

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
STANDARDS FOR THE DISPOSAL) R 2020-019
OF COAL COMBUSTION RESIDUALS) (Rulemaking - Water)
IN SURFACE IMPOUNDMENTS:)
PROPOSED NEW 35 ILL. ADM.)
CODE 845)

NOTICE OF FILING

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board **ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S FINAL POST-HEARING COMMENTS**, a copy of which is herewith served upon you.

Respectfully submitted,

Dated: October 30, 2020

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

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THIS FILING IS SUBMITTED ELECTRONICALLY

SERVICE LIST

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S
FINAL POST-HEARING COMMENTS

NOW COMES the Illinois Environmental Protection Agency (“Illinois EPA” or “Agency”), by and through one of its attorneys, and hereby submits its Final Post Hearing Comments as directed by the Hearing Officer Orders entered on October 4 and 20, 2020 in the above captioned rulemaking.

I. Procedural Background

On March 31, 2020, the Illinois EPA filed its proposed rulemaking for coal combustion residual surface impoundments pursuant to Section 22.59 of the Illinois Environmental Protection Act, along with a Statement of Reasons (“SOR”) in support. On April 24, 2020 the Illinois Pollution Control Board (“Board”) accepted Illinois EPA’s proposal for hearing and set prehearing deadlines. On June 2, 2020, Illinois EPA filed with the Board pre-filed testimony of eight witnesses: Lynn Dunaway, Darin LeCrone, Melinda Shaw, William Buscher, Lauren Martin, Amy Zimmer, Chris Pressnall, and Robert Mathis (Hrg. Ex. 1). Illinois EPA filed Answers to Pre-Filed Questions from the Board, Little Village Environmental Justice Organization, the Environmental Law and Policy Center, Prairie Rivers Network, and Sierra Club (“Environmental Groups,” collectively), Springfield City Water, Light, and Power, the Illinois Environmental Regulatory Group, Ameren, Midwest Generation, and Dynegy on August 3 (Hrg. Ex. 2), August 5 (Hrg. Ex.

3) and August 6 (Hrg, Ex. 4), 2020. The Board held the first public hearing on proposed new 35 Ill. Adm. Code 845 (“Part 845”) on August 11, 12, 13 and 25, 2020, in Springfield, Illinois and via videoconference. On September 23, 2020, Illinois EPA filed its First Post Hearing Comments.

The second public hearing was held on September 28 and 29, 2020 in Chicago, Illinois and via videoconference. Eighteen participant witnesses filed testimony and answers to pre-filed questions, all of which were entered into the record at hearing. On behalf of the Environmental Groups: Jo Lakota (Hrg, Ex. 40), Dolce Ortiz (Hrg. Ex. 12 & 13), Mark Hutson (Hrg. Ex. 14 & 15), Andrew Rehn (Hrg. Ex. 16 & 17), and Scott Payne and Ian Magruder (joint testimony) (Hrg Ex. 19 & 20). On behalf of Dynegy: Cynthia Vodopivec (Hrg. Ex. 21 & 22), Lisa Bradley (Hrg, Ex. 23 & 24), Melinda Hahn (Hrg, Ex. 28 & 29), Rudolph Bonaparte (Hrg. Ex. 31 & 32), David Hagen (Hrg. Ex. 34 & 35), Andrew Bittner (Hrg. Ex. 37 & 38) and Mark Rokoff (Hrg. Ex. 41 & 42). For Midwest Generation: Sharene Shaeley (Hrg Ex. 49 & 50), Richard Gnat (Hrg. Ex. 52 & 50), and David Nielson (Hrg. Ex. 54 & 50). On behalf of Ameren: Gary King (Hrg. Ex. 55 & 57) and Michael Wagstaff (Hrg. Ex. 56).

Dynegy filed Pre-Hearing Comments on September 25, 2020. Midwest Generation filed its First Post Hearing Comment on October 1, 2020. At the close of hearings in this matter, the Hearing Officer set an October 23, 2020 deadline for substantive post hearing comments, and an October 30, 2020 deadline for responses. Due to a delay in the receipt of the hearing transcript, a Hearing Officer Order was issued extending the deadline for post hearing comments to October 30, 2020 and the deadline for responses to November 6, 2020.

II. Part 257: Federal CCR Rule

A complete regulatory background was provided in the SOR filed with Illinois EPA’s new proposed Part 845. Since that time, USEPA has published a proposed amendment and a final rule

revision to Part 257. Section 22.59(g)(1) of the Act requires the rules proposed by Illinois EPA and adopted by the Board to be at least as protective and comprehensive as Part 257, and amendments thereto. Accordingly, Illinois EPA has reviewed the Federal Register publications and herein provides a summary of the status of Part 257.

In 2015, USEPA promulgated national minimum criteria for existing and new CCR surface impoundments under Subtitle D of RCRA. 80 Fed. Reg. 21302 (April 17, 2015); *See* 40 C.F.R. Part 257. The federal CCR rule, as initially adopted, created a self-implementing program. Power plants were required to independently conduct groundwater monitoring and corrective action in response to exceedances of the federally designated groundwater protection standards. The rule contained location restrictions, stability requirements, design criteria, and operating, closure and post closure care requirements. Clay-lined ponds were initially considered lined ponds. Unlined ponds could continue operation so long as the federal groundwater protection standards were not violated. The federal rule did not apply to legacy ponds—ponds located at sites no longer generating power. As initially adopted, USEPA would not issue permits for CCR surface impoundments or enforce compliance with the federal rules. The federal rule was appealed by both environmental groups and industrial groups. *See Utility Solid Waste Activities Group, et al., v. USEPA*, D.C. Cir. 15- 1219. In June 2016, USEPA, the environmental groups and industrial groups agreed to remand certain provisions of the federal rule back to USEPA.

In August 2018, the United States Court of Appeals issued its opinion on the portions of the federal CCR rule appeal that had not been remanded. *Utility Solid Waste Activities Group, et al., v. Environmental Protection Agency*, 901 F.3d 414 (D.C. Cir. 2018). The court's decision in *Utility Solid Waste Activities Group (USWAG)* expanded the scope of the federal rule by finding that USEPA acted arbitrarily and capriciously when it exempted legacy ponds. The court held that

USEPA acted contrary to RCRA in failing to require the closure of unlined CCR surface impoundments and by classifying “clay-lined” CCR surface impoundments as lined. *Id.* at 449. The court therefore vacated the provisions that allowed unlined impoundments to continue receiving CCR unless they leak and that classified clay-lined impoundments as lined. The court remanded the rule back to USEPA and the appellate court’s decision was not appealed.

Proposed Amendments to the Federal CCR Rule

At the time Illinois EPA filed its proposal, USEPA had three pending regulatory proposals to amend the federal CCR rule that had not yet been finalized.¹ Those amendments are summarized in the SOR and again here below, along with updates and other USEPA actions since March 2020.

1. The first proposed amendment was published in the Federal Register on March 15, 2018. *See* 83 Fed. Reg. 11584 (March 15, 2018). On July 30, 2018, USEPA finalized certain provisions of the March 2018 proposal, including a proposed revision of the groundwater protection standard for constituents that do not have an established maximum contaminant level (MCL). 83 Fed. Reg. 36435 (July 18, 2018). The July 30, 2018 final rule also extended the deadline to initiate closure to October 31, 2020 for certain facilities that are required to close under the federal rule. 83 Fed. Reg. 36454. The environmental groups appealed this final rule, challenging the deadline extension. *Waterkeeper Alliance, Inc., et al. v. USEPA* (D.C. Cir. 2019), *See* Order No 18-1289. The court remanded the rule back to USEPA without vacatur on March 19, 2019. *Id.* The remaining portions of the March 2018 proposal have not been finalized.

The same month the Illinois EPA filed its Part 845 proposal with the Board, USEPA published another proposed amendment to Part 257 (Part B). 85 Fed Reg, 12456 (Mar. 3, 2020).

¹ On February 20, 2020, USEPA also proposed a federal permitting program under 40 CFR 257, Subtitle E for nonparticipating states. However, Illinois intends to become a participating state under 40 CFR 257 and obtain federal program delegation from the USEPA.

Amongst other revisions, USEPA's March 2020 action included a supplemental proposal to the proposed rule issued on March 15, 2018. Importantly, USEPA proposed an additional closure option for CCR units being closed by removal. Part 257 currently specifies that closure by removal is not completed until all CCR is removed, all areas affected by releases from the CCR have been decontaminated, and the GWPS are met. Under this newly proposed closure method, an owner or operator can certify closure after completing all removal and decontamination activities, except for groundwater corrective action, and then complete the groundwater corrective action during a "post-closure period." *Id.* at 12469. Decontamination activities include removing or decontaminating all CCR and CCR residues, containment system components such as the unit liner, contaminated subsoils, contaminated groundwater, and CCR unit structures and ancillary equipment. *Id.* at 12477.

2. The second amendment discussed in the SOR was published in the Federal Register on August 14, 2019. 84 Fed. Reg. 40353. In this rulemaking, USEPA's revision addressed annual groundwater monitoring and corrective action reporting requirements, an alternative risk-based groundwater protection standard for boron, and revisions to the publicly accessible CCR website. This proposed rule also addressed the two issues the parties agreed to remand back to USEPA during the *USWAG* appeal: the definition of beneficial use of CCR (84 Fed. Reg. 40355-40361) and the definition of a CCR storage pile (84 Fed. Reg. 40361-40364).

3. The third proposed amendment discussed in the SOR was published in the Federal Register on December 2, 2019 (Part A). 84 Fed. Reg. 65941. Here, USEPA proposed to amend the federal CCR rule to reflect the *USWAG* decision and address the *Waterkeeper* remand. *Id.* Specifically, USEPA proposed to remove the provision classifying clay lined CCR surface impoundments as lined and the provision allowing unlined CCR surface impoundments to

continue operation unless they leak. *Id.* at 65944-65958. This proposal also addressed the deadline extension to cease accepting CCR and commence closure by proposing an August 31, 2020 deadline. The proposed rule includes procedures for facilities to extend the August 31, 2020, deadline to November 30, 2020, under the short-term self-implementing alternative or a longer USEPA-approved extension for lack of alternative capacity or permanent cessation of the coal-fired boilers. *Id.* at 65953-65954.

On August 28, 2020, USEPA finalized five amendments to the Part 257 regulations, including some of the regulatory revisions originally proposed in December 2019 (Part A) to implement the *USWAG* court's vacatur of the 2015 provisions, as well as two amendments proposed on August 14, 2019. First, USEPA finalized a change to the classification of compacted-soil lined or "clay-lined" surface impoundments from "lined" to "unlined" reflecting the vacatur ordered in the *USWAG* decision. Second, USEPA finalized revisions to the initiation of closure deadlines for unlined CCR surface impoundments and for units that failed the aquifer location restriction, to address the *USWAG* decision with respect to all unlined and "clay-lined" impoundments, as well as revisions to the 2018 provisions that were remanded to the Agency for further reconsideration by the court in the *Waterkeeper* case. Specifically, USEPA is finalizing a new deadline of April 11, 2021, for CCR units to cease receipt of waste because the unit either (1) is an unlined or formerly "clay lined" CCR surface impoundment or (2) failed the aquifer location standard. Third, USEPA is finalizing revisions to the alternative closure provisions, which grant facilities additional time to develop alternative capacity to manage their waste streams before ceasing receipt of waste in their CCR surface impoundments. Lastly, USEPA 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 amended requirements to the

publicly accessible CCR internet sites.

Illinois EPA has provided certain revisions to account for USEPA actions on Part 257, which are provided in Section V and Attachment A.

III. Illinois EPA Comments on Proposed JCAR Edits

Illinois EPA has reviewed the June 22, 2020 JCAR comments filed during First Notice. Many of the comments by JCAR were not substantive and did not cause the Agency much concern. However, the Agency did identify some comments from JCAR that may have significant impacts because the comment was not consistent with previous Board rules or changed the meaning of the proposed rule language submitted by the Agency on March 30, 2020. See SOR. Therefore, the Agency requests that the Board review the following JCAR comments for the reasons stated below:

- 1) In Section 845.320, JCAR struck “(200 feet)” from its second occurrence but did not strike its first occurrence.
- 2) In Section 845.640(h)(1), JCAR struck the “(2)” from the reference “(a)(2)”. By doing so they lumped up gradient and down gradient wells together. This is unacceptable in the context of 640(h)(1) because they are two different things.
- 3) In Section 845.660(e), the change proposed by JCAR is not necessary, but if the Board accepts the change, it should say “for ~~correction~~ corrective action and the requirements of...”.
- 4) In Section 845.670(e), JCAR changes “potential remedy(s)” to the singular “potential remedy.” If the Board adopts this change, Illinois EPA suggests further revision to these corrective action alternatives analysis provisions, so that they read “each potential remedy” to make clear that evaluation of more than one potential remedy is anticipated.
- 5) In Section 845.670(f)(1), the reference in this subsection should not include 845.650(e). With JCAR’s suggested edits for 845.650, subsection (e) is a new designation for the Alternative Source Demonstration. Since (f)(1) is specific to corrective action plans, and an approved ASD would not lead to a corrective action plan, it is not necessary or appropriate to include new subsection (e) as a reference in (f)(1).
- 6) In Section 845.720(a)(1), JCAR removed the reference to “subsection (a)(1)(A) through (F)” and replaced it with “following”. It should be noted there are more subsections after (a)(1)(F), so this suggested change by JCAR could make the rule unclear whether subsections (2), (3) and (4) are also to be included. It was the Agency’s intent to stop at (a)(1)(F).

- 7) In Section 845.800(a), “of this Part” is missing with no change indicated. The Agency believes the text should not be deleted.
- 8) In Section 845.800(c), JCAR changed “this Part may comply with the requirements of this Section” to “this Section may comply with the requirements”. The Agency believes this changes the meaning of 845.800(c), especially in light of the missing text in subsection (a), and should be not be accepted.

IV. Illinois EPA Comments on Participant Testimony & Proposed Revisions

Illinois EPA provides its comments on participant testimony and proposals provided in advance and subject to questioning at the September hearing.

A. Andrew Rehn

Mr. Rehn testifies that Part 845 must “allow the public to see a clear inventory of coal ash in Illinois....”. Hrg. Ex. 16, p. 8. One purpose of Part 845 is to identify, characterize, and investigate CCR surface impoundments in Illinois. The Agency has used what information is has to identify CCR surface impoundments in Illinois and has provided that list during the rulemaking in its SOR and in response to Board Questions. The Agency also mapped those identified CCR surface impoundments and placed the map on a publicly accessible website labeled with the names of the CCR surface impoundments. All of these inventories include the CCR surface impoundments referenced in Mr. Rehn’s testimony as “old ash ponds” with an “unknown threat” at Joppa (West Pond 1) and Meredosia (Old Ash Pond). Hrg. Ex. 16, p. 7-8. Currently, these CCR surface impoundments are contested as being identified as CCR surface impoundments by industry. See Illinois EPA’s First Post Hearing Comments, Attachment 4. However, the Agency has identified them as being subject to proposed Part 845 at this time. Should those CCR surface impoundments remain subject to Part 845, the owner or operator will be responsible for following the appropriate requirements for identification, characterization and any closure procedures applicable in the rule.

Mr. Rehn testifies that structural stability factors should be evaluated by a third party. Hrg. Ex. 16, p. 6. Dam safety, including dams of CCR surface impoundments, are currently regulated and evaluated by the Illinois Department of Natural Resources (IDNR). The Agency intends to work in conjunction with the IDNR on the safety factors of CCR surface impoundments. Proposed Part 845 is drafted with the intent and consideration of this fact so as to not overlap or contradict IDNR's process of review.

Mr. Rehn's testimony suggests that Part 845 should require rail and barge transportation to be considered in the closure alternatives analysis. Hrg. Ex. 16, p. 10. The Agency does not believe requiring consideration of specific types of transportation in the closure alternatives of Section 845.710 is necessary. As identified in Mr. Rehn's pre-filed answers and testimony during the hearing, there are a myriad of logistical considerations and impediments to the various modes of transportation (Hrg. Ex. 17, p. 3-5, Hrg. Transcript Sept. 29, 2020, p. 73-75), so requiring extensive evaluation where such modes may not have reason to be considered could be unnecessarily burdensome. As proposed, Part 845 does not preclude exploration of transportation types, nor does it recommend or limit consideration to trucks for removal of CCR. Rather, Part 845 acknowledges the availability of such transportation methods by requiring manifests when transporting CCR off-site by any other mode or method, including but not limited to trains or barges.

Andrew Rehn's testimony concludes with the opinion that the "Board must adopt rules regulating more than just coal ash *impoundments*." Hrg. Ex. 16, p. 12 (emphasis in original). As provided in the SOR, the foremost purpose and effect of the Agency proposing Part 845 is to fulfill its statutory obligation to propose rules for CCR surface impoundments consistent with the requirements of Section 22.59(g) of the Act. SOR, p. 10. Section 22.59(g) also contains a

rulemaking mandate directed at the Board to adopt rules for CCR surface impoundments within one year of the Agency's proposal. Therefore, limiting Part 845 to CCR surface impoundments is necessary and appropriate.

Andrew Rehn's testimony also discusses CCR surface impoundments located in floodplains. Additional Agency comments regarding location restrictions and floodplains can be found in the discussion of Mark Hutson's testimony below.

B. Mark Hutson

Mr. Hutson recommends that "uppermost zone of saturation" be defined and incorporated into Part 845. Hrg. Ex. 14, p. 9. The Agency opposes the proposal to use the "uppermost zone of saturation" in addition to the "uppermost aquifer" as drafted in proposed Part 845. First, as stated in the SOR, the Agency is seeking to obtain federal approval of Illinois' CCR surface impoundment program. The Agency has worked closely with the USEPA during the Part 845 rulemaking process and has been frequently reminded to keep the language and function of Part 257 as similar as possible. In this regard, the Agency has made as few changes to the language of Part 257 as possible, especially pertaining to definitions and location restrictions. Changes to definitions and location restrictions will require additional explanation and justification to USEPA to gain federal approval.

In order to be as comprehensive and protective as the USEPA's federal Part 257 regulations, the Agency has chosen to focus the Part 845 regulations on "groundwater" rather than limiting protection to the "uppermost aquifer" in Subpart F. Regarding location restrictions in Subpart C, the Agency believes the usage of "uppermost aquifer" already includes the uppermost zone of saturation in the definitions contained in Section 845.120. Part 845 as proposed includes the zone of saturation in the definition of "groundwater." See Section 845.120

(“Groundwater means water below the land surface in a zone of saturation”). The Part 845 definition of “aquifer” includes *groundwater at any portion* of a geologic formation and the definition of “uppermost aquifer” includes any geologic formation “that is an aquifer....” Since the zone of saturation is included by Part 845 already, the Agency believes using the federal 257 definition and language is preferable and appropriate to aid in seeking USEPA’s approval.

Regarding Mr. Hutson’s suggested inclusion of floodplains in definition of unstable areas, Hrg. Ex. 14, p. 10-12, there is nothing in Part 845 as proposed that precludes floodplains from being considered unstable areas. The proposed definition of “unstable areas” provides an inexhaustive list of examples. There are floodplains that are relatively stable, and those that may not be stable. Any location for a CCR surface impoundment will need to be demonstrated that it is in a stable location or can be constructed in such a way to maintain structural stability, regardless if it is in a floodplain area or not. All demonstrations regarding location restrictions will be determined on a site by site basis. Furthermore, CCR surface impoundments are subject to floodplain requirements under Section 845.110(b)(1). Floodplains have not been included in the location restrictions in Part 257, and therefore are not included as a location restriction in Part 845 for the same reasons listed above for retaining consistency with the federal regulations.

Further rationale for omission of floodplains from location restrictions are that other waste management programs allow for engineered waste placement in floodplain areas. For instance, landfills are allowed to be placed in a floodplain as long as the landfill meets certain criteria under RCRA (40 CFR 258.11) and 35 IAC 811.102(b), and the landfill is constructed with certain specifications. As it happens, those landfills may very well receive CCR.

Most current generating facilities and their associated CCR surface impoundments are located on the banks of rivers or lakes. Water from these locations are necessary for facility

operations. The option to retrofit a CCR surface impoundment would be substantially decreased if floodplains are included in the location restrictions in Subpart C. Currently, new solid waste landfills that meet applicable siting and construction requirements are not prohibited from being placed in floodplains. Therefore, retrofitted CCR surface impoundments, new CCR surface impoundments, and lateral expansions of CCR surface impoundments that meet the criteria of Part 845 should not be prohibited in floodplains.

Mr. Hutson proposes that Sections 845.220(c)(2)(A), 845.220(d)(1)(A) and 845.750 be revised to prohibit the permitting of any corrective action or closure with a final cover when CCR is in contact, either intermittently or permanently with groundwater. Hrg. Ex. 14, p. 9. Part 845 requires that any corrective action and closure approved by the Agency must achieve the groundwater protection standards of Section 845.600. The groundwater protection standards are protective of human health and the environment. Therefore, any groundwater contacting CCR will be protective of human health and the environment. The Agency recommends that the Board not accept any revisions to these Sections of Part 845 except for the Agency's suggested revisions to Section 845.750(c)(4). See Section V below and Attachment A.

Mr. Hutson's testimony proposes Sections 845.630(a)(1) and 845.650(d)(4) be revised to have background wells that are not impacted by any site operations, not just CCR surface impoundments. Hrg. Ex. 14, p. 14, 17. Mr. Hutson also proposes that the Alternative Source Demonstration (ASD) be part of a permit and that the ASD specifically identify any alternate source and its impact on groundwater, respectively. Hrg. Ex. 14, p. 16-18. Part 845 is designed to regulate CCR surface impoundments. Regarding the proposed revision of Section 845.630, it may be necessary for owners and operators to monitor groundwater down gradient of other sources to distinguish between contaminants originating from a CCR surface impoundment and

those originating from another source, for example: a coal pile. While mitigation of the impacts of the example coal pile are important, that task does not fall within the purview of Part 845. The key factor to ascertain from the ASD is that it is not the CCR surface impoundment responsible for the contamination and therefore no action relative to the CCR surface impoundment is required. Other sources of groundwater contamination should be addressed under other remedial programs. The inclusion of an ASD in a permit under Part 845 is not feasible. Owners and operators have only 60 days after an exceedance of a groundwater protection standard has been confirmed to submit an ASD to the Agency for review, and only 90 days after that confirmation to initiate an assessment of corrective measures. Extending the time between the confirmation of a groundwater protection standard exceedance and the initiation of an assessment of corrective measures is not as protective and comprehensive as Part 257 and is unacceptable. The Agency recommends that the Board not accept any revisions to these Sections of Part 845 except for the Agency's suggested revisions to Section 845.650. See Section V and Attachment A.

Mr. Hutson proposes that Sections 845.600(a)(1) be revised to include numerical groundwater protection standards for Iron, Manganese and Vanadium. Hrg. Ex. 14, p. 14. When evaluating which chemicals to include in Part 257 Appendix III and Appendix IV, USEPA evaluated and discarded, Iron, Manganese and Vanadium from their list of monitored constituents. Hrg. Ex. 5 at 21449-21452. Further Illinois has Part 620 groundwater quality standards for Iron, Manganese and Vanadium, which remain generally applicable. Therefore, the Agency recommends that the Board not accept any revisions to Section 845.600 except those revisions suggested by the Agency. See Section V and Attachment A.

Mr. Hutson testifies that he believes ongoing measurements of pore water elevation in CCR surface impoundments is needed in order to properly determine groundwater flow

directions and the amount of separation between the ash in the impoundments and the elevation of the water table or uppermost zone of saturation. He suggests the installation of piezometers in the “filled” areas of the impoundments in order to accomplish these ongoing measurements of pore water elevation. Hrg. Ex. 14, p. 12-13. While the Agency appreciates the reasoning behind Mr. Hutson’s opinion, installation of piezometers within CCR surface impoundments come with various difficulties. In addition to the challenge of installation of the piezometers, as discussed in relation to Mr. Payne’s and Mr. Magruder’s testimony, ongoing measurements require leaving the piezometer in place over a period of time. Ongoing access to the piezometers could be difficult at impoundments still in use. In addition, any of these impoundments getting ready for closure and placement of the final cap will find it challenging, if not impossible, to work around piezometers, and the piezometers will have to be abandoned prior to final cap placement. For these reasons, the Agency objects to this recommendation.

Mr. Hutson also testifies that he believes future theoretical deterioration of the final cover of all CCR surface impoundments should be modeled as part of closure. He states this is needed because it is his belief that final covers, especially those with little to no protective material, will deteriorate at some undefined point in the future after post-closure care. Hrg. Ex. 14, p. 20-21. He does not specify that the proposed protective layer in Part 845 is too thin, in his opinion, to be protective. Under questioning, he is not able to point to any location where he has conducted this final cover deterioration modeling himself. In fact, he admits he has no knowledge of anyone or anywhere this has been done, at any type of site, including landfills. Hrg. Ex. 15, p. 12-13; Hrg. Transcript, Sept. 29, 2020, p. 47. Nor is he able to point to any research being done on this topic which would assist anyone attempting this modeling with reasonable assumptions on rates of deterioration, conditions under which deterioration could occur, or the extent of deterioration.

Hrg. Ex. 15, p. 12; Hrg. Transcript, Sept. 29, 2020, p.46. This request seems to be based more on theory than fact. For reasons discussed herein, the Agency respectfully asks that the Board reject this recommendation.

