for alternative liner designs based on, for example, a specific performance standard, such as the performance standard in 40 CFR 258.40(a)(1), or a site specific risk assessment, or a standard that the alternative liner, such as a clay liner, was at least as effective as the composite liner.

• Whether clay liners designed to meet a $1 \times 10^{-7}$ cm/sec hydraulic conductivity might perform differently in practice than modeled in the risk assessment, including specific data on the hydraulic conductivity of clay liners associated with CCR disposal units.

• The effectiveness of such additives as organosilanes, including any analyses that would reflect long-term performance of the additives, as well as the appropriateness of a performance standard that would allow the use of these additives in lieu of composite liners.

*Beneficial Use*

• The growth and maturation of state beneficial use programs and the growing recognition that the beneficial use of CCRs is a critical component in strategies to reduce GHG emissions taking into account the potentially changing composition of CCRs as a result of improved air pollution controls and the new science on metals leaching.

• Information and data on the extent to which states request and evaluate CCR characterization data prior to the beneficial use of unencapsulated CCRs.

• The appropriate means of characterizing beneficial uses that are both protective of human health and the environment and provide benefits. EPA is also requesting information and data demonstrating where the federal and state programs could improve on being environmentally protective and, where states have, or are developing, increasingly effective beneficial use programs.

• Whether certain uses of CCRs (*e.g.,* uses involving unencapsulated uses of CCRs) warrant tighter control and why such tighter control is necessary.

• If EPA determines that regulations are needed for the beneficial use of CCRs, should EPA consider removing the Bevill exemption for such uses and regulate these uses under RCRA subtitle C, develop regulations under RCRA subtitle D or some other statutory authority, such as under the Toxic Substances Control Act?

• Whether it is necessary to define beneficial use better or develop detailed guidance on the beneficial use of CCRs to ensure protection of human health and the environment, including whether certain unencapsulated beneficial uses should be prohibited.

• Whether the Agency should promulgate standards allowing uses on the land, on a site-specific basis, based on site specific risk assessments, taking into consideration the composition of CCRs, their leaching potential under the range of conditions under which the CCRs would be managed, and the context in which CCRs would be applied, such as location, volume, rate of application, and proximity to water.

• If materials characterization is required, what type of characterization is most appropriate? If the CCRs exceed the toxicity characteristic at pH levels different from the TCLP, should they be excluded from beneficial use? When are totals levels relevant?

• Whether EPA should fully develop a leaching assessment tool in combination with the Draft SW–846 leaching test methods described in Section I. F. 2 and other tools (*e.g.,* USEPA's *Industrial Waste Management Evaluation Model* (IWEM)) to aid prospective beneficial users in calculating potential release rates over a specified period of time for a range of management scenarios.

• Information and data relating to the agricultural use of FGD gypsum, including the submission of historical data, taking into account the impact of pH on leaching potential of metals, the variable and changing nature of CCRs, and variable site conditions.

• Historically, EPA has proposed or imposed conditions on other types of hazardous wastes used in a manner constituting disposal (*e.g.,* maximum application rates and risk-based concentration limits for cement kiln dust used as a liming agent in agricultural applications (*see* 64 FR 45639; August 20, 1999); maximum allowable total concentrations for non-nutritive and toxic metals in zinc fertilizers produced from recycled hazardous secondary materials (*see* 67 FR 48393; July 24, 2002). Should EPA establish standards, such as maximum/minimum thresholds, or rely on implementing states to impose CCR site-specific limits based on front-end characterization that ensures individual beneficial uses remain protective?

• Whether additional beneficial uses of CCRs have been established, since the May 2000 Regulatory Determination, that have not been discussed elsewhere in today's preamble. The Agency solicits comment on any new uses of CCR, as well as the information and data which support that CCRs are beneficially used in an environmentally sound manner.

• Whether there are incentives that could be provided that would increase the amount of CCRs that are beneficially used and comment on specific incentives that EPA could adopt that would further encourage the beneficial use of CCRs.

• Information and data on the best means for estimating current and future quantities and changes in the beneficial use of CCRs, as well as on the price elasticity of CCR applications in the beneficial use market.

*Stigma*

• If EPA were to regulate CCRs as a "special waste" under subtitle C of RCRA, and stigma turns out to be an issue, suggestions on methods by which the Agency could reduce any stigmatic impact that might indirectly arise. We are seeking information on actual instances where "stigma" has adversely affected the beneficial use of CCRs and the causes of these adverse effects.

• The issue of "stigma" and its impact on beneficial uses of CCRs, including

more specifics on the potential for procedural difficulties for state programs, and measures that EPA might adopt to try to mitigate these effects.

• For those commenters who argue that regulating CCRs under subtitle C of RCRA would raise liability issues, EPA requests that commenters describe the types of liability and the basis/data/information on which these claims are based.

• EPA furthermore welcomes ideas on how to best estimate these effects for purposes of conducting regulatory impact analysis, and requests any data or methods that would assist in this effort.

*Today's Co-Proposed Regulations*

General

• Some commenters have suggested that EPA not promulgate any standards, whether they be RCRA subtitle C or D, but continue to rely on the states to regulate CCRs under their existing or new state authorities. The Agency solicits comment on such an approach, including how such an approach would be protective of human health and the environment.

RCRA Subtitle C Regulations

• Whether EPA should modify the corrective action requirements for facility-wide corrective action under the subtitle C co-proposal under the authority of section 3004(x) of RCRA. If so, how such modification would be protective of human health and the environment.

• Pursuant to RCRA section 3010 and 40 CFR 270.1(b), facilities managing these special wastes subject to RCRA subtitle C must notify EPA of their waste management activities within 90 days after the wastes are identified or listed as a special waste. The Agency is proposing to waive this notification requirement for persons who handle CCRs and have already: (1) notified EPA that they manage hazardous wastes, and (2) received an EPA identification number. Should such persons be required to re-notify the Agency that they generate, transport, treat, store or dispose of CCRs?

• Representatives of the utility industry have stated their view that CCRs cannot be practically or cost effectively managed under the existing RCRA subtitle C storage standards, and that these standards impose significant costs without meaningful benefits when applied specifically to CCRs. Comments are solicited on the practicality of the proposed subtitle C storage requirements for CCRs, the workability of the existing variance process allowing alternatives to secondary containment, and the alternative requirements based, for example, on the mining and mineral processing waste storage requirements.

RCRA Subtitle D Regulations

• EPA broadly solicits comment on the approach of relying on certifications by independent registered professional hydrologists or engineers of the adequacy of actions taken at coal-fired utilities to design and operate safe waste management systems.

• The Agency does not have specific data showing the number of CCR landfills located in fault areas where movement along Holocene faults is common, and the distance between these units and the active faults and, thus, is unable to precisely estimate the number of these existing CCR landfills that would not meet today's proposed fault area restrictions. Additional information regarding the extent to which existing landfills are currently located in such locations is solicited.

• In general, EPA believes that a 200-foot buffer zone is necessary to protect engineered structures from seismic damages and also expects that the 200-foot buffer is appropriate for CCR surface impoundments. The Agency seeks comment and data on whether the buffer zone should be greater for surface impoundments.

• Additional information regarding the extent to which landfill capacity would be affected by applying the proposed subtitle D location restrictions to existing CCR landfills.

• The proposed location requirements do not reflect a complete prohibition on siting facilities in areas of concern, but provide a performance standard that facilities must meet in order to site a unit in such a location. Information on the extent to which facilities could comply with the proposed performance standards, and the necessary costs that would be incurred to retrofit CCR disposal units to meet these standards is solicited.

• The proposed definition of seismic impact zones and whether there are variants that could lessen the burden on the industry and the geographic areas covered by the proposed definition.

• Whether the subtitle D option, if promulgated, should allow facilities to use alternative designs for new disposal units, so long as the owner or operator of a unit could obtain certification from an independent registered professional engineer or hydrologist that the alternative design would ensure that the appropriate concentration values for a set of constituents typical of CCRs will not be exceeded in the uppermost aquifer at the relevant point of compliance (*i.e.,* 150 meters from the unit boundary down gradient from the unit, or the property boundary if the point of compliance is beyond the property boundary).

• Whether there could be homeland security implications with the requirement to post information on an internet site and whether posting certain information on the internet may duplicate information that is already available to the public through the State.

• Whether the subtitle "D prime" option is protective of human health and the environment.

• EPA is proposing that existing CCR landfills and surface impoundments that cannot make a showing that a CCR landfill or surface impoundment can be operated safely in a floodplain or unstable area must close within five years after the effective date of the rule. EPA solicits comment on the appropriate amount of time necessary to meet this requirement, as well as measures that could help to address the potential for inadequate disposal capacity.

• The effectiveness of annual surface impoundment assessments in ensuring the structural integrity of CCR surface impoundments over the long term.

*Surface Impoundment Closeout*

• Whether the Agency should provide for a variance process allowing some surface impoundments that manage wet-handled CCRs to remain in operation because they present minimal risk to groundwater (*e.g.,* because they have a composite liner) and minimal risk of a catastrophic release (*e.g.,* as indicated by a low or less than low potential hazard rating under the Federal Guidelines for Dam Safety established by the Federal Emergency Management Agency).

*Surface Impoundment Stability*

• The adequacy of EPA's proposals to address surface impoundment integrity under RCRA.

• Whether to address all CCR impoundments for stability, regardless of height and storage volume; whether to use the cut-offs in the MSHA regulations; or whether other regulations, approaches, or size cut-offs should be used. If commenters believe that other regulations or different size cut-offs should be adopted, we request that commenters provide the basis and technical support for their position.

• Whether surface impoundment integrity should be addressed under EPA's NPDES permit program, rather than the development of regulations under RCRA, whether it be RCRA subtitles C or D.

*Financial Assurance*

• EPA broadly solicits comments on whether financial assurance should be a key program element under a subtitle D approach, if the decision is made to promulgate regulations under RCRA subtitle D.

• Whether financial responsibility requirements under CERCLA § 108(b) should be a key Agency focus for ensuring that funds are available for addressing the mismanagement of CCRs.

• How the financial assurance requirements might apply to surface impoundments that cease receiving CCRs before the effective date of the rule.

• Whether a financial test similar to that in 40 CFR 258.74(f) in the Criteria for Municipal Solid Waste Landfills should be established for local governments that own and operate coal-fired power plants.

*State Programs*

• Detailed information on current and past individual state regulatory and non-regulatory approaches taken to ensure the safe management of CCRs, not only under State waste authorities, but under other authorities as well, including the implementation of those approaches.

• The potential of federal regulations to cause disruption to States' implementation of CCR regulatory programs under their own authorities, including more specifics on the potential for procedural difficulties for State programs, and measures that EPA might adopt to try to mitigate these effects.

*Damage Cases*

• EPRI's report and additional data regarding the proven damage cases identified by EPA, especially the degree to which there was off-site contamination.

• The report of additional damage cases submitted to EPA on February 24, 2010 by the Environmental Integrity Project and EarthJustice.

*Regulatory Impact Analysis*

• Data and findings presented in the RIA, as well as on the cost and benefit estimation uncertainty factors identified in the RIA.

• Data on the costs of converting coal fired power plants from wet handling to dry handling with respect to the various air pollution controls, transportation systems, disposal units, and other heterogeneous factors.

• Relevant RCRA corrective actions and related costs that would be useful in characterizing the potential costs for future actions.

• Information on other significant and catastrophic surface impoundment releases of CCRs or other similar materials and cleanup costs associated with these releases?

• Data on the costs of storage of CCRs in tanks or tank systems, on pads, or in buildings.

• EPA has also quantified and monetized the benefits of this rule to the extent possible based on available data and modeling tools, but welcomes additional data that may be available that would assist the Agency in expanding and refining our existing benefit estimates.

## XV. Executive Orders and Laws Addressed in This Action

### *A. Executive Order 12866: Regulatory Planning and Review*

Under section 3(f)(1) of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is an "economically significant regulatory action" because it is likely to have an annual effect on the economy of $100 million or more (section 3(f)(1)). This determination is based on the regulatory cost estimates provided in EPA's "Regulatory Impact Analysis" (RIA) which is available in the docket for this proposal. The RIA estimated regulatory implementation and compliance costs, benefits and net benefits for a number of regulatory options, including a subtitle C "special waste" option, a subtitle D option and, a subtitle "D prime" option. The subtitle D prime option was briefly described in the Preamble and is more fully discussed in the RIA to the co-proposal. On an average annualized basis, the estimated regulatory compliance costs for the three options in today's proposed action are $1,474 million (subtitle C special waste), $587 million (subtitle D), and $236 million (subtitle "D prime") per year. On an average annualized basis, the estimated regulatory benefits for the three options in today's proposed action are $6,320 to $7,405 million (subtitle C special waste), $2,533 to $3,026 million (subtitle D), and $1,023 to $1,268 million (subtitle "D prime") per year. On an average annualized basis, the estimated regulatory net benefits for the three options in today's proposed action are $4,845 to $5,930 million (subtitle C special waste), $1,947 to $2,439 million (subtitle D), and $786 to $1,032 million (subtitle "D prime") per year. All options exceed $100 million in expected future annual effect. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under EO 12866, and changes made in response to OMB recommendations are documented in the docket for this proposal.

### *B. Paperwork Reduction Act*

The information collection requirements contained in this proposed rule has been submitted for approval to the Office of Management and Budget (OMB) under the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by EPA has been assigned EPA ICR number 1189.22.

Today's action co-proposes two regulatory alternatives that would regulate the disposal of CCRs under RCRA. The regulatory options described in today's notice contain mandatory information collection requirements. One of the regulatory options (subtitle C special waste option) would also trigger mandatory emergency notification requirements for releases of hazardous substances to the environment under CERCLA and EPCRA. The labor hour burden and associated cost for these requirements are estimated in the ICR "Supporting Statement" for today's proposed action. The Supporting Statement identifies and estimates the burden for the following nine categories of information collection: (the proposed options also contain other regulatory requirements not listed here because they do not involve information collection).

1. Groundwater monitoring
2. Post-closure groundwater monitoring
3. RCRA manifest cost (for subtitle C only)
4. Added cost of RCRA subtitle C permits for all offsite CCR landfills
5. Structural integrity inspections
6. RCRA facility-wide investigation (for subtitle C only)
7. RCRA TSDF hazardous waste disposal permit (for subtitle C only)
8. RCRA enforcement inspection (for subtitle C only)
9. Recordkeeping requirements

Based on the same data and cost calculations applied in the "Regulatory Impact Analysis" (RIA) for today's action, but using the burden estimation methods for ICRs, the ICR "Supporting Statement" estimates an average annual labor hour burden of 2.88 million hours for the subtitle C "special waste" option and 1.38 million hours for both the subtitle D and "D prime" options at an average annual cost of $192.93 million for the subtitle C "special waste" option and $92.6 million for both the subtitle D options. One-time capital and hourly costs are included in these estimates based on a three-year annualization period. The estimated number of likely respondents (under the options) ranges

from 90 to 495, depending on the information category enumerated above. Burden is defined at 5 CFR 1320.3(b). An Agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, EPA has established a public docket for this rule, which includes this ICR, under Docket ID number EPA–HQ–RCRA–2009–0640. Submit any comments related to the ICR to EPA and OMB. *See* **ADDRESSES** section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after June 21, 2010, a comment to OMB is best assured of having its full effect if OMB receives it by July 21, 2010. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

*C. Regulatory Flexibility Act*

The Regulatory Flexibility Act (RFA) generally requires an Agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the Agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities in the electric utility industry, small entity is defined as: (1) A small fossil fuel electric utility plant as defined by NAICS code 221112 with a threshold of less than four million megawatt-hours of electricity output generated per year (based on Small Business Administration size standards); (2) a small governmental jurisdiction that is a government based on municipalities with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

EPA certifies that this action will not have a significant economic impact on a substantial number of small entities (*i.e.,* no SISNOSE). EPA nonetheless continues to be interested in the potential impacts of the proposed rule on small entities and welcomes comments on issues related to such impacts, including our estimated count of small entities that own the 495 electric utility plants covered by this rule. This certification is based on the small business analysis contained in the RIA for today's proposal, which contains the following findings and estimates.

- The RIA identifies 495 electric utility plants likely affected by the proposed rule, based on 2007 data. The RIA estimates these 495 plants are owned by 200 entities consisting of 121 companies, 18 cooperative organizations, 60 state or local governmental jurisdictions, and one Federal government Agency. The RIA estimates that 51 of these 200 owner entities (*i.e.,* 26%) may be classified as small entities, consisting of 33 small municipal governments, 11 small companies, 6 small cooperatives, plus 1 small county government.
- The RIA includes a set of higher cost estimates for the regulatory options and the RFA evaluation is based on these estimates and therefore overestimates potential impacts of our proposed regulations. The RIA estimated that (a) None of the 51 small entities may experience average annualized regulatory compliance costs of greater than three percent of annual revenues, (b) one to five of the 51 small entities (*i.e.,* 2% to 10%) may experience regulatory costs greater than one percent of annual revenues, and (c) 46 to 50 of the small entities (*i.e.,* 90% to 98%) may experience regulatory costs less than one percent of annual revenues. These percentages constitute the basis for today's no-SISNOSE certification.

As analyzed in the RIA, there are two electricity market factors which may be expected to reduce or eliminate these potential revenue impacts on small entities, as well as for the other owner entities for the 495 plants:

- Electric utility plants have a mechanism to cover operating cost increases via rate hike petitions to public utility commissions in states which regulate public utilities, and via market price increases in the 18 states (as of 2008) which have de-regulated electric utilities, and
- The residential, commercial, industrial, and transportation sector economic demand for (*i.e.,* consumption of) electricity is relatively price inelastic, which suggests that electric utility plants may succeed in passing through most or all regulatory costs to their electricity customers.

However, because the Agency is sensitive to any potential impacts its regulations may have on small entities, the Agency requests comment on its analysis, and its finding that this action is not expected to have a significant economic impact on a substantial number of small entities.

*D. Unfunded Mandates Reform Act*

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538, requires Federal agencies, unless otherwise prohibited by law, to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. This co-proposal contains a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or for the private sector, in any one year.

The RIA includes a set of higher cost estimates for the regulatory options and the UMRA evaluation is based on these estimates and therefore overestimates the potential impacts of this co-proposal. Accordingly, EPA has prepared under section 202 of the UMRA a "Written Statement" (an appendix to the RIA) which is summarized below. Today's co-proposal will likely affect 495 electric utility plants owned by an estimated 200 entities, of which 139 private sector electric utility companies and cooperatives may incur between $415 million to $1,999 million in future annual direct costs across the high-end options in the RIA, which exceed the $100 million UMRA direct cost threshold under each of the regulatory options. In addition, 60 entities are state or local governments which may incur between $56 million to $97 million in future annual direct costs across the regulatory options, the upper-end of which is slightly under the $100 million UMRA direct cost threshold. The remainder single entity is a Federal government Agency (*i.e.,* Tennessee Valley Authority).

Although the estimated annual direct cost on state or local governments is less than the $100 million UMRA threshold, (a) because the highest-cost regulatory option is only 3% less than the $100 million annual direct cost threshold, and (b) because there are a number of uncertainty factors (as identified in the RIA) which could result in regulatory costs being lower or higher than estimated, EPA consulted with small governments according to EPA's UMRA interim small government consultation

plan developed pursuant to section 203 of the UMRA. EPA's interim plan provides for two types of possible small government input: technical input and administrative input. According to this plan, and consistent with section 204 of the UMRA, early in the process for developing today's co-proposal, the Agency implemented a small government consultation process consisting of two consultation components.

• A series of meetings in calendar year 2009 were held with the purpose of acquiring small government technical input, including: (1) A February 27 meeting with ASTSWMO's Coal Ash Workgroup (Washington, DC); (2) a March 22–24 meeting with ECOS at their Spring Meeting (Alexandria VA); (3) a April 15–16 meeting with ASTSWMO at their Mid-Year Meeting (Columbus OH), (4) a May 12–13 meeting at the EPA Region IV State Directors Meeting (Atlanta, GA), (5) a June 17–18 meeting at the ASTSWMO Solid Waste Managers Conference (New Orleans, LA), (6) a July 21–23 meeting at ASTSWMO's Board of Directors Meeting (Seattle, WA), and (7) an August 12 meeting at ASTSWMO's Hazardous Waste Subcommittee Meeting (Washington, DC). ASTSWMO is an organization with a mission to work closely with EPA to ensure that its state government members are aware of the most current developments related to their state waste management programs. ECOS is a national non-profit, non-partisan association of state and territorial environmental Agency leaders. As a result of these meetings, EPA received letters in mid-2009 from 22 state governments, as well as a letter from ASTSWMO expressing their stance on CCR disposal regulatory options.

Letters were mailed on August 24, 2009 to the following 10 organizations representing state and local elected officials, to inform them and seek their input for today's proposed rulemaking, as well as to invite them to a meeting held on September 16, 2009 in Washington, DC: (1) National Governors Association; (2) National Conference of State Legislatures, (3) Council of State Governments, (4) National League of Cities, (5) U.S. Conference of Mayors, (6) County Executives of America, (7) National Association of Counties, (8) International City/County Management Association, (9) National Association of Towns and Townships, and (10) ECOS. These 10 organizations of elected state and local officials are identified in EPA's November 2008 Federalism guidance as the "Big 10" organizations appropriate to contact for purpose of consultation with elected officials. EPA has received written comments from a number of these organizations and a copy of their comments has been placed in the docket for this rulemaking. The commenters express significant concerns with classifying CCRs as a hazardous waste. Their major concerns are that federal regulation could undercut or be duplicative of State regulations; that any federal regulation will have a great impact on already limited State resources; and that such a rule would have a negative effect on beneficial use. A number of commenters also raise the issue of the cost to their facilities of a subtitle C rule, particularly increased disposal costs and the potential shortage of hazardous waste disposal capacity.

Consistent with section 205 of UMRA, EPA identified and considered a reasonable number of regulatory alternatives. Today's proposed rule identifies a number of regulatory options, and EPA's RIA estimates that the average annual direct cost to industry across the three originally considered options (*e.g.* as reflected in the RIA in Exhibit 7L) may range between $415 million to $1,999 million. Section 205 of the UMRA requires Federal agencies to select the least costly or most cost-effective regulatory alternative unless the Agency publishes with the final rule an explanation of why such alternative was not adopted. We are co-proposing two regulatory options in today's notice involving RCRA subtitle C "special waste" and subtitle D. The justification for co-proposing the higher-cost options is that this provides for greater benefits and protection of public health and the environment by phasing out surface impoundments, compared to the lower cost subtitle D prime option.

*E. Executive Order 13132: Federalism*

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation.

EPA has concluded that this proposed rule may have federalism implications, because it may impose substantial direct compliance costs on State or local governments, and the Federal government may not provide the funds necessary to pay those costs. Accordingly, EPA provides the following federalism summary impact statement as required by section 6(b) of Executive Order 13132.