C. Ian Magruder & Scott Payne

Mr. Payne and Mr. Magruder spend a large part of their testimony outlining why they believe an official technical guidance document for modeling needs to be required by Part 845. They suggest that such a document should “include the procedures by which the Agency will review models developed under the proposed rule.” Hrg. Ex. 19, p. 33. They further state that, if this is not possible, at least a review checklist needs to be included. They have included with their testimony a modeling guidance document from North Carolina. Hrg. Ex. 19, Attach. 1. The Agency notes that the guidance document is a “policy” guidance document and does not appear to be part of a rule or regulation. Mr. Payne and Mr. Magruder also included a checklist from Australia as an example, pointing out they know of no existing U.S. checklist and pointing out it is not part of regulation or law.

Mr. Payne and Mr. Magruder’s proposed language seeks to have industry comply with a guidance document which does not exist. For a guidance document to be enforceable, it would either need to go through the rulemaking process or be incorporated by reference in the rule. An Agency guidance document created after the rule is adopted that has not gone through the rulemaking process and is not incorporated by reference has no force or effect. *Platolene 500, Inc. v. Illinois Environmental Protection Agency*, 1992 WL 111967, *3 (IPCB May 7, 1992) (“Since the guidance manual was not adopted according to APA requirements, the guidance manual has no legal or regulatory force or effect.”). Because the proposed guidance document

does not exist and it is not practicable for a guidance document to be created prior to the close of the record, it cannot be part of this rulemaking and cannot be incorporated by reference.

Furthermore, the Agency and the Bureau of Water review many different types of sites for various types of contamination and cleanups. Any guidance document for modeling required by regulation would have to be general yet comprehensive enough to cover any type of site. Assuming, *arguendo*, that it was practicable to create such a guidance document prior to the close of the record to be incorporated by reference, creation of such a guidance document would unnecessarily limit the Agency's ability to adapt to advances in modeling techniques. If a guidance document were created with definite procedures for evaluating modeling techniques, the Agency would be unable to adapt the guidance without amending the rules through the rulemaking process. The same would occur with a checklist included in the rule. For these reasons, the Agency strongly objects to any reference or requirement relating to an "official Agency modeling guidance and policy document" in Part 845.

Mr. Payne and Mr. Magruder's testimony suggests that all groundwater elevation data be considered in the calibration for any groundwater model. Hrg. Ex. 19, p. 9-10. However, under questioning, it became apparent there are many exceptions to the inclusion of all groundwater elevation in calibration. Hrg. Ex. 20, p. 7-8. The inclusion of groundwater elevation data is dependent upon the quality of the available data and thereby the professional judgment of its use. The age, construction, and condition of the well, the amount of data available for a well, and gaps in available data for a well are all items, among others, that must be taken into account when evaluating the quality of groundwater elevation data for use in calibration of a groundwater model. Their suggested language specifically says that the calibration targets "consider" the entirety of available data. Hrg, Ex. 19, p. 37. The Agency wants to emphasize the need for the

use of professional judgment in the appropriate application and use of groundwater elevation data in calibration rather than an assumption of an automatic use of all available data.

Mr. Payne and Mr. Magruder also go into detail in their testimony about the amount of site-specific data they believe must be obtained at each CCR surface impoundment site for appropriate characterization and groundwater modeling. Hrg. Ex. 19, p. 10-15. Groundwater modeling is a data intensive exercise, and while site-specific data is always preferred, it is not possible to go back in time for over seventy CCR surface impoundments to collect data from before the surface impoundments were built. Many of these surface impoundments are decades old. While some of the site-specific data that is missing could still be collected, there is a limited timeframe, aside from the timeframes in proposed Part 845, to close many of these impoundments. It is reasonable and common for some data used in groundwater modeling to be sourced from publicly available scientific and research reference materials.

In addition, some data needed for the model, as acknowledged by the witnesses, will be located off-site on property of which the owner or operator has no control. Hrg. Ex. 20, p. 8-9. Unless access can be arranged, the only way to deal with this lack of access is to use reference materials. The very nature of how a CCR surface impoundment functions can also make it difficult to obtain some site-specific data. For instance, while it may be possible under some circumstances, it certainly isn't easy to collect multiple leachate pore samples from within each surface impoundment during use and prior to installation of the final cover. The difficulty results from the ash within the impoundments being wet, making it difficult, if not impossible, to work on. Therefore, the Agency recommends that the Board not accept any revisions to Section 845.620 based upon this testimony.

Mr. Payne and Mr. Magruder discuss how they believe the HELP model was used inappropriately in the three models they reviewed for CCR surface impoundments in Illinois. The Agency would like to point out that there are various ways to address using HELP for CCR surface impoundments where ash may at times be saturated with groundwater. It is possible to have a bottom layer changed to fully saturated and turn it to a lateral drainage layer to simulate a portion of the CCR impoundment is below the water table. The modeler can add as many sublayers in the model as needed to represent this condition. The model may use the same general input parameters for all “sublayers” but vary for the amount of saturation in each sublayer. There are a number of mathematical equations and models that can be used for calculations and simulations of this type of flow. For instance, a one-dimensional flow model could be used to simulate flow vertically through the CCR surface impoundment. Another type of model can be used to add horizontal flow and a compliance point. The use of the HELP model, with all the various configurations, can represent specific CCR surface impoundment conditions to estimate saturation and drainage from the impoundment.

D. Cynthia Vodopivec

Ms. Vodopivec testifies that she believes when site conditions seem to indicate groundwater elevation data may be needed more than quarterly in order to identify groundwater highs and lows, that NOAA river surface water elevation data may be used from the nearby river. She states that groundwater elevation data can be estimated from the river level data. Hrg. Ex. 22, p. 10-11. The Agency disagrees with Ms. Vodopivec’s assumption that groundwater elevation estimates from a nearby surface water body are equivalent in usefulness to actual groundwater elevation measurements from monitoring wells across a CCR surface impoundment site. While a general estimation of groundwater elevation in an area near a river could be made

from the surface water data, it is very dependent on the gradient of groundwater flow near the river at that particular time. Without actual groundwater elevation data from multiple locations across a site, it would not be possible to determine direction of groundwater flow, gradient of flow, or develop a potentiometric map for that timeframe. During modeling, surface water elevation data could be used to help constrain the values of the river cells in a model, but estimates of groundwater elevation derived from surface water elevation data could not be used for any type of calibration of potentiometric head values in the aquifer layers of the model.

Ms. Vodopivec also testifies that there is no need for the Agency to be provided licenses of the modeling software used for developing the groundwater models used as part of closure and corrective action under proposed Part 845. Hrg. Ex. 21, p. 16. It is apparent that Ms. Vodopivec is not familiar with groundwater numerical modeling or the software used. After checking with “someone,” she testified that the only groundwater modeling software used is from the USGS and free to the public (3-dimensional: MODFLOW). Hrg. Ex. 22, p. 6-9. While Ms. Vodopivec is correct that a selection of groundwater modeling software is based upon and uses the transport equations upon which MODFLOW is based, the vast majority of software modeling packages have their own pre- and post- processing software package attached with its own user interface. These are commercial products and are not free.

There are also proprietary packages attached for the development of conceptual models and input parameters for 1-dimensional models that use different transport equations (examples include HELP and POLLUTE), 2-dimensional models that use different transport equations (MIGRATE is an example) and 3-dimensional models (MODFLOW, MODPATH, MT3D, and FEMWATER). A model developed in one software package will not import and run in another software package. The use of a different model product/package will require a complete

remodeling of the CCR surface impoundment using the same input parameters (which may not be compatible with a different model). Based upon Agency experience, this may not be possible. At a minimum, there can be a significant amount of time and effort expended trying to import a model into new software. It can require manual changes in code and specific knowledge of the development of the model type. Additionally, there are many different software packages available and no way to predict what modeling software the owner or operator of a CCR surface impoundment may use. With the tight time constraints under Part 845, it is reasonable and necessary that a licensed copy of the modeling software used be provided to the Agency by the owner or operator.

Ms. Vodopivec testified regarding her role as an Environmental Health and Safety (EHS) Manager for Dynegy. Please refer to related comments regarding EHS matters and Occupational Safety and Hazard Administration (OSHA), Federal Highway Administration (FHWA), and USEPA data regarding labor statistics and characteristics of CCR.

Finally, regarding financial assurance, Ms. Vodopivec testified that “proposed Part 845 is more stringent than the requirements in the CCR Rule with respect to post-closure care.” Ms. Vodopivec points to Part 845’s requirement that financial assurance be provided for corrective action and/or closure of CCR surface impoundments, where the federal rule has no such requirements, and emphasizes the resulting costs Dynegy will incur. Hrg. Ex. 21, p. 19. While Ms. Vodopivec is correct that Part 257 does not address financial assurance, her testimony does not reference Section 22.59(f) of the Act, which requires financial assurance for both closure and post-closure of any CCR surface impoundment. It is imperative to remember that the purpose of financial assurance is to protect the taxpayers from incurring costs if an owner or operator was unable to complete closure, post-closure or corrective action for whatever

circumstance, and the General Assembly clearly determined such financial assurance is appropriate.

E. Dr. Lisa Bradley

Dr. Bradley testified repeatedly that she respects federal OSHA regulations and tried to discuss worker and public health and safety as a separate mutually exclusive matter by manner of citing European standards instead of U.S. standards. See Hrg. Ex. 24, pp. 8-9. However, OSHA regulations cite chemicals or specific chemical compositions as hazardous to human health based on National Toxicology Program (NTP), USEPA and any other federal agencies that provide scientific data on the hazards associated with a chemical or specific chemical composition. Although Dr. Bradley stated that OSHA regulations are acceptable, it seems the majority of her testimony was contradictory to current federal regulations and federal standards of practice, as well as not representative of what is actually happening to workers in the electric power generation, transmission and distribution industry, as shown below:

- **OSHA Department of Labor Worker Safety Statistics specific to respiratory illnesses.** The utility industry worker safety data statistics published online by OSHA are available currently through 2018. Respiratory illnesses, skin disorders and hearing loss are the most common and thus tracked by individual category. The remaining types of illnesses are clustered into an all other illnesses category. Three worker categories are presented herein as follows: (1) electric power generation, transmission, and distribution; (2) engineering services; and (3) waste management and remediation services. Reportable incident rates for respiratory illnesses per 10,000 workers were 1.1, 0.2 and 1.2 incidents of respiratory illnesses per 10,000 workers, respectively.

- **Applicability of OSHA required Hazardous Waste trainings.** 29 CFR 1910.120 and 29 CFR 1926.65 apply to all work related to corrective action and closure activities performed under RCRA programs. It is not the intention, nor the purpose of proposed Part 845 to downgrade safety and health training requirements; thus, the safety and training requirements provided by OSHA regulations are cited in Part 845 to ensure understanding of the applicability of the existing regulations.
- **Applicability of Emergency Action Plans and training of personnel (29 CFR 1910.120(e)(3) and 29 CFR 1926.65(e)(3)).** Emergency action plans are required by 29 CFR 1910.120 and 29 CFR 1926.65 as a part of worker safety planning. 29 CFR 1910.120 and 29 CFR 1926.65 are the general industry and construction safety regulations for hazardous waste and RCRA corrective action. In practice, work performed on sites dealing with RCRA Subtitle D material still need supervisors that are HAZWOPPER trained and personnel that have a minimum training of 24 hours per 29 CFR 1910.120(e)(3) and 29 CFR 1926.65(e)(3).

Dr. Bradley repeatedly stated during her testimony that the CCR material was being assessed for her testimony as a whole material and not by composition. Specifically, in Pre-Filed Answers to IEPA Questions 1b and 2, Dr. Bradley was unable to dissect that in the U.S., coal residuals are classified by composition for beneficial reuse. Hrg. Ex. 24, pp. 7-8. As such, once the coal residues have been tested for beneficial reuse, the owners and operators have a record of the composition of the CCR that is not being reused. Below is a summary of the FHWA's understanding of coal residue composition, which can serve as a good starting point for owners

and operators to properly characterize the material to ensure proper hazard mitigation both for worker safety and for public health and safety.²

Necessity of defining composition of CCR for 845.530(b)(1) safety data sheets.

According to the FHWA Research and Technology, fly ash has different chemical constituents depending on the type of coal parent material—bituminous, sub-bituminous or lignite. According to FHWA, Class F fly ash is derived from anthracite and bituminous coal sources. Class F fly ash contains glassy silica and alumina that reacts with water and lime to produce cement. Table 5-2 in the FHWA publication online states that bituminous coal contains 20-60 percent silica oxide which is quartz. Quartz, cristobalite and tridymite are types of crystalline silica that can become respirable silica from cutting, burning, or other activities performed during regular work activities regulated for safety and health according to OSHA.³

Additionally, anthracite coal cannot be used for beneficial reuse purposes in construction. According to USEPA, anthracite coal combustion residuals contain biphenyl, naphthalene, phenanthrene, arsenic, beryllium, cadmium, chromium, manganese, mercury, nickel, and selenium at factors of pounds per ton of anthracite coal burned. Bituminous, sub-bituminous, and

² Federal Highway Administration (FHWA). User Guidelines for Waste and Byproduct Materials in Pavement Construction. Publication No. FHWA-RD-97-148. March 2016.
<https://www.fhwa.dot.gov/publications/research%20/infrastructure/structures/97148/st1.cfm>. Accessed October 9, 2020.

³ Occupational Safety and Health Administration (OSHA). “Crystalline Silica Exposure” Health Hazard Information for General Industry. OSHA 3176. 2002 (revised).
<https://www.osha.gov/Publications/osh3176.html>. Accessed October 9, 2020.

lignite coal may have properties that make the CCR qualify for beneficial reuse, not all CCR from the aforementioned coal sources have the qualities to be beneficially reused.⁴

Dr. Bradley's testimony and several answers to Illinois EPA's pre-filed questions stress that the purpose of the REACH Program conducted in the EU is to evaluate materials put into commerce in the EU, and the REACH evaluation was conducted on coal ash as a whole, not on individual components. Hrg. Ex. 23, p. 9; Hrg. Ex. 24, p. 5-13, 17. There are many reasons why this specific reference in its entirety is not comparable and is contradictory in many instances to U.S. regulations and publications under the Department of Labor, Department of Transportation, Environmental Protection Agency and Health and Human Services, as follows:

- REACH is based on European Union Worker Safety and Labor regulations and is contradictory to US Department of Labor Occupational Safety and Health Administration (OSHA) regulations. 29 CFR 1910.1053 App. B (1.8) and 29 CFR 1926.1153 App. B (1.8) state that respirable silica causes lung cancer. Both aforementioned regulations state respirable crystalline silica has been a known human carcinogen since 2000 (NTP, 2014). Both regulations state that the International Agency for Research on Cancer (2012) has also classified silica as a Group 1 carcinogen (carcinogenic to humans). According to 29 CFR 1910.1053 App. B (1.2 to 1.7) and 29 CFR 1926.1153 App. B (1.2 to 1.7), respirable silica causes chronic silicosis, accelerated silicosis, acute silicosis, COPD, renal and immune system diseases, and tuberculosis (TB) and other infections.

⁴ USEPA. Emissions Combustion Sources, Publication No. 10/96, Section 1.2. https://www.epa.gov/sites/production/files/2020-09/documents/1.2_anthracite_coal_combustion.pdf. Accessed October 9, 2020.

- REACH is based on European Union Transportation and Environmental regulations and is contradictory to Illinois Department of Transportation and IEPA regulations on manifesting of RCRA Subtitle D wastes according to 35 Ill. Adm. Code 809 (Special Waste) in conjunction with proposed Part 845. Whereas, Part 809 previously provided an exemption for coal combustion fly ash, Part 845 as proposed now requires that CCR, including fly ash, be managed as a special waste per 35 Ill. Adm. Code 809. As referenced in 845.500(b), silica (29 CFR 1910.1053), a known majority constituent of fly ash, is also a known carcinogen. Dr. Bradley did not acknowledge USEPA's published Coal Ash Basics which include that fly ash is composed mostly of silica. Fly ash grain sizes (as defined by geotechnical grain size analysis) are such that the majority of the silica is of respirable size.
- As exhibited by Dr. Bradley's Table 2-1 (Hrg. Ex. 23, p. 46) and 2-2 (Hrg. Ex. 23, p. 47) and repeated statements during her testimony, REACH does not evaluate U.S. coal combustion residuals for composition percentage of the total mass of the constituents that are carcinogenic according to the United States Department of Health and Human Services National Toxicological Program (NTP). REACH evaluates coal ash as a whole for the purpose of commerce or re-use in other products, such as concrete. In addition to silica, a respirable cancer risk, coal ash may contain arsenic, beryllium, cadmium, chromium, cobalt and lead, which are classified as either known and reasonably expected to be carcinogens by the NTP. Further, radium 226 and 288, which may also be present in coal ash, are listed by the International Agency for Research on Cancer (IARC) as carcinogenic to humans. These chemicals may be present in concentrations that can leach into the groundwater and create risks or hazards to consumers in excess of the one in one

million target cancer risk thresholds contained in 415 ILCS 58.5(d) for residential consumers. Several chemicals listed in Section 845.600 can also be toxic to plants, livestock and wildlife. Analyzing for individual constituents to determine the chemical make-up of the coal ash helps ensure measures may be taken to protect groundwater and comply with Sections 12(a) and 22.59(b) of the Act, 415 ILCS 5/12(a) and 22.59(b), and Section 620.301(a) of the Board's Regulations, 35 Ill. Adm. Code 620.301.

- Dr. Bradley recognizes that the REACH document conclusions are not applicable for considering releases into environmental media, particularly groundwater. In response to pre-filed question 2 from Illinois EPA regarding information summarized in Table 2-1 of her pre-filed testimony, Dr. Bradley states, "Table 2-1 on page 9 of my testimony presents the summarized results of testing conducted under the EU's REACH program (detailed tables are provided in Exhibit B of my testimony) on "Ashes (Residues), Coal" as a whole for assessing risks associated with coal ash, for the purpose of evaluating the material to put into commerce, not the risks that may be associated with any of its components in other contexts." Hrg. Ex. 24, p. 7. The potential for a contaminant from a surface impoundment to impact groundwater through leaching is an "other context" not considered by REACH; therefore, risks associated with coal ash as a whole or its individual components in a surface impoundment are not represented in the testimony regarding the REACH document. Dr. Bradley's testimony about REACH is not applicable to risks associated circumstances outside of the scope of the REACH document. Part 845 regulates risks from coal ash in the environment, not for re-use in commerce.

- REACH only evaluates direct contact exposure, in units of mg/kg, as a whole. It does not evaluate the potential for coal ash constituents to leach into the groundwater, creating risks and hazards for those who use groundwater as a resource. Part 257 and the proposed requirements at Section 845.600 specify groundwater protection standards in units of milligrams per liter (mg/L), and not direct contact values, for individual chemical components of coal ash. Therefore, REACH does not adequately evaluate coal ash in the same manner as is necessary in the proposed requirements; and cannot be construed as an applicable substitute for determining toxicity of coal ash in surface impoundments.

Dr. Bradley's response to Illinois EPA's Question 4(a), which asked about toxicity of individual components of coal ash, stated in its second paragraph, "While there are toxicity data for the individual components of coal ash, including those listed in the question, it does not mean that coal ash is toxic under all exposure conditions." Hrg. Ex. 24, p. 9. However, coal ash, depending on chemical make-up and toxicity of those chemicals, may be toxic under some exposure conditions. Specifically, when inhaled, as particulates or ingested through drinking water, causes exposure to the hazardous components of the CCR.

Dr. Bradley did not speak directly to Illinois and U.S. coal combustion residuals or published peer reviewed documents on facts about CCR and associated regulations. Instead Dr. Bradley relied on unrelated programs and risk assessments from a different continent based on evaluations of coal combustion residuals derived from coal not mined in Illinois or even the U.S... As such, Dr. Bradley is avoiding a true and proper evaluation of coal combustion residuals derived from U.S. coal, especially from Illinois, which is the subject of proposed Part 845.

Dr. Bradley testified that the constituents of CCR are naturally occurring and seemingly insinuated that they are non-toxic. Hrg. Ex. 23, p. 11. However, naturally occurring Arsenic is

not natural and good for human health and can still cause risks, such as an increased incidence of cancer, such as it would if it were synthetically generated. This can be said of many naturally occurring constituents.

Dr. Bradley's response to Illinois EPA's pre-filed Question 10(a), asking why site workers are omitted from the conceptual model for risk assessment to humans, states in part, "In general, and in my experience, in risk assessments for operating facilities, on-site workers are assumed to be covered by OSHA regulations." Hrg. Ex. 24, p. 14. Dr. Bradley does not seem to recognize risk assessments are conducted for several types of populations, including an outdoor worker and a construction worker. The risk assessments for these populations are conducted under U.S. EPA Office of Solid Waste and Emergency Response (OSWER) requirements, not under the purview of OSHA regulations. Illinois EPA requires industrial/commercial and construction worker populations to be evaluated under its clean-up regulations, Section 742, which is used for RCRA and state clean-ups in Illinois. This is in addition to OSHA requirements.

When discussing the USEPA 2014 Risk Assessment (RA), Dr. Bradley uses USEPA's probabilistic risk assessment to support her testimony that coal ash is non-toxic and there is no risk for exposure. Hrg. Ex. 23. However, regarding ambient air concentrations, the RA states: "EPA calculated ambient air concentrations that result from windblown dust from landfills under uncontrolled and controlled management scenarios. Risks were estimated based on short-term (i.e., acute) and long-term (i.e., chronic) exposures. Under the uncontrolled management scenario, concentrations of arsenic were found to pose acute risks and PM_{2.5} was found to exceed the 24-hour National Ambient Air Quality Standards (NAAQS). However, all risks fell below selected criteria under the controlled management scenario." In other words, the RA does

find coal ash can create an inhalation hazard from a scenario where dust hazards are not properly managed. This contradicts Dr. Bradley's testimony that coal ash is non-toxic. Rather, the RA demonstrated it is toxic and can create human health hazards under certain scenarios.

Dr. Bradley states the RA was conservative; however, the RA calculated an arsenic III cancer risk of 2 in 10,000 for ingestion of groundwater and an arsenic V cancer risk of 1 in 100,000. Hrg. Ex. 23, p. 54. By contrast, Illinois EPA requires risks to be evaluated at a more conservative 1 in 1,000,000 ($1E-06$) target cancer risk. In addition, three chemicals (arsenic, lithium and molybdenum) exceeded the target hazard quotient of one, the threshold where no adverse effects are expected to occur. Hrg. Ex. 23, p. 54. The outcomes from USEPA's probabilistic risk assessment contradict Dr. Bradley's statements that coal ash is non-toxic and non-hazardous to human health.

Dr. Bradley states: "To understand the USEPA target risk in context, it is important to recognize that the background cancer risk in the U.S. is generally between one in two (0.5 or 5×10^{-1}) to one in three (0.33 or 3.3×10^{-1}) for men and women based on statistics published annually by the American Cancer Society (ACS, 2020). Thus, the RCRA point of departure for risk for regulatory rulemaking of 1×10^{-5} is 4 orders of magnitude lower than the background cancer rates in the U.S." Hrg. Ex. 23, p. 52. This statement implies that the risks from components of coal ash are conservative in context with background cancer rates, therefore, the proposed rules are overly protective. What Dr. Bradley does not discuss is the contribution to the cancer rates from exposure to chemicals. Illinois EPA's premise is to protect human health and the environment from harm caused by chemicals in the environment. Illinois EPA's regulations are written so that harmful chemicals do not further contribute to cancer statistics. Comparing a chemical's cancer risk to background cancer rates is not a conservative or accepted method in

risk assessment. The goal of the Illinois EPA is to decrease background cancer rates by not allowing harmful chemicals to contribute to them.

When questioned regarding the applicability of Dr. Bradley's testimony in conjunction with the requirements at 415 ILCS 12(a), which states, "No person shall cause or threaten or allow the discharge of any contaminants into the environment in any State so as to cause or tend to cause water pollution in Illinois, either alone or in combination with matter from other sources, or so as to violate regulations or standards adopted by the Pollution Control Board under this Act.", or 12(d), which states, "No person shall deposit any contaminants upon the land in such place and manner so as to create a water pollution hazard.," Dr. Bradley stated in her pre-filed response that she's not offering a scope or opinion on the application of 845 as it pertains to these sections of the Environmental Protection Act. Hrg. Ex. p. 9. However, since Section 22.59 (b) prohibits releases of CCR from violating provisions of the Act and Board regulations adopted under the Act, these provisions of the Act provide the basis for need to determine individual constituents of coal ash to determine whether a surface impoundment is causing or tending to cause water pollution. Dr. Bradley's testimony provides no conclusion that these provisions will not be violated by the presence of coal ash.

In contrast to Dr. Bradley's testimony, the RA noted the following: "Based on the analyses presented in this document, EPA concludes that current management practice of placing CCR waste in surface impoundments and landfills poses risks to human health and the environment within the range that OSWER typically regulates. On a national scale, surface impoundments presented higher risks than landfills. Risks to ecological receptors were identified from exposures to aluminum, arsenic, barium, beryllium, boron, cadmium, chloride, chromium, selenium and vanadium through direct exposure to impoundment wastewater. Risks to residential

receptors were identified primarily from exposures to arsenic and molybdenum in ground water used as a source of drinking water, but additional risks from boron, cadmium, cobalt, fluoride, mercury and thallium were identified for specific subsets of national disposal practices.”

The conclusion goes on to state: “The risk results are consistent with the ground water damage cases compiled by EPA. These damage cases were primarily associated with unlined units and were most frequently associated with releases of arsenic. Recent surveys of the industry indicate the majority of newly constructed units are lined, and that that the practice of codisposal with coal refuse has declined. However, this risk assessment presents a static snapshot of current disposal practices. While newer units may be managed in a more protective manner, older units, which still comprise the majority of current units, continue to operate in a manner that poses risks to human health and the environment within the range that OSWER typically regulates.” See Attachment B.

On September 25, 2020 Dynegy filed three pre-hearing comments. Comment 3 is a request by Dynegy that the Board should conform the definition of “Inactive CCR Surface Impoundment” with the definition adopted by the General Assembly. Dynegy references the testimony of Dr. Lisa Bradley in support of this request. On Page 5 of its prehearing comments, Dynegy provides a comparison of the definition of “Inactive CCR Surface Impoundment” found in Section 845.120 and Part 257.53. Importantly, P.A. 101-171 defined what a CCR surface impoundment is in Section 3.143 of the Act and used the term “existing CCR surface impoundments” in Section 22.59(m) of the Act, but did not define the characteristics of either an existing or inactive CCR surface impoundment in the Act. As described herein, the Agency does not believe there is non-conformity between the definition of “Inactive CCR Surface

Impoundment” proposed in Part 845 and the definition of “CCR Surface Impoundment” adopted as Section 3.143 of the Act.

The Agency believes Section 3.143 describes the elements that make a CCR surface impoundment distinguishable from other CCR accumulations (e.g. landfills or piles). The Agency agrees that a CCR surface impoundment must be designed to hold an accumulation of CCR and liquids. However, in its experience with closing a number of CCR surface impoundments prior to the adoption Sections 3.143 and 22.59 of the Act, the Agency has found that many unlined CCR surface impoundments constructed in permeable sediments are unable to retain liquids discharged into them. The impoundments were designed (i.e. intended) to hold CCR, liquids and other wastes sent there as part of plant operations. These impoundments are permitted as water treatment units, designed to settle suspended solids from the wastewater. Therefore, the design requires that liquids accumulate in a relatively still condition to allow the CCR to precipitate from suspension (with an accumulation left behind), prior to discharge of the wastewater in compliance with an NPDES permit. The design does accumulate CCR and liquids to the degree necessary to meet NPDES permit limits, but the design in many cases has not been adequate to prevent wastewater from leaking into the underlying groundwater, in some instances leaving the impoundments dry once the impoundment was no longer in use (i.e. inactive).

Just as important in the definition of a CCR surface impoundment that it be “designed to hold an accumulation of CCR and liquids,” is the requirement that it “treats, stores or disposes of CCR.” The definition of CCR surface impoundment **does not require** that to be a CCR surface impound, the impoundment must also treat, **store or dispose of CCR and liquids** (emphasis added). This fact is an important consideration relative to storage of CCR, but is especially important relative to disposal of CCR. Some owners and operators routinely remove the

accumulated CCR (i.e. stored) from their CCR surface impoundments and transport it off-site for disposal or beneficial use. In order to remove the CCR for transport, the CCR must be dewatered, by either setting the CCR aside to dry, or removing accumulated liquids from within the CCR surface impoundment. Removing the accumulated liquids from a CCR surface impoundment, prior to removing the accumulated CCR, does not end that impoundment's status as a CCR surface impoundment. Therefore, the Agency maintains that an inactive CCR surface impoundment from which the liquid has leaked over time, leaving behind only CCR, is still a CCR surface impoundment. Such an impoundment meets the definition of Section 3.143 of the Act because it is designed to hold an accumulation of CCR and liquids while operational, and still stores CCR after the liquids have leaked away into groundwater.

Storage of CCR presumes that the CCR's residence within the impoundment is not permanent. Disposal of CCR means that the CCR's residence within the impoundment is permanent. Similar to periodic dewatering for CCR removal, CCR surface impoundments must be dewatered to allow the construction of a final cover system. On Pages 5 and 6 of its prehearing comments, Dynegy cites their expert witness, Lisa Bradley's testimony. Hrg, Ex. 23, p 31. On Page 31, Dr. Bradley quotes USEPA:

As USEPA notes "EPA's risk assessment shows that the highest risks are associated with CCR surface impoundments due to the hydraulic head imposed by impounded water."

The Agency agrees that the risks posed by a CCR surface impoundment containing CCR and liquids are greater than for a CCR surface impoundment containing only CCR, due to the potential for structural failure, and due to the greater hydraulic head within the CCR surface impoundment. However, if CCR will remain permanently, unless some type of cover system is

used to divert precipitation, water will continuously percolate through the remaining CCR and into groundwater. Dr. Bradley goes on to quote USEPA:

“...the Agency has concluded that **inactive CCR surface impoundments require regulatory oversight. The sole exception is for ‘inactive’ CCR surface impoundments that have completed dewatering and capping operations (in accordance with the capping requirements finalized in this rule)**...(emphasis added).

USEPA clearly states its position that inactive CCR surface impoundments require regulation and the only exceptions are inactive CCR surface impounds that are completely dewatered and have a cap that is consistent with Part 257. Given this position by USEPA, it appears the definition of “inactive CCR surface impoundment” in Part 257.53 is not intended to include CCR surface impoundments that have no liquids simply because the liquids have leaked into the environment. USEPA’s position is that a cap compliant with Part 257.102(d)(3), which prevents infiltration to the extent feasible, would be necessary to consider inactive CCR surface impoundments to be closed and therefore, not subject to Part 257.

USEPA’s position appears to parallel the Agency’s position which derives from Section 22.59(m) of the Act which states:

“The provisions of this Section shall apply, **without limitation**, to all existing CCR surface impoundments and any CCR surface impoundments constructed after the effective date of this amendatory Act of the 101st General Assembly, except to the extent prohibited by the Illinois or United States Constitutions.”(emphasis added)

This provision of the Act is quite inclusive. When Sections 3.143, 22.59(g)(1) and 22.59(m) of the Act are taken together they appear to provide the Board with the authority to regulate any CCR surface impoundment regardless of when it was initially operated or ceased operation. The deciding factor for which CCR surface impoundments must be regulated is provided in Part 257.50(a) and reiterated in Section 845.100(a): only CCR surface impoundments that pose no

reasonable probability of adverse effects on health or the environment need not be regulated. Some of the unlined CCR surface impoundments described above, which in the Agency's experience leaked dry, were allowed to remain uncovered to promote beneficial use of CCR. Though the concentrations of contaminants have declined, groundwater monitoring down gradient of these impoundments still exceed groundwater numerical quality standards after 25 years of inactivity. The Agency was aware of these circumstances when drafting proposed Part 845, and given the authority it believes exists in the Act, intentionally left out the term liquids in the definition of "inactive closed CCR surface impoundment" because experience has shown a cover system is needed to control potential effects to health and the environment to the maximum extent feasible.

Considering the authority of the Act and USEPA's stated position, as described above, Part 845 and Part 257 do conform. Therefore, to assure that the closure of CCR surface impoundments is regulated in a consistent and protective manner, the Agency urges the Board to keep the definition of "inactive CCR surface impoundment" as proposed.

F. Rudolph Bonaparte

In his Opinion 2, Mr. Bonaparte indicates that the low permeability portion of the final cover system can often meet the performance standards of Section 845.750(a). Hrg, Ex. 31, p. 6. In addition to meeting performance standards of Section 845.750, a primary objective of the final cover system is to meet the Groundwater Protection Standards of Section 845.600 at the waste boundary. Mr. Bonaparte then opines that at locations where performance standards cannot be met, the cover can be supplemented with one or more additional engineering measures.

In his Opinion 3, Mr. Bonaparte states, "This thickness (36 inches) will often be more than is needed to meet the cover system performance standards of Section 845.750(a) on a site

specific basis. This requirement is also more stringent than the 18-inch prescriptive minimum thickness for earthen low permeability layers in the Federal CCR Rule (40 CFR §257.102(d)(3)(i)(B)).” Hrg. Ex. 31, p. 7.

Taken together these two opinions argue against any need to require a given standard thickness for the low permeability cover because, if it does not work, a qualified professional engineer will be able to address a substandard cover with one or more additional engineering measures (which may be required to be operated indefinitely into the future). When a final cover is placed on a CCR surface impoundment that is being closed in place, the use of a final cover system, which is required as a final cover for landfills in Illinois, 35 Ill. Adm. Code 811.314, is appropriate. It is appropriate because a landfill has an engineered liner and a leachate collection and removal system.

Mr. Bonaparte’s Opinion 7 discusses slope limitations for grading and contouring prior to the placement of the final cover of a CCR surface impoundment as specified in Section 845.750(d). Hrg. Ex. 31, p. 7-15. Due to the need for freeboard in a CCR surface impoundment and in some cases the CCR design storage capacity not having been fully utilized, there may be CCR storage capacity available when an impoundment is taken out of service. Part 845.750(d) provides for the use of CCR in the surface impoundment closure process. The limits for use of CCR are consistent with the requirement under Part 845.700 to cease placing CCR and non CCR waste streams in the impoundment, while allowing existing impoundment storage capacity to be utilized through consolidation of CCR onsite. This Part 845 requirement is consistent with the Board regulations found in Section 840.124 Final Slope and Stabilization.

G. Richard Gnat

Mr. Gnat suggests that clarifications should be added to Part 845 regarding the collection of groundwater samples and the receipt of the data. While Mr. Gnat makes these suggestions under the heading of Section 845.610, the Agency will address these topics in subsequent Sections where specific relevant subsections can be discussed in context. Hrg. Ex. 52, p. 4.

Mr. Gnat's discusses Section 845.620 and suggests the need for clarifying language in subsections 845.620(b)(3), (4), (13) and (15), but offers no specific alternative language for those subsections. Hrg. Ex. 52, p. 5-6. In subsections (b)(3) ("identification of nearby surface water bodies and surface water intakes") and (b)(4) ("identification of nearby pumping wells and associated uses of groundwater"), Mr. Gnat is concerned that the term "nearby" is vague. The Agency considered several alternatives to the ultimate language proposed. While the Agency is generally aware that some CCR surface impoundments may be located nearly a mile from the nearest major lake or stream, and others may be within 100 feet, it doesn't have detailed site-specific hydrogeologic information at every generating facility. The Agency also was not fully unaware of the extent to which potentially contaminated groundwater seepage may impact closer bodies of water, which are generally not large. Similarly, lack of site specific hydrogeologic data makes an appropriate fixed radius to identify wells rather arbitrary. The need for well identification in the up gradient direction would not include a distance as large as would be prudent in the down gradient direction. Therefore, a fixed distance unless very large may not adequately cover the area of interest, and a large fixed radius of evaluation may be unnecessarily inclusive in other instances. Therefore, the Agency opted for the chosen term to account for site specific variation and opposes revision.

Subsection (b)(13) is also a site-specific piece of data that will vary based on the location. Some areas may have extensive hydrogeologic data for the area extending well below 100 feet, while in other instances, generalized surficial maps may be the extent of available data. As it responded in its Pre-Filed Answers, the Agency will accept existing data if it meets the required purpose, but wants to ensure that it has no obligation to accept previous data should it find it lacking in some regard. Hrg. Ex. 3, p. 23. Mr. Gnat is correct in his testimony that a wide spectrum of data may be needed to adequately characterize the particular chemical and physical properties of subsurface formations that may be present at any given site. Hrg. Ex. 52, p. 5-6. That variation in need may result from the type of formations that exist and their potential to form contaminant migration pathways or preclude such migration pathways.

The Agency has intentionally opted not to be overly prescriptive in its requirements in these subsections to allow flexibility on a site-specific basis. The Agency has experienced engineers and geologists able to interpret the data submitted by owners and operators. The requirements of subsections 845.620(b)(3), (4), (13) and (15) provide a list of information owners and operators must submit based on their understanding of their individual sites. The Agency, in subsection 845.620(b)(19), can request additional information, if it is not confident the data already supplied adequately characterizes the site. Therefore, the Agency believes subsections 845.620(b)(3), (4), (13) and (15) should remain as proposed in its March 30, 2020 filing.

In Mr. Gnat's testimony, primarily Pages 8 and 9, he recommends that Section 845.650 be revised to allow site specific monitoring programs based on an analysis of the CCR in the impoundment. Hrg. Ex. 52. The Agency is opposed to site specific monitoring programs, particularly if based on CCR analysis, for several reasons. Most importantly, 40 CFR 257.95(b)

requires that all Appendix IV constituents must be sampled at least annually, and 40 CFR 257.95(d)(1) requires that all Appendix III and all detected Appendix IV constituents be sampled at least semi-annually. Therefore, not monitoring all constituents found in Part 257 Appendix III and IV, would not be as protective and comprehensive as Part 257 as required by Section 22.59(g) of the Act. Additionally, many older CCR surface impoundments have been used for decades, with changing coal sources over time. Collecting representative samples to accurately characterize the full volume of waste would be difficult to document. Further, the potential variable contaminant plumes from other on-site or off-site sources makes having a consistent monitoring program more useful for evaluating releases from any specific CCR surface impoundment. Therefore, to be at least as protective and comprehensive as Part 257, the Agency opposes allowing site specific constituent lists for groundwater monitoring.

On Pages 10 and 11 of Mr. Gnat's testimony he suggests revision of Section 845.650(b)(1)(A) but provides no suggested revised language. Hrg. Ex. 52. Mr. Gnat states that a longer time frame was provided in Part 257 for existing CCR surface impoundments to conduct initial groundwater monitoring. *Id.* While Part 257, which was adopted October 15, 2015, does state that owners and operators of existing CCR surface impoundments have until October 17, 2017, to complete the collection of 8 rounds of background monitoring, Part 257 does not require that the monitoring be spread over any specified time period. 40 CFR 257.94(b) also requires that owners and operators of new CCR surface impoundments and lateral expansions of CCR surface impoundments collect 8 rounds of background samples during the first six months of monitoring. The Agency agrees that a longer time period will typically yield a better statistical estimation of true constituent concentrations, but so will an increased number of samples and an

increased number of monitoring points. Neither of the latter solutions to statistical calculations are being suggested.

Mr. Gnat also correctly points out that the Agency has identified CCR surface impoundments that owners and operators have not reported under Part 257. Hrg. Ex. 52, p. 10-12. The Agency believes it is appropriate to begin groundwater monitoring at these CCR surface impoundments promptly and determine if there are identifiable exceedances of groundwater protection standards as expeditiously as possible. Importantly, Part 845 does not prohibit the use of existing groundwater monitoring data. While groundwater monitoring systems and groundwater monitoring programs developed under Part 257 or other monitoring programs are subject to Agency review and approval for inclusion under Part 845, all or parts of data sets can be used to enhance statistical power.

Also, Part 845 has set timelines by which owners and operators must cease receiving waste and submit construction permits for closure. Category 1 through 4 CCR surface impoundments must submit closure construction permits by January 1, 2022, which is less than a year after the required adoption date of Part 845. Any CCR surface impoundment which has not already started monitoring under Part 257 will have to act quickly to obtain required information for the Part 845 permit. Therefore, the Agency believes the Board should adopt Section 845.650 as proposed, with only the revisions suggested by the Agency. See Section V and Attachment A.

Mr. Gnat's testimony further suggests revision of Section 845.650(d), claiming that Part 257 allows significantly more time: approximately 360 days from the detection of an exceedance to the initiation of an assessment of corrective measures, while Part 845 allows only 90 days. Hrg. Ex. 52, p. 12-15. To clarify, Part 257 allows 360 days for an owner or operator to decide if an exceedance of a groundwater protection standard has occurred. Once the decision has been

made that an exceedance of a groundwater protection standard has occurred, both Part 257 and Part 845 allow 90 days to begin an assessment of corrective measures. The Agency acknowledges that Part 257 provides the same 90-day period for an ASD as it does to begin an assessment of corrective measures, while Part 845 allows only 60 days for an ASD. However, there is currently no USEPA review of the ASD under Part 257, while under Part 845 the Agency must review and respond to the ASD before the 90-day clock runs out for initiation of the assessment of corrective measures. The Agency agrees with Mr. Gnat's testimony that a detected exceedance of a groundwater protection standard can't occur until an owner or operator is in possession of their monitoring results. Hrg. Ex. 52, 4-5. The Agency does not believe any clarifying language is needed as it is obvious that until the analytical results are in hand, the contents of a laboratory analysis is not known.

Mr. Gnat also appears to believe that the two-tiered system in Part 257 is superior to the single tier monitoring program proposed by the Agency in Part 845. Hrg. Ex. 52, p. 12-14. However, under Part 257, the detection monitoring constituents of Appendix III (the first tier), never trigger corrective action, regardless of their concentration at the point of compliance. Under Part 257, the exceedance of an Appendix III constituent only triggers monitoring of Appendix IV constituents (the second tier). Importantly, all of the Appendix III constituents, with the exception of calcium and turbidity, which the Agency is proposing for monitoring for general water chemistry, have Part 620 groundwater quality standards. Therefore, the Agency believes it is most appropriate to have enforceable groundwater protection standards in Part 845 for all of the constituents that have a corresponding enforceable groundwater quality standard in Part 620. The numerical groundwater protection standards also make it easier, and shorten the required time, for an owner or operator to determine if an exceedance of a groundwater

protection standard has occurred. Unless the background concentration of a constituent is higher than the numerical groundwater protection standard, a confirmed detection above the numerical value is an exceedance, requiring either a successful ASD or the assessment of corrective measures. Therefore, the Agency further urges the Board to adopt Section 845.650 as proposed, with only the revisions suggested by the Agency. See Section V and Attachment A.

Mr. Gnat suggests revision of Section 845.650(b)(1) to allow a modification to the frequency of the sampling events from quarterly to semi-annually. Hrg. Ex. 52, p. 15-16. Mr. Gnat suggests a 3-5-year time frame for the switch from a minimum of quarterly to a semi-annual schedule. Part 257 requires that Appendix III constituents be monitored at least semi-annually until the end of post-closure care, which can't end until corrective action has been completed. When closing with a final cover system, the minimum post-closure care period is 30 years, which may extend beyond that to complete corrective action. The Agency believes that groundwater monitoring conducted as part of corrective action may in some instances require a sampling frequency shorter than quarterly for some period of time. Therefore, if the Board does allow an owner or operator to switch to a semi-annual monitoring schedule, the allowance should include a provision for a more frequent schedule.

The Agency recommends that the Board adopt the quarterly groundwater monitoring frequency as proposed in Section 845.650(b)(1). However, if the Board does adopt an alternative sampling schedule, the Agency believes to be as protective and comprehensive as Part 257, the monitoring schedule cannot be less than semi-annually. Further, if the Board does adopt an alternative sampling schedule, the Agency urges the Board to make any change in groundwater monitoring frequency subject to Agency review and approval, not a predetermined number of years. The Agency believes basing a change in frequency on a fixed number of years

is not appropriate as site variability in hydrogeologic and other site-specific conditions are not considered.

Mr. Gnat suggests revision of Section 845.660(a)(1), which would allow at least one extra quarter to begin an assessment of corrective measures. Hrg. Ex. 52, p. 18. However, as the Agency explained in its comments regarding Mr. Gnat's testimony on Section 845.650(d), the amount of time allowed to initiate an assessment of corrective measures in Part 257 and Part 845 are the same (i.e. 90 days). However, the difference between Part 257 and Part 845 is that Part 257 allows owners and operators approximately one year to determine if an exceedance of a groundwater protection standard has occurred. To remain as protective and comprehensive as Part 257, Part 845 cannot be revised to allow more than 90 days between a confirmed exceedance of a groundwater protection standard and the initiation of an assessment of corrective action. Therefore, the Agency believes the Board should adopt Section 845.660, with only the revisions suggested by the Agency in its final redline Part 845 document. See Section V and Attachment A.

H. David Nielson

One of the Agency's objectives in the promulgation of Part 845 is to afford Illinois' groundwater resources equal protection regardless of the means by which an owner or operator elects to manage CCR. CCR managed by either landfilling or impounding has the potential to contaminate groundwater; however, managing CCR in an impoundment carries with it a greater potential to migrate through the engineered impoundment liner and contaminate groundwater due to the very nature of the practice of moving and managing CCR in water. See SOR Part IV ("Regulatory Proposal: Language"), Section 845.420: Leachate Collection and Removal System). The source of the threat is hydraulic head (head). Head can best be described as a

physical quantity capable of being measured in a flow system in which flow always occurs from regions where head has higher values to regions where head is lower. The reason that head on a landfill liner is minimized is to reduce the threat of migration of liquid waste from the landfill into groundwater below the landfill. *Id.* The reduction of head on the liner of an CCR impoundment is equally as important as reducing the head on the liner of a CCR landfill. In his testimony Mr. Nielson fails to point to any significant differences in how hydraulic head acts upon the liners of CCR landfills and CCR surface impoundments. Hrg. Ex. 50, p 6. Therefore, Mr. Neilson's testimony does not support elimination of leachate collection and removal systems, which would reduce the head in a CCR surface impoundment as is required in 40 CFR 257.70(d) for CCR landfills.

The Agency's position on the importance of requiring a leachate collection system is fully supported by the USEPA 2014 Risk Assessment ("RA") because it did evaluate composite liners with leachate collection systems.

The RA's evaluation of CCR surface impoundments considered three liner scenarios; no liner, a clay liner and a composite liner. Hrg. Ex. 50, Ex. 1, p. 4- 8 and 4-9. The composite liner modeled in the RA included a leachate collection system above the composite liner. The RA did not assess a composite liner scenario without a leachate collection system. Mr. Nielson's response to Board question 18(b) includes the following:

"The modeling of composite lined WMUs by the USEPA assumed a leachate collections system exists between the waste and the liner system. **Based on this discussion it can be concluded that leachate collection was considered for composite lined WMUs.** However, in subsequent sections of the Risk Assessment, it appears that the US EPA assumed that a leachate collection and removal system were not installed or operational based on the US EPA's discussions of hydraulic head of the ponded water in CCR surface impoundments." Hrg. Ex. 50, p. 34.

Mr. Nielson carefully uses the term “appears” when expressing his contention that “the US EPA assumed that a leachate collection and removal system were not installed or operational based on the US EPA’s discussions of hydraulic head associated with the ponded water in CCR surface impoundments” Hrg. Ex. 50, p. 34. This argument fails to address the discussion of head from ponded water in a CCR surface impoundment modeled with no liner or a clay liner, neither of which were modeled with an operating leachate collection and removal system. The build-up of head from ponded water in these situations would be expected.

Mr. Nielson then moves on to support his position that CCR impoundments do not need leachate collection by discussing the comparison of model results with damage cases addressed in the RA. In his pre-filed response to Board Question 18(b), Mr. Nielson references page 5-47 of the RA, as follows:

“The vast majority of damage cases were associated with unlined surface impoundments and landfills. **No damage cases were identified for composite-lined units. This agrees well with the results of the sensitivity analyses, which showed that risks were significantly higher for unlined WMUs than for other units, and that risks for composite-lined units were far below all cancer and noncancer criteria.**” (Bolding added for emphasis)” in original. Hrg. Ex. 50, p. 35.

The RA discusses the infiltration process where water migrates through an impoundment and then enters the soil beneath the impoundment. The RA states, “During the Monte Carlo loop, EPACMTP used the assigned liner type, together with the assigned WMU type and local climate data to calculate an infiltration rate, as described in Appendix A of the EPACMTP background document (U.S. EPA, 2003b)”. Hrg. Ex. 50, Ex. 1p. 4- 8 and 4-9. Through this process the attributes of the composite liner were taken into account, including the effect of the leachate collection system which was part of the composite liner system. The conclusion section of the RA states, “Composite-lined units were found to be the most protective disposal practice,

resulting in risks far below all criteria identified in this risk assessment.” Hrg. Ex. 50, Ex. 1, p. 6-11. It would not be unexpected for the modeling results for composite lined units to show low risk because these composite lined CCR impoundments were modeled with leachate collection systems.

Midwest Generation’s October 1, 2020 First Post Hearing Comment (“MWG PHC”) provided supplemental responses to questions Illinois EPA asked Mr. Nielson at hearing regarding his “conclusion that the Human and Ecological Risk Assessment of Coal Combustion Residuals, December 2014, Regulation Identifier Number: 2050-AE81 (“Risk Assessment”) did not model coal combustion residual (“CCR”) surface impoundments with leachate collection systems.” MWG PHC, p. 1. However, with respect to Mr. Nielson’s conclusion, it is important to note that pages 4-8 and 4-9 of the RA state the following regarding the modelled composite liner:

“Composite Liner Scenario: Waste is placed on a liner system that consists of a plastic liner (e.g., high-density polyethylene membrane) underlain by either a natural or geosynthetic clay liner. *A leachate collection system is assumed to exist between the waste and the liner system.* (emphasis added) Hrg. Ex. 50, Ex. 1.

In this supplemental response to Agency hearing questions, Mr. Nielson references portions of the RA to support his conclusion that the RA did not model CCR surface impoundments with operating leachate collection systems as follows:

“Risk Assessment Section 4.3.1 on p. 4-6 states:

“Most surface impoundments are known to be periodically dredged. Since this dredging would remove any potential source postclosure, only the operational phase of a surface impoundment was modeled.” MWG PHC, p 1.