The RIA includes a set of higher cost estimates for the regulatory options and the Federalism evaluation is based on these estimates and, therefore, overestimates the potential impacts of our proposal.

Based on the estimates in EPA's RIA for today's action, the proposed regulatory options, if promulgated, may have federalism implications because the options may impose between $56 million to $97 million in annual direct compliance costs on 60 state or local governments. These 60 state and local governments consist of 33 small municipal government jurisdictions, 19 non-small municipal government jurisdictions, 7 state government jurisdictions, and one county government jurisdiction. In addition, the 48 state governments with RCRA-authorized programs for the proposed regulatory options may incur between $0.05 million to over $5.4 million in added annual administrative costs involving the 495 electric utility plants for reviewing and enforcing the various requirements. Based on these estimates, the expected annual cost to state and local governments for at least one of the regulatory options described in today's notice exceeds the $25 million per year "substantial compliance cost" threshold defined in section 1.2(A)(1) of EPA's November 2008 "Guidance on Executive Order 13132: Federalism." In developing the regulatory options described in today's notice, EPA consulted with 10 national organizations representing state and local elected officials to ensure meaningful and timely input by state/local governments, consisting of two consultation components, which is described under the UMRA Executive Order discussion.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this co-

proposal from elected State and local government officials.

*F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

Executive Order 13175 (65 FR 67249–67252, November 9, 2000) requires Federal agencies to provide funds to tribes, consult with tribes, and to conduct a tribal summary impact statement, for regulations and other actions which are expected to impose substantial direct compliance costs on one or more Indian tribal governments. Today's co-proposal, whether under subtitle C or subtitle D authority, is likely to impose direct compliance costs on an estimated 495 coal-fired electric utility plants. This estimated plant count is based on operating plants according to the most recent (2007) data available as of mid-2009 from the DOE's Energy Information Administration "Existing Generating Units in the United States by State, Company and Plant 2007." Based on information published by the Center for Media and Democracy,[171] three of the 495 plants are located on tribal lands, but are not owned by tribal governments: (1) Navajo Generating Station in Coconino County, Arizona owned by the Salt River Project; (2) Bonanza Power Plant in Uintah County, Utah owned by the Deseret Generation and Transmission Cooperative; and (3) Four Corners Power Plant in San Juan County, New Mexico owned by the Arizona Public Service Company. The Navajo Generating Station and the Four Corners Power Plant are on lands belonging to the Navajo Nation, while the Bonanza Power Plant is located on the Uintah and Ouray Reservation of the Ute Indian Tribe. According to this same information source, there is one additional coal-fired electric utility plant planned for construction on Navajo Nation tribal land near Farmington, New Mexico, but to be owned by a non-tribal entity (the Desert Rock Energy Facility to be owned by the Desert Rock Energy Company, a Sithe Global Power subsidiary). Because none of the 495 plants are owned by tribal governments, this action does not have tribal implications as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this action. EPA solicits comment on the accuracy of the information used for this determination. EPA met with a Tribal President, whose Tribe owns a cement plant, and who was concerned about the adverse impact of designating coal combustion residuals as a hazardous waste and the effect that a hazardous waste designation would have on the plant's business. We assured the Tribal President that we are aware of the "stigma" concerns related to a hazardous waste listing and will be analyzing that issue throughout the rulemaking process.

*G. Executive Order 13045: Protection of Children From Environmental Health & Safety Risks*

Executive Order (EO) 13045 (62 FR 19885, April 23, 1997) establishes federal executive policy on children's health and safety risks. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children in the United States. EPA has conducted a risk assessment which includes evaluation of child exposure scenarios, as well as has evaluated Census child population data surrounding the 495 plants affected by today's co-proposal, because today's action meets both of the two criteria for "covered regulatory actions" defined by Section 2–202 of EO 13045: (a) today's co-proposal is expected to be an "economically significant" regulatory action as defined by EO 12866, and (b) based on the risk analysis discussed elsewhere in today's notice, the environmental and safety hazards addressed by this action may have a disproportionate effect on children.

For each covered regulatory action, such as today's action, Section 5 of EO 13045 requires federal agencies (a) to evaluate the environmental health or safety effects of the planned regulation on children, and (b) to explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency. The remainder of this section below addresses both of these requirements, as well as presents a summary of the human health risk assessment findings with respect to child exposure scenarios, and the results of the child demographic data evaluation.

G1. Evaluation of Environmental Health and Safety Effects on Children

EPA conducted a risk evaluation consisting of two steps, focusing on environmental and health effects to adults and to children that may occur due to groundwater contamination. The first step, conducted in 2002, was a screening effort targeting selected hazardous chemical constituents that appeared to be the most likely to pose risks. The second step, conducted between 2003 and 2009, consisted of more detailed "probabilistic" modeling for those constituents identified in the screening as needing further evaluation. Constituents that may cause either cancer or non-cancer effects in humans (*i.e.,* both adults and children) were evaluated under modeling scenarios where they migrate from a CCR landfill or surface impoundment toward a drinking water well or nearby surface water body, and where humans ingest the constituents either by drinking the contaminated groundwater or by eating fish caught in surface water bodies affected by the contaminated groundwater.

As described elsewhere in today's notice, EPA found that for the non-cancer health effects in the groundwater-to-drinking-water pathway and in the fish consumption pathways evaluated in the probabilistic modeling, children rather than adults had the higher exposures. This result stems from the fact that while at a given exposure point (*e.g.,* a drinking water well located a certain distance and direction down-gradient from the landfill or surface impoundment), the modeled groundwater concentration is the same regardless of whether the receptor is an adult or a child. Thus the other variables in the exposure equations (that relate drinking water intakes or fish consumption rates and body weight to a daily "dose" of the constituent) mean that, on a per-kilogram-body-weight basis, children are exposed to higher levels of constituents than adults.

G2. Evaluation of Children's Population Census Data Surrounding Affected Electric Utility Plants

The RIA for today's co-proposal contains an evaluation of whether children may disproportionately live near the 495 electric utility plants potentially affected by this rulemaking. This demographic data analysis is supplemental to and separate from the risk assessment summarized above. To make this determination, the RIA compares Census demographic data on child populations residing near each of the 495 affected plants, to statewide children population data. The results of that evaluation are summarized here.

- Of the 495 electric utility plants, 383 of the plants (77%) operate CCR disposal units on-site (*i.e.,* onsite landfills or onsite surface

[171] The Center for Media and Democracy (CMD) was founded in 1993 as an independent, non-profit, non-partisan, public interest organization. Information about electric utility plants located on tribal lands is from CMD's SourceWatch Encyclopedia at: *http://www.sourcewatch.org/index.php?title=Coal_and_Native_American_tribal_lands.*

impoundments), 84 electric utility plants solely transport CCRs to offsite disposal units operated by other companies (*e.g.,* commercial waste management companies), and 28 other electric utility plants generate CCRs that are solely beneficially used rather than disposed. Child demographic data is evaluated in the RIA for all 495 plants because some regulatory options could affect the future CCR management method (*i.e.,* disposal versus beneficial use) for some plants.

- The RIA provides three complementary approaches to comparison of child populations surrounding the 495 plants to statewide child population data: (a) Plant-by-plant comparison basis, (b) state-by-state aggregation comparison basis, and (c) nationwide total comparison basis. There are year 2000 Census data for 464 (94%) of the 495 electric utility plants which the RIA used for these comparisons and extrapolated to all 495 plants. Statewide children population benchmark percentages range from 21.5% (Maine) to 30.9% (Utah), with a nationwide average of 24.7%.
- For purpose of determining the relative degree by which children may exceed these statewide percentages, the percentages are not only compared in absolute terms, but also compared as a numerical ratio whereby a ratio of 1.00 indicates that the child population percentage living near an electric utility plant is equal to the statewide average, a ratio greater than 1.00 indicates the child population percentage near the electric utility plant is higher than the statewide population, and a ratio less than 1.00 indicates the child population is less than the respective statewide average.
- Using the plant-by-plant basis, 310 electric utility plants (63%) have surrounding child populations which exceed their statewide children benchmark percentages, whereas 185 of the electric utility plants (37%) have children populations below their statewide benchmarks, which represents a ratio of 1.68 (*i.e.,* 310/185). Since this ratio is much greater than 1.00, this finding indicates that a disproportionate number of electric utility plants have surrounding child population percentages which exceed their statewide benchmark. Using the state-by-state aggregation basis, 27 of the 47 states (57%) where the 495 electric utility plants are located have disproportionate percentages of children residing near the plants compared to the statewide averages, which also indicates a disproportionate surrounding child population. Using the nationwide aggregation basis across all 495 electric utility plants in all 47 states where the plants are located, 6.08 million people reside near these electric utility plants, including 1.54 million children (25.4%). Comparison of this percentage to the national aggregate benchmark across all states of 24.7% children yields a ratio of 1.03 (*i.e.,* 25.4%/24.7%). This ratio indicates a slightly higher disproportionate child population surrounding the 495 electric utility plants.

These three alternative comparisons indicate that the current (baseline) environmental and human health hazards and risks from electric utility CCR disposal units, and the expected future benefits of the regulatory options being considered in today's co-proposal may have a disproportionately higher effect on child populations.

The public is invited to submit comments or identify peer-reviewed studies and data that assess effects of early life exposure to CCRs managed in landfills and surface impoundments.

*H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use*

This co-proposal, if either of the options being considered is promulgated, is not expected to be a "significant energy action" as defined in Executive Order 13211 (66 FR 28355, May 22, 2001), because the regulatory options described in today's co-proposal are not expected to have a significant adverse effect on the supply, distribution, or use of energy. This determination is based on the energy price analysis presented in EPA's Regulatory Impact Analysis (RIA) for this proposed rule. The following is the basis for this conclusion.

The Office of Management and Budget's (OMB) July 13, 2001 Memorandum M–01–27 guidance for implementing this Executive Order identifies nine numerical indicators (thresholds) of potential adverse energy effects, three of which are relevant for evaluating potential energy effects of this proposed rule: (a) Increases in the cost of energy production in excess of 1%; (b) increases in the cost of energy distribution in excess of 1%; or (c) other similarly adverse outcomes.

Because EPA does not have data on energy production costs or energy distribution costs for the 495 electric utility plants likely affected by this rulemaking, EPA in its RIA for today's action evaluated the potential impact on electricity prices (for the regulatory options) as measured relative to the 1% numerical threshold of these two Executive Order indicators to represent an "other similarly adverse outcome."

The RIA calculated the potential increase in electricity prices of affected plants that the industry might induce under each regulatory option. Because the price analysis in the RIA is based only on the 495 coal-fired electric utility plants that would likely be affected by the co-proposal (with 333,500 megawatts nameplate capacity), rather than on all electric utility and independent electricity producer plants in each state using other fuels, such as natural gas, nuclear, hydroelectric, etc. (with 678,200 megawatts nameplate capacity), the price effects estimated in the RIA are higher than would be if the regulatory costs were averaged over the entire electric utility and independent electricity producer supply (totaling 1,011,700 megawatts, not counting an additional 76,100 megawatts of combined heat and electricity producers).

The price effect calculation in the RIA involved estimating plant-by-plant annual revenues, plant-by-plant average annualized regulatory compliance costs for each regulatory option, and comparison with statewide average electricity prices for the 495 electric utility plants. In its analysis, the Agency used the May 2009 statewide average retail prices for electricity published by DOE's, Energy Information Administration; these costs ranged from $0.0620 (Idaho & Wyoming) to $0.1892 (Hawaii) per kilowatt-hour, and the nationwide average for the 495 plants was $0.0884. Based on a 100% regulatory cost pass-thru scenario representing an upper-bound potential electricity price increase for each plant, the RIA estimated the potential target electricity sales revenue needed to cover these costs for each plant. The RIA then compared the higher target revenue to recent annual revenue estimates per plant, to calculate the potential price effect of this cost pass-thru scenario on electricity prices for each of the 495 electric utility plants, as well as on a state-by-state sub-total basis and on a nationwide basis across all 495 electric utility plants.

The RIA includes a set of higher cost estimates for the regulatory options and this Executive Order 13211 evaluation is based on the higher estimates and, therefore, overestimates the potential impacts of our proposal.

The RIA indicates that on a nationwide basis for all 495 electric utility plants, compared to the estimated average electricity price of $0.0884 per kilowatt-hour, the 100% regulatory cost pass-thru scenario may increase prices for the 495 electric utility plants by 0.172% to 0.795% across the original regulatory options; the high-end is the

estimate associated with a regulatory cost pass-thru scenario increase for the 495 electric utility plants for the subtitle C "special waste" option. Based on this analysis, the Agency does not expect that either of the options being co-proposed today would have a significant adverse effect on the supply, distribution, or use of energy. However, the Agency solicits comments on our analysis and findings.

*I. National Technology Transfer and Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law No. 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

*J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

Executive Order (EO) 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income (*i.e.,* below poverty line) populations in the United States.

Furthermore, Section 3–302(b) of EO 12898 states that Federal agencies, whenever practicable and appropriate, shall collect, maintain and analyze information on minority and low-income populations for areas surrounding facilities or sites expected to have substantial environmental, human health, or economic effects on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. While EO 12898 does not establish quantitative thresholds for this "substantial effect" criterion, EPA has collected and analyzed population data for today's co-proposal because of the substantial hazards and adverse risks to the environment and human health described elsewhere in today's notice.

The RIA for today's action presents comparisons of minority and low-income population Census data for each of the 495 electric utility plant locations, to respective statewide population data, in order to identify whether these two demographic groups may disproportionately reside near electric utility plants. The result of these comparisons indicate (a) whether existing hazards associated with CCR disposal at electric utility plants to community safety, human health, and the environment may disproportionately affect minority and low-income populations surrounding the plants, and (b) whether the expected effects (*i.e.,* benefits and costs) of the regulatory action described in today's co-proposal rule may disproportionately affect minority and low-income populations.

Of the 495 electric utility plants, 383 of the plants (77%) operate CCR disposal units onsite (*i.e.,* onsite landfills or onsite surface impoundments), 84 electric utility plants solely transport CCRs to offsite disposal units operated by other companies (*e.g.,* commercial waste management companies), and 28 of the electric utility plants generate CCRs that are solely beneficially used rather than disposed. The minority and low-income Census data evaluation is conducted for all 495 plants because some regulatory options could affect the future CCR management method (*i.e.,* disposal versus beneficial use) for some plants.

In addition to this Census data evaluation, the RIA identifies three other possible affects of the co-proposal on (a) populations surrounding offsite CCR landfills, (b) populations surrounding the potential siting of new CCR landfills and (c) populations within the customer service areas of the 495 electric utility plants who may incur electricity price increases resulting from regulatory cost pass-thru. These three Census data evaluations are also summarized below.

J.1. Findings of Environmental Justice Analysis for Electric Utility Plants

For the first comparison, the RIA provides three complementary approaches to evaluating the Census data on minority and low-income populations: (a) Itemized plant-by-plant comparisons to statewide percentages, (b) state-by-state aggregation comparisons, and (c) nationwide aggregate comparisons. There are year 2000 Census data for 464 (94%) of the 495 electric utility plants which the RIA used for these comparisons and extrapolated to all 495 plants. Statewide minority population benchmark percentages range from 3.1% (Maine) to 75.7% (Hawaii), with a nationwide average of 24.9%, and statewide low-income population percentages range from 7.3% (Maryland) to 19.3% (New Mexico), with a nationwide average of 11.9%.

For purpose of determining the relative degree by which either group may exceed these statewide percentages, in addition to a comparison of absolute percentages, the percentages are compared as a numerical ratio whereby a ratio of 1.00 indicates that the group population percentage living near an electric utility plant is equal to the statewide average, a ratio greater than 1.00 indicates the group population percentage near the electric utility plant is higher than the statewide population, and a ratio less than 1.00 indicates the group population is less than the respective statewide average.

Using the plant-by-plant comparison, 138 electric utility plants (28%) have surrounding minority populations which exceed their statewide minority benchmark percentages, whereas 357 of the electric utility plants (72%) have minority populations below their statewide benchmarks, which represents a ratio of 0.39 (*i.e.,* 138/357). Because this ratio is less than 1.00, this finding indicates a relatively small number of the electric utility plants have surrounding minority population percentages which disproportionately exceed their statewide benchmarks. On a plant zip code tabulation area basis, 256 electric utility plants (52%) have surrounding low-income populations which exceed their respective statewide benchmarks, whereas 239 plants (48%) have surrounding low-income populations below their statewide benchmarks, which represents a ratio of 1.07 (*i.e.,* 256/239). Because this ratio is above 1.00, it indicates that a slightly disproportionate higher number of electric utility plants have surrounding low-income population percentages which exceed their statewide benchmarks.

Using the state-by-state aggregation comparison, the percentages of minority and low-income populations surrounding the plants were compared to their respective statewide population benchmarks. From this analysis, state ratios revealed that 24 of the 47 states

(51%) have higher minority percentages, and 29 of the 47 states (62%) have higher low-income percentages surrounding the 495 electric utility plants, suggesting a slightly disproportionate higher minority surrounding population and a higher disproportionate, higher low-income surrounding population. However, in comparison to the other two numerical comparisons—the plant-by-plant basis and the nationwide aggregation basis, this approach does not include numerically weighting of state plant counts or state surrounding populations, which explains why this comparison method yields a different numerical result.

Using the nationwide aggregation comparison across all 495 electric utility plants in all 47 states where the plants are located, 6.08 million people reside near these plants, including 1.32 million (21.7%) minority and 0.8 million (12.9%) low-income persons. A comparison of these percentages to the national benchmark of 24.9% minority and 11.9% low-income, represents a minority ratio of 0.87 (*i.e.,* 21.7%/24.9%) and a low-income ratio of 1.08 (*i.e.,* 12.9%/11.9%). These nationwide aggregate ratios indicate a disproportionately lower minority population surrounding the 495 electric utility plants, and a disproportionately higher low-income population surrounding these plants.

These demographic data comparisons indicate that the current (baseline) environmental and human health hazards and risks from electric utility CCR disposal units, and the expected future effects (*i.e.,* benefits and costs) of the regulatory options described in today's co-proposal may have a disproportionately lower effect on minority populations and may have a disproportionately higher effect on low-income populations.

J.2. Environmental Justice Analysis for Offsite Landfills, Siting of New Landfills, and Electricity Service Area Customers

There are three other potential differential effects of the regulatory options on three other population groups: (a) Populations surrounding offsite landfills, (b) populations surrounding the potential siting of new landfills and (c) populations within the customer service areas of the 495 electric utility plants. The RIA for today's notice does not quantify these potential effects so only a qualitative discussion appears below.

The potential effect on offsite landfills as evaluated in the RIA only involves the RCRA subtitle C "special waste" based regulatory option described in today's co-proposal, whereby electric utility plants may switch the management of CCRs, in whole or in part, from current onsite disposal to offsite commercial RCRA-permitted landfills. In addition, some or all of the CCRs which are currently disposed in offsite landfills that do not have RCRA operating permits may also switch to RCRA-permitted commercial landfills. Another fraction of annual CCR generation which could also switch to offsite commercial RCRA-permitted landfills are CCRs which are currently supplied for industrial beneficial use applications if such use is curtailed.

The future addition of any or all of these three fractions of CCR generation to offsite commercial hazardous waste landfills could exceed their capacity considering that a much smaller quantity of about 2 million tons per year of existing RCRA-regulated hazardous waste is currently disposed of in RCRA subtitle C permitted landfills in the U.S. As of 2009, there are 19 commercial landfills with RCRA hazardous waste permits to receive and dispose of RCRA-regulated hazardous wastes located in 15 states (AL, CA, CO, ID, IL, IN, LA, MI, NV, NY, OH, OK, OR, TX, UT). This potential shift could have a disproportionate effect on populations surrounding these locations, and in particular, minority and low-income populations surrounding commercial hazardous waste facilities, for the reason that a recent (2007) study determined that minority and low-income populations disproportionately live near commercial hazardous waste facilities. However, the study included other types of commercial hazardous waste treatment and disposal facilities in addition to commercial hazardous waste landfills.

The siting of new landfills is another potential effect due to possible changes in the management of CCRs, especially if the switch to offsite commercial hazardous waste landfills causes a capacity shortage (as described above) under subtitle C option. However, since it is unknown where these new landfills might possibly be sited, two possibilities were examined: (a) An expansion of existing commercial subtitle C landfills offsite from electric utility plants, and (b) an expansion of existing electric utility plant onsite landfills. If an expansion of existing commercial subtitle C landfills were to occur, this potential shift could have a disproportionate effect on populations surrounding these locations, as described previously.

The other possibility is the expansion of electric utility plant onsite landfills. That is, these landfills become permitted under RCRA subtitle C and expand existing onsite landfills or build new ones onsite. If this were to occur, the environmental justice impacts could be similar to the demographic comparison findings previously discussed, which indicates that the current environmental and human health hazards and risks from electric utility CCR disposal units, and the expected future effects (*i.e.,* benefits and costs) of the regulatory options, may have a disproportionately lower effect on minority populations, but may have a disproportionately higher effect on low-income populations.

A third potential effect of the regulatory options described in today's notice is the increase in price of electricity supplied by some or all of the affected 495 electric utility plants to cover the cost of regulatory compliance (as evaluated in a previous section of today's notice). Thus, customers in electric utility service areas could experience price increases, as described above in the Federalism sub-section of today's notice. The RIA for today's action did not evaluate the demographics of the customer service area populations for the 495 electric utility plants.

**Appendix to the Preamble: Documented Damages From CCR Management Practices**

EPA has gathered or received through comments on the 1999 Report to Congress and the May 2000 Regulatory Determination, and through allegations, 135 possible damage cases. Six cases involved minefills and, therefore, are outside the scope of today's proposed rule. Sixty-two cases have not been further assessed because there was little or no supporting information to assess the allegations.

Of the remaining 67 cases, EPA determined that 24 were proven damage cases. Sixteen were determined to be proven damage cases to ground water and eight were determined to be proven damages cases to surface water, as a result of elevated levels of contaminants from CCRs.[172] Four of the proven ground water damage cases were from unlined landfills, five were from unlined surface impoundments, one

[172] Of the 16 proven cases of damages to ground water, the Agency has been able to confirm that corrective action has been completed in seven cases and are ongoing in the remaining nine cases. Corrective action measures at these CCR management units vary depending on site specific circumstances and include formal closure of the unit, capping, re-grading of ash and the installation of liners over the ash, ground water treatment, groundwater monitoring, and combinations of these measures.

involved a surface impoundment for which it is not clear whether the unit was lined, and the remaining six were from unlined sand and gravel pits. Another 43 alleged cases were determined to be potential damage cases to ground water or surface water. However, four of these potential damage cases were attributable to oil combustion wastes, which are outside the scope of this notice. Therefore, we have determined that there were a total of 40 potential damage cases attributable to CCRs. (The concern with wastes from the combustion of oil involved unlined surface impoundments. Prior to the May 2000 Regulatory Determination, the unlined oil ash impoundments were closed, and thus EPA decided regulatory action to address oil ash was unnecessary.) These cases are discussed in more detail in the document "Coal Combustion Wastes Damage Case Assessments" available in the docket to the 2007 NODA at *http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&d=EPA-HQ-RCRA-2006-0796-0015*. Three proven damage cases are sites that have been listed on EPA's National Priorities List (NPL). The sites, and links to additional information are: (1) Chisman Creek, Virginia (*http://www.epa.gov/reg3hwmd/npl/VAD980712913.htm*), (2) Salem Acres, Massachusetts (*http://yosemite.epa.gov/r1/npl_pad.nsf/f52fa5c31fa8f5c885256adc0050b631/C8A4A5BEC0121F048525691F0063F6F3?OpenDocument*), and (3) U.S. Department of Energy Oak Ridge Reservation, Tennessee (*http://www.epa.gov/region4/waste/npl/npltn/oakridtn.htm*). One potential damage case has also been listed on the NPL: Lemberger Landfill, Wisconsin (*http://www.epa.gov/region5/superfund/npl/wisconsin/WID980901243.htm*). Another site has undergone remediation under EPA enforcement action: Town of Pines (*http://cfpub.epa.gov/supercpad/cursites/cactinfo.cfm?id=0508071*).

In response to the 2007 NODA (*see* section II. A.), EPA received information on 21 alleged damage cases. Of these, 18 pertain to alleged violations of state solid waste permits, and 3 to alleged violations of NPDES permits. Upon review of this information, we conclude that 13 of the alleged RCRA violations are new, and one of the alleged NPDES violations is new; the other damage cases have previously been submitted to EPA and evaluated. In addition, five new alleged damage cases have been brought to EPA's attention since February 2005 (the closure date of damage cases assessed by the NODA's companion documents). For the most part, these cases involve activities that are different from the prior damage cases and the focus of the regulatory determination on groundwater contamination from landfills and surface impoundments. Specifically:

- Two of the new alleged cases involve the structural failure of surface impoundments; *i.e.,* dam safety and structural integrity issues, which were not a consideration at the time of the May 2000 Regulatory Determination. In both cases, there were Clean Water Act violations.
- One other alleged case involves the failure of an old discharge pipe, and is clearly a regulated NPDES permit issue.
- Two other alleged cases involve the use of coal ash in large scale structural fill operations, one of which involves an unlined sand and gravel pit. The Agency is considering whether to regulate this method of disposal as a landfill or whether to address the issue separately as part of its rulemaking to address minefilling. EPA is soliciting comments on those alternatives.

The Agency has classified three of the five new cases as proven damage cases (BBBS Sand and Gravel Quarries, Martins Creek Power Plant, TVA Kingston Power Plant), one as a potential damage case (Battlefield Golf Course), and the other as not being a damage case under RCRA (TVA Widows Creek). Several of the recently submitted damage cases are discussed briefly below. The following descriptions further illustrate that there are additional risk concerns (dam safety, and fill operations) which EPA did not evaluate when it completed its the May 2000 Regulatory Determination, in which EPA primarily was concerned with groundwater contamination associated with landfills and surface impoundments and the beneficial use of CCRs. Additional information on these damage cases is included in the docket.

*Recent Cases*

BBBS Sand and Gravel Quarries—Gambrills, Maryland

On October 1, 2007, the Maryland Department of the Environment (MDE) filed a consent order in Anne Arundel County, Maryland Circuit Court to settle an environmental enforcement action that was taken against the owner of a sand and gravel quarry and the owner of coal fired power plants (defendants) for contamination of public drinking water wells in the vicinity of the sand and gravel quarry.

Specifically, beginning in 1995, the defendants used fly ash and bottom ash from two Maryland power plants to fill excavated portions of two sand and gravel quarries. Ground water samples collected in 2006 and 2007 from residential drinking water wells near the site indicated that, in certain locations, contaminants, including heavy metals and sulfates were present at or above ground water quality standards. The Anne Arundel County, Maryland Department of Health tested private wells in 83 homes and businesses in areas around the disposal site. MCLs were exceeded in 34 wells [arsenic (1), beryllium (1), cadmium (6), lead (20),[173] and thallium (6)]. The actual number of wells affected by fly ash and bottom ash is undetermined since some of the sample results may reflect natural minerals in the area. SMCLs were exceeded in 63 wells [aluminum (44), manganese (14), and sulfate (5)]. MDE concluded that leachate from the placement of CCRs at the site resulted in the discharge of pollutants to waters of the state. Based on these findings, as well as an MDE consent order, EPA has concluded that the Gambrills site is a proven case of damage to ground water resulting from the placement of CCRs in unlined sand and gravel quarries.

Under the terms of the consent order, the defendants are required to pay a fine, remediate the ground water in the area and provide replacement water supplies for 40 properties. A retail development is now planned for the site with a cap over the fill designed to reduce infiltration and subsequent leaching from the site. An MDE fact sheet on this site is available at *http://www.mde.state.md.us/assets/document/AA_Fly_Ash_QA.pdf*.

Battlefield Golf Course—Chesapeake, Virginia

On July 16, 2008, the City of Chesapeake, Virginia sent a letter to the EPA Region III Regional Administrator requesting assistance to perform an assessment of the Battlefield Golf Course. The 216 acre site was contoured with 1.5 million cubic yards of fly ash, amended with 1.7% to 2.3% cement kiln dust to develop the golf course. Virginia's Administrative Code allowed the use of fly ash as fill material (considered a beneficial use under Virginia's Administrative Code) without a liner as long as the fly ash was placed at least two feet above groundwater and covered by an 18-inch soil cap.

Because of ground water contamination discovered at another site where fly ash was used, the City of

[173] It is uncertain whether lead exceedances were due to CCRs or lead in plumbing and water holding tanks.

Chesapeake initiated a drinking water well sampling assessment at residences surrounding the golf course. Additionally, 13 monitoring points were installed around the site. No monitoring points were installed through the fly ash area to avoid creating an additional path of contaminant migration. EPA conducted a site investigation by reviewing analytical data from fly ash, soil, surface water, sediment, and groundwater sampling events completed in 2001, 2008 and 2009. The sampling results of the City of Chesapeake ground water and surface water sampling [174] indicated that the highest detections of metals occurred in monitoring wells located on the golf course property. The concentrations of arsenic, boron, chromium, copper, lead and vanadium detected in groundwater collected from on-site monitoring wells were considered to be significantly above background concentrations. Of these compounds, only boron has been detected in approximately 25 drinking water wells.

Although not a primary contaminant of concern, boron is suspected to be the leading indicator of fly ash migration. The highest level of boron reported in a residential well was 596 µg/L which was significantly below the health-based regional screening level for boron in tap water of 7,300 µg/L. Additionally, the secondary drinking water standard for manganese (0.05 mg/L) was exceeded in nine residential wells; however, the natural levels of both manganese and iron in the area's shallow aquifer are very high and, thus, it could not be ruled out that the elevated levels of manganese and iron are a result of the natural background levels of these two contaminants.

Metal contaminants were below MCLs and Safe Drinking Water Act (SDWA) action levels in all residential wells that EPA tested, except for lead. Lead has been detected during EPA sampling events above the action level of 15 µg/L in six residential wells. The lead in these wells, however, does not appear to come from the fly ash. Lead concentrations are lower in groundwater collected from monitoring wells on the golf course (1.1 to 1.6 µg/L) than in these residential wells; and lead concentrations in the fly ash are not higher than background concentrations of lead in soil.

The recently issued EPA Final Site Inspection Report [175] concluded that (i) Metal contaminants were below MCLs and Safe Drinking Water Act (SDWA) action levels in all residential wells that EPA tested; (2) the residential well data indicate that metals are not migrating from the fly ash to residential wells; and (iii) there are no adverse health effects expected from human exposure to surface water or sediments on the Battlefield Golf Course site as the metal concentrations were below the ATSDR standards for drinking water and soil. Additionally, the sediment samples in the ponds were below EPA Biological Technical Assistance Group screening levels and are not expected to pose a threat to ecological receptors. Based on these findings, EPA has categorized the Battlefield Golf Club site as a potential damage case, as there is a possibility that leaching could cause levels of toxic constituents to increase over time and that groundwater could become contaminated at off-site locations if due diligence is not practiced.

Martins Creek Power Plant—Martins Creek, Pennsylvania

In August 2005, a dam confining a 40 acre CCR surface impoundment in eastern Pennsylvania failed. The dam failure, a violation of the State's solid waste disposal permit, resulted in the discharge of 0.5 million cubic yards of coal-ash and contaminated water into the Oughoughton Creek and the Delaware River.

Ground-water monitoring results from approximately 20 on-site monitoring wells found selenium concentrations exceeding Pennsylvania's Statewide Health Standards and Federal primary drinking water standards. There was also one exceedance of the primary MCL for chromium and two exceedances of the secondary MCL for iron.

Surface water samples were also taken from a number of locations along the Delaware River upstream and downstream of the spill. Sampling began soon after the spill in August 2005 and continued through November 2005. Several samples exceeded the Federal Water Quality Criteria (WQC) for aluminum, copper, iron, manganese, and silver (*see http://www.epa.gov/waterscience/criteria/wqctable/index.html*). Four samples also exceeded the WQC for arsenic—three of which were taken near the outfall to the river. Lead, nickel and zinc were also detected above the WQC in samples taken near the outfall to the river. Sampling results are available from the Pennsylvania Department of Environmental Protection (PADEP) at *http://www.depweb.state.pa.us/northeastro/cwp/view.asp?a=1226&q=478264&northeastroNav=*|.

As a result of the exceedances of primary and secondary MCLs in on-site ground water, and exceedances of federal water quality criteria in off-site surface water, in addition to a PADEP consent order for clean up, the Agency considers this site to be a proven damage case.

TVA Kingston—Harriman, Tennessee

On December 22, 2008, a failure of the northeastern dike used to contain fly ash occurred at the dewatering area of the Tennessee Valley Authority's (TVA's) Kingston Fossil Plant in Harriman, Tennessee. Subsequently, approximately 5.4 million cubic yards of fly ash sludge was released over an approximately 300 acre area and into a branch of the Emory River. The ash slide disrupted power, ruptured a gas line, knocked one home off its foundation and damaged others. The state-issued NPDES permit requires that TVA properly operate and maintain all facilities and systems for collection and treatment, and expressly prohibits overflows of wastes to land or water from any portion of the collection, transmission, or treatment system other than through permitted outfalls. Therefore, the release was a violation of the NPDES permit. A root-cause analysis report developed for TVA, accessible at *http://www.tva.gov/kingston/rca/index.htm,* established that the dike failed because it was expanded by successive vertical additions, to a point where a thin, weak layer of fly ash ('slime') on which it had been founded, failed by sliding. Additional information on the TVA Kingston incident is available at *http://www.epa.gov/region4/kingston/index.html* and *http://www.tva.gov/kingston/*.

EPA joined TVA, the Tennessee Department of Environment and Conservation (TDEC), and other state and local agencies in a coordinated response. EPA provided oversight and technical advice to TVA, and conducted independent water sampling and air monitoring to evaluate public health and environmental threats.

Following the incident, EPA sampled the coal ash and residential soil to determine if the release posed an immediate threat to human health. Sampling results for the contaminated residential soil showed arsenic, cobalt, iron, and thallium levels above the residential Superfund soil screening levels.[176] Sampling results also showed

[174] *Available at http://cityofchesapeake.net/services/citizen_info/battlefieldgolfclub/index.shtml.*

[175] *http://www.epa.gov/reg3hwmd/CurrentIssues/finalr-battlefield_golf_club_site/redacted_DTN_0978_Final_Battlefield_SI_Report.pdf.*

[176] Soil screening levels (SSLs) for contaminants in soil are used to identify sites needing further

average arsenic levels above the EPA Region 4 Residential Removal Action Level (RAL) [177] of 39 mg/L, but below EPA Region 4's Industrial RAL of 177 mg/L. All residential soil results were below the Residential RAL.

Shortly after the release, samples were also collected of untreated river water, which showed elevated levels of suspended ash and heavy metals known to be associated with coal ash. Nearly 800 surface water samples were taken by TVA and TDEC, ranging from two miles upstream of the release on the Emory River to approximately eight miles downstream on the Clinch River. Sampling results of untreated river water showed elevated levels of arsenic, cadmium, chromium, and lead just after the incident. This was also observed again after a heavy rainfall. In early January 2009, the Tennessee Wildlife Resources Agency (TWRA) issued a fish advisory stating that until further notice, fishing should be avoided in the lower section of the Emory River. TWRA plans to resample fish tissue on a semiannual basis and expects that the assessment of the impact of this release on wildlife resources and habitat will require repeated sampling and evaluation over the next three to five years.

Constituent concentrations measured in drinking water on December 23, 2008, near the intake of the Kingston Water Treatment Plant, located downstream of the release, were below federal MCLs for drinking water, with the exception of elevated thallium levels. Subsequent EPA testing on December 30, 2008, of samples at the same intake found that concentration levels for thallium had fallen below the MCL. Subsequent testing of treated drinking water from the Kingston Water Treatment Plant showed that the drinking water from the treatment plant met all federal drinking water standards.

Additionally, EPA and TDEC identified and sampled potentially impacted private wells that are used as a source for drinking water. More than 100 wells have been tested to date and all have met drinking water standards.

To address potential risks from windblown ash, TVA, under EPA oversight, began air monitoring for coarse and fine particles. EPA also conducted independent monitoring to validate TVA's findings. To date, all of the more than 25,000 air samples from this area have measured levels below the NAAQS for particulates.

On January 12, 2009, TDEC issued an order to TVA to, among other things, continue to implement measures to prevent the movement of contaminated materials into waters of the state and, where feasible, minimize further downstream migration of contaminated sediments.

Than on May 11, 2009, TVA agreed to clean up more than 5 million tons of coal ash spilled from its Kingston Fossil Fuel Plant under an administrative order and agreement on consent. TVA and EPA entered into the agreement under CERCLA. The order requires TVA to perform a thorough cleanup of coal ash from the Emory River and surrounding areas and EPA will oversee the removal. Based on the consent order, EPA has identified this site as a proven damage case.

TVA Widows Creek—Stevenson, Alabama

On Friday, January 9, 2009, a cap in an unused discharge pipe became dislodged, resulting in a discharge from an FGD pond at a Tennessee Valley Authority (TVA) coal-burning power plant in Stevenson, Alabama. FGD is a residual of a process that reduces sulfur dioxide emissions from coal-fired boilers Some 5,000 cubic yards of FGD material containing water and a mixture of predominantly gypsum and some fly ash, was released from the pond into Widows Creek which flows into the Tennessee River.[178] Information on the TVA Widows Creek incident is available at *http://www.epa.gov/region4/stevenson/index.html*.

EPA joined TVA and the Alabama Department of Environmental Management (ADEM) in a coordinated response. EPA is supporting the response by coordinating environmental sampling and monitoring response operations by TVA. EPA has also collected surface water samples from both Widows Creek and the Tennessee River to determine if there have been any environmental impacts. Samples have also been taken from the FGD pond to characterize the material that was released into the creek fully. The drinking water intake for Scottsboro, Alabama, about 20 miles downstream, has also been sampled.

EPA Region 4 has received final results of its independent environmental sampling activities for the TVA Widows Creek Fossil Plant FGD pond release. Specifically, the concentrations of metals, solids and nutrients detected in samples drawn from the drinking water intake for Scottsboro, Alabama, along with samples collected from two locations in Widows Creek and three other locations in the Tennessee River, are all below national primary drinking water standards and/or other health-based levels. The pH of all these samples also fell within the standard range and no oil or grease was detected in any of the samples.

Four waste samples and one water sample collected from the bank along the ditch connecting TVA's permitted discharge outfall and the Tennessee River, and from TVA's permitted discharge outfall showed elevated pH and elevated concentrations of metals, nutrients, and suspended and dissolved solids. However, because samples drawn downstream at the drinking water intake and from locations where individuals would likely come into contact with the water were below the primary drinking water standards, EPA does not expect the release to pose a threat to the public. On July 7, 2009, TVA issued a finding of no significant impact and final environmental assessment for the Gypsum Removal Project from Widows Creek.[179] Therefore, EPA has not classified the TVA Widows Creek fly ash release as a damage case.

*Summary*

In summary, as discussed above, the Agency has documented evidence of proven damages to ground water or surface water in 27 cases [180]—17 cases of damage to ground water, and ten cases of damage to surface water, including ecological damages in seven of the ten. Sixteen of the 17 proven damages to ground water involved disposal in unlined units (for the remaining unit, it is unclear whether a liner was present). We have also identified 40 cases of potential damage to ground water or surface water.[181] Another two cases were determined to be potential ecological damage cases. Finally, the more recently documented damage cases also provide evidence that current management practices can pose additional risks that EPA had not

investigation. SSLs alone do not trigger the need for a response action or define "unacceptable" levels of contaminants in soil. Generally, at sites where contaminant concentrations fall below the SSLs, no further action or study is warranted under CERCLA. However, where contaminant concentrations equal or exceed the SSLs, further study or investigation, but not necessarily cleanup, is warranted.

[177] RALs are used to trigger time-critical removal actions.

[178] *http://www.tva.gov/emergency/wc_1-29-09.htm*.

[179] *http://www.tva.gov/environment/reports/widows_creek/wcf_gypsum_removal_fonsi.pdf*.

[180] The 24 cases identified in the Damage Cases Assessment report, plus Martin Creek, PA; Gambrills, MD; and Kingston/TVA, TN.

[181] The 39 cases of potential damages from CCR identified in the Damage Cases Assessment report (excludes the 4 damage cases from oil combustion wastes), plus the Battlefield Golf Course, Chesapeake, Virginia.

previously studied—that is, from catastrophic releases due to the structural failure of CCR surface impoundments.

TABLE OF EPA'S PROVEN DAMAGE CASES

| Damage case, State | Affected media | Constituents of concern | Brief description | Basis for consideration as a proven damage case |
|---|---|---|---|---|
| Alliant Nelson Dewey Ash Landfill, WI. | Groundwater ..... | Arsenic, Selenium, Sulfate, Boron, Flourine. | The LF [182] was originally constructed in the early 1960's as a series of settling basins for sluiced ash and permitted by the State in 1979. | *Scientific*—Although the boron standard was not health-based at the time of the exceedances, the boron levels reported for the facility would have exceeded the State's recently promulgated health-based ES for boron, and<br>*Administrative*—The State required a groundwater investigation, and the facility took action to remediate groundwater contamination and prevent further contamination. |
| Dairyland Power E.J. Stoneman, WI. | Groundwater ..... | Cadmium, Chromium, Sulfate, Manganese, Iron, Zinc. | Unlined SI [183], on permeable substrate, that managed ash, demineralizer regenerant, and sand filter backwash between the 1950'and 1987. | *Scientific*—Cadmium and chromium exceeded (health-based) primary MCLs, and contamination migrated to nearby, private drinking water wells, and<br>*Administrative*—The State required closure of the facility. |
| WEPCO Cedar Sauk Ash Landfill/WEPCO, WI. | Groundwater ..... | Selenium, Boron, Sulfate. | An abandoned sand and gravel pit that received CCW from the WEPCO Port Washington Power Plant from 1969 to 1979. | *Scientific*—Selenium in groundwater exceeded the (health-based) primary MCL, and there was clear evidence of vegetative damage, and<br>*Administrative*—The State required remedial action. |
| WEPCO Highway 59 Landfill/We Energies 59, WI. | Groundwater ..... | Arsenic, Boron, Chlorides, Iron, Manganese, Sulfate. | Located in an old sand and gravel pit that received fly ash and bottom ash between 1969 and 1978. | *Scientific*—Although the boron standard was not health-based at the time of the exceedances, the boron levels reported for the facility would have exceeded the State's recently promulgated health-based ES for boron; and contamination from the facility appears to have migrated to off-site private wells, and<br>*Administrative*—As a result of the various PAL [184] and ES [185] exceedances, the State required a groundwater investigation. |
| WEPCO Port Washington Facility/ Druecker Quarry Fly Ash Site, WI. | Groundwater ..... | Boron, Selenium ..... | The power company placed 40–60 feet deep column of fly ash in a sand & gravel pit from 1948–1971. A well located ~250′ south of the old quarry was impacted. | *Scientific*—The off-site exceedance of a health-based standard for selenium. |
| SC Electric & Gas Canadys Plant, SC. | Groundwater ..... | Arsenic, Nickel ..... | Ash from the Canadys power plant was mixed with water and managed in a SI. The facility operated an unlined, 80-acre SI from 1974 to 1989. | *Scientific*—There are exceedances of the health-based standard for arsenic at this site. While there are no known human exposure points nearby, some recent exceedances have been detected outside an established regulatory boundary. |
| PEPCO Morgantown Generating Station Faulkner Off-site Disposal Facility, MD. | Groundwater ..... | Iron, pH ..... | LFs at this shallow groundwater site manage fly ash, bottom ash, and pyrites from the Morgantown Generating Station starting in 1970. Unlined settling ponds also are used at the site to manage stormwater runoff and leachate from the ash disposal area. | *Scientific*—Ground water contamination migrated off-site, and<br>*Administrative*—The State required remedial action. |