The point made in RA Section 4.3.1 is that for CCR impoundments, the operational phase of the impoundment was modeled. The above quote from the RA does not address how the operation phase of the impoundment should be modeled nor does it speak to whether a leachate collection system was modeled. The RA indicates that the CCR impoundments were modeled using three

liner types, no liner, a clay liner or a composite liner, where. “a leachate collection system is assumed to exist between the waste and the liner.” Hrg. Ex. 50, Ex. 1, p.4-8. , Considering the RA as a whole, the portion of the RA quoted by Mr. Nielson in no way supports his contention that the composite liner was not modeled with an operating leachate collection system.

Mr. Nielson provided the following:

“Risk Assessment Section 4.3.1 on p. 4-6 states:

“The highest releases from surface impoundments are anticipated to occur during operational life due to the presence of a large hydraulic head that will drive infiltration rates. As a result, the length of the operating life was a key parameter for this analysis”.” MWG PHC, p. 1.

The above quote from the RA does not speak to whether a leachate collection system was or was not modeled. As the RA notes the CCR impoundments were modeled using three liner types, no liner, a clay liner or a composite liner with a leachate collection system. These “highest releases” attributed to the large hydraulic head would be expected to be found in CCR impoundments without an operating leachate collection system, but again,, the portion of the RA quoted by Mr. Nielson in no way supports his contention that the composite liner was not modeled with an operating leachate collection system.

Mr. Nielson provided the following:

“Risk Assessment Section 2.2.1 on p. 2-3 states:

“It is assumed that all waste is removed from most units prior to closure (i.e., clean closure). However, in some instances, waste is left in place and the unit is closed and capped. Closed surface impoundments are assumed to behave the same as a closed landfill.” MWG PHC, p. 1.

It is difficult to understand or decipher just what the above quote provided by Mr. Nielson has to do with his contention that the composite liners were not modeled with an operating leachate collection system, since landfills have leachate collection and removal systems. Once again, this

portion of the RA quoted by Mr. Nielson in no way supports his contention that the composite liners were not modeled with an operating leachate collection system.

Mr. Nielson's first October 1, 2020 supplemental comment provided the following:

"Risk Assessment Section K.2.1 on p. K-1 states:

"The removal of free liquids and capping during closure reduces the hydraulic head and the rate of contaminant migration. After closure is complete, infiltration through the impoundments is driven only by percolation of incident precipitation through the cap." MWG PHC, p. 1.

The above quote from the RA does not address how the operational phase of the impoundment should be modeled nor does it speak to whether the composite lined CCR surface impoundments modeled in the RA included an operating leachate collection system. The information quoted by Mr. Nielson accurately describes a reduction in the rate of infiltration which could be expected for a surface impoundment with free liquids removed. Once again, this portion of the RA quoted by Mr. Nielson in no way supports his contention that the surface impoundments with composite liners were not modeled with an operating leachate collection system.

The RA clearly indicates that the CCR impoundments were modeled using three liner types, no liner, a clay liner or a composite liner with a leachate collection system. As illustrated above, nothing in the quoted language relied upon by Mr. Nielson supports his conclusion that the RA did not model surface impoundments with leachate collection systems. If anything, the quoted language illustrates the threat hydraulic head poses during the operational life of a surface impoundment and supports the Agency's inclusion of a leachate collection and removal system between the waste and the liner system as modelled in the RA, since the large hydraulic head repeatedly referenced as a threat would

not be expected to be found in composite lined impoundments with an operating leachate collection and removal system as modeled in the RA.

Mr. Nielson provides the following in his pre-filed testimony:

“The IEPA’s basis for requiring a leachate collection and removal system is to reduce the hydraulic head on an impoundment’s liner as a proactive means of protecting groundwater (Reference 1, p. 19). However, the Proposed Illinois CCR Rule does not mandate the removal of leachate or the maximum hydraulic head level on a pond liner system. Moreover, during the August 12, 2020 Hearing, Ms. Gale asked, “So are you saying that under these rules the head should be limited to 30 centimeters?” and Mr. Buscher of the IEPA responded “... no, I don't think that can be done because it's an operational consideration of the CCR impoundment. I think that that might not allow the owner or operator of a CCR impoundment the flexibility they need to properly operate the impoundment.” (Reference 6, p. 141. l. 15 – 24). I concur with Mr. Buscher’s opinion regarding mandating a maximum water level above the liner of CCR impoundments in Illinois.” Hrg. Ex. 50 p.6.

With regard to the testimony above, due to the nature of the operation of a CCR impoundment there are operational concerns which the owner/operator would need to consider, for example, dust control as well as the use of the impoundment water in the operation of a power plant to cool and move the CCR from a power station to a waste treatment unit. These needs may delay the use of a leachate collection system to reduce hydraulic head on the liner. The Agency’s intent for requiring a leachate collection system is to provide the ability to reduce head on the CCR liner during impoundment operation and to facilitate the removal of free liquids at the time of closure. The Agency has proposed additional language to clarify the operational requirements for new and retrofitted surface impoundments constructed with leachate collection and removal systems required by Part 845 as proposed. See Section V and Attachment A.

Mr. Nielson suggests the Board allow an alternative method of leachate collection that is at least as protective as the system proposed in Part 845. Hrg. Ex. 50, p 8. Mr. Nielson provided an example of an alternative leachate collection and removal system utilizing a dual liner with the

leachate collection and removal system placed below the composite liner required by 845 and on top of a low permeability geomembrane liner. The Agency has a strong preference for the leachate collection and removal system as proposed, however if the Board considers an alternative system it should contain specific design details. The Agency requests the alternative not contain language which is subject to interpretation as proposed in Mr. Nielson's testimony as follows: "an alternative method of leachate collection that is at least as protective as the system required by the Proposed Illinois CCR Rule" Hrg. Ex. 50, p 9. This type of vague language would necessarily lead to litigation over varying interpretations and should not be adopted.

I. Gary King

Ameren proposed the following revision to Section 845.120:

"Inactive Closed CCR surface impoundment" means an inactive CCR surface impoundment that completed closure before ~~October 19, 2015~~ the effective date of this Part with an Illinois EPA approved closure plan."

The Agency believes the definition of "inactive closed CCR surface impoundment" should remain as proposed by the Agency. The Agency acknowledges that Ameren has expended considerable resources to close inactive CCR surface impoundments at inactive generating facilities under State authority; however, Ameren fails to acknowledge federal authority under Part 257 and additional State authority and obligations pursuant to Section 22.59 of the Act.

Section 22.59 of the Act requires that the rules the Agency propose, and the Board adopt, be at least as protective and comprehensive as Part 257. The WIIN Act allowed USEPA to develop a CCR permit program, or delegate such a program to the states. In order to receive delegation, Illinois EPA will have to gain USEPA approval of Illinois' CCR surface impoundment program by having a state program at least as stringent as the federal program.

When drafting the rule, the Agency reasoned that for any CCR surface impoundment to be considered closed, the CCR surface impoundment would have to have an Agency approved closure plan in order to verify that the closure meets the minimum USEPA criteria. Further, Part 257 contains requirements not contained in any current State rules regulating surface impoundments, such as compliance with groundwater protection standards at the down gradient waste boundary. Given these conditions, the Agency believed it prudent to use the effective date of Part 257 (October 19, 2015) as the cut-off date for CCR surface impoundments that should be considered closed under State authority, and therefore, not subject to all of the requirements of Part 845, many of which originate in Part 257.

On Page 9 of his testimony, Mr. King states: “Further, even though *all* of Ameren’s former ash ponds are now closed, the Illinois EPA’s rules as proposed would only recognize the two at Venice and Hutsonville Pond D as closed.” Hrg. Ex. 55. This statement is incorrect. As proposed, Sections 845.740(a) and (b) divide the completion of closure by removal and completion of groundwater monitoring and corrective action into a two-step process. The Agency is proposing revisions to Section 845.740 to clarify when closure by removal is complete. See Section V and Attachment A. As currently written, 40 CFR 257.102(c) does not separate the CCR removal process from required monitoring and groundwater corrective action. See Section III and Hrg. Ex. 8, p. 483. Groundwater corrective action is still on-going at Hutsonville, therefore under current Part 257.102(c), closure by removal can’t be complete. The Agency had previously stated that it believed it would have to revise proposed 845 to accommodate this difference with current Part 257, because proposed Part 845 does separate removal from groundwater corrective action. Hrg. Transcript. Aug. 25, 2020, p 49-50. However, after further examination of the specific Part 257 requirements, the Agency believes the

amendment proposed by USEPA to Part 257 is more protective and comprehensive than the adopted version of part 257. For example, the Part 257 proposal includes a 3-year confirmation groundwater monitoring period, provides greater specificity for what constitutes removal and requires a deed notation until corrective action is completed. The Agency believes only minor revisions to Part 845 will clarify this position, and has recommended revisions to Section 845.740(a) and Section 845.760(c)(3) to make these clarifications, which are discussed in Section V and reflected in Attachment A.

The Agency purposely took a conservative approach when defining “inactive closed CCR surface impoundments” in Part 845. As various witnesses have testified, in the preamble of Part 257, USEPA stated that its intent was not to regulate CCR surface impoundments in Part 257 that had already closed. Hrg. Ex. 5, p. 21343. The Part 257 Preamble also states that USEPA has concluded: “...that **inactive CCR surface impoundments require regulatory oversight. The sole exception is for ‘inactive’ CCR surface impoundments that have completed dewatering and capping operations (in accordance with the capping requirements finalized in this rule)**...(emphasis added). Hrg. Ex. 5, p. 21342. These seemingly contradictory statements in the preamble must be weighed against the requirements USEPA codified in Part 257. The current version of Part 257 acknowledges closure by removal, but doesn’t consider the closure process to be complete until all CCR is removed and all areas affected by releases of CCR have been decontaminated, and the constituent concentrations in groundwater meet the groundwater protection standards. 40 CFR 257.102(c). Part 257 also recognizes closure with a final cover system as a viable option. In this instance, Part 257 requires a cover system that has a permeability less than any bottom liner or natural soils, but at a minimum must have permeability no greater than 1×10^{-5} cm/sec. 40 CFR 257.102(d)(3)(i)(A)-(D). However, when

either closure method is used, the primary consideration is that the CCR surface impoundment pose no reasonable probability of adverse effects on health or the environment, consistent with Part 257.50(a) and Section 845.100(a). Given these facts and circumstances, the Agency urges the Board to adopt the definition of “inactive closed CCR surface impoundment” as proposed by the Agency.

Ameren proposed the following addition to Section 845.100:

A former ash pond that was closed by removal of CCR pursuant to a state-approved closure plan prior to the effective date of this Part is not a surface impoundment as defined in Section 3.143 of the Act, and is not subject to this Part.

The Agency believes the proposed revision is inappropriate and objects to its inclusion in Section 845.100. As discussed elsewhere in the Agency’s post-hearing comments regarding the definition of “inactive closed CCR surface impoundment,” the Agency’s position is that any CCR surface impoundment which has not closed in a manner consistent with the rules adopted by USEPA in Part 257, should not, at this time, be considered closed.

The Agency also objects to the use of the term “former ash pond” as overly vague, and inconsistent with the rest of Part 845. Part 257, upon which Part 845 is largely modelled, and P.A 101-171 consistently refer to CCR surface impoundments. However, even if the revised language referred to a “former CCR surface impoundment”, the revision is unacceptable. Like Part 257, Part 845.100(a) states:

This Part establishes criteria for the purpose of determining which CCR surface impoundments do not pose a reasonable probability of adverse effects on health or the environment. CCR surface impoundments failing to satisfy any of the requirements of this Part are considered open dumps, which are prohibited.

Section 22.59(m) of the Act requires the proposed rules to apply to all existing CCR surface impoundments and any CCR surface impoundments constructed after the date of the amendatory

Act. Accordingly, Part 845 establishes criteria for future construction of CCR surface impoundments, and when and in what manner, existing CCR surface impoundments (i.e., any surface impoundment constructed before the amendatory Act) must be closed. Mr. King cites the definition of CCR surface impoundment found in Section 3.143 of the Act as one reason why the above “clarifying” language is proposed to Section 845.100. Hrg. Ex. 55, p. 19. The Agency’s purpose in proposing Part 845 as it did was to include all surface impoundments “*designed to hold an accumulation of CCR and liquids*” (emphasis added). However, until those CCR surface impoundments have satisfied all of the Part 845 requirements, they cannot achieve the standard stated in Section 845.100(a), and therefore, are not “former” CCR surface impoundments. Therefore, as discussed above, this proposed revision should not be accepted.

Ameren proposed the following revision to Section 845.100:

This Part does not apply to any CCR surface impoundment that is subject to 35 Ill. Adm. Code Part 840.

The Agency objects to the inclusion of this revision in Section 845.100. Part 840 established closure and post-closure care requirements for Hutsonville Pond D. As stated in Mr. King’s testimony, Part 840 did create a model which has been followed for many of the closure and post-closure care plans the Agency has approved. Hrg. Ex. 55, p. 21. Part 845 recognizes those aspects of Part 840, and therefore, establishes minimal additional criteria applicable to any inactive closed CCR surface impoundment. For example: Part 845 recognizes corrective action that has already been taken at inactive closed CCR surface impoundments. However, unlike Part 845, financial assurance was not included in Part 840, as the legislative authority to do so was established by P.A. 101-171. Additionally, corrective action in the event of new releases, such as an unexpected catastrophic failure of a CCR surface impoundment in post-closure care, is required in Part 845, but is not explicitly required in Part 840.

The Agency also disagrees with Mr. King's testimony that having Part 845 applicable to the same CCR surface impoundment as Part 840 "is fraught with difficulty and potential inconsistency (including separate enforcement structures, each with separate and independent penalties)". Neither Part 845, nor Part 840 contain any type of penalty language. Any enforcement would be initiated and carried out pursuant to the Act, under Part 840 or Part 845. Therefore, as discussed above, the Agency believes this proposed revision should not be accepted.

Ameren proposed the following revision to Section 845.100:

This Part does not apply to any CCR surface impoundment that ceased accepting waste prior to October 21, 1976.

The Agency objects to the inclusion of this revision in Section 845.100. Section 22.59(m) of the Act distinguishes between two types of CCR surface impoundments: "...all existing CCR surface impoundments and any CCR surface impoundment constructed after the effective date of this amendatory Act...". Section 22.59(m) also requires that "...provisions of the Section shall apply **without limitation**..." (emphasis added), to those same CCR surface impoundments. As discussed above in the Agency's comments about the definition of inactive closed CCR surface impoundments, the Agency believes in order to be considered closed, a CCR surface impoundment must meet at least the minimum criteria adopted by USEPA in Part 257, which are also contained in Part 845. The Agency is not debating whether RCRA ~~or Part 845~~ applies to CCR surface impoundments that ceased receiving waste prior to October 21, 1976, since Section 22.59(m) of the Act casts a broader net. Part 257, which is a RCRA regulatory program, provides consistent criteria by which all CCR surface impoundments can be closed, and is the baseline required for Board rules adopted pursuant to Section 22.59(g) of the Act, but is certainly not a limitation to the Board's authority or mandates under the Act. To assure that

these old CCR surface impoundments do not pose unreasonable risks to health and the environment, they must be included in Part 845. Therefore, the Agency believes this proposed revision should not be accepted.

Ameren proposed the following revision (deletion) to Section 845.740(b):

~~b) After closure by removal has been completed, the owner or operator must continue groundwater monitoring pursuant to Subpart F for three years after the completion of closure or for three years after groundwater monitoring does not show an exceedance of the groundwater protection standard established pursuant to Section 845.600, whichever is longer.~~

The Agency objects to the proposed revision in Section 845.740, which proposes to delete subsection (b). On Pages 22 and 23 of Mr. Kings testimony, the 3 years of confirmatory monitoring are discussed as if they apply only to Ameren CCR surface impoundments. Section 845.740(b) is one of the Sections of Part 845 that separates completion of the physical removal of CCR and associated structures in a CCR surface impoundment, from on-going groundwater corrective action and the associated groundwater monitoring. As discussed in the Agency's comments on the definition of inactive closed CCR surface impoundment, upon further evaluation of the USEPA's proposed amendment to Part 257, the Agency concluded it is more protective and comprehensive than the current version of Part 257. One of those additional protective measures is the 3-year monitoring period to assure compliance with the groundwater protection standards following closure by removal. Such groundwater monitoring will establish that constituent concentrations have truly stabilized after groundwater corrective action has been completed, or if no exceedance of a groundwater protection standard exists at the initiation of closure, that condition still exists after the completion of closure by removal.

Incorporating the USEPA proposal into Part 845 will therefore put Part 845 in a good position for acceptance by USEPA to serve in leu of Part 257. If USEPA has adopted the

amendment to Part 257, Part 845 will be as protective and comprehensive as Part 257. If USEPA has not yet adopted the proposed amendment, at the time of program review, Part 845 will be more protective and comprehensive than Part 257. Therefore, incorporating the USEPA proposal has no negative effect on Part 845's potential for approval by USEPA. However, not adopting the USEPA proposal into Part 845 now, could require an amendment to Part 845 in order to gain USEPA approval of Illinois' CCR surface impoundment program in the future. Therefore, the Agency believes the proposed revision to delete Section 845.740(b) should not be accepted.

Finally, Ameren proposed a new Subpart J to require Agency cost recordkeeping, including tracking site-specific costs incurred by the Agency in administering Part 845. Hrg. Ex. 55, p. 23. Mr. King cites Part 740's accounting program as precedent for this proposal, stating that the Board has provided for such recordkeeping "accountability" measures in other programs where Illinois EPA is entitled to such fees, such as the Site Remediation Program (SRP). Hrg. Ex. 55, p. 23-24; Hrg. Ex. 57, p. 27. The Agency objects to the proposed addition as it is improper and unauthorized by the Act.

Section 22.59 statutorily sets forth initial and annual fees for those maintaining active or closed CCR impoundments and does not provide the Board any authority to make rules on the subject, as opposed to Section 58 of the Act that creates the SRP. Section 22.59(g) specifically sets forth the items for which the General Assembly (GA) authorized the Board to adopt rules, none of which include rules relating to fees. Rather, the GA statutorily created the fee structure in 22.59(j), determining a flat fee was appropriate. Had the GA intended the Agency to utilize its resources for site specific accounting or intended the Board to require Agency documentation of its costs, it could have done so as part of the statutorily created fee structure or rulemaking mandates in the Act. Instead, Section 22.59(j) does not provide for any sort of

accounting of how the money collected is utilized or whether it adequately covers the Agency's costs. Thus, there is no legal authorization or need for rules requiring such accounting as Mr. King suggests.

Contrast Sections 22.59(g) and 22.59(j) with Section 58.7 of the Act, which establishes how reviews and approvals of projects under SRP are conducted. Under Section 58.7(b)(1), the Agency is to provide review and evaluation services for SRP activities and “may require that the [remediation authority]... agree to pay any reasonable costs incurred and documented by the Agency for providing such services...”. The GA did not specify the amount of fees for this review under Section 58.7, as it did in Section 22.59. The rulemaking that created the reimbursement rules in Part 740 was in response to the need to establish the criteria for whether fees charged by the Agency for this review are indeed “reasonable.” There is no comparable language in Section 22.59, nor any Agency authority to seek reimbursement of costs from the owners or operators—the sole reason for Part 740's accounting requirements. For these reasons, the Board must reject Ameren's proposed Subpart J and any proposed rules governing the statutory fees.

V. Illinois EPA Proposed Revisions to Filed Proposal/First Notice Rule

Throughout this rulemaking proceeding, the participants have offered and discussed a myriad of potential and proposed revisions to Part 845 as originally proposed by Illinois EPA and sent to First Notice by the Board. After further and final review and consideration, Illinois EPA provides its preferred revisions to Part 845 in Attachment A. The Agency provides each revision with explanation below.

a. Section 845.100 Scope and Purpose

In its Pre-Filed Questions to the Agency, the Board asked if a revision of Section

845.100(a) as shown below was acceptable to the Agency. The Agency agreed that the revision was acceptable since it merely points the reader to the Section of the Act where the prohibition of open dumps is cited. Hrg. Ex. 2, p. 150.

- a) This Part establishes criteria for the purpose of determining which CCR surface impoundments do not pose a reasonable probability of adverse effects on health or the environment. CCR surface impoundments failing to satisfy any of the requirements of this Part are considered open dumps, which are prohibited under Section 21(a) of the Act.

b. Section 845.110 Applicability of Other Regulations

1. In its Pre-Filed Questions to the Agency, the Board asked if a revision of Section 845.110(b) as shown below was acceptable to the Agency. The Agency agreed that the revision was acceptable since it does not change the meaning of the subsection. Hrg. Ex. 2, p. 151.

- b) Any CCR surface impoundment or lateral expansion of a CCR surface impoundment is ~~continues to be~~ subject to the following requirements:

2. In its Pre-Filed Questions to the Agency, the Board asked if a revision of Section 845.110(b)(1)(A) as shown below was acceptable to the Agency. The Agency agreed that the revision was acceptable since it does not change the meaning of the subsection and makes the subsection consistent with the rest of this Part as it refers to CCR.

- 1) Floodplains:

- A) Facilities or practices in floodplains shall not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of ~~solid waste~~ CCR, so as to pose a hazard to human life, wildlife, or land or water resources.

3. In its Pre-Filed Questions to the Agency, the Board asked if a revision to Section 845.110(b)(1)(B)(i) reflecting FEMA's definition of a base flood was acceptable, and also asked the meaning of the phrase "significantly long period". In its response to the Board, the Agency

stated that it preferred to use the definition proposed in Part 845 since it mirrors the language in Section 3.102 of the Act and Part 257. The Agency also responded that “significantly long period” means “within the time of recorded weather records”. Hrg. Ex. 2, p. 152. At hearing, Mr. Rao and Mr. Dunaway discussed this question further. Mr. Dunaway explained the meaning of base flood defined by FEMA and in the Act are equivalent. Mr. Rao also asked if the meaning of “significantly long period” could be used in place of that phrase, and Mr. Dunaway responded that it could do so. Hrg. Transcript Aug. 11, 2020, p. 115-116. Upon further consideration, the Agency believes that with regard to base flood, “within the time of historical river level records” more correctly reflects the data set that should be used for reference. Also, consistent with its initial response to the Board, the Agency prefers to use the same language that appears in Part 257 for the definition of base flood. However, in response to the Board’s request for clarification of the meaning of “significantly long period” as shown below, the Agency offers the following revision to Section 845.110(b)(1)(B)(i).

B) As used in this subsection:

- i) Base flood means a flood that has a 1 percent or greater chance of recurring in any year or a flood of a magnitude equaled or exceeded once in 100 years on average ~~over a significantly long period~~ within the time of historical river level records.

4. In its Pre-Filed Questions to the Agency, the Board questioned the Agency’s use of “waters of the United States” in Section 845.110(b)(3). As explained, this provisions mirrors the language and federal citations in 40 CFR 257.3-3. The Agency has strong interest in adopting the language of Part 257 where possible and appropriate, but also intended to ensure the Act’s surface water protections’ continuing applicability. In light of the Board’s question, the Agency supports striking the reference to Section 12(f) of the Act in Section 845.110(b)(3)(A)

and adding a new subsection (b)(3)(E), which mirrors the language contained in 35 Ill. Adm. Code 309.120. The Agency believes that Section 845.110(b)(3) as revised below maintains consistency with Part 257, while including necessary and appropriate protections of waters of the State. Hrg. Ex. 2, p. 152-153.

3) Surface Water

A) A facility shall not cause a discharge of pollutants into waters of the United States that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES) under section 402 of the Clean Water Act, as amended, ~~Section 12(f) of the Act, or 35 Ill. Adm. Code Subtitle C.~~

E) Except as in compliance with the provisions of the Act, Board regulations, and the CWA, and the provisions and conditions of the NPDES permit issued to the discharger, the discharge of any contaminant or pollutant by any facility into waters of the State from a point source or into a well shall be unlawful.

c. Section 845.120 Definitions

1. In the Pre-Filed Questions to the Agency, the Board asked the Agency to propose a definition of the term 1000-year flood if it believes such a definition is appropriate. The Agency responded that according to the USGS, the 1000-year flood means that statically speaking, a flood of that magnitude (or greater) has a 1 in 1,000 chance of happening in any given year. Hrg. Ex. 2, p. 163. This statistical value is based on observed data. In response to the Board's request, the Agency is proposing the definition of 100-year flood as shown below.

"1000-year flood" means a flood of magnitude (or greater) of 1 in 1000 probability of occurring in any given year.

2. In its Pre-Filed Questions to the Agency, the Board asked the Agency to comment on a revision to the definition of "closed" to "closed CCR surface impoundment" in Section 845.120. The Agency responded that the definition of "closed" already makes it clear it is

referring to CCR surface impoundments. Further the word “closed” is used as part of other phrases which would become confusing with the addition of the words “CCR surface impoundments”. Hrg. Ex. 2, p. 153-154. However, in considering the Board’s question, the Agency suggests a revision to the definition of “closed” as shown below to clarify that the definition of closed used in Part 845 is specific to this Part.

“Closed” for the purposes of this Part means placement of CCR in a CCR surface impoundment has ceased, and the owner or operator has completed closure of the CCR surface impoundment and has initiated post-closure care in accordance with Subpart G.