TABLE OF EPA'S PROVEN DAMAGE CASES—Continued

| Damage case, State | Affected media | Constituents of concern | Brief description | Basis for consideration as a proven damage case |
|---|---|---|---|---|
| Don Frame Trucking, Inc., Fly Ash Landfill, NY. | Groundwater ..... | Lead, Manganese ..... | This LF has been used for disposal of fly ash, bottom ash, and other material including yard sweepings generated by the Niagara Mohawk Power Corporation's Dunkirk Steam Station. The age of the facility is unknown. | *Scientific*—The lead levels found in down-gradient wells exceed the primary MCL Action Level. *Administrative*—The State has required remedial action as a result of the contamination, and the owner was directed, by the Supreme Court of the State of New York County of Chautauqua (July 22, 1988), to cease receiving the aforementioned wastes at the facility no later than October 15, 1988. |
| Salem Acres, MA ..... | Groundwater ..... | Antimony, Arsenic, Manganese. | Fly ash disposal occurred at this site—a LF and SI, from at least 1952 to 1969. | *Scientific*—Arsenic and chromium exceeded (health-based) primary MCLs, and *Administrative*—The site was placed on the NPL list, and EPA signed a Consent Order with the owner to clean up the lagoons. |
| Vitale Fly Ash Pit, MA ... | Groundwater ..... | Aluminum, Arsenic, Iron, Manganese, Selenium. | An abandoned gravel and sand pit that was used as an unpermitted LF between the 1950s and the mid-1970s. The Vitale Brothers, the site owners until 1980, accepted and disposed saltwater-quenched fly ash from New England Power Company along with other wastes. | This case was not counted as a proven damage case in the 1999 RTC [186] because it was a case of illegal disposal not representative of historical or current disposal practices. However, it otherwise meets the criteria for a proven damage case for the following reasons: *Scientific*—(i) Selenium and arsenic exceeded (health-based) primary MCLs, and (ii) there is evidence of contamination of nearby wetlands and surface waters, and *Administrative*—the facility was the subject of several citations and the State has enforced remedial actions. |
| Town of Pines, IN ..... | Groundwater ..... | Boron, Molybdenum ... | NIPSCO's Bailly and Michigan City power plants have deposited ~1 million tons of fly ash in the Town of Pines since 1983. Fly ash was buried in the LF and used as construction fill in the town. The ash is pervasive on site, visible in roads and driveways. | *Scientific*—Evidence for boron, molybdenum, arsenic and lead exceeding health-based standards in water wells away from the Pines Yard 520 Landfill site, and *Administrative*—Orders of consent signed between the EPA and IDEM with responsible parties for continued work at the site. |
| North Lansing Landfill, MI. | Groundwater ..... | Lithium, Selenium ..... | The North Lansing Landfill (NLL), an unlined, former gravel quarry pit with an elevated groundwater table, was licensed in 1974 for disposal of inert fill materials including soil, concrete, and brick. From 1980 to 1997, the NLL was used for disposal of coal ash from the Lansing Board of Water and Light electric and steam generating plants. | *Scientific*—Observation of off-site exceedances of the State's health-based standard for lithium. |
| Basin Electric, W.J. Neal Plant, ND. | Groundwater ..... | Aluminum, Arsenic, Barium, Copper, Manganese, Zinc. | An unlined, 44-acre SI that received fly ash and scrubber sludge from a coal-fired power plant, along with other wastes (including ash from the combustion of sunflower seed hulls), between the 1950s and the late 1980s. | *Scientific*—Several constituents have exceeded their (health-based) primary MCLs in down-gradient groundwater, and the site inspection found documentation of releases to ground water and surface water from the site, and *Administrative*—The State required closure of the facility. |

TABLE OF EPA'S PROVEN DAMAGE CASES—Continued

| Damage case, State | Affected media | Constituents of concern | Brief description | Basis for consideration as a proven damage case |
|---|---|---|---|---|
| Great River Energy (GRE)—(formerly Cooperative Power Association/United Power) Coal Creek Station, ND. | Groundwater ..... | Arsenic, Selenium ..... | This site includes a number of evaporation ponds and SIs that were constructed in 1978 and 1979. Both the SIs and the evaporation ponds leaked significantly upon plant start-up. A ND DOH regulator was uncertain as to whether a liner was initially installed, although the plant may have thought they were placing some sort of liner. The surficial soils were mostly sandy materials with a high water table. | *Scientific*—Arsenic and selenium exceeded (health-based) primary MCLs, and *Administrative*—The State required remedial action. |
| VEPCO Chisman Creek, VA. | Groundwater ..... | Selenium, Sulfate, Vanadium. | Between 1957 and 1974, abandoned sand and gravel pits at the site received fly ash from the combustion of coal and petroleum coke at the Yorktown Power Station. Disposal at the site ended in 1974 when Virginia Power began burning oil at the Yorktown plant. In 1980, nearby shallow residential wells became contaminated with vanadium and selenium. | Designated as a proven damage case in the 1999 RTC. *Scientific*—(i) Drinking water wells contained selenium above the (health-based) primary MCL and (ii) There is evidence of surface water and sediment contamination, and *Administrative*—The site was remediated under CERCLA. |
| VEPCO Possum Point, VA. | Groundwater ..... | Cadmium, Nickel ..... | At this site, oil ash, pyrites, boiler chemical cleaning wastes, coal fly ash, and coal bottom ash were co-managed in an unlined SI, with solids dredged to a second pond. | Damage case described in the 1999 RTC. *Administrative*—Action pursued by the State based on evidence on exceedances of cadmium and nickel, by requiring the removal of the waste. |
| BBBS Sand and Gravel Quarries, Gambrills, MD. | Groundwater ..... | Aluminum, Arsenic, Beryllium, Cadmium, Lead, Manganese, Sulfate, Thallium. | As of 1995, the defendants used fly ash and bottom ash from two Maryland power plants to fill excavated portions of two unlined sand and gravel quarries. GW samples collected in 2006/07 from residential drinking water wells near the site indicated contaminants at or above GW quality standards. Testing of private wells in 83 homes and businesses in areas around the disposal site revealed MCL exceedances in 34 wells, and SMCLs exceedances in 63 wells. | *Scientific*—Documented exceedances of MCLs in numerous off-site drinking water wells. *Administrative*—On October 1, 2007, the Maryland Department of the Environment (MDE) filed a consent order in Anne Arundel County, Maryland Circuit Court to settle an environmental enforcement action against the owner of a sand and gravel quarry and the owner of coal fired power plants for contamination of public drinking water wells in the vicinity of the sand and gravel quarry. |

TABLE OF EPA'S PROVEN DAMAGE CASES—Continued

| Damage case, State | Affected media | Constituents of concern | Brief description | Basis for consideration as a proven damage case |
|---|---|---|---|---|
| Hyco Lake, Roxboro, NC. | Surface Water ... | Selenium ..... | Hyco Lake was constructed in 1964 as a cooling water source for the Electric Plant. The lake received discharges from the plant's ash-settling ponds containing high levels of selenium. The selenium accumulated in the fish in the lake, affecting reproduction and causing declines in fish populations in the late 1970s and 1980s. | *Scientific*—Declines in fish populations were observed (1970s & 1980s). *Administrative*—The State concluded that the impacts were attributable to the ash ponds, and issued a fish consumption advisory as a result of the contamination. |
| Georgia Power Company, Plant Bowen, Cartersville, GA. | Surface Water ... | Ash Slurry ..... | This unlined SI was put in service in 1968. On July 28, 2002, a sinkhole developed in the SI that ultimately reached four acres in area. An estimated 2.25 million gallons of ash/water mixture was released to a tributary of the Euharlee Creek, containing 281 tons of ash. | *Scientific*—Unpermitted discharge of water containing ash slurry into the Euharlee Creek resulting in a temporary degradation of public waters. *Administrative*—Georgia Department of Natural Resources issued a consent order requiring, among others, a fine and corrective action. |
| Department of Energy—Oak Ridge Y–12 Plant Chestnut Ridge Operable Unit 2, DOE Oak Ridge Reservation, Oak Ridge, TN. | Surface Water ... | Aluminum, Arsenic, Iron, Manganese. | The Filled Coal Ash Pond (FCAP) is an ash retention SI used to dispose of coal ash slurry from the Y–12 steam plant. It was constructed in 1955 by building an earthen dam across a northern tributary of Upper McCoy Branch. After the SI was filled to capacity, the slurry was released directly into Upper McCoy Branch. Erosion of both the spillway and the ash itself resulted in releases of ash into Upper McCoy Branch. | *Scientific*—Exceedances of primary and secondary MCLs were detected in on-site monitoring locations. *Administrative*—Federal RCRA and the Tennessee Department of Environmental Conservation (TDEC) requirements, including placement of the entire Oak Ridge Reservation on the NPL. |
| Belews Lake, NC ..... | Surface Water ... | Selenium ..... | This Lake was impounded in the early 1970s to serve as a cooling reservoir for a large coal-fired power plant. Fly ash was disposed in a settling basin, which released selenium-laden effluent in return flows to the Lake. Sixteen of the 20 fish species originally present in the reservoir were entirely eliminated. | *Scientific*—Evidence of extensive impacts on fish populations due to direct discharge to a surface water body. *Administrative*—The State required changes in operating practices to mitigate the contamination. |

TABLE OF EPA'S PROVEN DAMAGE CASES—Continued

| Damage case, State | Affected media | Constituents of concern | Brief description | Basis for consideration as a proven damage case |
|---|---|---|---|---|
| U.S. Department of Energy Savannah River Project, SC. | Surface Water ... | Not cited ..... | A coal-fired power plant sluices fly ash to a series of open settling basins. A continuous flow of sluice water exits the basins, overflows, and enters a swamp that in turn discharges to Beaver Dam Creek. Bullfrog tadpoles inhabiting the site have oral deformities and impaired swimming and predator avoidance abilities, and there also is evidence of metabolic impacts on water snakes inhabiting the site. | *Scientific*—Evidence of impacts on several species in a nearby wetland caused by releases from the ash settling ponds. |
| Brandy Branch Reservoir, TX. | Surface Water ... | Selenium ..... | A power plant cooling reservoir built in 1983 for Southwestern Electric Power Company's Pirkey Power Plant. The cooling reservoir received discharges from SIs containing elevated levels of selenium. | *Scientific*—Observations of impacts on fish populations were confirmed by scientific study, based on which the State concluded that the impacts were attributable to the ash ponds.<br>*Administrative*—The State issued a fish consumption advisory as a result of the contamination. |
| Southwestern Electric Power Company Welsh Reservoir, TX. | Surface Water ... | Selenium ..... | This Lake was constructed in 1976 to serve as a cooling reservoir for a power plant and receives discharges from an open SI. The Texas Parks and Wildlife Department's monitoring documents elevated levels of selenium and other metals in fish. | *Scientific*—Selenium accumulation in fish may be attributable to the ash settling ponds.<br>*Administrative*—The State has issued a fish consumption advisory as a result of the contamination. |
| Texas Utilities Electric Martin Lake Reservoir, TX. | Surface Water ... | Selenium ..... | This Lake was constructed in 1974 to serve as a cooling reservoir for a power plant and was the site of a series of major fish kills in 1978 and 1979. Investigations determined that unpermitted discharges from ash settling ponds resulted in elevated levels of selenium in the water and fish. | *Scientific*—Evidence of adverse effects on wildlife—impacts on fish populations were observed, and the State concluded that the impacts were attributable to the ash setting ponds.<br>*Administrative*—The State has issued a fish consumption advisory as a result of the contamination. |
| Martins Creek Power Plant, Martins Creek, PA. | Groundwater and Surface Water. | Aluminum, Arsenic, Chromium, Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc. | In August 2005, a dam confining a 40 acre CCR SI failed. The dam failure, a violation of the State's solid waste disposal permit, resulted in the discharge of 100 million gallons of coal-ash and contaminated water into the Oughoughton Creek and the Delaware River.<br>Ground-water monitoring found Se and Cr concentrations exceeding Pennsylvania's Statewide Health Standards and Federal primary drinking water standards, and there were also exceedances of the secondary MCL for iron. | *Scientific*—Exceedances of primary and secondary MCLs in on-site ground water, and exceedances of federal water quality criteria in off-site surface water, and<br>*Administrative*—PA DEP issued a consent order for cleanup. |

TABLE OF EPA'S PROVEN DAMAGE CASES—Continued

| Damage case, State | Affected media | Constituents of concern | Brief description | Basis for consideration as a proven damage case |
|---|---|---|---|---|
| TVA Kingston, Harriman, TN. | Surface Water ... | Arsenic, Cobalt, Iron, Thallium. | On December 22, 2008, the northeastern dike of a SI failed. About 5.4 million cubic yards of fly ash sludge was released over about a 300 acre area and into a branch of the Emory River, disrupting power, rupturing a gas line, and destroying or damaging scores of homes. Sampling results for the contaminated residential soil showed arsenic, cobalt, iron, and thallium levels above the residential Superfund soil screening levels. | *Administrative*—On May 11, 2009, TVA agreed to clean up more than 5 million tons of spilled coal ash under an administrative order and agreement on consent under CERCLA issued by the USEPA, and In early January 2009, the Tennessee Wildlife Resources Agency (TWRA) issued a fish advisory stating that until further notice, fishing should be avoided in the lower section of the Emory River. |

Abbreviations key:
1 LF—Landfill
2 SI—Surface Impoundment
3 PAL—Prevention Action Level
4 ES—Enforcement Standard
5 RTC—Report to Congress

**List of Subjects**

*40 CFR Part 257*

Environmental Protection, coal combustion products, coal combustion residuals, coal combustion waste, beneficial use, disposal, hazardous waste, landfill, surface impoundment.

*40 CFR Part 261*

Hazardous waste, Recycling, Reporting and recordkeeping requirements.

*40 CFR Part 264*

Air pollution control, Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds.

*40 CFR Part 268*

Hazardous waste, Reporting and recordkeeping requirements.

*40 CFR Part 271*

Administrative practice and procedure, Confidential business information, Hazardous materials transportation, Hazardous waste, Indians-lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Water pollution control, Water supply.

*40 CFR Part 302*

Air pollution control, Chemicals, Hazardous substances, Hazardous waste, Intergovernmental relations, Natural resources, Reporting and recordkeeping requirements, Superfund, Water pollution control, Water supply.

Dated: May 4, 2010.

**Lisa P. Jackson,**

*Administrator.*

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as follows:

**Alternative 1: Co-Proposal Under Authority of Subtitle D**

## PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

1. The authority citation for part 257 continues to read as follows:

**Authority:** 42 U.S.C., 6907(a)(3), 6912(a)(1), 6944(a), and 6949a(c); 33 U.S.C. 1345(d) and (e).

2. Section 257.1 is amended by revising the last sentence of paragraph (a) introductory text, revising paragraphs (a)(1) and (a)(2), and adding new paragraph (c)(12) to read as follows:

**§ 257.1 Scope and purpose.**

(a) * * * Unless otherwise provided, the criteria §§ 257.51 through 257.101 are adopted for determining which CCR Landfills and CCR Surface impoundments pose a reasonable probability of adverse effects on health or the environment under sections 1008(a)(3) and 4004(a) of the Act.

(1) Facilities failing to satisfy either the criteria in §§ 257.1 through 257.4 or §§ 257.5 through 257.30 or §§ 257.51 through 257.101 are considered open dumps, which are prohibited under section 4005 of the Act.

(2) Practices failing to satisfy either the criteria in §§ 257.1 through 257.4 or §§ 257.5 through 257.30 or §§ 257.51 through 257.101 constitute open dumping, which is prohibited under section 4005 of the Act.

* * * * *

(c) * * *

(12) Except as otherwise provided in subpart C, the criteria in subpart A of this part do not apply to CCR landfills and CCR surface impoundments subject to subpart C of this part.

3. Section 257.2 is amended by adding definitions of "CCR landfill " and "CCR surface impoundment or impoundment" to read as follows:

**§ 257.2 Definitions.**

* * * * *

*CCR landfill* means a disposal facility or part of a facility where CCRs are placed in or on land and which is not a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit. For purposes of this part, landfills also include piles, sand and gravel pits, quarries, and/or large scale fill operations. Sites that are excavated so that more coal ash can be used as fill are also considered CCR landfills.

*CCR surface impoundment* or *impoundment* means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of CCRs containing free liquids, and which is not

an injection well. Examples of CCR surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons. CCR surface impoundments are used to receive CCRs that have been sluiced (flushed or mixed with water to facilitate movement), or wastes from wet air pollution control devices, often in addition to other solid wastes.

* * * * *

## Subpart C—[Added and Reserved]

4. Part 257 is amended by adding and reserving Subpart C.

5. Part 257 is amended by adding Subpart D to part 257 to read as follows:

## Subpart D—Standards for the Receipt of Coal Combustion Residuals in Landfills and Surface Impoundments

**General Provisions**

Sec.



**General Requirements**



**Location Restrictions**



**Design Criteria**



**Operating Criteria**



**Groundwater Monitoring and Corrective Action**



**Closure and Post-Closure Care**



## Subpart D—Standards for the Receipt of Coal Combustion Residuals in Landfills and Surface Impoundments

### General Provisions

#### § 257.40 Disposal standards for owners/operators of CCR landfills and CCR surface impoundments.

(a) *Applicability.* (1) The requirements of this subpart apply to owners or operators of CCR landfills and CCR surface impoundments. Any CCR landfill and surface impoundment continues to be subject to the requirements in §§ 257.3–1, 257.3–2, and 257.3–3.

(2) Except as otherwise specified in this Subpart, all of the requirements in this Subpart are applicable [date 180 days after the effective date of the final rule].

(b) *Definitions.* As used in this subpart:

*Acre-foot* means the volume of one acre of surface area to a depth of one foot.

*Active life* means the period of operation beginning with the initial placement of CCRs in the landfill or surface impoundment and ending at completion of closure activities in accordance with § 257.110.

*Aquifer* means a geological formation, group of formations, or portion of a formation capable of yielding significant quantities of groundwater to wells.

*Area-capacity curves* means graphic curves which readily show the reservoir water surface area, in acres, at different elevations from the bottom of the reservoir to the maximum water surface, and the capacity or volume, in acre-feet, of the water contained in the reservoir at various elevations.

*Coal Combustion Residuals (CCRs)* means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials. CCRs are also known as coal combustion wastes (CCWs) and fossil fuel combustion (FFC) wastes.

*CCR landfill* means a disposal facility or part of a facility where CCRs are placed in or on land and which is not a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit. For purposes of this subpart, landfills also include piles, sand and gravel pits, quarries, and/or large scale fill operations. Sites that are excavated so that more coal ash can be used as fill are also considered CCR landfills.

*CCR surface impoundment* or *impoundment* means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of CCRs containing free liquids, and which is not an injection well. Examples of CCR surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons. CCR surface impoundments are used to receive CCRs that have been sluiced (flushed or mixed with water to facilitate movement), or wastes from wet air pollution control devices, often in addition to other solid wastes.

*Existing CCR landfill* means a CCR landfill which was in operation on, or for which construction commenced prior to [the effective date of the final rule]. A CCR landfill has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either:

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which cannot be cancelled or modified without substantial loss—for physical construction of the CCR landfill to be completed within a reasonable time.

*Existing CCR surface impoundment* means a surface impoundment which was in operation on, or for which construction commenced prior to [the effective date of the final rule]. A CCR surface impoundment has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which can not be cancelled or modified without substantial loss—for physical construction of the CCR surface impoundment to be completed within a reasonable time.

*Facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of CCRs.

*Factor of safety (Safety factor)* means the ratio of the forces tending to resist the failure of a structure to the forces tending to cause such failure as determined by accepted engineering practice.

*Freeboard* means the vertical distance between the slurry or liquid elevation in an impoundment and the lowest point on the crest of the impoundment embankment.

*Groundwater* means water below the land surface in a zone of saturation.

*Hazard potential classification* means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of a dam (or impoundment) or mis-operation of the dam or appurtenances. (Note: The Hazard Potential Classification System for Dams was developed by the U.S. Army Corps of Engineers for the National Inventory of Dams.)

(1) *High hazard potential surface impoundment* means a surface impoundment where failure or mis-operation will probably cause loss of human life.

(2) *Significant hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

(3) *Low hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

*Independent registered professional engineer or hydrologist* means a scientist or engineer who is not an employee of the owner or operator of a CCR landfill or surface impoundment who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding the technical information for which a certification under this subpart is necessary.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing CCR landfill, or existing CCR surface impoundment made after [the effective date of the final rule].

*New CCR landfill* means a CCR landfill in which there is placement of CCRs without the presence of free liquids, which began operation, or for which the construction commenced after [the effective date of the final rule].

*New CCR surface impoundment* means a CCR surface impoundment from which there is placement of CCRs with the presence of free liquids, which began operation, or for which the construction commenced after [the effective date of the final rule].

*Operator* means the person(s) responsible for the overall operation of a facility.

*Owner* means the person(s) who owns a facility or part of a facility.

*Probable maximum precipitation* means the value for a particular area which represents an envelopment of depth-duration-area rainfall relations for all storm types affecting that area adjusted meteorologically to maximum conditions.

*Recognized and generally accepted good engineering practices* means engineering maintenance or operation activities based on established codes, standards, published technical reports, recommended practice, or similar document. Such practices detail generally approved ways to perform specific engineering, inspection, or mechanical integrity activities.

*Representative sample* means a sample of a universe or whole (*e.g.,* waste pile, lagoon, groundwater) which can be expected to exhibit the average properties of the universe or whole.

*Run-off* means any rainwater, leachate, or other liquid that drains over land from any part of a CCR landfill or surface impoundment.

*Run-on* means any rainwater, leachate, or other liquid that drains over land onto any part of a CCR landfill or surface impoundment.

*Sand and gravel pit or quarry* means an excavation for the commercial extraction of aggregate for use in construction projects.

*State* means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

*Surface water* means all water naturally open to the atmosphere (rivers, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries, etc.).

*Uppermost aquifer* means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

*Waste boundary* means a vertical surface located at the hydraulically downgradient limit of the CCR landfill or CCR surface impoundment, or lateral expansion. The vertical surface extends down into the uppermost aquifer.

**§§ 257.42–257.49 [Reserved]**

**General Requirements**

**§ 257.50 Applicability of other regulations.**

(a) The owner or operator of a CCR landfill or CCR surface impoundment must comply with any other applicable federal, state, tribal, or local laws or other requirements.

**§§ 257.51–257.59 [Reserved]**

**Location Restrictions**

**§ 257.60 Placement above the natural water table.**

(a) New CCR landfills and new CCR surface impoundments and lateral expansions must be constructed with a base that is located a minimum of two feet above the upper limit of the natural water table.

(b) For purposes of this section, natural water table means the natural level at which water stands in a shallow well open along its length and penetrating the surficial deposits just deeply enough to encounter standing water at the bottom. This level is uninfluenced by groundwater pumping or other engineered activities.

**§ 257.61 Wetlands.**

(a) New CCR landfills, new CCR surface impoundments, and lateral expansions shall not be located in wetlands, unless the owner or operator can make the following demonstrations, certified by an independent registered professional engineer or hydrologist. The owner or operator must place the demonstrations in the operating record and the owner's or operator's publicly accessible internet site, and notify the state of this action.

(1) Where applicable under section 404 of the Clean Water Act or applicable state wetlands laws, the presumption that a practicable alternative to the proposed landfill, surface impoundment, or lateral expansion is available which does not involve wetlands is clearly rebutted; and

(2) The construction and operation of the new CCR landfill, new CCR surface impoundment, or lateral expansion will not:

(i) Cause or contribute to violations of any applicable state water quality standard,

(ii) Violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;

(iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(iv) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary; and

(3) The new CCR landfill, new CCR surface impoundment, or lateral expansion will not cause or contribute to significant degradation of wetlands. The owner or operator must demonstrate the integrity of the new CCR landfill, new CCR surface impoundment, or lateral expansion and its ability to protect ecological resources by addressing the following factors:

(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the new CCR landfill, new CCR surface impoundment, or lateral expansion;

(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the landfill or surface impoundment.

(iii) The volume and chemical nature of the CCRs.

(iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCRs.