3. In its Pre-Filed Questions to the Agency, the Board asked the Agency if the term “release” had the same meaning as Section 3.395 of the Act, if not what does constitute a release and if subsurface transport of contaminants that did not cause an exceedence of a groundwater protection standard would be considered a release. In the Agency’s response, it provided a proposed definition of the term “release” for the Board’s consideration. Hrg. Ex. 2, p. 168. Upon considerable questioning of the proposed definition at hearing, Hrg. Transcript Aug. 13, 2020, p. 42-60, 62-71 and further consideration, the Agency does not believe a contrasting definition to that provided in the Act is necessary, or even appropriate. Rather, the Agency has provided clarifying language in certain provisions to clarify its intent. See Section V and Attachment A.

d. Section 845.200 Permit Requirements and Standards of Issuance

In its Pre-Filed Questions to the Agency, the Board asked if the term “pursuant to” in Section 845.200(a)(1) was intended to limit the need for construction permits to only CCR surface impoundments where corrective action is required. In its response, the Agency explained that its intention was to require construction permits for all construction activities related to CCR surface impoundments including construction activities required for corrective action. Hrg. Ex. 2, p. 155. The revision shown below clarifies its intent.

a) Permit Requirements

- 1) No person shall construct, install, or modify a CCR surface impoundment or related treatment or mitigation facilities, ~~pursuant to~~ including corrective action measures under Subpart F, without a construction permit issued by the Agency pursuant to this Part.

e. **Section 845.210 General Provisions**

At hearing, following up on Board Question 19 to the Agency, Mr. Rao and Mr. LeCrone discussed the use of previous assessments and investigations, and whether those documents would have to be re-certified by a Licensed Professional Engineer and Mr. LeCrone stated that if the data was deemed valid by the Agency, it was the Agency's intention to use the data. Hrg. Exhibit 2, p. 156; Hrg. Transcript Aug. 11, 2020, p. 149-152. The Agency had not included a stipulation in Part 845 that assessments and investigations prepared by Licensed Professional Geologists would be accepted because Part 257 only recognizes work prepared by a Licensed Professional Engineer. The Agency believes that most Licensed Professional Engineers would not sign or certify the previous reports without essentially doing the work over again. The Board requested that the Agency propose a revision to Section 845.210(d)(1) that allows the Agency to consider previous reports prepared by either a Licensed Professional Engineer or Licensed Professional Geologist. The Agency's proposed revision to address the Board's request is shown below.

d) Previous Assessments, Investigations, Plans and Programs

- 1) The Agency may approve the use of any hydrogeologic site investigation or characterization, groundwater monitoring well or system, or groundwater monitoring plan, bearing the seal and signature of an Illinois Licensed Professional Geologist or Licensed Professional Engineer, completed prior to the effective date of these rules to satisfy the requirements of this Part.

f. Section 845.220 Construction Permits

1. At hearing, following up on the Agency's response to Board Question 25, Mr. Rao and Mr. LeCrone discussed whether the rule as proposed requires an owner or operator to consider issues raised by the public at the required pre-application public meetings, or to demonstrate to the Agency that these issues were considered. Hrg. Ex. 2, p.158-59, Hrg. Transcript, Aug. 12, 2020, p. 34-35. The Board requested that the Agency provide language specifically addressing this issue. The Agency proposes the revised language below, which requires submittal of a summary to the Agency:

- a) All construction permit applications must contain the following information and documents.
 - 9) Certification that the owner or operator of the CCR surface impoundment completed the public notification and public meetings required pursuant to Section 845.240, a summary of the issues raised by the public, a summary of any revisions, determinations, or other considerations made in response to those issues, and a list of interested persons in attendance who would like to be added to the Agency's listserv for the facility.

2. In its Pre-Filed Questions to the Agency, the Board asked if a revision of Section 845.220(b)(1) as shown below was acceptable to the Agency. The Agency agreed that the revision was acceptable since it does not change the meaning of the subsection. Hrg. Ex. 2, p. 156-57.

- b) New Construction. In addition to the requirements in subsection (a), all construction permit applications to build a new CCR surface impoundment, lateral expansion of a CCR surface impoundment, or retrofit an existing CCR surface impoundment must also contain the following information and documents:
 - 1) Plans and specifications that demonstrate the proposed CCR surface impoundment will meet the location standards in the following sections ~~not be~~:
 - A) ~~placed less than five feet above the uppermost aquifer pursuant to Section 845.300~~ (Placement Above the Uppermost Aquifer);

- B) ~~located in wetlands pursuant to~~ Section 845.310 (Wetlands);
- C) ~~located in fault areas pursuant to~~ Section 845.320 (Fault areas);
- D) ~~located in a seismic impact zone pursuant to~~ Section 845.330 (Seismic impact zones); and
- E) ~~located in an unstable area pursuant to~~ Section 845.340 (Unstable areas).

g. Section 845.230 Operating Permits

1. In the Agency's response to ELPC Pre-Filed Question 23(a), the Agency made the following suggestion, to help ensure that the financial assurance responsibilities are met by the owner or operator at the time of the initial operating permit applications for new CCR surface impoundments:

- a) Initial operating permit for a new CCR surface impoundments and any lateral expansion of a CCR surface impoundment.

17) A certification that the owner or operator meets the financial assurance requirements of Subpart I of this Part.

2. In its Pre-Filed Questions to the Agency, the Board noted a typographical error in Section 845.230(d)(2). The Agency has revised the Section to correct the error as shown below.

Hrg. Ex. 2, p. 157.

- d) Initial Operating Permit for Existing, Inactive and Inactive Closed CCR Surface Impoundments

2) The initial operating permit application for existing CCR surface impoundments that have not completed an Agency approved closure prior to July 30, 2021, must contain the following information and documents on forms prescribed by the Agency:

- DE) Evidence that the permanent markers required by Section 845.130 have been installed;

- ~~EF~~) Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in Section 845.430;
- ~~FG~~) Initial Emergency Action Plan certification, required by Section 845.520(e);
- ~~GH~~) Fugitive dust control plan certification, as required by Section 845.500(b)(7);
- ~~HI~~) Groundwater monitoring information:
 - i) a hydrogeologic site characterization meeting the requirements of Section 845.620;
 - ii) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630;
 - iii) a groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Section 845.640; and
 - iv) proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b);
- ~~IJ~~) Preliminary written closure plan, as specified in Section 845.720(a);
- ~~JK~~) Initial written post-closure care plan, as specified in Section 845.780(d), if applicable;
- ~~KL~~) A certification as specified in Section 845.400(h), or a statement that the CCR surface impoundment does not have a liner that meets the requirements of Section 845.400(b) or (c); and
- ~~LM~~) History of known exceedances of the groundwater protection standards in Section 845.600, and any corrective action taken to remediate the groundwater.

3. In the Agency's response to ELPC question 23(a), the Agency made the following suggestion, to ensure that the financial assurance responsibilities are met by the owner or

operator at the time of the initial operating permit applications for existing, inactive and inactive closed CCR surface impoundments:

- d) Initial Operating Permit for Existing, Inactive and Inactive Closed CCR Surface Impoundments
 - 2) The initial operating permit application for existing CCR surface impoundments that have not completed an Agency approved closure prior to July 30, 2021, must contain the following information and documents on forms prescribed by the Agency:
 - N) A certification that the owner or operator meets the financial assurance requirements of Subpart I of this Part.

h. Section 845.240 Pre-Application Public Notification and Public Meeting

1. The Agency received questions from ELPC concerning the timing of a notice of a proposed pre-application public meeting. Hrg. Ex. 2, p. 82-84. In order to clarify when such a notice must occur, the Agency proposes the revision to Section 845.240(b) shown below.

- b) The owner or operator must prepare and circulate a notice explaining the proposed construction project and any related activities and the time and place of the public meeting. Such a notification must be mailed, delivered, or posted at least 14 days prior to the public meeting. The owner or operator of the CCR surface impoundment must:

2. In its Pre-Filed Questions to the Agency, the Board asked if Section 845.240(b) should include the owner's or operator's contact information and address of the owner's or operator's internet website. The Agency agreed that such a revision would be a useful addition to Section 845.240(b) and provided a proposed revision as new subsection (b)(4) in its response to the Board, as shown below. Hrg. Ex. 2, p. 157-58.

- 4) include in the notice the owner or operator's contact information, the internet address where the information in Section 845.240(e) will be posted, and the date on which the information will be posted to the site.

3. The State of Illinois is a diverse state with many non-English speakers.

Comments and questions throughout the rulemaking process including listening sessions, as well as available demographic information, make it clear that some of those populations reside near coal ash impoundments. If those individuals express interest in a construction project at a coal ash impoundment, translation services should be provided at the public meetings, which is reflected in the Agency's proposed revision to Section 845.240(c).

- c) When a proposed construction project or any related activity is located in an area with a significant proportion of non-English speaking residents, the notification must be circulated, or broadcast, in both English and the appropriate non-English language, and the owner or operator must provide simultaneous translation services during the public meetings required by Section 845.240(a), if requested by non-English speaking members of the public.

4. At hearing, following up on the Agency's response to Board Question 25, the Board asked that the Agency provide language specifically requiring an owner or operator to consider issues raised by the public at the pre-application public meetings Hrg. Ex. 2, p. 158-59, Hrg. Transcript. Aug. 12, 2020, p. 34-35. In response, the Agency proposes new subsection (g) in Section 845.240.

- g) Fourteen (14) days following the public meetings required pursuant to Section 845.240, the owner or operator shall distribute a general summary of the issues raised by the public, as well as a response to those issues or comments raised the public. If these comments resulted in a revision, change in a decision, or other such considerations or determination, a summary of these revisions, changes, and considerations shall be included in the summary. Such a summary shall be distributed to any attendee who requests a copy at the public meeting.

- g h) This Section does not apply to applications for minor modifications as described in Section 845.280(d).

Section 845.260 Draft Permit Public Notice and Participation

1. The State of Illinois is a diverse state with many non-English speakers.

Comments and questions throughout the rulemaking process including listening sessions, as well

as available demographic information, make it clear that some of those populations reside near coal ash impoundments. To help ensure that there is an adequate opportunity for public participation in the permitting process in those areas with significant populations of non-English speakers, the Agency proposes to add translation of public notices where appropriate in new subsection (G) to Section 845.260(b)(2).

- 2) The contents of public notice of completed applications for permits shall include at least the following:

* * *

G) A translation of the public notice into the appropriate language or languages will be made if the Agency determines that a project is located within one mile of a significant population of non-English speaking residents.

2. In its Pre-Filed Questions, CWLP asked the Agency to explain the difference between Sections 845.260(c)(3) and (c)(5) or why both subsections are necessary. Hrg. Ex. 2, p. 131. In order to avoid confusion and clarify the requirements of Section 845.260(c), the Agency proposes combining the two provisions, as reflected below.

c) Public Comment Period

- 3) ~~All written comments submitted during the 30 day comment period shall be retained by the Agency and considered in the formulation of its final determination with respect to the permit application. The Agency shall~~ retain all timely submitted comments and consider them in the formulation of its final determination with respect to the permit application.
- 5) ~~The Agency shall consider all timely submitted comments.~~

3. The State of Illinois is a diverse state with many non-English speakers. Comments and questions throughout the rulemaking process including listening sessions, as well as available demographic information, make it clear that some of those populations reside near coal ash impoundments. To help ensure that there is an adequate opportunity for public participation in the permitting process in those areas with significant populations of non-English

speakers, the Agency proposes to add translation of public notices where appropriate in new subsection (I) to Section 845.260(e)(2).

e) Notice of Public Hearing

- 2) The contents of the public notice for the public hearing shall include at least the following:

I) A translation of the public notice into the appropriate language or languages will be made if the Agency determines that a project is located within one mile of a significant population of non-English speaking residents.

j. Section 845.270 Final Permit Determination and Appeal

Section 845.270(e) refers to Section 845.210(e) for filing an appeal of the Agency's permit determination. In its Pre-Filed Questions to the Agency, MWG asked how Section 845.210(e) as drafted is consistent with Section 40 of the Act, which states that if the Agency denies a permit "the applicant may, within 35 days after the date on which the Agency served its decision on the applicant." 415 ILCS 5/40. Hrg. Ex. 3, p. 13. The Agency acknowledges that there was an inconsistency between Section 845.270(e) and Section 40 of the Act and suggests revising Section 845.270(e) to reflect the language in the Act.

e) Appeal

- 3) All appeals must be filed with the Board within 35 days after the final action as specified in Section 845.210(e) is served on the applicant.

k. Location Restrictions

In its Pre-Filed Questions to the Agency, the Board asked whether it would be acceptable to the Agency if Sections 845.300(c), 845.310(c), 845.320(c), 845.330(c) and 845.340(d) are modified to require the submission of the qualified professional engineer's certification with the initial operating permit application. Hrg. Ex. 2, p. 162. The Agency's intent through Section 845.230(a)(1)(B) is for the professional

engineer's certification to be submitted as part of the demonstrations required in the initial operating permit. In the interest of providing clarity, it is acceptable to the Agency to include the Board's suggested language as shown below.

1. Section 845.300 Placement Above The Uppermost Aquifer

- c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency in the facility's initial operating permit application.

2. Section 845.310 Wetlands

- c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.

3. Section 845.320 Fault Areas

- c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.

4. Section 845.330 Seismic Impact Zones

- c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.

5. Section 845.340 Unstable Areas

- d) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.

I. Section 845.420 Leachate Collection and Removal System

Mr. Nielson, in his Pre-Filed Testimony on behalf of MWG, states, “The IEPA’s basis for requiring a leachate collection and removal system is to reduce the hydraulic head on an impoundment’s liner as a proactive means of protecting groundwater (Reference 1, p. 19). However, the Proposed Illinois CCR Rule does not mandate the removal of leachate or the maximum hydraulic head level on a pond liner system” Hrg. Ex. 50 p.6. Regarding Mr. Nielson’s comment, for clarification purposes the Agency proposes to add new subsection (10) to Section 845.420(a) to explicitly identify that leachate collection and removal systems must be operated, at a minimum, to remove free liquids during the closure and post closure care periods.

- a) The leachate collection and removal system must:
 - 8) have a protective layer or other means of deflecting the force of CCR pumped into the CCR surface impoundment; ~~and~~
 - 9) be designed and operated to minimize clogging during the active life and post-closure care period; and
 - 10) at a minimum, the leachate collection and removal system must be operated to remove free liquids from the CCR surface impoundment at the time of closure and during post closure care.

m. Section 845.500 Air Criteria

1. At hearing, ELPC asked whether the Agency would be willing to revise any proposed language referring to citizen, to instead refer to a member of the public. Hrg. Transcript Aug. 12, 2020, p. 193. The Agency agrees that members of the public is more inclusive and suggests the Board adopt the revision in Section 845.500(b)(2).

- 2) The CCR fugitive dust control plan must include procedures to log ~~citizen~~ complaints from members of the public received by the owner or operator involving CCR fugitive dust events at the facility.

2. In its responses to Pre-Filed Questions and at hearing, the Agency indicated that it would be reviewing fugitive dust plans posted to the owner or operator's website. At hearing, ELPC questioned how the Agency could be sure that the fugitive dust plans would be posted by the time certain permit applications are received. Hrg. Ex. 2, p. 76-77, Hrg. Transcript Aug. 12, 2020, p. 184-87. The Agency proposes a revision to Section 845.500(b)(6) to make clear than an owner or operator must provide fugitive dust plans to the Agency upon request

- 6) The owner or operator must place the initial and any amendments to the fugitive dust control plan in the facility's operating record as required by Section 845.800(d)(7). The owner or operator shall make the fugitive dust control plan available to the Agency at any time upon request.

3. At hearing, ELPC asked whether the Agency would be willing to revise any proposed language referring to citizen, to instead refer to a member of the public. Hrg. Transcript Aug. 12, 2020, p. 193. The Agency agrees that members of the public is more inclusive and suggests the Board adopt the revision in Section 845.500(c).

- c) Annual CCR fugitive dust control report. The owner or operator of a CCR surface impoundment 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 from members of the public, and a summary of any corrective measures taken. The annual CCR fugitive dust control report must be submitted as a part of the annual consolidated report required by Section 845.550.

n. **Section 845.510 Hydrologic and Hydraulic Capacity Requirements for CCR Surface Impoundments**

In response to Board Question 41 to the Agency, the Agency proposed a definition for a "1000-year flood" in Section 845.120. Hrg. Ex. 2, p. 163; see also Section V(C)(1) above. To make the text of Part 845 consistent with the text of the proposed definition, the Agency is proposing a revision to Section 845.510(a)(3)(B) as shown below.

- 3) The inflow design flood, at a minimum, is:

- B) For a Class 2 CCR surface impoundment, as determined under Section 845.440(a), the ~~1,000~~1000-year flood; or

o. Section 845.540 Inspection Requirements for CCR Surface Impoundments

1. In its Pre-Filed Questions to the Agency, the Board asked if the additional inspection required after a 25-year, 24-hour storm in Section 845.540(a)(1)(A), had to be completed within 24 or 48 hours, and if it would be possible to identify such a storm in a short time frame. The Agency responded that the National Oceanic and Atmospheric Administration (NOAA) does have publications that are publicly available to ascertain what amount of rainfall equals a 25-year, 24-hour storm. To address the Board's question regarding the inspection being 24 or 48 hours after the storm event, the Agency proposed a revision in their response by adding a new subsection 845.540(a)(1)(E). Hrg. Ex. 2, p. 164. At hearing, Ms. Williams of CWLP and Mr. Dunaway discussed how the proposed language might apply if the storm event occurred during a 24-hour period that included different days of the week. Hrg. Transcript, Aug. 12, 2020, p. 214-16. As shown below, the Agency has slightly revised the language as proposed in its response to the Board, to address both the Board's initial question and the concerns raised by CWLP.

- 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:
- E) If a 25-year, 24-hour storm is identified more than 48 hours before the next scheduled weekly inspection, an additional inspection shall be conducted within 24 hours of the end of the identified storm event, prior to the scheduled seven-day inspection.

2. In its Pre-Filed Questions to the Agency, the Board noted that Section 845.540(b)(3) required the annual inspection report be completed and submitted with the annual consolidated report, but that Section 845.550 doesn't require the annual report be submitted to

the Agency. The Agency responded that the annual report was required to be posted to the owner's or operator's public website, therefore, the information would be available to the Agency and the public. Hrg. Ex. 2, p. 163. However, the Agency suggests a revision to Section 845.540(b)(3), shown below, which it believes clarifies the rule's requirement that the annual inspection report be part of the annual consolidated report.

- b) Annual inspections by a qualified professional engineer.
- 3) By January 31 of each year, the inspection report must be completed and ~~submitted~~ included with the annual consolidated report required by Section 845.550.

p. Section 845.550 Annual Consolidated Report

At hearing, Ms. Bugel asked Mr. Dunaway a follow-up question regarding the Agency's response to the Board's Question 45. Hrg. Transcript, Aug. 13, 2020, p. 7-8. When the Agency confirmed that it has gained important information about the functionality of corrective action in annual reports, Ms. Bugel asked if the Agency would be willing to require owners or operators to submit the annual report to the Agency. Since the Agency was already anticipating having the annual report submitted to the Agency as a requirement of a closure plan, the Agency does not object to such a revision and is therefore proposing language for a revision to Section 845.550(b).

- b) The owner or operator of the CCR surface impoundment must submit the annual consolidated report to the Agency in addition to placing ~~place~~ the annual consolidated report in the facility's operating record as required by Section 845.800(d)(14).

q. Section 845.600 Groundwater Protection Standards

In its Pre-Filed Questions to the Agency, Dynegy asked if the concentration of turbidity varies naturally. In the Agency's response it agreed that turbidity does vary naturally, and that if the Board believes a revision to Part 845 is appropriate, would support the addition of turbidity

monitoring as a general groundwater chemistry constituent. Hrg. Ex. 2, p. 45. Turbidity can be a useful tool when assessing groundwater quality. Turbidity in groundwater samples comes from sediment particles in the sample, which may be derived from dissolved minerals that precipitate when they enter the monitoring well or may be particles carried into the monitoring well from some geologic formations. Since Part 845 requires the analysis of total constituents (no field filtering), the presence of particulate matter may interfere with obtaining accurate groundwater monitoring results. Having a turbidity analysis available for reference can help determine if such interference is likely in any given sample. Displayed below is the Agency's proposed revision to Section 845.600(b).

- b) For new CCR surface impoundments, the groundwater protection standards at the waste boundary shall be background for the constituents listed in subsection (a)(1), ~~and Calcium and Turbidity.~~

r. **Section 845.640 Groundwater Sampling and Analysis Requirements**

In its pre-filed questions to the Agency, the Board asked if a revision of Section 845.640(c) as shown below was acceptable to the Agency. Hrg. Ex. 2, p. 170. The Agency agrees that the revision is acceptable since it does not change the meaning of the subsection.

- c) ~~Groundwater elevations must be measured in each well prior to purging, each time groundwater is sampled. The owner or operator of the CCR 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. The owner or operator must perform the following each time ground water is sampled:~~
 - 1) Measure groundwater elevations in each well prior to purging;
 - 2) Determine the rate and direction of groundwater flow; and
 - 3) Measure groundwater elevations in wells which monitor the same CCR management area within a time period short enough to avoid temporal

variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

s. **Section 845.650 Groundwater Monitoring Program**

1. In its Pre-Filed Questions to the Agency, Dynege asked if the concentration of turbidity varies naturally. In the Agency's response it agreed that turbidity does vary naturally, and that if the Board believes a revision to Part 845 is appropriate, would support the addition of turbidity monitoring as a general groundwater chemistry constituent. Hrg. Ex. 3, p. 45. Turbidity in groundwater samples comes from sediment particles in the sample, which may be derived from dissolved minerals that precipitate when they enter the monitoring well or may be particles carried into the monitoring well from some geologic formations. Since Part 845 requires the analysis of total constituents (no field filtering), the presence of particulate matter may interfere with obtaining accurate groundwater monitoring results. Having a turbidity analysis available for reference can help determine if such interference is likely in any given sample. Displayed below is the Agency's proposed revision to Sections 845.650(a) and (b).

- a) The owner or operator of a CCR surface impoundment must conduct groundwater monitoring consistent with this Section. At a minimum, groundwater monitoring must include groundwater monitoring for all constituents with a groundwater protection standard in Section 845.600, ~~and~~ Calcium and Turbidity. The owner or operator of the CCR surface impoundment must submit a groundwater monitoring plan to the Agency with its operating permit application.
- b) Monitoring Frequency
 - 1) The monitoring frequency for all constituents with a groundwater protection standard in Section 845.600, ~~and~~ Calcium and Turbidity shall be at least quarterly during the active life of the CCR surface impoundment and the post-closure care period or period specified in Section 845.740(b) when closure is by removal.
 - A) For existing CCR surface impoundments, a minimum of eight independent samples from each background and downgradient well must be collected and analyzed for all constituents with a groundwater protection standard listed in Section 845.600(a), ~~and~~

Calcium and Turbidity no later than 180 days after the effective date of this Part.

- B) For new CCR surface impoundments, and all lateral expansions of CCR surface impoundments, a minimum of eight independent samples for each background well and downgradient well must be collected and analyzed for all constituents with a groundwater protection standard listed in Section 845.600(a), ~~and~~ Calcium and Turbidity during the first 180 days of sampling.

2. In its Pre-Filed Questions to the Agency, ELPC et. al. asked if water elevation data would be collected from CCR surface impoundments. The Agency believes that Section 845.620(b)(18) provides the Agency with the authority to request that type of information. However, since the elevation in an unlined CCR surface impoundment can, depending on site specific conditions, be necessary to determine groundwater flow, and to address the concern expressed, the Agency offered some suggested language for the Board to consider if it believed a revision to the proposed rule was needed, as a new Section 845.620(b)(18). Hrg. Ex. 2, p. 35. However, after further consideration the Agency believes the proposed revision should more appropriately be made in Section 845.650(b) as a new subsection (3), since subsection (b) addresses monitoring schedules. If the Board believes a revision is appropriate, as shown below, the Agency is proposing a new Section 845.650(b)(3).

b) Monitoring Frequency

- 3) Measurement of water elevation within the CCR surface impoundment shall be conducted each time the groundwater elevations are measured pursuant to Section 845.650(b)(2) prior to dewatering for closure.

t. **Section 845.660 Assessment of Corrective Measures**

As explained in Section V(C)(3) above regarding the term “release,” the Agency does not believe it is necessary for Part 845 to contain a definition of release that differs from the Act. However, at hearing, Mr. More and Mr. Dunaway had a follow-up exchange regarding Board

Question 49 and the application of the term “release” in Section 845.660(a)(1). Hrg. Transcript Aug. 13, 2020, p. 68. Mr. More pointed out that the language in subsection (a)(1) sets up a conflict when in the first part of the language there is a requirement to initiate an assessment of corrective measures when an exceedance of a groundwater protection standard is found, but in the second part of the language, action must be taken immediately upon a release from a CCR surface impoundment. It is the Agency’s intent that the first part of this subsection referring to detection of liquid releases, while in the second part was referring to CCR material releases.

After further consideration, the Agency agrees that because the definition of release includes the release of both liquid and solids, a distinction between the two materials should be included in Section 845.660(a)(1) for clarity. Additionally, the Agency has reviewed the occurrence of the term “release” in Part 845. It is the Agency’s opinion that Section 845.660(a)(1) is one of the only subsections where the application of “release” is not clear from the context of the subsection. Therefore, the Agency is proposing a revision to Section 845.660(a)(1) shown below, to clarify how “release” is intended to apply.

- a) Unless the Agency has concurred with an alternative source demonstration made pursuant to Section 845.650(d)(4), the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore the affected area.
 - 1) The assessment of corrective measures must be initiated within 90 days of finding that any constituent listed in Section 845.600 has been detected at the downgradient waste boundary in exceedance of the groundwater protection standards in Section 845.600, or immediately upon detection of a release of CCR from a CCR surface impoundment.

u. Section 845.700 Required Closure or Retrofit of CCR Surface Impoundments

1. The Agency reviewed 85 Fed. Reg. 53516 (Aug. 28, 2020) to assure the provisions of Part 845 related to extensions of time to cease receipt of waste and complete closure are still consistent with finalized time extension requirements for certain CCR surface

impoundments under Part 257. Upon review, the Agency identified what it believes to be a gap in proposed Section 845.700(b). The Agency believes Section 845.700(b) does not clearly identify a requirement for owners and operators of CCR surface impoundments who intend to retrofit pursuant to Section 845.770, to notify the Agency of this intent, and determine a prioritization category, prior to submission of a construction permit. Therefore, as shown below, the Agency has proposed a revision to Section 845.700(b) to clarify this requirement.

- b) Required Closure or Retrofit. The owner or operator of an existing unlined CCR surface impoundment, as determined under Section 845.400(f), must cease placing CCR and non-CCR waste streams into such CCR surface impoundment and either retrofit or close the CCR surface impoundment in accordance with the requirements of Subpart G. The owner or operator of a CCR surface impoundment electing to retrofit must submit the written preliminary retrofit plan pursuant to subsection 845.770(a)(3) and a construction permit application to retrofit pursuant to Section 845.770 according to the schedule in subsection (h);

2. In addition to the proposed revision to subsection (b), review of the final federal language in 85 Fed. Reg. 53516 (Aug. 28, 2020) led the Agency to believe additional revisions are needed in Section 845.700(d)(2) in order to align with Part 257 as it exists at the time the record closes in this rulemaking. These proposed revisions clarify the different regulatory paths owners and operators must follow depending upon whether a demonstration submitted to USEPA pursuant to Part 257.103(f) is approved or not approved by USEPA. Part 257.103(f)(3) requires that submission of extensions must be completed by November 30, 2020, but also allows USEPA to request additional information for its review and anticipates a public comment period of up to 30 days. Part 257 does not specify the amount of time owners or operators will be given to submit additional data, nor does it specify if USEPA anticipates the need for additional data from owners or operators based on public comments it may receive. Therefore, the Agency is proposing revisions to Section 845.700(d)(2) that recognize USEPA's authority to grant extensions of time to cease receipt of waste, yet also provides a regulatory path for owners

and operators in the event that a USEPA decision to disapprove a demonstration takes so long that an owner or operator has missed an application schedule under Section 845.700(h).

Subsections (d)(2)(B), (D) and (E) proposed below describe the conditions and the associated limitations for successful demonstrations made to USEPA. A new subsection (d)(2)(C) is proposed, to establish a regulatory path for any CCR surface impoundments for which a Part 257.103(f) demonstration may have been timely submitted to USEPA, but was subsequently disapproved. The Agency's position is that an approved demonstration by USEPA exempts owners and operators from categorization under Section 845.700(g) and the associated permit application schedules under to Section 845.700(h). The Agency supports its position with Section 22.59(g)(9) of the Act, which requires a priority be established by Part 845, if not otherwise specified by the USEPA. The demonstrations for extensions under Part 257.103(f) require a detailed schedule describing all activities which must be completed during the extension, and the timeframes to initiate and complete those activities. Therefore, the Agency has proposed a revision to subsection (d)(2)(H) to make clear that an owner or operator that has been granted an extension under Part 257.103(f), and therefore falls outside of Section 845.700(g) and (h), is required to adhere to the schedules contained in the USEPA demonstrations under Part 257.103. To be consistent with record keeping requirements of Part 257, a new subsection (d)(2)(F) is proposed. As shown below, the Agency has proposed revisions to Section 845.700(d)(2) to clarify closure timeframes and requirements associated with demonstrations under Part 257.102(f). The Agency requests the Board adopt these proposed revisions to Section 845.700(d)(2) into its final rule.

d) Timeframes for Closure

2) For CCR surface impoundments required to close under subsection (a)(1) or electing to close under subsection (b):

- A) If on the effective date of this Part, the owner or operator of a CCR surface impoundment has not satisfied an alternative closure requirement of 40 CFR 257.103 that allows for the continued receipt of CCR or non-CCR waste streams, the owner or operator must not place CCR or non-CCR waste streams into the CCR surface impoundment after the effective date of this Part.
- B) If on or before November 30, 2020, the owner or operator of a CCR surface impoundment has submitted a complete demonstration to USEPA seeking an alternative deadline to cease receipt of waste and complete closure pursuant to 40 CFR 257.103(f), the deadline to cease receipt of waste shall be tolled until USEPA issues a decision. If USEPA determines that a submission is incomplete, an owner or operator must immediately cease receipt of waste and comply with all applicable deadlines of Section 845.700(d)(1).
- C) If USEPA disapproves the requested alternative deadline to cease receipt of waste and complete closure, the owner or operator of the CCR surface impoundment shall immediately cease the receipt of waste and initiate closure within six months of the USEPA denial of the extension and shall be subject to Section 845.760(a).
- BD) ~~If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has demonstrated~~ USEPA approves a demonstration that alternative disposal capacity is infeasible under 40 CFR 257.103(f)(1), the owner or operator must cease placing CCR or non-CCR waste streams into the CCR surface impoundment by the end of the time extension approved under 40 CFR 257.103(f)(1) or once alternative capacity becomes available, whichever is sooner. In no case may the owner or operator of the CCR surface impoundment with a time extension under 40 CFR 257.103(f)(1) place CCR or non-CCR waste streams into ~~the~~ an eligible CCR surface impoundment after October 15, 2024, or into any other CCR surface impoundment subject to closure under Section 845.700(a) or (b), after October 15, 2023.
- CE) ~~If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has demonstrated~~ USEPA approves a demonstration for permanent cessation of coal-fired boiler(s) by a date certain under 40 CFR 257.103(f)(2), the owner or operator must:
- i) for CCR surface impoundments that are 40 acres or smaller, cease operation of the coal-fired boiler, and complete closure no later than October 17, 2023; or
 - ii) for CCR surface impoundments that are larger than 40 acres, cease operation of the coal-fired boiler and complete closure no later than October 17, 2028.

F) The USEPA's decision to approve or deny the demonstration requesting an alternative deadline to initiate closure shall, within 30 days, be submitted to the Agency and placed in the owner's or operator's operating record as required by Section 845.800(d)(19).

~~D~~G) Failure to remain in compliance with any of the requirements of this Part will result in the automatic loss of authorization under subsections (d)(2)(~~B~~D) and ~~subsection (d)(2)(~~C~~E)~~.

~~E~~H) The owner or operator of the CCR surface impoundment with a USEPA-approved extension will not be given extensions of the timeframes for completion of closure under Section 845.760(c).

3. In its Pre-Filed Questions, Midwest Generation asked the Agency about resubmitting an application if the Board overturns the Agency's denial of a construction permit application. Hrg. Ex. 3, p. 30. Since the Agency did not intend to require resubmission of an application if a permittee's appeal of its permit is upheld, the Agency proposes to clarify Section 845.700(h).

h) Application Schedule

- 5) If the Agency denies a construction permit application submitted pursuant to this Section, the owner and operator must submit a revised construction permit application addressing all deficiencies identified by the Agency. The revised construction permit application for closure must be submitted to the Agency within 90 days after the Agency's denial if the Agency's denial is not appealed pursuant to Section 845.270. If the Agency's denial is appealed and upheld, the owner or operator must submit a revised construction permit application for closure within 90 days after a final decision by the Illinois Pollution Control Board is rendered. The owner or operator of the CCR surface impoundment must discuss the owner or operator's proposed response to all deficiencies identified by the Agency in a public meeting with interested and affected parties held pursuant to Section 845.240.

v. **Section 845.720 Closure Plan**

1. The Agency proposed a revision to Section 845.700(d), and a corresponding requirement in Section 845.800(d) as new subsection (19), relative to Part 257.103. That

proposed revision required the renumbering of Section 845.800(d) as shown below.

a) Preliminary written closure plan

- 2) The owner or operator of the CCR surface impoundment must submit the preliminary written closure plan to the Agency with its initial operating permit application. The owner or operator of the CCR surface impoundment must submit the most recently amended preliminary closure plan to the Agency with each operating permit renewal application. The owner or operator must place preliminary and amended preliminary written closure plans in the facility's operating record as required by Section 845.800(d)(1920).

2. In its Pre-Filed Questions, the Board asked the Agency to clarify whether an owner or operator submitting the preliminary closure plan with the initial operating permit application per Section 845.720(a)(2) should also submit the qualified professional engineer's certification that the initial and any amendment of the preliminary written closure plan meets the requirements of Part 845. Hrg. Ex. 2, p. 176-77. To clarify the Agency's intent for the professional engineer certifications of preliminary and amended closure plans to be submitted as part of the initial and renewal operating permit applications, and to maintain consistency with the proposed revision to Section 845.720(b)(5) in Section V(v)(3) below, the Agency recommends revising Section 845.710(a)(4).

- 4) The owner or operator of the CCR surface impoundment must obtain and submit with its initial and renewal operating permit applications a written certification from a qualified professional engineer that the initial and any amendment of the preliminary written closure plan meets the requirements of this Part.

3. In its Pre-Filed Questions, the Board asked the Agency to clarify whether an owner or operator submitting the written final closure plan as a part of a construction permit application under Section 845.720(b)(1) should also submit the qualified professional engineer's certification that the final closure plan meets the requirements of Part 845. Hrg. Ex. 2, p. 177. To clarify the Agency's intent for the professional engineer's certification of the final

written closure plan to be submitted as part of the construction permit application, and since subsection (a)(2) does not speak to the final closure plan or the construction application, the Agency recommends revising Section 845.710(b)(5).

b) Final Closure Plan

- 5) The owner or operator of the CCR surface impoundment must obtain and submit with its construction permit application for closure a written certification from a qualified professional engineer that the final written closure plan meets the requirements of this Part.

w. **Section 845.730 Initiation of Closure**

The Agency proposed a revision to Section 845.700(d), and a corresponding requirement in a new subsection 845.800(d)(19), relative to Part 257.103. That proposed revision required the renumbering of Section 845.800(d) cross-references in subsections (b)(2) and (d) of 845.730.

b) Temporarily Idled CCR Surface Impoundments.

- 2) Notwithstanding subsection (b)(1) of this Section, the owner or operator of the CCR surface impoundment may secure an additional two years to initiate closure of the idle surface impoundment if the Agency approves the owner or operator's written demonstration that the CCR surface impoundment 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 subsections (b)(2)(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 surface impoundment will accept wastes in the foreseeable future or will remove CCR from the surface impoundment for the purpose of beneficial use. The owner or operator must place each Agency approved demonstration, if more than one time extension is sought, in the facility's operating record as required by Section 845.800(d)(~~20~~21) prior to the end of any two-year period.

- d) No later than the date the owner or operator initiates closure of a CCR surface impoundment, the owner or operator must prepare a notification of intent to close a CCR surface impoundment. The notification must be placed in the facility's operating record as required by Section 845.800(d)(~~21~~22).

x. **Section 845.740 Closure by Removal**

1. Proposed Part 845, filed by the Agency on March 30, 2020, incorporated requirements that had been proposed by USEPA in 85 Fed. Reg. (Mar. 3, 2020), 12456, but have not yet been adopted by USEPA. Among other things, the proposed changes to Part 257 addressed closure by removal (referred to as “Part B”). The current version of Part 257 treats closure by removal and all associated corrective action as a single process, with closure not being complete until all corrective action has been completed. Hrg. Ex. 8 as amended by 85 Fed. Reg. 53516, (Aug. 28, 2020). The USEPA proposal divides closure by removal into a two-step process. The first step is the physical removal of all CCR, containment systems and related structures, while the second step is the completion of any necessary groundwater corrective action.

The Agency had testified that it believed Part 845 would have to be revised, if USEPA had not adopted the “Part B” requirements. Hrg. Ex. 2, p. 139. However, upon reexamination of the “Part B” requirements, the Agency concludes they are more protective and comprehensive than Part 257 as it currently exists. For example, “Part B” requires a deed notation until corrective action is complete. The requirement for a deed notation is not required by the current version of Part 257, but the Agency included the requirement for a deed notation in Part 845 as proposed. Part 845 requires financial assurance for corrective action, thereby affording additional protection of public funds should an owner or operator default. Also “Part B” specifies that in addition to meeting groundwater protection standards to terminate groundwater corrective action after closure by removal has been completed, compliance with the groundwater protection standards must be demonstrated for three consecutive years, prior to terminating groundwater corrective action and the associated groundwater monitoring. These requirements are also included in Part 845 as drafted. However, Section 845.740(a) as drafted contains the

generalized language that removal and decontamination of areas affected by releases must be completed for closure by removal. Therefore, as shown below, the Agency has proposed a revision to Section 845.740(a) using specific language from the “Part B” proposal describing how to complete closure by removal and an additional statement that closure by removal must be completed before groundwater corrective action.

- a) Closure by removal of CCR. An owner or operator may elect to close a CCR surface impoundment by removing all CCR and removing and decontaminating all areas affected by releases of CCR from the CCR surface impoundment. CCR removal and decontamination of the CCR surface impoundment are complete when all CCR and CCR residues, containment system components such as the impoundment liner and contaminated subsoils, and CCR impoundment structures and ancillary equipment have been removed. Closure by removal shall be completed before the completion of a groundwater corrective action pursuant to Subpart F. ~~the CCR in the surface impoundment and any areas affected by releases from the CCR surface impoundment have been removed.~~

2. The Agency proposed a revision to Section 845.700(d), and a corresponding requirement for a new subsection 845.800(d)(19), relative to Part 257.103. The Agency has also proposed a revision to Section 845.770(a)(3), required to clarify that owners and operators seeking extensions to retrofit a CCR surface impoundment must submit a preliminary retrofit plan to make the Agency aware of their intent to retrofit a CCR surface impoundment. Those proposed revisions required the renumbering of Section 845.800(d) cross-references in subsections (d), (e) and (f) of 845.740.

- d) At the end of each month where CCR is being removed from a CCR surface impoundment, the owner or operator must prepare a report that describes the weather, precipitation amounts, the amount of CCR removed from the CCR surface impoundment, the amount and location of CCR being stored on-site, the amount of CCR transported offsite, the implementation of good housekeeping procedures required by Section 845.740(c)(4)(C), the implementation of dust control measures, and documents worker safety measures implemented. The owner or operator of the CCR surface impoundment must place the monthly report in the facility’s operating record as required by Section 845.800(d)(~~222~~3).

- e) Upon completion of CCR removal and decontamination of the CCR surface impoundment pursuant to subsection (a) of this Section, the owner or operator of the CCR surface impoundment must submit to the Agency a completion of CCR removal and decontamination report and a certification from a qualified professional engineer that CCR removal and decontamination of the CCR surface impoundment has been completed in accordance with this Section. The owner or operator must place the CCR removal and decontamination report and certification in the facility's operating record as required by Section 845.800(d)(~~3032~~).
- f) Upon completion of groundwater monitoring required pursuant to subsection (b) of this Section, the owner or operator of the CCR surface impoundment must submit to the Agency a completion of groundwater monitoring report and a certification from a qualified professional engineer that groundwater monitoring has been completed in accordance with this Section. The owner or operator must place the groundwater monitoring report and certification in the facility's operating record as required by Section 845.800(d)(~~2324~~).

y. Section 845.750 Closure with a Final Cover System

In its Pre-Filed Questions, the Board asked the Agency to clarify whether written certification from a qualified professional engineer required under Section 845.750(c)(4) that the design of the final cover system meets the requirements of Section 845.750 must be submitted with the final closure plan as well as the construction permit. Hrg. Ex. 2, p. 178. To clarify the Agency's intent for the professional engineer's certification of the final cover system to be submitted as part of the construction permit application for closure, and to maintain consistency with the revisions proposed to Sections 845.720(a)(2) and (b)(5) in Section V(v)(2) and V(v)(3) above, the Agency recommends revising Section 845.750(c)(4).

- c) Final cover system. If a CCR surface impoundment 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 this subsection (c) of this Section. The final cover system must consist of a low permeability layer and a final protective layer. The design of the final cover system must be included in the preliminary and final written closure plans required by Section 845.720 and the construction permit application for closure submitted to the Agency.
- 4) The owner or operator of the CCR surface impoundment must obtain and submit with its construction permit application for closure a written

certification from a qualified professional engineer that the design of the final cover system meets the requirements of this Section.

z. Section 845.760 Completion of Closure Activities

1. Proposed Part 845, filed by the Agency on March 30, 2020, incorporated requirements that had been proposed by USEPA in 85 Fed. Reg. 12456 (Mar. 3, 2020), but have not yet been adopted by USEPA. The USEPA proposal divides closure by removal into a two-step process. The Agency suggests revised language in Section 845.760(c)(3) to clarify that closure by removal, which extends beyond the times allowed in Sections 845.760(c)(1) and (2), must always complete groundwater corrective action or groundwater monitoring if groundwater corrective action is not required, after the completion of CCR removal.

c) Maximum time extensions.

3) CCR surface impoundments that are closing by removal may extend the time to complete closure 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. In no instance may the time allowed for closure by removal be extended beyond the completion of a groundwater corrective action pursuant to 845.680(c)(1).

2. The Agency proposed a revision to Section 845.700(d), and a corresponding requirement for a new subsection 845.800(d)(19), relative to Part 257.103. That proposed revision required the renumbering of cross-references to Section 845.800(d) in subsections (e), (f), and (h) in Section 845.760.

e) Upon completion of all closure activities required by this Part and approved in the final closure plan, the owner or operator of the CCR surface impoundment must submit to the Agency a closure report and a closure certification.

3) The owner or operator must place the closure report and certification in the facility's operating record as required by Section 845.800(d)(~~23~~24).

- f) Within 30 days of the Agency's approval of the closure report and closure certification submitted pursuant to subsection (e) of this Section, the owner or operator must prepare a notification of closure of the CCR surface impoundment. The notification must include the certification by a qualified professional engineer as required by subsection (e)(2) of this Section. The owner or operator must place the notification in the facility's operating record as required by Section 845.800(d)(~~2425~~).
- h) Deed notations.
 - 3) Within 30 days of recording a notation on the deed to the property, the owner or operator must submit to the Agency a notification stating that the notation has been recorded. The owner or operator must place the notification in the facility's operating record as required by 845.800(d)(~~2526~~).

aa. Section 845.770 Retrofitting

1. Upon review of 85 Fed. Reg. 53516 (Aug. 28, 2020) to assure that Part 845 was still consistent with finalized time extension requirements for certain CCR surface impoundments under Part 257, the Agency identified what it believes to be a gap in proposed Section 845.700(b). The Agency believes Section 845.700(b) does not clearly identify a requirement for owners and operators of CCR surface impoundments who intend to retrofit pursuant to Section 845.770 to notify the Agency of this intent and determine a prioritization category, prior to submission of a construction permit. To clarify the need for the notification, the Agency is proposing a revision to Section 845.770(a), which adds a new subsection (3) that requires a written preliminary retrofit plan be sent to the Agency and posted to the owner's or operator's operating record. The Agency has also identified a new conforming requirement in Section 845.800(d), new subsection (27).

- a) To retrofit an existing CCR surface impoundment, the owner or operator must:
 - 1) First remove all CCR, including any liners, as necessary, and contaminated soils and sediments from the CCR surface impoundment; ~~and~~
 - 2) Comply with the requirements in Sections 845.410 and 845.420; and

3) No later than 30 days after the effective date of this Part, the owner or operator electing to retrofit a CCR surface impoundment pursuant to this Section shall submit a written preliminary retrofit plan to the Agency and post the written preliminary retrofit plan in the facility's operating record as required by Section 845.800(d)(27). The written preliminary retrofit plan must include a prioritization categorization under Section 845.700(g) and the expected construction permit application date under 845.700(h).

2. The Agency proposed a revision to Section 845.700(d), and a corresponding requirement for a new subsection 845.800(d)(19), relative to Part 257.103. The Agency has also proposed a revision to Section 845.770(a)(3), which is required to clarify that owners and operators seeking extensions to retrofit a CCR surface impoundment must submit a preliminary retrofit plan to make the Agency aware of their intent to retrofit a CCR surface impoundment. Those proposed revisions require the renumbering of cross-references to Section 845.800(d) in subsections (d), (g) and (h) of Section 845.770.

- d) No later than the date the owner or operator submits a construction permit application to the Agency to retrofit a CCR surface impoundment, the owner or operator must prepare a notification of intent to retrofit a CCR surface impoundment. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by Section 845.800(d)(~~26~~28).
- g) Upon completion of all retrofit activities required by this Part and approved by the Agency in a construction permit, the owner or operator of the CCR surface impoundment must submit to the Agency a retrofit completion report and certification.
- 3) The owner or operator must place the retrofit completion report and certification in the facility's operating record as required by Section 845.800(d)(~~27~~29).
- h) Within 30 days of the Agency's approval of the retrofit completion report and certification submitted pursuant to subsection (f) of this Section, the owner or operator must prepare a notification of completion of retrofit activities. The notification must include the certification by a qualified professional engineer as required by subsection (g)(2) 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 Section 845.800(d)(~~28~~30).

bb. Section 845.780 Post-Closure Care Requirements

The Agency proposed a revision to Section 845.700(d), and a corresponding requirement for a new subsection 845.800(d)(19), relative to Part 257.103. The Agency has also proposed a revision to Section 845.770(a)(3), which is required to clarify that owners and operators seeking extensions to retrofit a CCR surface impoundment must submit a preliminary retrofit plan to make the Agency aware of their intent to retrofit a CCR surface impoundment. Those proposed revision require the renumbering of a cross-reference to Section 845.800(d) in Section 745.780(f).

- f) Notification of completion of post-closure care period. Within 30 days of the Agency's approval of owner or operator's request to terminate post-closure care, the owner or operator must prepare a notification of completion of post-closure care and must place the notification in the facility's operating record as required by Section 845.800(d)(~~29~~31).

cc. Section 845.800 Facility Operating Record

1. The Agency reviewed 85 Fed. Reg. 53516 (Aug. 28, 2020) to assure the provisions of Part 845 related to extensions of time to cease receipt of waste and complete closure are still consistent with finalized time extension requirements for certain CCR surface impoundments under Part 257. Consistent with Section 845.700(d)(2)(F) and the record keeping requirements of Part 257.105, the Agency is proposing a revision of Section 845.800(d) as shown below.

- d) The owner or operator of a CCR surface impoundment must place the following in the facility's operating record:
 - 19) USEPA-approved or denied demonstration as required by Section 845.700(d)(2)(F).

2. The Agency proposed a revision to Section 845.700(d), and a corresponding

requirement for a new subsection 845.800(d)(19), relative to Part 257.103. That proposed revision required the renumbering of Section 845.800(d) as shown below.

- d) The owner or operator of a CCR surface impoundment must place the following in the facility's operating record:
- ~~19~~20) the preliminary written closure plan, and any amendment of the plan, as required by Section 845.720(a), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in subsection (b) of this Section;
 - ~~20~~21) the written demonstration(s), including the certification required by Section 845.730(b)(3), for a time extension for initiating closure as required by Section 845.730(b)(2);
 - ~~21~~22) the notification of intent to close a CCR surface impoundment as required by Section 845.730(d);
 - ~~22~~23) the monthly reports for closure by removal, as required by Section 845.740(d);
 - ~~23~~24) the closure report and certification, as required by Section 845.760(e)(3), or completion of groundwater monitoring report and certification, as required by Section 845.740(f);
 - ~~24~~25) the notification of completion of closure of a CCR surface impoundment as required by Section 845.760(f);
 - ~~25~~26) the notification recording a notation on the deed as required by Section 845.760(h);

3. Upon review of 85 Fed. Reg. (Aug. 28, 2020), 53516, to assure that Part 845 was still consistent with finalized time extension requirements for certain CCR surface impoundments under Part 257, the Agency identified what it believes to be a gap in proposed Section 845.700(b). The Agency believes Section 845.700(b) does not clearly identify a requirement for owners and operators of CCR surface impoundments who intend to retrofit pursuant to Section 845.770 to notify the Agency of this intend and place the notification in the owner's or operator's operating record. The revision below establishes the record keeping

requirement consistent with proposed Section 845.770(a)(3).

- d) The owner or operator of a CCR surface impoundment must place the following in the facility's operating record:

27) The preliminary written retrofit plan for a CCR surface impoundment as required by Section 845.770(a)(3).

4. The Agency proposed a revision to Section 845.700(d), and a corresponding requirement for a new subsection 845.800(d)(19), relative to Part 257.103. The Agency has also proposed a revision to Section 845.770(a)(3), which is required to clarify that owners and operators seeking extensions to retrofit a CCR surface impoundment must submit a preliminary retrofit plan to make the Agency aware of their intent to retrofit a CCR surface impoundment.

Those proposed revisions required the renumbering of Section 845.800(d) as shown below.