(v) The potential effects of catastrophic release of CCRs to the wetland and the resulting impacts on the environment; and

(vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected; and

(4) To the extent required under section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by paragraph (a)(1) of this section, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (*e.g.,* restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient information is available to make a reasonable determination with respect to these demonstrations.

(b) For purposes of this section, *wetlands* means those areas defined in 40 CFR 232.2.

**§ 257.62 Fault areas.**

(a) New CCR landfills, new CCR surface impoundments and lateral expansions shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the owner or operator demonstrates that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the new CCR landfill, new CCR surface impoundment and lateral expansion and will be protective of human health and the environment. The demonstration must be certified by an independent registered professional engineer and the owner or operator must notify the state that the demonstration has been placed in the operating record and on the owner's or operator's publicly accessible Internet site.

(b) For the purposes of this section:

(1) *Fault* means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

(2) *Displacement* means the relative movement of any two sides of a fault measured in any direction.

(3) *Holocene* means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

**§ 257.63 Seismic impact zones.**

(a) New CCR landfills, new CCR surface impoundments and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The demonstration must be certified by an independent registered professional engineer and the owner or operator must notify the state that the demonstration has been placed in the operating record and on the owner's or operator' publicly accessible internet site.

(b) For the purposes of this section:

(1) *Seismic impact zone* means an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years.

(2) *Maximum horizontal acceleration in lithified earth material* means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 98 percent or greater probability that the acceleration will not be exceeded in 50 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

(3) *Lithified earth material* means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

**§ 257.64 Unstable areas.**

(a) Owners or operators of new or existing CCR landfills, new or existing CCR surface impoundments and lateral expansions located in an unstable area must demonstrate that engineering measures have been incorporated into the landfill, surface impoundment, or lateral expansion design to ensure that the integrity of the structural components of the landfill or surface impoundment will not be disrupted. The demonstration must be certified by an independent registered professional engineer. The owner or operator must notify the state that the demonstration has been placed in the operating record and on the owner's or operator's publicly accessible internet site. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in significant differential settling;

(2) On-site or local geologic or geomorphologic features; and

(3) On-site or local human-made features or events (both surface and subsurface).

(b) For purposes of this section:

(1) *Unstable area* means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the CCR landfill or CCR surface impoundment or lateral expansion structural components responsible for preventing releases from a landfill or surface impoundment. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and Karst terrains.

(2) *Structural components* means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the CCR landfill or CCR surface impoundment or lateral expansion that is necessary for protection of human health and the environment.

(3) *Poor foundation conditions* means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a CCR landfill, CCR surface impoundment, or lateral expansion.

(4) *Areas susceptible to mass movement* means those areas of

influence (*i.e.,* areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the CCR landfill, CCR surface impoundment, or lateral expansion, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall.

(5) *Karst terranes* means areas where karst topography, with its characteristic surface and subterranean features, has developed as a result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

**§ 257.65 Closure of existing CCR landfills and surface impoundments.**

(a) Existing CCR landfills and surface impoundments that cannot make the demonstration specified in § 257.64 (a) pertaining to unstable areas, must close by [date five years after the effective date of the final rule], in accordance with § 257.100 and conduct post-closure activities in accordance with § 257.101.

(b) The deadline for closure required by paragraph (a) of this section may be extended up to two years if the owner or operator can demonstrate that:

(1) There is no available alternative disposal capacity;

(2) There is no immediate threat to human health and the environment.

(c) The demonstration in paragraph (b) of this section must be certified by an independent registered professional engineer or hydrologist.

(d) The owner or operator must place the demonstration in paragraph (b) of this section in the operating record and on the owner's or operator's publicly accessible internet site and notify the state that this action was taken.

**§§ 257.66–257.69 [Reserved]**

**Design Criteria**

**§ 257.70 Design criteria for new CCR landfills and lateral expansions.**

(a) New CCR landfills and lateral expansions of CCR landfills shall be constructed:

(1) With a composite liner, as defined in paragraph (a)(2) of this section and a leachate collection system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner. The design of the composite liner and leachate collection system must be prepared by, or under the direction of, and certified by an independent registered, professional engineer.

(2) For purposes of this section, *composite liner* means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1\times10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(3) For purpose of this section, *hydraulic conductivity* means the rate at which water can move through a permeable medium. (*i.e.,* the coefficient of permeability).

(b) [Reserved]

**§ 257.71 Design criteria for existing CCR surface impoundments.**

(a) No later than [five years after effective date of final rule] existing CCR surface impoundments shall be constructed:

(1) With a composite liner, as defined in paragraph (a)(2) of this section and a leachate collection system between the upper and lower components of the composite liner. The design shall be in accordance with a design prepared by, or under the direction of, and certified by an independent registered professional engineer.

(2) For purposes of this section, *composite liner* means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane line (FML), and the lower component must consist of at least two-foot layer of compacted soil with a hydraulic conductivity of no more than $1\times10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(3) For purposes of this section, *hydraulic conductivity* means the rate at which water can move through a permeable medium (*i.e.,* the coefficient of permeability).

(b) The owner or operator of an existing CCR surface impoundment shall place in the operating record and on the owner's or operator's publicly accessible internet site, and provide to the state a history of construction, and any record or knowledge of structural instability if the existing surface impoundment can:

(1) Impound CCRs to an elevation of five feet or more above the upstream toe of the structure and can have a storage volume of 20 acre-feet or more; or

(2) Impound CCRs to an elevation of 20 feet or more above the upstream toe of the structure.

(c) For purposes of this subpart, *upstream toe* means, for an embankment dam, the junction of the upstream slope of the dam with the ground surface. (Federal Guidelines for Dam Safety, Glossary of Terms, Federal Emergency Management Agency, April 2004.)

(d) The history of construction specified in paragraph (b) of this section shall contain, at a minimum, the following information as may be available:

(1) The name and address of the persons owning or operating the CCR surface impoundment; the name associated with the CCR surface impoundment; and the identification number of the CCR surface impoundment if one has been assigned by the state.

(2) The location of the CCR surface impoundment indicated on the most recent USGS 7½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(3) A statement of the purpose for which the CCR surface impoundment is being used.

(4) The name and size in acres of the watershed affecting the CCR surface impoundment.

(5) A description of the physical and engineering properties of the foundation materials on which the CCR surface impoundment is constructed.

(6) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR surface impoundment; the method of site preparation and construction of each zone of the CCR surface impoundment; and the approximate dates of construction, and each successive stage of construction of the CCR surface impoundment.

(7) At a scale not to exceed 1 inch = 100 feet, detailed dimensional drawings of the CCR surface impoundment, including a plan view and cross sections of the length and width of the CCR surface impoundment, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the measurement of the minimum vertical distance between the crest of the CCR surface impoundment

and the reservoir surface at present and under design storm conditions, CCR slurry level and CCR waste water level, and any identifiable natural or manmade features which could affect operation of the CCR surface impoundment.

(8) A description of the type and purpose of existing or proposed instrumentation.

(9) Graphs showing area-capacity curves.

(10) The hazard potential classification for which the facility is designed and a detailed explanation of the basis for this classification.

(11) A description of the spillway and diversion design features and capacities and calculations used in their determination.

(12) The computed minimum factor of safety for slope stability of the CCR retaining structure(s) and the analyses used in their determinations.

(13) A certification by an independent registered professional engineer that the design of the CCR surface impoundment is in accordance with current, prudent engineering practices for the maximum volume of CCR slurry and CCR waste water which can be impounded therein and for the passage of runoff from the design storm which exceeds the capacity of the CCR surface impoundment; or, in lieu of the certification, a report indicating what additional investigations, analyses, or improvement work are necessary before such a certification can be made by an independent registered professional engineer, including what provisions have been made to carry out such work in addition to a schedule for completion of such work. Upon completion of such work, the owner or operator shall place the certification in the operating record and on the owner's or operator's publicly accessible internet site and provide to the state notice of such certification.

(14) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR surface impoundment.

(15) General provisions for closure.

(e) A permanent identification marker, at least six feet high and showing the identification number of the existing CCR surface impoundment, if one has been assigned by the state, the name associated with the CCR surface impoundment and the name of the person owning or operating the structure, shall be located on or immediately adjacent to each existing CCR surface impoundment. This requirement becomes effective [date 60 days after the effective date of the final rule].

(f) For existing CCR surface impoundments classified as having a high or significant hazard potential, as certified by an independent registered professional engineer, the owner or operator shall develop and maintain in the operating record, and on the owner's or operator' publicly accessible internet site, an Emergency Action Plan which: defines responsible persons and the actions to be taken in the event of a dam-safety emergency; provides contact information for emergency responders; includes a map which delineates the downstream area which would be affected in the event of a dam failure; and includes provisions for an annual face-to-face meeting or exercise between representatives of the facility owner and the local emergency responders.

(g) CCR surface impoundments shall be dredged of CCRs and lined with a composite liner system, as defined in paragraph (d)(2) of this section, by [date five years after the effective date of the final rule] or closed in accordance with § 257.100.

**§ 257.72 Design criteria for new CCR surface impoundments and lateral expansions.**

(a) New CCR surface impoundments and lateral expansions of CCR landfills or surface impoundments shall be constructed:

(1) With a composite liner, as defined in paragraph (a)(2) of this section and a leachate collection system between the upper and lower components of the composite liner. The design of the composite liner and leachate collection system must be prepared by, or under the direction of, and certified by an independent registered, professional engineer.

(2) For purposes of this section, *composite liner* means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1\times10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(3) For purpose of this section, *hydraulic conductivity* means the rate at which water can move through a permeable medium (*i.e.,* the coefficient of permeability).

(b) Plans for the design, construction, and maintenance of new CCR surface impoundments and lateral expansions shall be placed in the operating record and be submitted to the state upon certification by an independent registered professional engineer, and a notice shall be placed on the owner's or operator's publicly accessible internet site that such plans have been placed in the operating record and submitted to the state, if such proposed surface impoundment or lateral expansion can:

(1) Impound CCRs to an elevation of five feet or more above the upstream toe of the structure and can have a storage volume of 20 acre-feet or more; or

(2) Impound CCRs to an elevation of 20 feet or more above the upstream toe of the structure.

(c) A permanent identification marker, at least six feet high and showing the identification number of the CCR surface impoundment, if one has been assigned by the state, the name associated with the CCR surface impoundment and the name of the person owning or operating the structure, shall be located on or immediately adjacent to each CCR surface impoundment. This requirement becomes effective [date 60 days after the effective date of the final rule].

(d) The plan specified in paragraph (b) of this section, shall contain at a minimum the following information:

(1) The name and address of the persons owning or operating the CCR surface impoundment; the name associated with the CCR surface impoundment; and the identification number of the CCR surface impoundment if one has been assigned by the state.

(2) The location of the CCR surface impoundment indicated on the most recent USGS 7½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(3) A statement of the purpose for which the CCR surface impoundment is being used.

(4) The name and size in acres of the watershed affecting the CCR surface impoundment.

(5) A description of the physical and engineering properties of the foundation materials on which the CCR surface impoundment is constructed.

(6) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR surface impoundment; the method of site preparation and construction of each zone of the CCR surface impoundment; and the approximate dates of construction, and each successive stage of construction of the CCR surface impoundment.

(7) At a scale not to exceed 1 inch = 100 feet, detailed dimensional drawings

of the CCR surface impoundment, including a plan view and cross sections of the length and width of the CCR surface impoundment, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the measurement of the minimum vertical distance between the crest of the CCR surface impoundment and the reservoir surface at present and under design storm conditions, CCR slurry level and CCR waste water level, and any identifiable natural or manmade features which could affect operation of the CCR surface impoundment.

(8) A description of the type and purpose of existing or proposed instrumentation.

(9) Graphs showing area-capacity curves.

(10) The hazard potential classification for which the facility is designed and a detailed explanation of the basis for this classification.

(11) A description of the spillway and diversion design features and capacities and calculations used in their determination.

(12) The computed minimum factor of safety for slope stability of the CCR retaining structure(s) and the analyses used in their determinations.

(13) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR surface impoundment.

(14) General provisions for closure.

(15) A certification by an independent registered professional engineer that the design of the CCR surface impoundment is in accordance with generally accepted engineering standards for the maximum volume of CCR slurry and CCR waste water which can be impounded therein and for the passage of runoff from the design storm which exceeds the capacity of the CCR surface impoundment. The owner or operator shall place the certification in the operating record and on the owner's or operator's publicly accessible internet site and notify the state that these actions have been taken.

(e) Any changes or modifications to the plans for CCR surface impoundments shall be certified by an independent registered professional engineer and provided to the state prior to the initiation of such changes or modifications. The certification required in this paragraph shall be placed on the owner's or operator's publicly accessible internet site.

(f) For CCR surface impoundments classified by as having a high or significant hazard potential, as certified by an independent registered professional engineer, the owner or operator shall develop and maintain in the operating record and on the owner's or operator's publicly accessible internet site, an Emergency Action Plan which: Defines responsible persons and the actions to be taken in the event of a dam-safety emergency; provides contact information for emergency responders; includes a map which delineates the downstream area which would be affected in the event of a dam failure; and includes provisions for an annual face-to-face meeting or exercise between representatives of the facility owner and the local emergency responders.

**§§ 257.73–257.79 [Reserved]**

## Operating Criteria

### § 257.80 Air criteria.

(a) CCR surface impoundments and CCR landfills must be managed in a manner that fugitive dusts do not exceed 35 $\mu g/m^3$, unless some alternative standard has been established pursuant to applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to section 110 of the Clean Air Act, as amended.

(b) CCR surface impoundments must be managed to control wind dispersal of dusts, consistent with the standard in paragraph (a) of this section.

(c) CCR landfills must be managed to control wind dispersal of dusts, consistent with the standard in paragraph (a). CCRs must be emplaced as conditioned CCRs as defied in paragraph (d) of this section.

(d) For purposes of this section, conditioning means wetting CCRs with water to a moisture content that will prevent wind dispersal, but will not result in free liquids.

(e) Documentation of the measures taken to comply with the requirements of this section must be certified by an independent registered professional engineer and notification provided to the state that the documentation has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

### § 257.81 Run-on and run-off controls.

(a) Owners or operators of all CCR landfills and surface impoundments must design, construct, and maintain:

(1) A run-on control system to prevent flow onto the active portion of the CCR landfill or surface impoundment during the peak discharge from a 24-hour, 25-year storm;

(2) A run-off control system from the active portion of the CCR landfill or surface impoundment to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(b) The design required in paragraph (a) of this section must be certified by an independent registered professional engineer that the design meets the requirements of this section. The owner or operator must notify the state that the design has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(c) The owner or operator must prepare a report, certified by an independent registered professional engineer, that documents how relevant calculations were made, and how the control systems meet the requirements of this subpart and notify the state that the report has been placed in the operating record and made available to the public on the owner's or operator's publicly accessible internet site.

(d) Run-off from the active portion of the CCR landfill or surface impoundment must be handled in accordance with § 257.3–3.

### § 257.82 Surface water requirements.

(a) CCR landfills and surface impoundments shall not:

(1) Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402 of the Clean Water Act.

(2) Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or State-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

(b) [Reserved]

### § 257.83 Surface impoundment inspection requirements.

(a) All existing CCR surface impoundments shall be examined as follows:

(1) At intervals not exceeding 7 days for appearances of structural weakness and other hazardous conditions.

(2) At intervals not exceeding 7 days all instruments shall be monitored.

(3) All inspections required by paragraphs (a)(1) and (2) of this section shall be performed by a qualified person, as defined in paragraph (e) of this section, designated by the person owning or operating the CCR surface impoundment.

(4) All existing CCR surface impoundments shall be inspected

annually by an independent registered professional engineer to assure that the design, operation, and maintenance of the surface impoundment is in accordance with generally accepted engineering standards. The owner or operator must notify the state that a certification by the independent registered professional engineer that the design, operation, and maintenance of the surface impoundment is in accordance with generally accepted engineering standards has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(b) When a potentially hazardous condition develops, the person owning or operating the CCR surface impoundment shall immediately:

(1) Take action to eliminate the potentially hazardous condition;

(2) Notify potentially affected persons and state and local first responders;

(3) Notify and prepare to evacuate, if necessary, all personnel from the owner or operator's property which may be affected by the potentially hazardous conditions; and

(4) Direct a qualified person to monitor all instruments and examine the structure at least once every eight hours, or more often as required by an authorized representative of the state.

(c) After each inspection and instrumentation monitoring referred to in paragraphs (a) and (b) of this section, each qualified person who conducted all or any part of the inspection or instrumentation monitoring shall promptly record the results of such inspection or instrumentation monitoring in a book which shall be available in the operating record and such qualified person shall also promptly report the results of the inspection or monitoring to the state. A report of each inspection and instrumentation monitoring shall also be placed on the owner's or operator's publicly accessible internet site.

(d) All inspection and instrumentation monitoring reports recorded in accordance with paragraph (c) of this section shall include a report of the action taken to abate hazardous conditions and shall be promptly signed by the person designated by the owner or operator as responsible for health and safety at the owner or operator's facility.

(e) The qualified person or persons referred to in this section shall be trained to recognize specific signs of structural instability and other hazardous conditions by visual observation and, if applicable, to monitor instrumentation.

**§ 257.84 Recordkeeping requirements.**

(a) The owner or operator of a CCR landfill or surface impoundment must record and retain near the facility in an operating record and on the owner's or operator's publicly accessible internet site, all records, reports, studies or other documentation required to demonstrate compliance with §§ 257.60 through 257.83 and 257.90 through 257.101.

(b) Except as provided in paragraph (c) of this section, every twelfth month following [the effective date of the final rule] for CCR surface impoundments addressed under § 257.71, and every twelfth month following the date of the initial plan for the design (including lateral expansions), construction, and maintenance of the surface impoundments addressed under § 257.72(b), the owner or operator of such CCR surface impoundments that have not been closed in accordance with § 257.100 shall place in the operating record and on the owner's or operator's publicly accessible internet site, a report containing the following information. The owner or operator shall notify the state that the report has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(1) Changes in the geometry of the impounding structure for the reporting period.

(2) Location and type of installed instruments and the maximum and minimum recorded readings of each instrument for the reporting period.

(3) The minimum, maximum, and present depth and elevation of the impounded water, sediment, or slurry for the reporting period.

(4) Storage capacity of the impounding structure.

(5) The volume of the impounded water, sediment, or slurry at the end of the reporting period.

(6) Any other change which may have affected the stability or operation of the impounding structure that has occurred during the reporting period.

(7) A certification by an independent registered professional engineer that all construction, operation, and maintenance were in accordance with the approved plan.

(c) A report is not required under this section when the owner or operator provides the state with a certification by an independent registered professional engineer that there have been no changes under paragraphs (b)(1) through (b)(6) of this section to the surface impoundment. However, a report containing the information set out in paragraph (b) of this section shall be placed in the operating record and on the owner's or operator's publicly accessible internet site and notification submitted to the state at least every 5 years.

**§§ 257.85–257.89 [Reserved]**

**Groundwater Monitoring and Corrective Action**

**§ 257.90 Applicability.**

(a) Owners and operators of all CCR landfills, surface impoundments subject to this subpart must comply with the groundwater monitoring requirements according to the following schedule:

(1) Existing CCR landfills and surface impoundments must comply with the groundwater monitoring requirements specified in §§ 257.91 through 257.95 within [one year after the effective date of the final rule];

(2) New CCR landfills and surface impoundments must comply with the groundwater monitoring requirements specified in §§ 257.91 through 257.95 before CCR can be disposed of in the CCR landfill or surface impoundment.

(b) The owner or operator must notify the state once each year throughout the active life and post-closure care period that the CCR landfill or surface impoundment is in compliance with the groundwater monitoring and corrective action provisions of this subpart.

(c) Once established at a CCR landfill or surface impoundment, groundwater monitoring shall be conducted throughout the active life and post-closure care period of that CCR landfill or surface impoundment as specified in § 257.101.

**§ 257.91 Groundwater monitoring systems.**

(a) A groundwater monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer (as defined in § 257.41) that:

(1) Represent the quality of background groundwater that has not been affected by leakage from a CCR landfill or surface impoundment. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the CCR management area where:

(i) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; or

(ii) Sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells; and

(2) Represent the quality of groundwater passing the waste

boundary. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer.

(b) The groundwater monitoring system must include at a minimum one up gradient and three downgradient wells.

(c) A multiunit groundwater monitoring system may be installed instead of separate groundwater monitoring systems for each CCR landfill or surface impoundment when the facility has several units, provided the multi-unit groundwater monitoring system meets the requirement of § 257.91(a) and will be as protective of human health and the environment as individual monitoring systems for each CCR landfill or surface impoundment, based on the following factors:

(1) Number, spacing, and orientation of the CCR landfill or surface impoundment;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the CCR landfill or surface impoundment; and

(d) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (*i.e.,* the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

(1) The owner or operator of the CCR landfill or surface impoundment must notify the state that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record and on the owner's or operator's publicly accessible internet site; and

(2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(e) The number, spacing, and depths of monitoring systems shall be:

(1) Determined based upon site-specific technical information that must include thorough characterization of:

(i) Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

(ii) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(2) Certified by an independent registered professional engineer or hydrologist. Within 14 days of this certification, the owner or operator must notify the state that the certification has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

**§ 257.92 [Reserved]**

**§ 257.93 Groundwater sampling and analysis requirements.**

(a) The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells installed in compliance with § 257.91. The owner or operator of the CCR landfill or surface impoundment must notify the State that the sampling and analysis program documentation has been placed in the operating record and on the owner's or operator's publicly accessible internet site and the program must include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

(b) The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. Groundwater samples shall not be field-filtered prior to laboratory analysis.

(c) The sampling procedures and frequency must be protective of human health and the environment.

(d) Groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator of the CCR landfill or surface impoundment must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same CCR management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

(e) The owner or operator of the CCR landfill or surface impoundment must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular groundwater monitoring program that applies to the CCR landfill or surface impoundment, as determined under § 257.94(a) or § 257.95(a). Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR landfill or surface impoundment if it meets the requirements of § 257.91(a)(1).

(f) The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures determined pursuant to paragraph (g) of this section. The sampling procedures shall be those specified under § 257.94(b) for detection monitoring, § 257.95(b) and (c) for assessment monitoring, and § 257.96(b) for corrective action.

(g) The owner or operator of the CCR landfill or surface impoundment must specify in the operating record and on the owner's or operator's publicly accessible Internet site, one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(1) A parametric analysis of variance (ANOVA) followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(2) An analysis of variance (ANOVA) based on ranks followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of paragraph (h) of this section. The owner or operator of the CCR landfill or surface impoundment must place a justification for this alternative in the operating record and on the owner's or operator's publicly accessible internet site and notify the state of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of paragraph (h) of this section.