- d) The owner or operator of a CCR surface impoundment must place the following in the facility's operating record:

2628) the notification of intent to initiate retrofit of a CCR surface impoundment as required by Section 845.770(d);

2729) the retrofit completion report and certification, as required by Section 845.770(g)(3);

2830) the notification of completion of retrofit activities as required by Section 845.770(h);

2931) the notification of completion of post-closure care period as required by Section 845.780(f);

3032) the completion of CCR removal and decontamination report and certification, as required by Section 845.740(e); and

3133) the most current cost estimates pursuant to Section 845.940(d).

dd. Section 845.810 Publicly Accessible Internet Site Requirements

The Agency intended the CCR website be dedicated to only the information required by Part 845 and should be clearly labeled as such. The federal Part 257 regulations require a website

with the title, “CCR Rule Compliance Data and Information”. In order to distinguish between the federal requirements and those specific to Part 845, the Agency suggests the Board makes the revision to Section 845.810(a) shown below.

- a) Each owner or operator of a CCR surface impoundment subject to the requirements of this Part must maintain a publicly accessible Internet site (CCR website) containing the information specified in this Section. The owner or operator’s website must be titled “Illinois CCR Rule Compliance Data and Information.”

ee. Section 845.930 Cost Estimates

The Agency believes that clarification is needed that written cost estimates are to be submitted to the Agency for review and approval. The intent of Part 845 is for the submission of written cost estimates, but the rule language did not state that as proposed. Therefore, the clarification is suggested in Section 845.930(a) to ensure the submittal. Additionally, the Agency suggests correction of a typo in Section 845.930(a)(3).

- a) The owner or operator shall prepare and submit to the Agency, for approval, written cost estimates for:
 - 1) the total costs for closure and post-closure care;
 - 2) preliminary corrective action costs; and
 - 3) the total costs of the ~~correction~~ corrective action plan for remediation of any releases from a CCR surface impoundment.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

Petitioner,

BY: /s/ Stefanie Diers
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Dated: October 30, 2020

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THIS FILING IS SUBMITTED ELECTRONICALLY

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE G: WASTE DISPOSAL
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER j: COAL COMBUSTION WASTE SURFACE IMPOUNDMENTS

PART 845
STANDARDS FOR THE DISPOSAL OF COAL COMBUSTION
RESIDUALS IN SURFACE IMPOUNDMENTS

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845.990 Letter of Credit

AUTHORITY: Implementing Sections 12, 22, and 22.59 of the Environmental Protection Act [415 ILCS 5/12, 22, and 22.59] and authorized by Sections 22.59, 27, and 28 of the Environmental Protection Act [415 ILCS 5/22.59, 27, and 28].

SOURCE: Adopted in R __ - __ at __ Ill. Reg. ____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 845.100 Scope and Purpose

- a) This Part establishes criteria for the purpose of determining which CCR surface impoundments do not pose a reasonable probability of adverse effects on health or the environment. CCR surface impoundments failing to satisfy any of the requirements of this Part are considered open dumps, which are prohibited under Section 21(a) of the Act.
- b) This Part applies to owners and operators of new and existing CCR surface impoundments, including any lateral expansions of CCR surface impoundments 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 Part, these requirements also apply to CCR surface impoundments located off-site of the electric utility or independent power producer.

- c) This Part also applies to inactive CCR surface impoundments at active and inactive electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.
- d) Except as provided in Section 845.170, inactive CCR surface impoundments are subject to all the requirements of this Part applicable to existing CCR surface impoundments.
- e) This Part 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 Part 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.
- f) This Part does not apply to the beneficial use of CCR.
- g) This Part does not apply to CCR placement at active or abandoned underground or surface coal mines.
- h) This Part does not apply to landfills that receive CCR.

Section 845.110 Applicability of Other Regulations

- a) Compliance with the requirements of this Part does not affect the need for the owner or operator of a CCR surface impoundment or lateral expansion of a CCR surface impoundment, to comply with all other applicable federal, state, tribal, or local laws or other requirements.
- b) Any CCR surface impoundment or lateral expansion of a CCR surface impoundment is ~~continues to be~~ subject to the following requirements:
 - 1) Floodplains:
 - A) Facilities or practices in floodplains shall not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of ~~solid waste~~ CCR, so as to pose a hazard to human life, wildlife, or land or water resources.
 - B) As used in this subsection:
 - i) Base flood means a flood that has a 1 percent or greater chance of recurring in any year or a flood of a magnitude

equaled or exceeded once in 100 years on average ~~over a significantly long period~~ within the time of historical river level records.

- ii) Floodplain means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, which are inundated by the base flood.
 - iii) Washout means the carrying away of solid waste by waters of the base flood.
- 2) Illinois Endangered Species Protection Act, 520 ILCS 10, and 40 CFR 257.3-2.
- 3) Surface Water
- A) A facility shall not cause a discharge of pollutants into waters of the United States that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES) under section 402 of the Clean Water Act, as amended, ~~Section 12(f) of the Act, or 35 Ill. Adm. Code Subtitle C.~~
 - B) A facility shall not cause a discharge of dredged material or fill material to waters of the United States that is in violation of the requirements under section 404 of the Clean Water Act, as amended.
 - C) A facility or practice shall not cause non-point source pollution of waters of the United States that violates applicable legal requirements implementing an areawide or Statewide water quality management plan that has been approved by USEPA under section 208 of the Clean Water Act, as amended.
 - D) Definitions of the terms Discharge of dredged material, Point source, Pollutant, and Waters of the United States can be found in the Clean Water Act, as amended, 33 U.S.C. 1251 et seq., and implementing regulations, specifically 33 CFR part 323 (42 FR 37122, July 19, 1977).
 - E) Except as in compliance with the provisions of the Act, Board regulations, and the CWA, and the provisions and conditions of the NPDES permit issued to the discharger, the discharge of any contaminant or pollutant by any facility into waters of the State from a point source or into a well shall be unlawful.

- 4) Rivers, Lakes and Streams Act, 615 ILCS 5/23 and 23(a) and implementing regulations in 17 Ill. Adm. Code 3702.

Section 845.120 Definitions

Except as stated in this Section, or unless a different meaning of a word or term is clear from the context, the definition of words or terms in this Part will be the same as that applied to the same words or terms in the Environmental Protection Act (Act):

“1000-year flood” means a flood of magnitude (or greater) of 1 in 1000 probability of occurring in any given year.

“Act” means the Illinois Environmental Protection Act [415 ILCS 5].

“Active facility” or “active electric utilities” or “independent power producers” means any facility subject to the requirements of this Part that is in operation on or after 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 CCR surface impoundment 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 surface impoundment and ending at completion of closure activities in accordance with Subpart G.

“Agency” means the Illinois Environmental Protection Agency.

“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 surface impoundment may result 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 CCR that meets the definition of coal combustion by product in the Act and the definition of “beneficial use of CCR” pursuant to 40 C.F.R. 257.53.

“Board” means Illinois Pollution Control Board.

“Certified Laboratory” means any laboratory certified under Section 4(o) of the Act, or certified by USEPA for the specific constituents to be examined.

“Closed” for the purposes of this Part means placement of CCR in a CCR surface impoundment has ceased, and the owner or operator has completed closure of the CCR surface impoundment and has initiated post-closure care in accordance with Subpart G.

“Coal combustion residuals” or “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. [415 ILCS 5/3.142]

“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 storage pile” means any temporary accumulation of solid, non-flowing CCR placed on the land that is designed and managed to control releases of CCR to the environment. CCR contained in an enclosed structure is not a CCR storage pile. Examples of control measures to control releases from CCR storage piles include: periodic wetting, application of surfactants, tarps or wind barriers to suppress dust; tarps or berms for preventing contact with precipitation and controlling run-on/runoff; and impervious storage pads or geomembrane liners for soil and groundwater protection.

“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 surface impoundment treats, stores, or disposes of CCR. [415 ILCS 5/3.143]

“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 or into any well 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 Part, disposal does not include 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.

“Enclosed structure” means:

- (1) A completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support itself, the CCR, and any personnel and heavy equipment that operate within the structure, and to prevent failure due to settlement, compression, or uplift; climatic conditions; and the stresses of daily operation, including the movement of heavy equipment within the structure and contact of such equipment with containment walls;
- (2) Has containment walls that are designed to be sufficiently durable to withstand any movement of personnel, CCR, and handling equipment within the structure;
- (3) Is designed and operated to ensure containment and prevent fugitive dust emissions from openings, such as doors, windows and vents, and the tracking of CCR from the structure by personnel or equipment.

“Exceedance of the groundwater protection standard” means:

For existing CCR surface impoundments and inactive CCR surface impoundments, an analytical result with a concentration greater than the numerical value of the constituents listed in 845.600(a), in a down gradient well, or when the up gradient background concentration of a constituent exceeds the numerical value listed in 845.600(a), an analytical result with a concentration at a statistically significant level above the up gradient background concentration, in a down gradient well.

For new CCR surface impoundments and lateral expansions of existing CCR surface impoundments, an analytical result with a constituent concentration at a statistically significant level above the up gradient background concentration, in a down gradient well.

“Existing CCR surface impoundment” means a CCR surface impoundment in which CCR is placed both before and after October 19, 2015, or for which construction commenced prior to October 19, 2015 and in which CCR is placed 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” or “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.

“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 Class 1 and Class 2, which mean:

Class 1 CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.

Class 2 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, not including spillways.

“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 in which CCR was placed before but not after October 19, 2015 and still contains CCR on or after October 19, 2015. Inactive CCR surface impoundments may be located at an active facility or inactive facility.

“Inactive Closed CCR surface impoundment” means an inactive CCR surface impoundment that completed closure before October 19, 2015 with an Agency-approved closure plan.

“Inactive facility” or “inactive electric utilities or independent power producers” means any facility that is not in operation 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.

“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 or vertical expansion of the waste boundaries of an 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 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.

“Operator” means the person(s) responsible for the overall operation of a CCR surface impoundment.

“Outermost damage zone of a fault” means the volume of deformed wall rocks around a fault surface that results from the initiation, propagation, interaction and build-up of slip along faults.

“Owner” means the person(s) who owns a CCR surface impoundment or part of a CCR surface impoundment.

“Poor foundation conditions” means 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 surface impoundment. For example, failure to maintain static and seismic factors of safety as required in Section 845.460 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 surface impoundment by visual observation and, if applicable, to monitor instrumentation.

“Qualified professional engineer” means an individual who is licensed under the Professional Engineer Act of 1989, 225 ILCS 32, to practice one or more disciplines of engineering and who is qualified by education, technical knowledge and experience to complete the engineering analyses and make the specific technical certifications required under this Part.

“Recognized and generally accepted 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 surface impoundment complies with the requirements in Section 845.410.

“Run-off” means any rainwater, leachate, or other liquid that drains over land from any part of a CCR surface impoundment or lateral expansion of a CCR surface impoundment.

“Run-on” means any rainwater, leachate, or other liquid that drains over land onto any part of a CCR surface impoundment or lateral expansion of a CCR surface impoundment.

“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, 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.

“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” means 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 surface impoundment that is necessary to ensure the integrity of the surface impoundment and that the contents of the surface impoundment are not released into the environment.

“Temporary accumulation” means an accumulation on the land that is neither permanent nor indefinite. To demonstrate that the accumulation on the land is temporary, all CCR must be removed from the pile at the site. The entity engaged in the activity must have a record in place, such as a contract, purchase order, facility operation and maintenance, or fugitive dust control plan, documenting that all of the CCR in the pile will be completely removed according to a specific timeline.

“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 surface impoundment that are responsible for preventing releases from such surface impoundment. 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 surface impoundment. The vertical surface extends down into the uppermost aquifer.

“Wetlands” means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Section 845.130 Surface Impoundment Identification

The owner or operator of a CCR surface impoundment must place on or immediately adjacent to the CCR surface impoundment a permanent identification marker at least six feet high showing the identification number of the CCR surface impoundment assigned by the Agency, the name associated with the CCR surface impoundment and the name of the owner or operator of the CCR surface impoundment. The owner or operator must maintain the marker at all times an operating permit is required under this Part.

Section 845.140 Right of Inspection

The owner or operator of a CCR surface impoundment must allow the Agency and its duly authorized representatives to perform inspections in accordance with its authority under the Act, including but not limited to:

- a) entering at reasonable times the facility where CCR surface impoundments are located or where any activity is to be conducted pursuant to a permit issued under this Part;
- b) having access to and copying at reasonable times any records required to be kept under the terms and conditions of a permit or this Part;
- c) inspecting at reasonable times, including during any hours of operation:
 - 1) equipment constructed or operated under a permit issued under this Part;

- 2) equipment or monitoring methodology; or
- 3) equipment required to be kept, used, operated, calibrated and maintained under a permit issued under this Part;
- d) obtaining and removing at reasonable times samples of any raw or finished water, discharge or emission of pollutants;
- e) entering at reasonable times to use any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any raw or finished water, activity, discharge or emission authorized by a permit.

Section 845.150 Incorporations by Reference

- a) The Board incorporates the following material by reference:

Association For the Advancement of Cost Engineering (AACE)

“Cost Estimate Classification System—As Applied in Engineering, Procurement, and Construction for the Process Industries” TCM Framework: 7.3 – Cost Estimating and Budgeting. March 6, 2009, AACE International Recommended Practice No. 18R-97.

NTIS. National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (703) 605-6000.

“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 online at <https://www.epa.gov/hw-sw846/sw-846-compendium>).

- b) This Section incorporates no later editions or amendments.

Section 845.160 Severability

If any provision of this Part or its application to any person or under any circumstances is adjudged invalid, such adjudication shall not affect the validity of this Part as a whole or of any portion not adjudged invalid.

Section 845.170 Inactive Closed CCR Surface Impoundments

- a) Only the following provisions of this Part apply to inactive closed CCR surface impoundments:
 - 1) all of Subpart A: General Provisions

- 2) the following Sections of Subpart B: Permitting
 - A) Section 845.200;
 - B) Section 845.210;
 - C) Section 845.220(a), (c), (f)(1);
 - D) Section 845.230(c) and (d)(4);
 - E) Section 845.250;
 - F) Section 845.270;
 - G) Section 845.280;
 - H) Section 845.290;
 - 3) the following Section of Subpart G: Section 845.780(b), (d) and (e); and
 - 4) all of Subpart I: Financial Assurance.
- b) When a prior release from an inactive closed CCR surface impoundment has caused an exceedance of the groundwater quality standards in 35 Ill. Adm. Code Part 620, and the owner or operator has not completed remediation of the release before completing closure, the owner or operator must initiate or continue corrective action under an operating permit issued pursuant to this Part.
 - c) When a release from an inactive closed CCR surface impoundment causes an exceedance of the groundwater quality standards in 35 Ill. Adm. Code Part 620, and the Agency has not concurred with an alternative source demonstration, the owner or operator of an inactive closed CCR surface impoundment must initiate an assessment of corrective measures that prevents further releases, remediates any releases, and restores the affected area. The owner or operator of the inactive closed CCR surface impoundment shall develop a corrective action plan and obtain a construction permit consistent with subsection (a)(2) of this Section before performing any corrective action to remediate any releases and to restore the affected area, including, but not limited to the final cover system, groundwater monitoring system, groundwater collection trench, extraction wells, slurry walls, or any construction related to corrective action.

SUBPART B: PERMITTING

Section 845.200 Permit Requirements and Standards of Issuance

- a) Permit Requirements

- 1) No person shall construct, install, or modify a CCR surface impoundment or related treatment or mitigation facilities, ~~pursuant to~~ including corrective action measures under Subpart F, without a construction permit issued by the Agency pursuant to this Part.
 - 2) Except as provided in Section 845.230(d), no person shall operate a CCR surface impoundment without an operating permit issued by the Agency pursuant to this Part. For the purposes of this Part, a CCR surface impoundment commences operation upon initial receipt of CCR.
 - 3) No person shall perform corrective action at a CCR surface impoundment without obtaining a construction permit for corrective action and modifying the facility's operating permit, or modifying the facility's operating permit when the approved corrective action does not require the modification of the CCR surface impoundment or the installation or modification of related treatment or mitigation facilities.
 - 4) Except as provided in Section 22.59(e) of the Act, no person shall close a CCR surface impoundment without obtaining a construction permit for closure issued by the Agency pursuant to this Part.
 - 5) A CCR surface impoundment must maintain an operating permit until:
 - A) the completion of post-closure care when the CCR surface impoundment is closed with a final cover system; or
 - B) the completion of groundwater monitoring pursuant to Section 845.740(b) when the CCR surface impoundment is closed by removal.
 - 6) The Agency may issue a joint construction and operating permit.
- b) Standards for Issuance
- 1) Except as provided in subsection (b)(2), the Agency shall not issue any construction or operating permit required by this Part unless the applicant submits adequate proof that the CCR surface impoundment will be constructed, modified or operated so as not to cause a violation of the Act or Board rules.
 - 2) The existence of a violation of the Act, Board regulation, or Agency regulation will not prevent the issuance of a construction or operating permit under this Part if:

- A) the applicant has been granted a variance or an adjusted standard from the regulation by the Board;
 - B) the permit application is for construction, installation, or operation of equipment to alleviate or correct a violation; or
 - C) the permit application is for construction, installation, or operation of equipment necessary to restore, protect or enhance the environment.
- 3) *In granting permits, the Agency shall impose conditions as may be necessary to accomplish the purpose of the Act and as are not inconsistent with this Part. [415 ILCS 5/39(a)]*
 - 4) *In making its determinations on permit applications under this Part, the Agency may consider prior adjudications of noncompliance with this Act by the applicant that involved a release of a contaminant into the environment. [415 ILCS 5/39(a)]*

Section 845.210 General Provisions

- a) All permit applications shall be made on such forms as are prescribed by the Agency and shall be mailed or delivered to the address designated by the Agency on the forms. The Agency shall provide a dated, signed receipt upon request. The Agency's record of the date of filing shall be deemed conclusive unless a contrary date is proved by a dated, signed receipt.
- b) Required Signatures of Owners or Operators
 - 1) All permit applications shall contain the name, address, email address and telephone number of the operator, or duly authorized agent, and the property owner to whom all inquiries and correspondence shall be addressed.
 - 2) All permit applications shall be signed by the owner, operator or a duly authorized agent of the operator.
 - 3) An application submitted by a corporation shall be signed by a principal executive officer of at least the level of vice president, or his or her duly authorized representative, if such representative is responsible for the overall operation of the facility described in the application form. In the case of a partnership or a sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively. In the case of a publicly owned facility, the application shall be signed by either the principal executive officer, ranking elected official, or other duly authorized employee.

- c) Legal Description. All permit applications shall contain a legal description of the facility boundary and a description of the boundaries of all units included in the facility.
- d) Previous Assessments, Investigations, Plans and Programs
 - 1) The Agency may approve the use of any hydrogeologic site investigation or characterization, groundwater monitoring well or system, or groundwater monitoring plan, bearing the seal and signature of an Illinois Licensed Professional Geologist or Licensed Professional Engineer, completed prior to the effective date of these rules to satisfy the requirements of this Part.
 - 2) For existing CCR surface impoundments, the owner or operator of the CCR surface impoundment may use a previously completed location restriction demonstration required by Section 845.300 (Placement Above The Uppermost Aquifer), Section 845.310 (Wetlands), Section 845.320 (Fault Areas), Section 845.330 (Seismic Impact Zones), and Section 845.340 (Unstable Areas) provided that the previously completed assessments meet the applicable requirements of those Sections.
 - 3) For existing CCR surface impoundments, the owner or operator of the CCR surface impoundment may use a previously completed assessment to serve as the initial assessment required by Section 845.440 (Hazard Potential Classification Assessment), Section 845.450 (Structural Stability Assessment) and Section 845.460 (Safety Factor Assessment) provided that the previously completed assessment:
 - A) was not completed more than five years ago; and
 - B) meets the applicable requirements of those Sections.
 - 4) For inactive closed CCR surface impoundments, the owner or operator of the CCR surface impoundment may use a post-closure care plan previously approved by the Agency.
- e) The Agency shall mail all notices of final action by certified mail, post marked with a date stamp and with return receipt requested. Final action shall be deemed to have taken place on the post marked date that such notice is mailed.
- f) Violation of any permit condition or failure to comply with the Act or regulations promulgated under the Act shall be grounds for enforcement action as provided in the Act, including revocation of a permit.
- g) Issuance of a permit under this Part does not relieve the applicant of the obligation to obtain other permits required by law.

- h) The owner or operator shall place in the facility's operating record all permit applications submitted to the Agency and all permits issued under this Part, as required by Section 845.800(d)(1).

Section 845.220 Construction Permits

- a) All construction permit applications must contain the following information and documents.
 - 1) Design and Construction Plans
 - A) Identifying information
 - i) The name and address of the person(s) owning or operating the CCR surface impoundment;
 - ii) The name associated with the CCR surface impoundment; and
 - iii) The identification number of the CCR surface impoundment if one has been assigned by the Agency.
 - B) A statement of the purpose for which the CCR surface impoundment is being used, how long the CCR surface impoundment has been in operation, and the types of CCR that have been placed in the CCR surface impoundment.
 - C) The name and size in acres of the watershed within which the CCR surface impoundment is located.
 - D) A description of the physical and engineering properties of the foundation and abutment materials on which the CCR surface impoundment is constructed.
 - E) 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 of each successive stage of construction of the CCR surface impoundment.
 - F) At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR surface impoundment, 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 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 surface impoundment due to malfunction or mis-operation.

- G) A description of the type, purpose, and location of existing instrumentation.
 - H) Area-capacity curves for the CCR surface impoundment.
 - I) A description of each spillway and diversion design features and capacities and calculations used in their determination.
 - J) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR surface impoundment.
 - K) Any record or knowledge of structural instability of the CCR surface impoundment.
- 2) Narrative Description of the Facility. The permit application shall contain a written description of the facility with supporting documentation describing the procedures and plans that will be used at the facility to comply with the requirements of this Part. Such descriptions shall include, but not be limited to, the following information:
- A) The types of CCR expected in the CCR surface impoundment, including a chemical analysis of each type of expected CCR;
 - B) An estimate of the maximum capacity of each surface impoundment in gallons or cubic yards;
 - C) The rate at which CCR and non-CCR waste streams currently enter the CCR surface impoundment in gallons per day and dry tons;
 - D) The estimated length of time the CCR surface impoundment will receive CCR and non-CCR waste streams; and
 - E) An on-site transportation plan that includes all existing and planned roads in the facility that will be used during the operation of the CCR surface impoundment.

- 3) Site Location Map. All permit applications shall contain a site location map on the most recent United States Geological Survey (USGS) quadrangle of the area from the 7 ½ minute series (topographic), or on such other map whose scale clearly shows the following information:
 - A) the facility boundaries and all adjacent property, extending at least 1000 meters (3280 feet) beyond the boundary of the facility;
 - B) all surface waters;
 - C) the prevailing wind direction;
 - D) the limits of all 100-year floodplains;
 - E) all natural areas designated as a Dedicated Illinois Nature Preserve pursuant to the Illinois Natural Areas Preservation Act (525 ILCS 30/1 et seq.);
 - F) all historic and archaeological sites designated by the National Historic Preservation Act (16 U.S.C. 470 et seq.) and the Illinois Historic Sites Advisory Council Act (20 ILCS 3410/1 et seq.); and
 - G) all areas identified as critical habitat pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) and the Illinois Endangered Species Protection Act (520 ILCS 10/1 et seq.).
- 4) Site Plan Map. The application shall contain maps, including cross sectional maps of the site boundaries, showing the location of the facility. The following information shall be shown:
 - A) the entire facility, including any proposed and all existing CCR surface impoundment locations;
 - B) the boundaries, both above and below ground level, of the facility and all CCR surface impoundments or landfills containing CCR included in the facility;
 - C) all existing and proposed groundwater monitoring wells; and
 - D) all main service corridors, transportation routes, and access roads to the facility.
- 5) A narrative description of the proposed construction of or modification to a CCR surface impoundment and any projected changes in the volume or nature of the CCR or non-CCR waste streams.

- 6) Plans and specifications fully describing the design, nature, function and interrelationship of each individual component of the facility.
 - 7) A new groundwater monitoring program or any modification to an existing groundwater monitoring program that includes but is not limited to the following information:
 - A) a hydrogeologic site investigation meeting the requirements of Section 845.620, if applicable;
 - B) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630; and
 - C) a proposed groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Sections 845.640 and 845.650.
 - 8) The signature and seal of a qualified professional engineer.
 - 9) Certification that the owner or operator of the CCR surface impoundment completed the public notification and public meetings required pursuant to Section 845.240, a summary of the issues raised by the public, a summary of any revisions, determinations, or other considerations made in response to those issues, and a list of interested persons in attendance who would like to be added to the Agency's listserv for the facility.
- b) New Construction. In addition to the requirements in subsection (a), all construction permit applications to build a new CCR surface impoundment, lateral expansion of a CCR surface impoundment, or retrofit an existing CCR surface impoundment must also contain the following information and documents:
- 1) Plans and specifications that demonstrate the proposed CCR surface impoundment will meet the location standards in the following sections ~~not be~~:
 - A) ~~placed less than five feet above the uppermost aquifer pursuant to Section 845.300~~ (Placement Above the Uppermost Aquifer);
 - B) ~~located in wetlands pursuant to~~ Section 845.310 (Wetlands);
 - C) ~~located in fault areas pursuant to~~ Section 845.320 (Fault areas);
 - D) ~~located in a seismic impact zone pursuant to~~ Section 845.330 (Seismic impact zones); and

- E) ~~located in an unstable area pursuant to~~ Section 845.340 (Unstable areas).
- 2) Plans and specifications that demonstrate the proposed CCR surface impoundment will meet the following design criteria:
 - A) the CCR surface impoundment will have a liner meeting the liner requirements in Section 845.400(b) or (c);
 - B) the CCR surface impoundment will have a leachate collection system meeting the requirements of Section 845.420; and
 - C) the CCR surface impoundment, if not incised, will be constructed with slope protection, as required by Section 845.430.
- 3) CCR fugitive dust control plan, as specified in Section 845.500(b).
- 4) Preliminary written closure plan, as specified in Section 845.720(a).
- 5) Initial written post-closure care plan, as specified in Section 845.780(d), if applicable.
- c) Corrective Action Construction. In addition to the requirements in subsection (a), all construction permit applications which include any corrective action performed pursuant to Subpart F must also contain the following information and documents:
 - 1) Corrective Action plan, as specified in Section 845.670
 - 2) Groundwater modeling, including:
 - A) the results of groundwater contaminant transport modeling and calculations showing how the corrective action will achieve compliance with the applicable groundwater standards;
 - B) all modeling inputs and assumptions;
 - C) description of the fate and transport of contaminants with the selected corrective action over time;
 - D) capture zone modeling, if applicable; and
 - E) provide the Agency any necessary licenses and software needed to review and access both the model and the data contained within the model.