(h) Any statistical method chosen under paragraph (g) of this section shall comply with the following performance standards, as appropriate:

(1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator of the CCR landfill or surface impoundment to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a ground-water protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparison procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(4) If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(5) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(i) The owner or operator of the CCR landfill or surface impoundment must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the CCR landfill or surface impoundment, as determined under §§ 257.94(a) or 257.95(a).

(1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the groundwater quality of each parameter or constituent at each monitoring well designated pursuant to § 257.91(a)(2) to the background value of that constituent, according to the statistical procedures and performance standards specified under paragraphs (g) and (h) of this section.

(2) Within a reasonable period of time after completing sampling and analysis, the owner or operator of the CCR landfill or surface impoundment must determine whether there has been a statistically significant increase over background at each monitoring well.

**§ 257.94 Detection monitoring program.**

(a) Detection monitoring is required at CCR landfills and surface impoundments at all groundwater monitoring wells. At a minimum, a detection monitoring program must include monitoring for the parameters listed in Appendix III to this part.

(b) The monitoring frequency for all parameters listed in Appendix III to this part shall be at least semiannual during the active life of the CCR landfill or surface impoundment (including closure) and the post-closure period. A minimum of four independent samples from each background and downgradient well must be collected and analyzed for the Appendix III parameters during the first semiannual sampling event.

(c) At least one sample from each background and downgradient well must be collected and analyzed during subsequent semiannual sampling events.

(d) If the owner or operator of the CCR landfill or surface impoundment determines, pursuant to § 257.93(g) that there is a statistically significant increase over background for one or more of the parameters listed in Appendix III to this part at any monitoring well at the waste boundary specified under § 257.91(a)(2), the owner or operator:

(1) Must, within 14 days of this finding, place a notice in the operating record and on the owner's or operator's publicly accessible internet site indicating which parameters have shown statistically significant changes from background levels, and notify the state that this notice was placed in the operating record and on the owner's or operator's publicly accessible internet site; and

(2) Must establish an assessment monitoring program meeting the requirements of § 257.95 of this part within 90 days except as provided for in paragraph (c)(3) of this section.

(3) The owner/operator may demonstrate that a source other than the CCR landfill or surface impoundment caused the statistically significant increase or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by an independent registered professional engineer or hydrologist and be placed in the operating record and on the owner's or operator's publicly accessible internet site and the state notified of this finding. If a successful demonstration is made and documented, the owner or operator of the CCR landfill or surface impoundment may continue detection monitoring as specified in this section. If, after 90 days, a successful demonstration is not made, the owner or operator of the CCR landfill or surface impoundment must initiate an assessment monitoring program as required in § 257.95.

**§ 257.95 Assessment monitoring program.**

(a) Assessment monitoring is required whenever a statistically significant increase over background has been detected for one or more of the

constituents listed in the Appendix III to this part.

(b) Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator of the CCR landfill or surface impoundment must sample and analyze the groundwater for all constituents identified in Appendix IV to this part. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the complete Appendix IV analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the constituents.

(c) After obtaining the results from the initial or subsequent sampling events required in paragraph (b) of this section, the owner or operator of the CCR landfill or surface impoundment must:

(1) Within 14 days, place a notice in the operating record and on the owner's or operator's publicly accessible internet site identifying the Appendix IV constituents that have been detected and notify the state that this notice has been placed in the operating record and on the owner's or operator's publicly accessible internet site;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by § 257.91(a), conduct analyses for all parameters in Appendix III to this part and for those constituents in Appendix IV to this part that are detected in response to paragraph (b) of this section, and record their concentrations in the facility operating record and place the results on the owner's or operator's publicly accessible internet site. At least one sample from each well (background and downgradient) must be collected and analyzed during these sampling events.

(3) Establish background concentrations for any constituents detected pursuant to paragraph (b) or (c)(2) of this section; and

(4) Establish groundwater protection standards for all constituents detected pursuant to paragraph (b) or (c) of this section. The groundwater protection standards shall be established in accordance with paragraphs (g) or (h) of this section.

(d) If the concentrations of all Appendix IV constituents are shown to be at or below background values, using the statistical procedures in § 257.93(g), for two consecutive sampling events, the owner or operator of the CCR landfill or surface impoundment must place that information in the operating record and on the owner's or operator's publicly accessible internet site and notify the state of this finding and may return to detection monitoring.

(e) If the concentrations of any Appendix IV constituents are above background values, but all concentrations are below the groundwater protection standard established under paragraphs (g) or (h) of this section, using the statistical procedures in § 257.93(g), the owner or operator must continue assessment monitoring in accordance with this section.

(f) If one or more Appendix IV constituents are detected at statistically significant levels above the groundwater protection standard established under paragraphs (g) or (h) of this section in any sampling event, the owner or operator must, within 14 days of this finding, place a notice in the operating record and on the owner's or operator's publicly accessible internet site identifying the Appendix IV constituents that have exceeded the groundwater protection standard and notify the state and all appropriate local government officials that the notice has been placed in the operating record and on the owner's or operator's publicly accessible internet site. The owner or operator of the CCR landfill or surface impoundment also must:

(1)(i) Characterize the nature and extent of the release by installing additional monitoring wells as necessary;

(ii) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with paragraph (c)(2) of this section;

(iii) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance with paragraph (f)(1) of this section; and

(iv) Initiate an assessment of corrective measures as required by § 257.96 of this part within 90 days; or

(2) May demonstrate that a source other than the CCR landfill or surface impoundment caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by an independent registered professional engineer or hydrologist and placed in the operating record and on the owner's or operator's publicly accessible internet site, and the state notified of this action. If a successful demonstration is made the owner or operator of the CCR landfill or surface impoundment must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the Appendix IV constituents are at or below background as specified in paragraph (d) of this section. Until a successful demonstration is made, the owner or operator of the CCR landfill or surface impoundment must comply with paragraph (f) of this section including initiating an assessment of corrective measures.

(g) The owner or operator of the CCR landfill or surface impoundment must establish a groundwater protection standard for each Appendix IV constituent detected in the groundwater. The groundwater protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under section 1412 of the Safe Drinking Water Act (codified) under 40 CFR part 141, the MCL for that constituent;

(2) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with § 257.91(a)(1); or

(3) For constituents for which the background level is higher than the MCL identified under paragraph (g)(1) of this section or health based levels identified under paragraph (h)(1) of this section, the background concentration.

(h) The owner or operator may establish an alternative groundwater protection standard for constituents for which MCLs have not been established provided that the alternative groundwater protection standard has been certified by an independent registered professional engineer and the state has been notified that the alternative groundwater protection standard has been placed in the operating record and on the owner's or operator's publicly accessible internet site. These groundwater protection standards shall be appropriate health based levels that satisfy the following criteria:

(1) The level is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants;

(2) The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or equivalent;

(3) For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level

(due to continuous lifetime exposure) within the $1\times10^{-4}$ to $1\times10^{-6}$ range; and

(4) For systemic toxicants, the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime. For purposes of this subpart, *systemic toxicants* include toxic chemicals that cause effects other than cancer or mutation.

(i) In establishing groundwater protection standards under paragraph (h) of this section, the owner or operator of the CCR landfill or surface impoundment may consider the following:

(1) Multiple contaminants in the groundwater;

(2) Exposure threats to sensitive environmental receptors; and

(3) Other site-specific exposure or potential exposure to groundwater.

**§ 257.96 Assessment of corrective measures.**

(a) Within 90 days of finding that any of the constituents listed in Appendix IV to this part have been detected at a statistically significant level exceeding the groundwater protection standards defined under § 257.95 (g) or (h) of this part, the owner or operator of the CCR landfill or surface impoundment must initiate an assessment of corrective measures. Such an assessment must be completed within 90 days.

(b) The owner or operator of the CCR landfill or surface impoundment must continue to monitor in accordance with the assessment monitoring program as specified in § 257.95.

(c) The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under § 257.97, addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(s).

(d) The owner or operator of the CCR landfill or surface impoundment must provide notification of the corrective measures assessment to the state and the public.

(e) The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

**§ 257.97 Selection of remedy.**

(a) Based on the results of the corrective measures assessment conducted under § 257.96, the owner or operator of the CCR landfill or surface impoundment must select a remedy that, at a minimum, meets the standards listed in paragraph (b) of this section. The owner or operator of the CCR landfill or surface impoundment must notify the state and the public within 14 days of selecting a remedy, that a report certified by an independent registered professional engineer or hydrologist describing the selected remedy, has been placed in the operating record and on the owner's or operator's publicly accessible internet site, and how it meets the standards in paragraph (b) of this section.

(b) Remedies must:

(1) Be protective of human health and the environment;

(2) Attain the groundwater protection standard as specified pursuant to §§ 257.95 (g) or (h);

(3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of Appendix IV of this part constituents into the environment that may pose a threat to human health or the environment; and

(4) Comply with standards for management of wastes as specified in § 257.98(d).

(c) In selecting a remedy that meets the standards of paragraph (b) of this section, the owner or operator of the CCR landfill or surface impoundment shall consider the following evaluation factors:

(1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

(i) Magnitude of reduction of existing risks;

(ii) Magnitude of residual risks in terms of likelihood of further releases due to CCRs remaining following implementation of a remedy;

(iii) The type and degree of long-term management required, including monitoring, operation, and maintenance;

(iv) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal of containment;

(v) Time until full protection is achieved;

(vi) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

(vii) Long-term reliability of the engineering and institutional controls; and

(viii) Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

(i) The extent to which containment practices will reduce further releases;

(ii) The extent to which treatment technologies may be used.

(3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

(i) Degree of difficulty associated with constructing the technology;

(ii) Expected operational reliability of the technologies;

(iii) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(iv) Availability of necessary equipment and specialists; and

(v) Available capacity and location of needed treatment, storage, and disposal services.

(4) The degree to which community concerns are addressed by a potential remedy(s).

(d) The owner or operator of the CCR landfill or surface impoundment shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (d) (1) through (8) of this section. The owner or operator of the CCR landfill or surface impoundment must consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination;

(2) Reasonable probabilities of remedial technologies in achieving compliance with the groundwater protection standards established under § 257.95 (f) or (g) and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for CCRs managed during implementation of the remedy;

(4) Desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(5) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(6) Resource value of the aquifer including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users;

(iii) Groundwater quantity and quality;

(iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to CCR constituents;

(v) The hydrogeologic characteristic of the facility and surrounding land;

(vi) Groundwater removal and treatment costs; and

(vii) The cost and availability of alternative water supplies.

(7) Other relevant factors.

(e) The owner or operator of the CCR landfill or surface impoundment may determine that remediation of a release of an Appendix IV constituent from a CCR landfill or surface impoundment is not necessary if the owner or operator of the CCR landfill or surface impoundment demonstrates the following, and notifies the state that the demonstration, certified by an independent registered professional engineer or hydrologist, has been placed in the operating record and on the owner's or operator's publicly accessible internet site:

(1) The groundwater is additionally contaminated by substances that have originated from a source other than a CCR landfill or surface impoundment and those substances are present in concentrations such that cleanup of the release from the CCR landfill or surface impoundment would provide no significant reduction in risk to actual or potential receptors; or

(2) The constituent(s) is present in groundwater that:

(i) Is not currently or reasonably expected to be a source of drinking water; and

(ii) Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration(s) that would exceed the ground-water protection standards established under § 257.95 (g) or (h); or

(3) Remediation of the release(s) is technically impracticable; or

(4) Remediation results in unacceptable cross-media impacts.

(f) A determination by the owner or operator pursuant to paragraph (e) of this section shall not affect the obligation of the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are reasonable and significantly reduce threats to human health or the environment.

**§ 257.98 Implementation of the corrective action program.**

(a) Based on the schedule established under § 257.97(d) for initiation and completion of remedial activities the owner or operator must:

(1) Establish and implement a corrective action groundwater monitoring program that:

(i) At a minimum, meets the requirements of an assessment monitoring program under § 257.95;

(ii) Indicates the effectiveness of the corrective action remedy; and

(iii) Demonstrates compliance with ground-water protection standard pursuant to paragraph (e) of this section.

(2) Implement the corrective action remedy selected under § 257.97; and

(3) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to § 257.97. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

(i) Time required to develop and implement a final remedy;

(ii) Actual or potential exposure of nearby populations or environmental receptors to any of the Appendix IV constituents;

(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iv) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

(v) Weather conditions that may cause any of the Appendix IV of this part constituents to migrate or be released;

(vi) Potential for exposure to any of the Appendix IV of this part constituents as a result of an accident or failure of a container or handling system; and

(vii) Other situations that may pose threats to human health and the environment.

(b) An owner or operator of the CCR landfill or surface impoundment may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of § 257.97(b) are not being achieved through the remedy selected. In such cases, the owner or operator of the CCR landfill or surface impoundment must implement other methods or techniques that could reasonably achieve compliance with the requirements, unless the owner or operator makes the determination under paragraph (c) of this section.

(c) If the owner or operator determines that compliance with requirements under § 257.97(b) cannot be reasonably achieved with any currently available methods, the owner or operator of the CCR landfill or surface impoundment must:

(1) Obtain certification of an independent registered professional engineer or hydrologist that compliance with requirements under § 257.97(b) cannot be reasonably achieved with any currently available methods;

(2) Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

(3) Implement alternate measures for control of the sources of contamination or for removal or decontamination of equipment, units, devices, or structures that are consistent with the overall objective of the remedy.

(4) Notify the state within 14 days that a report, including the certification required in paragraph (c)(1) of this section, justifying the alternative measures prior to implementing the alternative measures has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(d) All CCRs that are managed pursuant to a remedy required under § 257.97, or an interim measure required under paragraph (a)(3) of this section, shall be managed in a manner:

(1) That is protective of human health and the environment; and

(2) That complies with applicable RCRA requirements.

(e) Remedies selected pursuant to § 257.97 shall be considered complete when:

(1) The owner or operator of the CCR landfill or surface impoundment complies with the groundwater protection standards established under §§ 257.95 (h) or (i) at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under § 257.91(a).

(2) Compliance with the groundwater protection standards established under §§ 257.95 (h) or (h) has been achieved by demonstrating that concentrations of Appendix IV constituents have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 257.93 (g) and (h).

(3) All actions required to complete the remedy have been satisfied.

(f) Upon completion of the remedy, the owner or operator of the CCR landfill or surface impoundment must notify the state within 14 days that a certification that the remedy has been completed in compliance with the requirements of paragraph (e) of this section has been placed in the operating record and on the owner's or operator's publicly accessible internet site. The certification must be signed by the owner or operator and by an independent registered professional engineer or hydrologist.

**§ 257.99 [Reserved]**

**Closure and Post-Closure Care**

**§ 257.100 Closure criteria.**

(a) Prior to closure of any CCR landfill or surface impoundment covered by this subpart, the owner or operator shall submit to the state, a plan for closure of the unit based on recognized and generally accepted good engineering practices and certified by an independent registered professional engineer. The closure plan shall be consistent with paragraph (g) of this section and provide for major slope stability, include a schedule for the plan's implementation and contain provisions to preclude the probability of future impoundment of water, sediment, or slurry. The closure plan shall be placed in the operating record and on the owner's or operator's publicly accessible internet site.

(b) Closure of a CCR landfill or surface impoundment may be accomplished with CCRs in place or through CCR removal and decontamination of all areas affected by releases from the CCR landfill or surface impoundment. CCR removal and decontamination are complete when constituent concentrations throughout the CCR landfill or surface impoundment and any areas affected by releases from the CCR landfill or surface impoundment do not exceed numeric cleanup levels for those constituents found in the CCRs established by the state in which the CCR landfill or surface impoundment is located.

(c) At closure, the owner or operator of a surface impoundment must:

(1) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues;

(2) Stabilize remaining wastes to a bearing capacity sufficient to support the final cover; and

(3) Cover the surface impoundment with a final cover designed and constructed to:

(i) Provide long-term minimization of the migration of liquids through the closed impoundment;

(ii) Function with minimum maintenance; and

(iii) Promote drainage and minimize erosion or abrasion of the cover;

(iv) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(v) Have a final cover system that meets the requirements of subsection (d).

(d) For closure with CCRs in place, a final cover system must be installed at all CCR landfills and surface impoundments that is designed to minimize infiltration and erosion. The final cover system must be designed and constructed to:

(1) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than $1 \times 10^{-5}$ cm/sec, whichever is less, and

(2) Minimize infiltration through the closed CCR landfill or surface impoundment by the use of an infiltration layer that contains a minimum 18-inches of earthen material, and

(3) Minimize erosion of the final cover by the use of an erosion layer that contains a minimum 6-inches of earthen material that is capable of sustaining native plant growth, and

(4) Minimize the disruption of the final cover through a design that accommodates settling and subsidence.

(e) The owner or operator of the CCR landfill or surface impoundment may select an alternative final cover design, provided the alternative cover design is certified by an independent registered professional engineer and notification is provided to the state and the EPA Regional Administrator that the alternative cover design has been placed in the operating record and on the owner's or operator's publicly accessible internet site. The alternative final cover design must include:

(1) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (d)(1) and (d)(2) of this section, and

(2) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in paragraph (d)(3) of this section.

(f) The design of the final cover system shall be placed on the owner's or operator's publicly accessible internet site.

(g) The owner or operator of the CCR landfill or surface impoundment must prepare a written closure plan that describes the steps necessary to close the CCR landfill or surface impoundment at any point during the active life in accordance with the cover design requirements in paragraph (d) or (e) of this section, as applicable. The closure plan, at a minimum, must include the following information:

(1) A description of the final cover, designed in accordance with paragraph (d) or (e) of this section and the methods and procedures to be used to install the cover;

(2) An estimate of the largest area of the CCR landfill or surface impoundment ever requiring a final cover as required under paragraph (d) or (e) of this section at any time during the active life;

(3) An estimate of the maximum inventory of CCRs ever on-site over the active life of the CCR landfill or surface impoundment; and

(4) A schedule for completing all activities necessary to satisfy the closure criteria in this section.

(h) The owner or operator of the CCR landfill or surface impoundment must notify the state that a closure plan, certified by an independent registered professional engineer, has been prepared and placed in the operating record and on the owner's or operator's publicly accessible internet site no later than the effective date of this part, or by the initial receipt of CCRs, whichever is later.

(i) Prior to beginning closure of each CCR landfill or surface impoundment as specified in paragraph (j) of this section, an owner or operator of a CCR landfill or surface impoundment must notify the state that a notice of the intent to close the unit has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(j) The owner or operator of the CCR landfill or surface impoundment must begin closure activities no later than 30 days after the date on which the CCR landfill or surface impoundment receives the known final receipt of CCR or, if the CCR landfill or surface impoundment has remaining capacity and there is a reasonable likelihood that the CCR landfill or surface impoundment will receive additional CCRs, no later than one year after the most recent receipt of CCRs.

(k) The owner or operator of the CCR landfill or surface impoundment must complete closure activities in accordance with the closure plan within 180 days following the beginning of closure as specified in paragraph (j) of this section.

(l) Following closure of each CCR landfill or surface impoundment, the owner or operator of the CCR landfill or surface impoundment must notify the state that a certification, signed by an independent registered professional engineer, verifying that closure has been completed in accordance with the closure plan and the requirements of this subpart that has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(m)(1) Following closure of all CCR landfills or surface impoundments, the owner or operator of the CCR landfill or surface impoundment must record a notation on the deed to the property, or some other instrument that is normally examined during title search, and notify the state that the notation has been recorded and a copy has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(2) The notation on the deed must in perpetuity notify any potential purchaser of the property that:

(i) The land has been used as a CCR landfill or surface impoundment; and

(ii) Its use is restricted under § 257.101(c)(3).

**§ 257.101 Post-closure care requirements.**

(a) Following closure of each CCR landfill or surface impoundment, the owner or operator must conduct post-closure care. Post-closure care must be conducted for 30 years, except as provided under paragraph (b) of this section, and consist of at least the following:

(1) Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(2) Maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of §§ 257.70, 257.71, and 257.72.

(3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of §§ 257.91 through 257.98 of this part.

(b) The length of the post-closure care period may be:

(1) Decreased if the owner or operator of the CCR landfill or surface impoundment demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is certified by an independent registered professional engineer and notice is provided to the state that the demonstration has been placed in the operating record and on the owner's or operator's publicly accessible Internet site; or

(2) Increased if the owner or operator of the CCR landfill or surface impoundment determines that a lengthened period is necessary to protect human health and the environment.

(c) The owner or operator of the CCR landfill or surface impoundment must prepare a written post-closure plan, certified by an independent registered professional engineer that includes, at a minimum, the following information:

(1) A description of the monitoring and maintenance activities required in paragraph (a) of this section for each CCR landfill or surface impoundment, and the frequency at which these activities will be performed;

(2) Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

(3) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this subpart. Any other disturbance is allowed if the owner or operator of the CCR landfill or surface impoundment demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of CCRs, will not increase the potential threat to human health or the environment. The demonstration must be certified by an independent registered professional engineer, and notification shall be provided to the state that the demonstration has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

(d) The owner or operator of the CCR landfill or surface impoundment must notify the state that a post-closure plan has been prepared and placed in the operating record and on the owner's or operator's publicly accessible internet site no later than the effective date of this rule, or by the initial receipt of CCRs, whichever is later.

(e) Following completion of the post-closure care period for the CCR landfill or surface impoundment, the owner or operator of the CCR landfill or surface impoundment must notify the state that a certification, signed by an independent registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

**§§ 257.102–257.109 [Reserved]**

6. Add Appendixes III and IV to Part 257 to read as follows:

**Appendix III to Part 257—Constituents for Detection Monitoring**

| Common Name [1] |
|---|
| Boron |
| Chloride |
| Conductivity |
| Fluoride |
| pH |
| Sulphate |
| Sulfide |
| Total Dissolved Solids |

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

**Appendix IV to Part 257—Constituents for Assessment Monitoring**

| Common Name [1] |
|---|
| Aluminum |
| Antimony |
| Arsenic |
| Barium |
| Beryllium |
| Boron |
| Cadmium |
| Chloride |
| Chromium (total) |
| Copper |
| Fluoride |
| Iron |
| Lead |
| Manganese |
| Mercury |
| Molybdenum |
| pH |
| Selenium |
| Sulphate |
| Sulfide |
| Thallium |
| Total Dissolved Solids |

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

**Alternative 2: Co-Proposal Under Authority of Subtitle C**

## PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

6a. The authority citation for part 261 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6912(a), 6921, 6922, 6924(y), and 6938.

7. Section 261.4 is amended by revising paragraph (b)(4) to read as follows.

**§ 261.4 Exclusions.**

* * * * *

(b) * * *

(4)(i) Fly ash, bottom ash, boiler slag, and flue gas emission control wastes, generated primarily from the combustion of coal for the purpose of generating electricity by the electric power sector if the fly ash, bottom ash, boiler slag, and flue gas emission control wastes are beneficially used or placed in minefilling operations. Beneficial Use of Coal Combustion Products (CCPs) means the use of CCPs that provides a functional benefit; replaces the use of an alternative material, conserving natural resources that would otherwise need to be obtained through practices such as extraction; and meets relevant product specifications and regulatory standards (where these are available). CCPs that are used in excess quantities, placed as fill in sand and gravel pits, or used in large scale fill projects, such as for restructuring the landscape, are not considered beneficial uses.

(ii) Fly ash, bottom ash, boiler slag, and flue gas emission control wastes generated primarily from the combustion of coal for the purpose of generating electricity by facilities outside of the electric power sector (*i.e.,* not included in NAICS code 221112).

(iii) Fly ash, bottom ash, boiler slag, and flue gas emission control wastes, generated primarily from the combustion of fossil fuels other than coal, for the purpose of generating electricity, except as provided by § 266.112 of this chapter for facilities that burn or process hazardous waste.

* * * * *

8. Part 261 is amended by adding Subpart F to read as follows.

### Subpart F—Special Wastes Subject to Subtitle C Regulations

**§ 261.50 General.**

(a) The following solid wastes are special wastes subject to regulation under parts 262 through 268, and parts 270, 271, and 124 of this chapter, and to the notification requirements of section 3010 of RCRA,

| Industry and EPA special waste No. | Special waste | Hazard code |
|---|---|---|
| Coal Combustion Residuals: S001 | Coal combustion residuals generated by the electric power sector (Electric Utilities and Independent Power Producers). | (T) |

(b) For the purposes of the S001 listing, the electric power sector is defined as electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public; *i.e.,* NAICS code 221112 plants. Coal combustion residuals are defined to include fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated by the electric utility industry. This listing does not apply to coal combustion residuals that are:

(1) Uniquely associated wastes as defined in paragraph (c) of this section;

(2) Beneficially used as defined in paragraph (d) of this section;

(3) Placed in minefilling operations;

(4) Generated by facilities outside the electric power sector (*i.e.,* not included in NAICS code 22112); or

(5) Generated from clean-up activities that are conducted as part of a state or federally required clean-up that commenced prior to the effective date of this rule.

(c) Uniquely associated wastes are low-volume wastes other than those defined as coal combustion residuals in paragraph (a) of this section that are related to the coal combustion process. Examples of uniquely associated wastes are precipitation runoff from coal storage piles at the facility, waste coal or coal mill rejects that are not of sufficient quality to burn as fuel, and wastes from cleaning the boilers used to generate steam.

(d) Beneficial Use of Coal Combustion Products (CCPs) means the use of CCPs that provides a functional benefit; replaces the use of an alternative material, conserving natural resources that would otherwise need to be obtained through practices such as extraction; and meets relevant product specifications and regulatory standards (where these are available). CCPs that are used in excess quantities, placed as fill in sand and gravel pits, or used in large scale fill projects, such as for restructuring the landscape, are not considered beneficial uses.

9. Part 261 is amended by adding Appendix X to read as follows.

**Appendix X to Part 261—Basis for Listing Special Wastes**

| EPA special waste No. | Hazardous constituents for which listed |
|---|---|
| S001 | Antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium. |

## PART 264—STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

10. The authority citation for part 264 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6912(a), 6924, and 6925.

11. Section 264.1 is amended by adding paragraph (k) to read as follows:

**§ 264.1 Purpose, scope and applicability.**

* * * * *

(k) Owners or operators who treat, store or dispose of EPA Special Waste Number S001, also referred to as coal combustion residuals are subject to the requirements of this part, except as specifically provided otherwise in this part. In addition, subpart FF of this part includes additional requirements for the treatment, storage or disposal of EPA Special Waste Number S001.

12. Section 264.140 is amended by revising paragraph (a) to read as follows:

**§ 264.140 Applicability.**

(a) The requirements of §§ 264.142, 264.143, and 264.147 through 264.151 apply to owners and operators of all hazardous waste facilities and facilities that treat, store or dispose of special wastes, except as provided otherwise in this section, or in § 264.1.

* * * * *

13. Part 264 is amended by adding subpart FF to read as follows:

**Subpart FF—Special Requirements for Coal Combustion Residual (S001) Wastes**

Sec.



## Subpart FF—Special Requirements for Coal Combustion Residual (S001) Wastes

**§ 264.1300 Applicability.**

(a) The regulations in this subpart apply to owners or operators of facilities that treat, store or dispose of EPA Special Waste Number S001.

(b) Owners or operators of surface impoundments that cease receiving EPA Special Waste Number S001, must comply with the closure requirements in 40 CFR 265.111 and 40 CFR 265.228. Facilities that have not met these closure requirements by the effective date of this regulation would be subject to the requirements in Parts 260 through 268, and 270 through 272, of this chapter.

**§ 264.1301 Definitions.**

This section contains definitions for terms that appear throughout this subpart; additional definitions appear in 40 CFR 260.10 or the specific sections to which they apply.

*Area-capacity curves* means graphic curves which readily show the reservoir water surface area, in acres, at different elevations from the bottom of the reservoir to the maximum water surface, and the capacity or volume, in acre-feet, of the water contained in the reservoir at various elevations.

*CCR landfill* means a disposal facility or part of a facility where CCRs are placed in or on land and which is not a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit. For purposes of this subpart, landfills also include piles, sand and gravel pits, quarries, and/or large scale fill operations. Sites that are excavated so that more coal ash can be used as fill are also considered CCR landfills.

*CCR surface impoundment* or *impoundment* means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of CCRs containing free liquids, and which is not an injection well. Examples of CCR surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons. CCR surface impoundments are used to receive CCRs that have been sluiced (flushed or mixed with water to facilitate movement), or wastes from wet air pollution control devices, often in addition to other solid wastes.

*Coal Combustion Residuals (CCRs)* means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, destined for disposal. CCRs are also known as coal combustion wastes (CCWs) and fossil fuel combustion (FFC) wastes, when destined for disposal.

*Existing CCR landfill* means a landfill which was in operation or for which construction commenced prior to the effective date of the final rule. A CCR landfill has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which cannot be cancelled or modified without substantial loss—for physical construction of the CCR landfill to be completed within a reasonable time.

*Existing CCR surface impoundment* means a surface impoundment which was in operation or for which construction commenced prior to the effective date of the final rule. A CCR surface impoundment has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which can not be cancelled or modified without substantial loss—for physical construction of the CCR surface impoundment to be completed within a reasonable time.

*Factor of safety (Safety factor)* means the ratio of the forces tending to resist the failure of a structure to the forces tending to cause such failure as determined by recognized and generally accepted good engineering practices.

*Hazard potential* means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of a dam (or impoundment) or mis-operation of the dam or appurtenances.

(1) *High hazard potential surface impoundment* means a surface impoundment where failure or mis-operation will probably cause loss of human life.

(2) *Significant hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns.

(3) *Low hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

(4) *Less than low hazard potential surface impoundment* means a surface impoundment not meeting the definitions for High, Significant, or Low Hazard Potential.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing CCR landfill, or CCR surface impoundment made after the effective date of the final rule.

*New CCR landfill* means a landfill, including lateral expansions, or installation from which there is or may be placement of CCRs without the presence of free liquids, which began operation, or for which the construction commenced after the effective date of the final rule.

*New CCR surface impoundment* means a surface impoundment, including lateral expansions, or installation from which there is or may be placement of CCRs with the presence of free liquids, which began operation, or for which the construction commenced after the effective date of the final rule.

*Probable maximum precipitation* means the value for a particular area which represents an envelopment of depth-duration-area rainfall relations for all storm types affecting that area adjusted meteorologically to maximum conditions.

*Recognized and generally accepted good engineering practices (RAGAGEPs)*

means engineering, operation, or maintenance activities based on established codes, standards, published technical reports or recommended practices (RP) or a similar document. RAGAGEPs detail generally approved ways to perform specific engineering, inspection or mechanical integrity activities.

**§ 264.1302 Reporting.**

(a) Except as provided in paragraph (b) of this section, every twelfth month following the date of the initial plan approval required in § 264.1303, the person owning or operating a CCR surface impoundment that has not been properly closed in accordance with an approved plan shall submit to the Regional Administrator a report containing the following information:

(1) Changes in the geometry of the CCR surface impoundment for the reporting period.

(2) Location and type of installed instruments and the maximum and minimum recorded readings of each instrument for the reporting period.

(3) The minimum, maximum, and present depth and elevation of the CCR slurry and CCR wastewater in the CCR surface impoundment for the reporting period.

(4) The storage capacity of the CCR surface impoundment.

(5) The volume of the CCR slurry and CCR wastewater in the CCR surface impoundment at the end of the reporting period.

(6) Any other change which may have affected the stability or operation of the CCR surface impoundment that has occurred during the reporting period.

(7) A certification by an independent registered professional engineer that all construction, operation, and maintenance are in accordance with the approved plan prepared in accordance with § 264.1303.

(b) A report is not required under this section when the person owning or operating the CCR surface impoundment provides the Regional Administrator with a certification by an independent registered professional engineer that there have been no changes in the operation of the CCR surface impoundment or to any of the parameters previously reported under paragraphs (a)(1) through (a)(6) of this section. However, a report containing the information set out in paragraph (a) of this section shall be submitted to the Regional Administrator at least every 5 years.

**§ 264.1303 Surface impoundments.**

(a) In addition to the requirements in subpart K of this part, EPA Special Waste No. S001 is subject to the requirements in this section.

(b) Plans for the design, construction, and maintenance of existing CCR surface impoundments shall be required if such a unit can:

(1) Impound CCRs to an elevation of five feet or more above the upstream toe of the structure and can have a storage volume of 20 acre-feet or more; or

(2) Impound CCRs to an elevation of 20 feet or more above the upstream toe of the structure.

(c) Plans required under paragraph (b) of this section shall be submitted in triplicate to the Regional Administrator on or before [date one year after the effective date of the final rule].

(d) A permanent identification marker, at least six feet high and showing the identification number of the CCR surface impoundment as assigned by the Regional Administrator, the name associated with the CCR surface impoundment and the name of the person owning or operating the structure, shall be located on or immediately adjacent to each CCR surface impoundment by [date 60 days after the effective date of the final rule].

(e) The plan specified in paragraph (b) of this section, shall contain at a minimum the following information:

(1) The name and address of the persons owning or operating the CCR surface impoundment; the name associated with the CCR surface impoundment; and the identification number of the CCR surface impoundment as assigned by the Regional Administrator.

(2) The location of the CCR surface impoundment indicated on the most recent USGS 7½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(3) A statement of the purpose for which the CCR surface impoundment is being used.

(4) The name and size in acres of the watershed affecting the CCR surface impoundment.

(5) A description of the physical and engineering properties of the foundation materials on which the CCR surface impoundment is constructed.

(6) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR surface impoundment; the method of site preparation and construction of each zone of the CCR surface impoundment; the approximate dates of construction, and each successive stage of construction of the CCR surface impoundment; and for existing CCR surface impoundments, such history of construction as may be available, and any record or knowledge of structural instability.

(7) At a scale not to exceed 1 inch = 100 feet, detailed dimensional drawings of the CCR surface impoundment, including a plan view and cross sections of the length and width of the CCR surface impoundment, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the measurement of the minimum vertical distance between the crest of the CCR surface impoundment and the reservoir surface at present and under design storm conditions, CCR slurry level and CCR wastewater level, and other information pertinent to the CCR surface impoundment itself, including any identifiable natural or manmade features which could affect operation of the CCR surface impoundment.

(8) A description of the type and purpose of existing or proposed instrumentation.

(9) Graphs showing area-capacity curves.

(10) The hazard potential classification for which the facility is designed and a detailed explanation of the basis for this classification.

(11) A statement of the runoff attributable to the storm for which the CCR surface impoundment is designed and the calculations used in determining such runoff and the minimum freeboard during the design storm.

(12) A description of the spillway and diversion design features and capacities and calculations used in their determination.

(13) The computed minimum factor of safety for slope stability of the CCR retaining structure(s) and the analyses used in their determinations.

(14) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR surface impoundment.

(15) General provisions for closure.

(16) Such other information pertaining to the CCR surface impoundment which may be requested by the Regional Administrator.

(17) A certification by an independent registered professional engineer that the design of the CCR surface impoundment is in accordance with recognized and generally accepted good engineering practices for the maximum volume of CCR slurry and CCR wastewater which can be impounded therein and for the passage of runoff from the design storm which exceeds the capacity of the CCR surface impoundment; or, in lieu of the

certification, a report indicating what additional investigations, analyses, or improvement work are necessary before such a certification can be made by an independent registered professional engineer, including what provisions have been made to carry out such work in addition to a schedule for completion of such work.

(f) Any changes or modifications to the plans for CCR surface impoundments shall be approved by the Regional Administrator prior to the initiation of such changes or modifications.

(g) Effective [date two years after the effective date of the final rule], all existing CCR surface impoundments that receive CCRs shall be operated and maintained with:

(1) A run-on control system to prevent flow onto the active portion of the CCR surface impoundment during the peak discharge from a 24-hour, 25-year storm;

(2) A run-off control system from the active portion of the CCR surface impoundment to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the CCR surface impoundment must be handled in accordance with § 264.1307.

(h) For CCR surface impoundments classified as having high or significant hazard potential, the owner or operator shall develop and maintain in the operating record an Emergency Action Plan which: defines responsible persons and the actions to be taken in the event of a dam-safety emergency; provides contact information for emergency responders; includes a map which delineates the downstream area which would be affected in the event of a dam failure; and includes provisions for an annual face-to-face meeting or exercise between representatives of the facility owner and the local emergency responders.

**§ 264.1304 Inspection requirements for surface impoundments.**

(a) In addition to the inspection requirements in § 264.226 of this part, all CCR surface impoundments that meet the requirements of § 264.1303(b) of this subpart shall be inspected by the owner or operator as follows:

(1) At intervals not exceeding 7 days, or as otherwise approved by the Regional Administrator, for appearances of structural weakness and other hazardous conditions.

(2) At intervals not exceeding 7 days, or as otherwise approved by the Regional Administrator, all instruments shall be monitored.

(3) Longer inspection or monitoring intervals approved under this paragraph shall be justified by the owner or operator of the CCR surface impoundment based on the hazard potential and performance of the CCR surface impoundment, and shall include a requirement for inspection immediately after a specified event approved by the Regional Administrator.

(4) All inspections required by paragraphs (a)(1) and (2) shall be performed by a qualified person, as defined in paragraph (e) of this section, designated by the person owning or operating the CCR surface impoundment.

(5) All CCR surface impoundments that meet the requirements of § 264.1303(b) of this subpart shall be inspected annually by an independent registered professional engineer to assure that the design, operation, and maintenance of the surface impoundment is in accordance with recognized and generally accepted good engineering standards. The owner or operator must notify the state and the EPA Regional Administrator that a certification by the registered professional engineer that the design, operation, and maintenance of the surface impoundment is in accordance with recognized and generally accepted good engineering standards has been placed in the operating record.

(b) When a potentially hazardous condition develops, the person owning or operating the CCR surface impoundment shall immediately:

(1) Take action to eliminate the potentially hazardous condition;

(2) Notify the Regional Administrator and State and local first responders;

(3) Notify and prepare to evacuate, if necessary, all personnel from the owner or operator's property which may be affected by the potentially hazardous conditions; and

(4) Direct a qualified person to monitor all instruments and examine the structure at least once every eight hours, or more often as required by an authorized representative of the Regional Administrator.

(c) After each inspection and instrumentation monitoring referred to in paragraphs (a) and (b) of this section, each qualified person who conducted all or any part of the inspection or instrumentation monitoring shall promptly record the results of such inspection or instrumentation monitoring in a book which shall be available in the operating record for inspection by an authorized representative of the Regional Administrator and such qualified person shall also promptly report the results of the inspection or monitoring to one of the persons specified in paragraph (d) of this section.

(d) All inspection and instrumentation monitoring reports recorded in accordance with paragraph (c) of this section shall include a report of the action taken to abate hazardous conditions and shall be promptly signed or countersigned by the person designated by the owner or operator as responsible for health and safety at the owner or operator's facility.

(e) The qualified person or persons referred to in this section shall be trained to recognize specific signs of structural instability and other hazardous conditions by visual observation and, if applicable, to monitor instrumentation.

**§ 264.1305 Requirements for surface impoundment closure.**

Prior to the closure of any CCR surface impoundment which meets the requirements of § 264.1303(b) of this subpart, the person owning or operating such CCR surface impoundment shall submit to and obtain approval from the Regional Administrator, a plan for closure in accordance with the requirements of § 264.228 and subpart G of this part. This plan shall provide for major slope stability, include a schedule for the plan's implementation and, contain provisions to preclude the probability of future impoundment of water.

**§ 264.1306 Landfills.**

(a) Owners or operators of new CCR landfills and lateral expansions of existing landfills are exempt from the double liner and leachate collection system requirements of § 264.301(c), and the requirements of § 264.302, provided the owner or operator is in compliance with the requirements of paragraph (b) of this section. Owners or operators of existing landfills are also exempt from the liner requirements of paragraph (b)(1) of this section, provided they comply with the requirements of paragraph (c) of this section and the requirements at 40 CFR part 264 subparts F, G, H, and N.

(b) Prior to placement of CCRs in new landfills and lateral expansions of new and existing landfills, new landfills and lateral expansions shall be constructed:

(1) With a composite liner, as defined in paragraph (b)(2) of this section, and a leachate collection and removal system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner.

(2) For purposes of this subpart, composite liner means a system consisting of two components; the upper component must consist of a

minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1 \times 10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(3) For purpose of this subpart, hydraulic conductivity means the rate at which water can move through a permeable medium (*i.e.,* the coefficient of permeability).

(c) Effective [date two years after the effective date of the final rule], all existing landfills that receive CCRs shall be operated and maintained with:

(1) A run-on control system to prevent flow onto the active portion of the CCR landfill during the peak discharge from a 24-hour, 25-year storm;

(2) A run-off control system from the active portion of the CCR landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the CCR landfill must be handled in accordance with § 264.1307 of this subpart.

**§ 264.1307 Surface water requirements.**

(a) Permits for CCR surface impoundments and CCR landfills shall include conditions to ensure that:

(1) The operation of the unit will not cause any violation of any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402 of the Clean Water Act.

(2) The operation of the unit will not cause any violation of any requirement of an area-wide or state-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

(b) [Reserved]

**§ 264.1308 Air requirements.**

(a) CCR surface impoundments and CCR landfills must be managed in a manner that fugitive dusts do not exceed 35 $\mu g/m^3$, unless an alternative standard has been established by the Regional Administrator.

(b) CCR surface impoundments must be managed to control wind dispersal of dusts consistent with the standard in paragraph (a) of this section unless an alternative standard has been established by the Regional Administrator.

(c) CCR landfills must be managed to control wind dispersal of dusts consistent with the standard in paragraph (a) of this section unless an alternative standard has been established by the Regional Administrator. CCRs placed in landfills as wet conditioned CCRs shall not result in the formation of free liquids.

(d) Tanks, containers, buildings and pads used for the storage must be managed to control the dispersal of dust. Pads must have wind protection that will ensure comparable levels of control.

(e) CCRs transported in trucks or other vehicles must be covered or otherwise managed to control the wind dispersal of dust consistent with the standard in paragraph (a) of this section unless an alternative standard has been established by the Regional Administrator.

## PART 265—INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

14. The authority citation for part 265 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6906, 6912, 6922, 6923, 6924, 6925, 6935, 6936, and 6937.

15. Section 265.1 is amended by adding paragraph (g) to read as follows:

**§ 265.1 Purpose, scope, and applicability.**

* * * * *

(g) Owners or operators who treat, store or dispose of EPA Special Waste Number S001, also referred to as coal combustion residuals (CCRs) are subject to the requirements of this part, except as specifically provided otherwise in this part. In addition, subpart FF of this part includes additional requirements for the treatment storage or disposal of EPA Special Waste No. S001.

* * * * *

16. Section 265.140 is amended by revising paragraph (a) to read as follows:

**§ 265.140 Applicability.**

(a) The requirements of §§ 265.142, 265.143 and 265.147 through 265.150 apply to owners or operators of all hazardous and special waste facilities, except as provided otherwise in this section, or in § 265.1.

* * * * *

17. Part 265 is amended by adding Subpart FF to read as follows:

**Subpart FF—Special Requirements for S001 Wastes**

Sec.



**Subpart FF—Special Requirements for S001 Wastes**

**§ 265.1300 Applicability.**

(a) The regulations in this subpart apply to owners or operators of hazardous waste facilities that treat, store or dispose of EPA Hazardous Waste Number S001.

(b) Owners or operators of surface impoundments that cease receiving EPA Special Waste Number S001,must comply with the closure requirements in 40 CFR Part 265.111 and 40 CFR 265.228. Facilities that have not met these closure requirements by the effective date of this regulation would be subject to the requirements in Parts 260 through 268, and 270 through 272, of this chapter.

**§ 265.1301 Definitions.**

This section contains definitions for terms that appear throughout this subpart; additional definitions appear in 40 CFR 260.10 or the specific sections to which they apply.

*Area-capacity curves* means graphic curves which readily show the reservoir water surface area, in acres, at different elevations from the bottom of the reservoir to the maximum water surface, and the capacity or volume, in acre-feet, of the water contained in the reservoir at various elevations.

*Coal Combustion Residuals (CCRs)* means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, destined for disposal. CCRs are also known as coal combustion wastes (CCWs) and fossil fuel combustion (FFC) wastes, when destined for disposal, and as coal combustion products (CCPs) when beneficially used.

*CCR landfill* means a disposal facility or part of a facility where CCRs are placed in or on land and which is not a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit. For purposes of this subpart, landfills also include piles, sand and gravel pits, quarries, and/or large scale fill operations. Sites that are excavated so that more coal ash can be used as fill are also considered CCR landfills.

*CCR surface impoundment* or *impoundment* means a facility or part of a facility which is a natural topographic

depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of CCRs containing free liquids, and which is not an injection well. Examples of CCR surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons. CCR surface impoundments are used to receive CCRs that have been sluiced (flushed or mixed with water to facilitate movement), or wastes from wet air pollution control devices, often in addition to other solid wastes.

*Existing CCR landfill* means a landfill which was in operation or for which construction commenced prior to the effective date of the final rule A CCR landfill has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which cannot be cancelled or modified without substantial loss—for physical construction of the CCR landfill to be completed within a reasonable time.

*Existing CCR surface impoundment* means a surface impoundment which was in operation or for which construction commenced prior to the effective date of the final rule. A CCR surface impoundment has commenced construction if the owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(1) A continuous on-site, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations—which can not be cancelled or modified without substantial loss—for physical construction of the CCR surface impoundment to be completed within a reasonable time.

*Factor of safety (Safety factor)* means the ratio of the forces tending to resist the failure of a structure to the forces tending to cause such failure as determined by recognized and accepted good engineering practices.

*Hazard potential* means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of a dam (or impoundment) or mis-operation of the dam or appurtenances.

(1) *High hazard potential surface impoundment* means a surface impoundment where failure or mis-operation will probably cause loss of human life.

(2) *Significant hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns.

(3) *Low hazard potential surface impoundment* means a surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

(4) *Less than low hazard potential surface impoundment* means a surface impoundment not meeting the definitions for High, Significant, or Low Hazard Potential.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing CCR landfill, or CCR surface impoundment made after the effective date of the final rule.

*New CCR landfill* means a landfill, including lateral expansions, or installation from which there is or may be placement of CCRs without the presence of free liquids, which began operation, or for which the construction commenced after the effective date of the final rule.

*New CCR surface impoundment* means a surface impoundment, including lateral expansion, or installation from which there is or may be placement of CCRs with the presence of free liquids, which began operation, or for which the construction commenced after the effective date of the final rule.

*Probable maximum precipitation* means the value for a particular area which represents an envelopment of depth-duration-area rainfall relations for all storm types affecting that area adjusted meteorologically to maximum conditions.

*Recognized and generally accepted good engineering practices (RAGAGEPs)* means engineering, operation, or maintenance activities based on established codes, standards, published technical reports or recommended practices (RP) or a similar document. RAGAGEPs detail generally approved ways to perform specific engineering, inspection or mechanical integrity activities.

**§ 265.1302 Reporting.**

(a) Except as provided in paragraph (b) of this section, every twelfth month following the date of the initial plan approval required in § 265.1303 of this subpart, the person owning or operating a CCR surface impoundment that has not been properly closed in accordance with an approved plan shall submit to the Regional Administrator a report containing the following information:

(1) Changes in the geometry of the CCR surface impoundment for the reporting period.

(2) Location and type of installed instruments and the maximum and minimum recorded readings of each instrument for the reporting period.

(3) The minimum, maximum, and present depth and elevation of the CCR slurry and CCR waste water in the CCR surface impoundment for the reporting period.

(4) The storage capacity of the CCR surface impoundment.

(5) The volume of the CCR slurry and CCR waste water in the CCR surface impoundment at the end of the reporting period.

(6) Any other change which may have affected the stability or operation of the CCR surface impoundment that has occurred during the reporting period.

(7) A certification by an independent registered professional engineer that all construction, operation, and maintenance are in accordance with the approved plan prepared in accordance with § 265.1303.

(b) A report is not required under this section when the person owning or operating the CCR surface impoundment provides the Regional Administrator with a certification by an independent registered professional engineer that there have been no changes in the operation of the CCR surface impoundment or to any of the parameters previously reported under paragraphs (a)(1) through (a)(6) of this section. However, a report containing the information set out in paragraph (a) of this section shall be submitted to the Regional Administrator at least every 5 years.

**§ 265.1303 Surface impoundments.**

(a) In addition to the requirements in subpart K of this part, EPA Special Waste No. S001 is subject to the requirements in this section.

(b) Plans for the design, construction, and maintenance of existing CCR surface impoundments shall be required if such a unit can:

(1) Impound CCRs to an elevation of five feet or more above the upstream toe of the structure and can have a storage volume of 20 acre-feet or more; or

(2) Impound CCRs to an elevation of 20 feet or more above the upstream toe of the structure.

(c) Plans required under paragraph (b) of this section shall be submitted in triplicate to the Regional Administrator on or before [date one year after the effective date of the final rule].

(d) A marker, at least six feet high and showing the identification number of the CCR surface impoundment as assigned by the Regional Administrator, the name associated with the CCR surface impoundment and the name of the person owning or operating the structure, shall be located on or immediately adjacent to each CCR surface impoundment permanent identification by [date 60 days after the effective date of the final rule].

(e) The plan specified in paragraph (b) of this section, shall contain at a minimum the following information:

(1) The name and address of the persons owning or operating the CCR surface impoundment; the name associated with the CCR surface impoundment; and the identification number of the CCR surface impoundment as assigned by the Regional Administrator.

(2) The location of the CCR surface impoundment indicated on the most recent USGS 7½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(3) A statement of the purpose for which the CCR surface impoundment is being used.

(4) The name and size in acres of the watershed affecting the CCR surface impoundment.

(5) A description of the physical and engineering properties of the foundation materials on which the CCR surface impoundment is constructed.

(6) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR surface impoundment; the method of site preparation and construction of each zone of the CCR surface impoundment; the approximate dates of construction, and each successive stage of construction of the CCR surface impoundment; and for existing CCR surface impoundments, such history of construction as may be available, and any record or knowledge of structural instability.

(7) At a scale not to exceed 1 inch = 100 feet, detailed dimensional drawings of the CCR surface impoundment, including a plan view and cross sections of the length and width of the CCR surface impoundment, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the measurement of the minimum vertical distance between the crest of the CCR surface impoundment and the reservoir surface at present and under design storm conditions, CCR slurry level or CCR waste water level, and other information pertinent to the CCR surface impoundment itself, including any identifiable natural or manmade features which could affect operation of the CCR surface impoundment.

(8) A description of the type and purpose of existing or proposed instrumentation.

(9) Graphs showing area-capacity curves.

(10) The hazard potential classification for which the facility is designed and a detailed explanation of the basis for this classification.

(11) A statement of the runoff attributable to the storm for which the CCR surface impoundment is designed and the calculations used in determining such runoff and the minimum freeboard during the design storm.

(12) A description of the spillway and diversion design features and capacities and calculations used in their determination.

(13) The computed minimum factor of safety for slope stability of the CCR retaining structure(s) and the analyses used in their determinations.

(14) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR surface impoundment.

(15) General provisions for closure.

(16) Such other information pertaining to the stability of the CCR surface impoundment which may be requested by the Regional Administrator.

(17) A certification by an independent registered professional engineer that the design of the CCR surface impoundment is in accordance with recognized and generally accepted good engineering practices for the maximum volume of CCR slurry and CCR waste water which can be impounded therein and for the passage of runoff from the design storm which exceeds the capacity of the CCR surface impoundment; or, in lieu of the certification, a report indicating what additional investigations, analyses, or improvement work are necessary before such a certification can be made by an independent registered professional engineer, including what provisions have been made to carry out such work in addition to a schedule for completion of such work.

(f) Any changes or modifications to the plans for CCR surface impoundments shall be approved by the Regional Administrator prior to the initiation of such changes or modifications.

(g) Effective [date two years after the effective date of the final rule], all existing surface impoundments that receive CCRs shall be operated and maintained with:

(1) A run-on control system to prevent flow onto the active portion of the CCR surface impoundment during the peak discharge from a 24-hour, 25-year storm;

(2) A run-off control system from the active portion of the CCR surface impoundment to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the CCR surface impoundment must be handled in accordance with § 265.1307 of this subpart.

(h) For CCR surface impoundments classified as having high or significant hazard potential, the owner or operator shall develop and maintain in the operating record an Emergency Action Plan which: defines responsible persons and the actions to be taken in the event of a dam-safety emergency; provides contact information for emergency responders; includes a map which delineates the downstream area which would be affected in the event of a dam failure; and includes provisions for an annual face-to-face meeting or exercise between representatives of the facility owner and the local emergency responders.

**§ 265.1304 Inspection requirements for surface impoundments.**

(a) In addition to the inspection requirements in § 265.226, all CCR surface impoundments that meet the requirements of § 265.1303(b) of this subpart shall be inspected by the owner or operator as follows:

(1) At intervals not exceeding 7 days, or as otherwise approved by the Regional Administrator, for appearances of structural weakness and other hazardous conditions.

(2) At intervals not exceeding 7 days, or as otherwise approved by the Regional Administrator, all instruments shall be monitored.

(3) Longer inspection or monitoring intervals approved under this paragraph shall be justified by the owner or operator of the CCR surface impoundment based on the hazard potential and performance of the CCR surface impoundment, and shall include a requirement for inspection immediately after a specified event approved by the Regional Administrator.

(4) All inspections required by paragraphs (a)(1) and (2) of this section shall be performed by a qualified person, as defined in paragraph (e) of this section, designated by the person owning or operating the CCR surface impoundment.

(5) All CCR surface impoundments that meet the requirements of § 265.1303(b) of this subpart shall be inspected annually by an independent registered professional engineer to assure that the design, operation, and maintenance of the surface impoundment is in accordance with recognized and generally accepted good engineering practices. The owner or operator must notify the state and the EPA Regional Administrator that a certification by the independent registered professional engineer that the design, operation, and maintenance of the surface impoundment is in accordance with recognized and generally accepted good engineering practices has been placed in the operating record.

(b) When a potentially hazardous condition develops, the person owning or operating the CCR surface impoundment shall immediately:

(1) Take action to eliminate the potentially hazardous condition;

(2) Notify the Regional Administrator and State and local first responders;

(3) Notify and prepare to evacuate, if necessary, all personnel from the owner or operator's property which may be affected by the potentially hazardous conditions; and

(4) Direct a qualified person to monitor all instruments and examine the structure at least once every eight hours, or more often as required by an authorized representative of the Regional Administrator.

(c) After each inspection and instrumentation monitoring referred to in paragraphs (a) and (b) of this section, each qualified person who conducted all or any part of the inspection or instrumentation monitoring shall promptly record the results of such inspection or instrumentation monitoring in a book which shall be available in the operating record for inspection by an authorized representative of the Regional Administrator and such qualified person shall also promptly report the results of the inspection or monitoring to one of the persons specified in paragraph (d) of this section.

(d) All inspection and instrumentation monitoring reports recorded in accordance with paragraph (c) of this section shall include a report of the action taken to abate hazardous conditions and shall be promptly signed or countersigned by the person designated by the owner or operator as responsible for health and safety at the owner or operator's facility.

(e) The qualified person or persons referred to in this section shall be trained to recognize specific signs of structural instability and other hazardous conditions by visual observation and, if applicable, to monitor instrumentation.

**§ 265.1305 Requirements for surface impoundment closure.**

Prior to the closure of any CCR surface impoundment which meets the requirements of § 264.1303(b) of this subpart, the person owning or operating such CCR surface impoundment shall submit to and obtain approval from the Regional Administrator, a plan for closure in accordance with the requirements of § 265.228 and part 265 subpart G. This plan shall provide for major slope stability, include a schedule for the plan's implementation, and contain provisions to preclude the probability of future impoundment of water.

**§ 265.1306 Landfills.**

(a) Owners or operators of new CCR landfills and lateral expansions of existing landfills are exempt from the double liner and leachate collection system requirements of § 265.301(c), and the requirements of § 265.302, provided the owner or operator is in compliance with the requirements of paragraph (b) of this section. Owners or operators of existing landfills are also exempt from the liner requirements of paragraph (b)(1) of this section, provided they comply with the requirements of paragraph (c) of this section and the requirements at 40 CFR part 265 subparts F, G, H, and N.

(b) Prior to placement of CCRs in new landfills and lateral expansions, new landfills and lateral expansions shall be constructed:

(1) With a composite liner, as defined in paragraph (b)(2) of this section, and a leachate collection and removal system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner.

(2) For purposes of this subpart, composite liner means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1 \times 10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(3) For purposes of this subpart, hydraulic conductivity means the rate at which water can move through a permeable medium. (*i.e.,* the coefficient of permeability.)

(c) Effective [date two years after the effective date of the final rule], all existing landfills that receive CCRs shall be operated and maintained with:

(1) A run-on control system to prevent flow onto the active portion of the CCR landfill during the peak discharge from a 24-hour, 25-year storm;

(2) A run-off control system from the active portion of the CCR landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the CCR landfill must be handled in accordance with § 265.1307 of this subpart.

**§ 265.1307 Surface water requirements.**

(a) Permits for CCR surface impoundments and CCR landfills shall include conditions to ensure that:

(1) The operation of the unit will not cause any violation of any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402 of the Clean Water Act.

(2) The operation of the unit will not cause any violation of any requirement of an area-wide or state-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

(b) [Reserved]

**§ 265.1308 Air requirements.**

(a) CCR surface impoundments and CCR landfills must be managed in a manner that fugitive dusts do not exceed 35 $\mu g/m^3$, unless an alternative standard has been established by the Regional Administrator.

(b) CCR surface impoundments must be managed to control wind dispersal of dusts consistent with the standard in paragraph (a) of this section unless an alternative standard has been established by the Regional Administrator.

(c) CCR landfills must be managed to control wind dispersal of dusts consistent with the standard in paragraph (a) of this section unless an alternative standard has been established by the Regional Administrator. CCRs placed in landfills as wet conditioned CCRs shall not result in the formation of free liquids.

(d) Tanks, containers, buildings and pads used for the storage must be managed to control the dispersal of dust. Pads must have wind protection that will ensure comparable levels of control.

(e) CCRs transported in trucks or other vehicles must be covered or otherwise

managed to control the wind dispersal of dust consistent with the standard in paragraph (a) of this section unless an alternative standard has been established by the Regional Administrator.

## PART 268—LAND DISPOSAL RESTRICTIONS

18. The authority citation for part 268 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6912(a), 6921, and 6924.

19. Section 268.2 is amended by revising paragraph (f) to read as follows:

**§ 268.2 Definitions applicable in this part.**

* * * * *

(f) Wastewaters are wastes that contain less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS), except for coal combustion residuals, [waste code S001], which are wastewaters if the moisture content exceeds 50%.

* * * * *

20. Section 268.14 is amended by adding paragraph (d) to read as follows:

**§ 268.14 Surface impoundment exemptions.**

* * * * *

(d) The waste specified in 40 CFR Part 261 as EPA Special Waste Number S001 may continue to be placed in an existing CCR surface impoundment of this subpart for 60 months after the promulgation date of listing the waste provided the existing CCR surface impoundment is in compliance with the requirements of subpart F of part 265 of this chapter within 12 months after the promulgation of the new listing. Closure in accordance with subpart G of part 264 must be completed within two years after placement of waste in the existing CCR surface impoundment ceases.

21. Section 268.21 is added to Subpart C to read as follows:

**§ 268.21 Waste specific prohibitions—Coal combustion residuals.**

(a) Effective [date six months after the effective date of the final rule], nonwastewaters specified in 40 CFR part 261 as EPA Special Waste Number S001 are prohibited from land disposal.

(b) Effective [date 60 months after the effective date of the final rule], wastewaters specified in 40 CFR part 261 as EPA Special Waste Number S001 are prohibited from land disposal.

(c) The requirements of paragraphs (a) and (b) of this section do not apply if:

(1) The wastes meet the applicable treatment standards specified in subpart D of this Part;

(2) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition;

(3) The wastes meet the applicable treatment standards established pursuant to a petition granted under § 268.44;

(4) Persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to these wastes covered by the extension.

22. In § 268.40, the table "Treatment Standards for Hazardous Wastes" is amended by adding in alphanumeric order the new entry for S001 to read as follows:

**§ 268.40 Applicability of treatment standards.**

* * * * *

TREATMENT STANDARDS FOR HAZARDOUS WASTES

[Note: NA means not applicable]

| Waste code | Waste description and treatment/ regulatory subcategory [1] | Regulated hazardous constituent | | Wastewaters | Nonwastewaters |
|---|---|---|---|---|---|
| | | Common name | CAS [2] No. | Concentration in mg/L [3], or technology code [4] | Concentration in mg/kg [5] unless noted as "mg/L TCLP", or technology code |
| * | * * * | * | * | * | * |
| S001 ..... | Coal combustion wastes generated by the electric power sector. For purposes of this listing, the electric power sector is defined as electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public; *i.e.,* NAICS code 221112 plants. For the purposes of this listing, coal combustion wastes are defined as fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated by the electric power sector. This listing does not apply to coal combustion residuals that are: (1) Uniquely associated wastes with wastes from the burning of coal; (2) beneficially used; (3) placed in minefilling operations; (4) generated by facilities that are outside the electric power sector; or (5) generated from clean-up activities that are conducted as part of a state or federally required clean-up that commenced prior to the effective date of this rule.. | Antimony<br>Arsenic .....<br>Barium .....<br>Beryllium .....<br>Cadmium .....<br>Chromium ...<br>Lead .....<br>Mercury .....<br>Nickel .....<br>Selenium .....<br>Silver .....<br>Thallium ..... | 7440–36–0<br>7440–38–2<br>7440–39–3<br>7440–41–7<br>7440–43–9<br>7440–47–3<br>7439–92–1<br>7439–97–6<br>7440–02–0<br>7782–49–2<br>7440–22–4<br>7440–28–0 | TSS of 100mg/l and meet § 268.48. | Meet § 268.48. |
| * | * * * | * | * | * | * |

Footnotes to Treatment Standard Table 268.40

[1] The waste descriptions provided in this table do not replace waste descriptions in 40 CFR 261. Descriptions of Treatment/Regulatory Subcategories are provided, as needed, to distinguish between applicability of different standards.

[2] CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with its salts and/or esters, the CAS number is given for the parent compound only.

[3] Concentration standards for wastewaters are expressed in mg/L and are based on analysis of composite samples.

[4] All treatment standards expressed as a Technology Code or combination of Technology Codes are explained in detail in 40 CFR 268.42 Table 1—Technology Codes and Descriptions of Technology-Based Standards.

[5] Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of 40 CFR Part 264 Subpart O or Part 265 Subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in 40 CFR 268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.

* * * * *

23. In § 268.42, Table 1 is amended by adding an entry for "RSLDS" to read as follows:

**§ 268.42 Treatment standards expressed as specified technologies.**

* * * * *

TABLE 1—TECHNOLOGY CODES AND DESCRIPTION OF TECHNOLOGY-BASED STANDARDS

| Technology code | Description of technology-based standards |
|---|---|
| * * * * * | |
| RSLDS .... | Removal of solids and meet § 268.48 treatment levels. |
| * * * * * | |
| * * * * * | |

## PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

24. The authority citation for part 271 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6912(a), and 6926.

25. Section 271.1(j) is amended by adding the following entries to Table 1 and Table 2 in chronological order by date of publication to read as follows.

**§ 271.1 Purpose and scope.**

* * * * *

(j) * * *

TABLE 1—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

| Promulgation date | Title of regulation | Federal Register reference | Effective date |
|---|---|---|---|
| * * | * * | * * | * * |
| [date of signature of final rule] ..... | Listing of Special Waste S001 ..... | [Federal Register page numbers for final rule]. | [effective date of final rule]. |

TABLE 2—SELF-IMPLEMENTING PROVISIONS OF THE SOLID WASTE AMENDMENTS OF 1984

| Effective date | Self-implementing provision | RCRA citation | Federal Register reference |
|---|---|---|---|
| * * * * | * * * * | * * | * * |
| [effective date of final rule]. | Prohibition on land disposal of S001 waste with free liquids and prohibition on the disposal of S001 waste below the natural water table. For purposes of this provision, free liquids means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure. | 3001(b)(3)(A) and 3004(g)(4)(C). | [date of publication date of final rule Federal Register page numbers] [FR page numbers]. |

## PART 302—DESIGNATION, REPORTABLE QUANTITIES, AND NOTIFICATION

26. The authority citation for part 302 continues to read as follows:

**Authority:** 42 U.S.C. 9602, 9603, and 9604; 33 U.S.C. 1321 and 1361.

27. In § 302.4, Table 302.4 is amended by adding the following new entry in alphanumeric order to the table to read as follows:

**§ 302.4 Designation of hazardous substances.**

* * * * *

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[Note: All comments/notes are located at the end of this table]

| Hazardous substance | CASRN | Statutory code† | RCRA waste No. | Final RQ pounds (Kg) |
|---|---|---|---|---|
| * * | * * * | * | | * |
| S001[f] Coal combustion residuals generated by the electric power sector (Electric Utilities and Independent Power Producers) | ..... | 4 | S001 | 1 (0. 4536) |

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All comments/notes are located at the end of this table]

| Hazardous substance | CASRN | Statutory code† | RCRA waste No. | Final RQ pounds (Kg) |
|---|---|---|---|---|
| * | * * * * * | * | * | * |

† Indicates the statutory source defined by 1, 2, 3, and 4, as described in the note preceding Table 302.4.

* * * * *

[f] *See* 40 CFR 302.6(b)(1) for application of the mixture rule to this hazardous waste.

* * * * *

28. Section 302.6 is amended by amending paragraph (b)(1)(iii), including the Table, to read as follows:

**§ 302.6 Notification requirements.**

* * * * *

(b) * * *

(1) * * *

(iii) For waste streams K169, K170, K171, K172, K174, K175, and S001, knowledge of the quantity of all of the hazardous constituent(s) may be assumed, based on the following maximum observed constituent concentrations identified by EPA:

| Waste | Constituent | Max ppm |
|---|---|---|
| K169 | Benzene | 220.0 |
| K170 | Benzene | 1.2 |
| | Benzo (a) pyrene | 230.0 |
| | Dibenz (a,h) anthracene | 49.0 |
| | Benzo (a) anthracene | 390.0 |
| | Benzo (b) fluoranthene | 110.0 |
| | Benzo (k) fluoranthene | 110.0 |
| | 3–Methylcholanthrene | 27.0 |
| | 7,12–Dimethylbenz (a) anthracene | 1,200.0 |
| K171 | Benzene | 500.0 |
| | Arsenic | 1,600.0 |
| K172 | Benzene | 100.0 |
| | Arsenic | 730.0 |
| K174 | 2,3,7,8TCDD | 0.000039 |
| | 1,2,3,7,8–PeCDD | 0.0000108 |
| | 1,2,3,4,7,8–HxCDD | 0.0000241 |
| | 1,2,3,6,7,8–HxCDD | 0.000083 |
| | 1,2,3,7,8,9–HxCDD | 0.000062 |
| | 1,2,3,4,6,7,8–HpCDD | 0.00123 |
| | OCDD | 0.0129 |
| | 2,3,7,8–TCDF | 0.000145 |
| | 1,2,3,7,8–PeCDF | 0.0000777 |
| | 2,3,4,7,8–PeCDF | 0.000127 |
| | 1,2,3,4,7,8–HxCDF | 0.001425 |
| | 1,2,3,6,7,8–HxCDF | 0.000281 |
| | 1,2,3,7,8,9–HxCDF | 0.00014 |
| | 2,3,4,6,7,8–HxCDF | 0.000648 |
| | 1,2,3,4,6,7,8–HpCDF | 0.0207 |
| | 1,2,3,4,7,8,9–HpCDF | 0.0135 |
| | OCDF | 0.212 |
| K175 | Mercury | 9,200 |
| S001 | Antimony | 3,100 |
| | Arsenic | 773 |
| | Barium | 7,230 |
| | Beryllium | 31 |
| | Cadmium | 760 |
| | Chromium | 5,970 |
| | Lead | 1,453 |
| | Mercury | 384 |
| | Nickel | 6,301 |
| | Selenium | 673 |
| | Silver | 338 |
| | Thallium | 100 |

* * * * *

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