- 3) Corrective action groundwater monitoring program, including identification of revisions to the groundwater monitoring system for corrective action; and
 - 4) Any interim measures necessary to reduce the contaminants leaching from the CCR surface impoundment, and/or potential exposures to human or ecological receptors, including an analysis of the factors specified in Section 845.680(a)(3).
- d) Closure Construction. In addition to the requirements in subsection (a), all construction permit applications for closure of the CCR surface impoundment pursuant to Subpart G must contain the following information and documents:
- 1) Closure prioritization category pursuant to Section 845.700(g), if applicable;
 - 2) Final closure plan, as specified in Section 845.720(b), which includes the closure alternatives analysis required by Section 845.710.
 - 3) Groundwater modeling, including
 - A) the results of groundwater contaminant transport modeling and calculations showing how the closure will achieve compliance with the applicable groundwater standards;
 - B) all modeling inputs and assumptions;
 - C) description of the fate and transport of contaminants with the selected closure over time;
 - D) capture zone modeling, if applicable; and
 - E) provide the Agency any necessary licenses and software needed to review and access both the model and the data contained within the model.
 - 4) Proposed schedule to complete closure; and
 - 5) Post-closure care plan as specified in Section 845.780(d), if applicable.
- e) A single construction permit application may be submitted for new construction, corrective action, and closure if the construction is related to the same multi-phased project. The permit application for a project with multiple phases must contain all information required by subsections (a), (b), (c) and (d), as applicable.
- f) Duration of Construction Permits

- 1) For any construction permit which is not for the closure or retrofit of the CCR surface impoundment, the construction permit shall be issued for fixed terms not to exceed 3 years.
- 2) For any construction permit for the closure or retrofit of a CCR surface impoundment, the construction permit shall be issued for an initial fixed term expiring within the timeframe approved by the Agency in the construction permit or five years, whichever is less. The Agency may renew a construction permit for closure or retrofit in two year increments pursuant to Section 845.760(b).

Section 845.230 Operating Permits

The operating permit applications as specified in this Section must contain the following information and documents:

- a) Initial operating permit for a new CCR surface impoundments and any lateral expansion of a CCR surface impoundment.
 - 1) A demonstration that the CCR surface impoundment as built meets the location standards in the following sections:
 - A) Section 845.300 (Placement Above the Uppermost Aquifer);
 - B) Section 845.310 (Wetlands);
 - C) Section 845.320 (Fault Areas);
 - D) Section 845.330 (Seismic Impact Zones); and
 - E) Section 845.340 (Unstable Areas);
 - 2) Certification from a qualified professional engineer that the composite liner or if applicable, the alternative composite liner has been constructed in accordance with the requirements of this Section 845.400(b) or (c);
 - 3) Certification from a qualified professional engineer that the leachate collection system has been constructed in accordance with the requirements of Section 845.420, if applicable;
 - 4) Evidence that the permanent markers required by Section 845.130 have been installed;

- 5) Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in Section 845.430;
 - 6) Initial hazard potential classification assessment certification, required by Section 845.440(a)(2);
 - 7) Initial Emergency Action Plan certification, required by Section 845.520(e);
 - 8) Initial structural stability assessment certification, required by Section 845.450(c);
 - 9) Initial safety factor assessment certification, required by Section 845.460(b);
 - 10) Fugitive dust control plan certification, as required by Section 845.500(b)(7);
 - 11) Initial inflow design flood control system plan certification, as required by Section 845.510(c)(3);
 - 12) Proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 840.650(b);
 - 13) Preliminary written closure plan, as specified in Section 845.720(a);
 - 14) Initial written post-closure care plan, as specified in Section 845.780(d), if applicable;
 - 15) An analysis of the chemical constituents found within the CCR to be placed in the CCR surface impoundment; and
 - 16) An analysis of the chemical constituents of all waste streams, chemical additives and sorbent materials entering or contained in the CCR surface impoundment.
 - 17) A certification that the owner or operator meets the financial assurance requirements of Subpart I of this Part.
- b) Renewal Operating Permit
- 1) Documentation that the CCR surface impoundment, if not incised, is being operated and maintained with one of the forms of slope protection specified in Section 845.430;

- 2) Emergency Action Plan certification if the plan was amended, as required by Section 845.520;
- 3) Fugitive dust control plan certification if the plan was amended, as required by Section 845.500(b)(7);
- 4) Any significant changes to the design and construction plans compiled under subsection (d)(2)(A) of this Section or Section 845.220(a)(1);
- 5) A statement that the groundwater monitoring has been conducted pursuant to an Agency approved groundwater monitoring program;
- 6) Written preliminary closure plan, if amended, as specified in Section 845.720(a); and
- 7) Written post-closure care plan, if amended, as specified in Section 845.780(d).

c) Post-Closure Care Operating Permit

The owner or operator of a CCR surface impoundment conducting post-closure care pursuant to Section 845.780 must maintain an operating permit until the completion of post-closure care. Any changes to the post-closure care plan, groundwater monitoring system, groundwater sampling and analysis program, and groundwater monitoring program must be submitted to the Agency in an operating permit application.

d) Initial Operating Permit for Existing, Inactive and Inactive Closed CCR Surface Impoundments

- 1) The owner or operator of an existing, inactive or inactive closed CCR surface impoundment who has not completed post-closure care must submit an initial operating permit application to the Agency by September 30, 2021;
- 2) The initial operating permit application for existing CCR surface impoundments that have not completed an Agency approved closure prior to July 30, 2021, must contain the following information and documents on forms prescribed by the Agency:
 - A) The history of construction specified in Section 845.220(a)(1);
 - B) An analysis of the chemical constituents found within the CCR to be placed in the CCR surface impoundment;

- C) An analysis of the chemical constituents of all waste streams, chemical additives and sorbent materials entering or contained in the CCR surface impoundment;
- D) A demonstration that the CCR surface impoundment as built meets or an explanation of how the CCR surface impoundments fails to meet the location standards in the following sections:
 - i) Section 845.300 (Placement Above the Uppermost Aquifer);
 - ii) Section 845.310 (Wetlands);
 - iii) Section 845.320 (Fault Areas);
 - iv) Section 845.330 (Seismic Impact Zones); and
 - v) Section 845.340 (Unstable Areas);
- ~~D~~E) Evidence that the permanent markers required by Section 845.130 have been installed;
- ~~E~~F) Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in Section 845.430;
- ~~F~~G) Initial Emergency Action Plan certification, required by Section 845.520(e);
- ~~G~~H) Fugitive dust control plan certification, as required by Section 845.500(b)(7);
- ~~H~~I) Groundwater monitoring information:
 - i) a hydrogeologic site characterization meeting the requirements of Section 845.620;
 - ii) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630;
 - iii) a groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Section 845.640; and

- iv) proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b);
 - ~~I~~J) Preliminary written closure plan, as specified in Section 845.720(a);
 - ~~J~~K) Initial written post-closure care plan, as specified in Section 845.780(d), if applicable;
 - ~~K~~L) A certification as specified in Section 845.400(h), or a statement that the CCR surface impoundment does not have a liner that meets the requirements of Section 845.400(b) or (c); ~~and~~
 - ~~L~~M) History of known exceedances of the groundwater protection standards in Section 845.600, and any corrective action taken to remediate the groundwater; and
 - N) A certification that the owner or operator meets the financial assurance requirements of Subpart I of this Part.
- 3) The initial operating permit application for an existing CCR surface impoundment where an Agency approved closure has been completed prior to July 30, 2021, and where the impoundment is not an inactive closed CCR surface impoundment, must contain the following information and documents on forms prescribed by the Agency:
- A) The history of construction specified in Section 845.220(a)(1);
 - B) Evidence that the permanent markers required by Section 845.130 have been installed;
 - C) Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in Section 845.430;
 - D) Emergency Action Plan certification, required by Section 845.520(e);
 - E) Groundwater monitoring information:
 - i) a hydrogeologic site characterization meeting the requirements of Section 845.620;
 - ii) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630;

- iii) a groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Section 845.640; and
 - iv) proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b);
 - F) Written post-closure care plan, as specified in Section 845.780(d), if applicable;
 - G) History of known exceedances of the groundwater protection standards in Section 845.600, and any corrective action plan taken to remediate the groundwater.
- 4) The initial operating permit application for inactive closed CCR surface impoundments must contain the following information:
 - A) Evidence that the permanent markers required by Section 845.130 have been installed;
 - B) Groundwater monitoring program;
 - C) Written post-closure care plan, as specified in Section 845.780(d); and
 - D) History of known exceedances of the groundwater quality standards in 35 Ill. Adm. Code 620, whether the owner or operator has obtained a groundwater management zone, and any corrective action taken to remediate the groundwater.
- e) Operating permits shall be issued for fixed terms not to exceed five years.

Section 845.240 Pre-Application Public Notification and Public Meeting

- a) At least 30 days before the submission of a construction permit application, the owner or operator of the CCR surface impoundment must hold at least two public meetings to discuss the proposed construction, where at least one meeting is held after 5:00 p.m. in the evening. Any public meeting held under this Section must be located at a venue that is accessible to persons with disabilities, and the owner or operator must provide reasonable accommodations upon request.
- b) The owner or operator must prepare and circulate a notice explaining the proposed construction project and any related activities and the time and place of the public meeting. Such a notification must be mailed, delivered, or posted at least 14 days

prior to the public meeting. The owner or operator of the CCR surface impoundment must:

- 1) mail or hand-deliver the notice to the Agency and all residents within a one-mile radius from the facility boundary;
 - 2) post the notice on all of the owner or operator's social media outlets; and
 - 3) post the notice in conspicuous locations throughout villages, towns, or cities within 10 miles of the facility, or use appropriate broadcast media (such as radio or television).
 - 4) include in the notice the owner or operator's contact information, the internet address where the information in Section 845.240(e) will be posted, and the date on which the information will be posted to the site.
- c) When a proposed construction project or any related activity is located in an area with a significant proportion of non-English speaking residents, the notification must be circulated, or broadcast, in both English and the appropriate non-English language, and the owner or operator must provide simultaneous translation services during the public meetings required by Section 845.240(a), if requested by non-English speaking members of the public.
- d) The owner or operator of the CCR surface impoundment must prepare documentation recording the public meeting and place the documentation in the facility's operating record, as required by Section 845.800(d)(2).
- e) At least 14 days prior to a public meeting, the owner or operator of the CCR surface impoundment must post on the owner or operator's publicly accessible internet site all documentation relied upon in making their tentative construction permit application.
- f) At the public meeting, the owner or operator of the CCR surface impoundment must outline its decision-making process for the construction permit application, including, where applicable, the corrective action alternatives and the closure alternatives considered.
- g) Fourteen (14) days following the public meetings required pursuant to Section 845.240, the owner or operator shall distribute a general summary of the issues raised by the public, as well as a response to those issues or comments raised the public. If these comments resulted in a revision, change in a decision, or other such considerations or determination, a summary of these revisions, changes, and considerations shall be included in the summary. Such a summary shall be distributed to any attendee who requests a copy at the public meeting.

- gh) This Section does not apply to applications for minor modifications as described in Section 845.280(d).

Section 845.250 Tentative Determination and Draft Permit

Following the receipt of a complete application for a construction permit, operating permit or a joint construction and operating permit, the Agency shall prepare a tentative determination.

- a) The tentative determination shall include at least the following:
 - 1) A statement regarding whether the permit is to be issued or denied; and
 - 2) If the determination is to issue the permit, a draft permit and a brief description of any conditions contained therein.
- b) Upon tentative determination to issue or deny the permit:
 - 1) If the determination is to issue the permit, the Agency shall notify the applicant in writing of the content of the tentative determination and draft permit and of its intent to circulate public notice of issuance in accordance with Section 845.260;
 - 2) If the determination is to deny the permit, the Agency shall notify the applicant in writing of the tentative determination and of its intent to circulate public notice of denial, in accordance with Section 845.260. In the case of denial, notice to the applicant shall include a statement of the reasons for denial, as required by Section 39(a) of the Act.
- c) The documents supporting the Agency's tentative decision to issue or deny a permit shall be made part of the Agency's record.

Section 845.260 Draft Permit Public Notice and Participation

- a) The Agency shall post a notification that it has received a permit application on the Agency's webpage and shall email the notice to the Agency's listserv for the applicant's facility.
- b) Public Notice of Draft Permit
 - 1) Not earlier than 15 days following the Agency's notification to the applicant of its tentative decision pursuant to Section 845.250 to issue or deny the permit application, the Agency shall circulate public notice of the completed application for the permit in a manner designed to inform interested and potentially interested persons of the construction, modification, operation or closure of a CCR surface impoundment and of the proposed determination to issue or deny the permit.

- 2) The contents of public notice of completed applications for permits shall include at least the following:
 - A) Name, address, and telephone number of the Agency;
 - B) Name and address of the applicant;
 - C) Brief description of the applicant's activities or operations which result in the construction, operation, modification or closure of a CCR surface impoundment;
 - D) A statement of the tentative determination to issue or deny the permit;
 - E) A brief description of the procedures for the formulation of final determinations, including the procedures for submitting comments and expiration date of the comment period; and
 - F) Address and telephone number of Agency premises at which interested persons may obtain further information, request a copy of the permit application and related documents.
 - G) A translation of the public notice into the appropriate language or languages will be made if the Agency determines that a project is located within one mile of a significant population of non-English speaking residents.
 - 3) Procedures for the circulation of public notice required pursuant to this Section shall include at least the following concurrent actions:
 - A) Posting on the Agency's webpage and all of the Agency's social media outlets;
 - B) Mailing the notice to the clerk of the nearest city, town or village requesting further posting in conspicuous locations throughout the city, town or village;
 - C) Requiring the applicant to post the notice near the entrance to the applicant's premises; and
 - D) Emailing the notice to the Agency's listserv for the facility.
- c) Public Comment Period

- 1) The Agency shall accept written comments from interested persons on the draft permit determination for 30 days following the circulation of the public notice pursuant to subsection (b).
 - 2) All comments shall be submitted to the Agency and to the applicant.
 - 3) ~~All written comments submitted during the 30-day comment period shall be retained by the Agency and considered in the formulation of its final determination with respect to the permit application.~~ The Agency shall retain all timely submitted comments and consider them in the formulation of its final determination with respect to the permit application.
 - 4) The period for comment may be extended at the discretion of the Agency.
 - 5) ~~The Agency shall consider all timely submitted comments.~~
- d) Public Hearing
- 1) The Agency may hold a public hearing on the issuance or denial of a draft permit whenever the Agency determines that there exists a significant degree of public interest in the proposed permit.
 - 2) Within the 30-day public comment period, any person, including the applicant, may submit to the Agency a request for a public hearing which must include the reasons why a hearing is warranted.
 - 3) Hearings held pursuant to this Section shall be held in the geographical area in which the CCR surface impoundment is located. When determining the hearing location, consideration shall be given to facilitating attendance of interested or affected persons and organizations and to accessibility of hearing sites to public transportation.
- e) Notice of Public Hearing
- 1) The Agency shall issue notice of a public hearing not less than 30 days prior to the date of such hearing pursuant to the procedures for the circulation of public notice in subsection (b)(3).
 - 2) The contents of the public notice for the public hearing shall include at least the following:
 - A) Name, address, and telephone number of the Agency;
 - B) Name and address of each applicant whose application will be considered at the hearing;

- C) Brief description of the applicant's activities or operations which result in the construction, operation, modification or closure of a CCR surface impoundment;
 - D) Information regarding the time and location of the hearing;
 - E) The purpose of the hearing;
 - F) A concise statement of the issues to be considered at the hearing;
 - G) Address and telephone number of premises at which interested persons may obtain further information, request a copy of the draft permit and related documents; and
 - H) A statement that the hearing will be conducted in accordance with this Section.
 - I) A translation of the public notice into the appropriate language or languages will be made if the Agency determines that a project is located within one mile of a significant population of non-English speaking residents
- f) When the Agency holds a public hearing pursuant to this Section, the Agency shall prepare a responsiveness summary which includes:
- 1) An identification of the public participation activity conducted;
 - 2) Description of the matter on which the public was consulted;
 - 3) An estimate of the number of persons present at the hearing;
 - 4) A summary of all significant comments, criticisms, and suggestions, whether written or oral, submitted at the hearing or during the time the hearing record was open;
 - 5) The Agency's response to all significant comments, criticisms, and suggestions; and
 - 6) A statement of Agency action, including when applicable the issuance or denial of the permit.

Section 845.270 Final Permit Determination and Appeal

- a) The Agency shall not make a final permit determination until the public participation process in Section 845.260 has concluded.

- b) After the consideration of any comments which may have been received, the Agency may either issue or deny the permit.
- c) The Agency shall provide a notice of the issuance or denial of the permit to the applicant, to any person who provides comments or an email address to the Agency during the public notice period or a public hearing, and to any person on the Agency' listserv for the facility. Such notice shall briefly indicate any significant changes which were made from terms and conditions set forth in the draft permit.
- d) In the case of denial, the Agency shall inform the applicant of the reasons for denial, as required by Section 39(a) of the Act.
- e) Appeal
 - 1) If the Agency refuses to grant or grants with conditions a permit under this Part, the applicant may petition the Board to appeal the Agency's final decision pursuant to Section 40 of the Act.
 - 2) *If the Agency grants or denies a permit under this Part, a third party, other than the permit applicant or Agency, may appeal the Agency's decision as provided under federal law for CCR surface impoundment permits. 415 ILCS 5/40(g).*
 - 3) All appeals must be filed with the Board within 35 days after the final action ~~as specified in Section 845.210(e)~~ is served on the applicant.

Section 845.280 Transfer, Modification and Renewal

- a) No permit is transferable from one person to another except as approved by the Agency. Approval shall be granted only if a new owner or operator seeking transfer of a permit can demonstrate the ability to comply with all applicable financial requirements of Subpart I of this Part.
- b) Agency Initiated Modification. The Agency may modify a permit under the following conditions:
 - 1) Discovery of a typographical or calculation error;
 - 2) Discovery that a determination or condition was based upon false or misleading information;
 - 3) An order of the Board issued in an action brought pursuant to Title VII, VIII, IX or X of the Act; or
 - 4) Promulgation of new statutes or regulations affecting the permit.

- c) The owner or operator of a CCR surface impoundment may initiate modification to its permit by submitting an application to the Agency at any time after the permit is approved and before the permit expires.
- d) The Agency may make minor modifications to a permit without following the public notice procedures of Section 845.260. Minor modifications may only:
 - 1) Correct typographical errors;
 - 2) Require more frequent monitoring or reporting by the permittee, including the installation of additional groundwater monitoring wells;
 - 3) Allow for a change in ownership or operational control of a facility where the Agency determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Agency;
 - 4) Change the construction schedule which does not impact the scheduled date of completion; or
 - 5) Require electronic reporting requirements.
- e) An application for renewal of a permit shall be filed with the Agency at least 180 days prior to the expiration date of the existing permit unless the Agency grants a waiver of this requirement. The Agency may grant a waiver of the 180-day requirement only if:
 - 1) the permittee submits a written request to the Agency at least 60 days before the expiration of the permit;
 - 2) the permittee's written request includes the reasonably justifiable causes for not meeting the 180-day requirement in subsection (e); and
 - 3) the permittee's written request includes a date by which the permittee will submit the renewal application.
- f) Any Agency decision to deny a waiver request must be made within 21 days after receipt of the waiver request in subsection (e)(1).
- g) The terms and conditions of an expiring permit remain effective and enforceable against the permittee until the Agency takes final action on the pending permit renewal application, only if the permittee has submitted a timely application pursuant to subsection (e) and the Agency, through no fault of the permittee, does not issue a new permit on or before the expiration date of the previous permit.

Section 845.290 Construction Quality Assurance Program

- a) The following must be constructed according to a Construction Quality Assurance (CQA) program:
 - 1) the construction of a new CCR surface impoundment, or the lateral expansion of an existing CCR surface impoundment;
 - 2) the retrofit of an existing CCR surface impoundment;
 - 3) installation of a groundwater collection system and discharge system;
 - 4) installation of the groundwater monitoring system; and
 - 5) installation of the final cover system.

- b) The CQA program must meet the following requirements:
 - 1) The owner or operator of the CCR surface impoundment must designate a CQA officer who is a qualified professional engineer.
 - 2) At the end of each week of construction until construction is complete, a summary report must be prepared either 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 review and approve the report. The owner or operator of the CCR surface impoundment shall place the weekly reports in the facility's operating record, as required by Section 845.800(d)(3).
 - 3) The CQA officer must certify the following, when applicable:
 - A) the bedding material contains no undesirable objects;
 - B) the final closure plan or corrective action plan approved by the construction permit has been followed;
 - C) the anchor trench and backfill are constructed to prevent damage to a geosynthetic membrane;
 - D) all tears, rips, punctures, and other damage are repaired;
 - E) all geosynthetic membrane seams are properly constructed and tested in accordance with the manufacturer's specifications;

- F) any groundwater collection system is constructed to intersect the water table;
 - G) any groundwater collection system is properly constructed to slope toward extraction points, and the extraction equipment is properly designed and installed;
 - H) appropriate operation and maintenance plans for the groundwater collection system and extraction and discharge equipment are provided;
 - D) proper filter material consisting of uniform granular fill, to avoid clogging, is used in construction;
 - J) the filter material as placed possesses structural strength adequate to support the maximum loads imposed by the overlying materials and equipment used at the facility;
 - K) CCR stabilization; and
 - L) site restoration, if any.
- 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, when applicable:
- A) compaction of the subgrade and foundation to design parameters;
 - B) application of final cover, including installation of the geomembrane; and
 - C) installation of the groundwater collection system and discharge system.
- 6) If the CQA officer is unable to be present as required by subsection (b)(5) of this Section, the CQA officer must provide the following in writing:
- A) the reasons for his or her absence;
 - B) a designation of a person who must exercise professional judgment in carrying out the duties of the CQA officer-in-absentia; and

- C) 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 CQA program must ensure, at a minimum, that construction materials and operations meet design specifications.

SUBPART C: LOCATION RESTRICTIONS

Section 845.300 Placement Above The Uppermost Aquifer

- a) Existing and new CCR surface impoundments, and all lateral expansions of CCR surface impoundments 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 surface impoundment and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table).
- b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.
- c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency in the facility's initial operating permit application.
- d) The owner or operator of a new CCR surface impoundment or a lateral expansion of a CCR surface impoundment must submit plans and specifications in a construction permit application that demonstrate the CCR surface impoundment will be constructed pursuant to subsection (a) of this Section. Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the CCR surface impoundment or lateral expansion was constructed in accordance with the requirements in subsection (a) of this Section and submit the certification to the Agency in the facility's initial operating permit application.

Section 845.310 Wetlands

- a) Existing and new CCR surface impoundments, and all lateral expansions of CCR surface impoundments must not be located in wetlands unless the owner or operator demonstrates the following:

- 1) Where applicable under Section 404 of the Clean Water Act, Interagency Wetlands Policy Act of 1989 (20 ILCS 830 et seq.) and Rivers, Lakes, and Streams Act (615 ILCS 5/4.9 et seq.), or other applicable state wetlands laws, a clear and objective rebuttal of the presumption that an alternative to the CCR surface impoundment is reasonably available that does not involve wetlands.
- 2) The construction and operation of the CCR surface impoundment will not cause or contribute to any of the following:
 - A) A violation of any applicable state or federal water quality standard;
 - B) A violation of any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;
 - C) 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 (16 U.S.C. 1531 et seq.) and the Illinois Endangered Species Protection Act (520 ILCS 10/1 et seq.); and
 - D) A violation of any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1431 and 33 U.S.C. 1401) for the protection of a marine sanctuary.
- 3) The CCR surface impoundment will not cause or contribute to significant degradation of wetlands by addressing all of the following factors:
 - A) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the CCR surface impoundment;
 - B) Erosion, stability, and migration potential of dredged and fill materials used to support the CCR surface impoundment;
 - C) The volume and chemical nature of the CCR;
 - D) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCR;
 - E) The potential effects of catastrophic release of CCR to the wetland and the resulting impacts on the environment; and
 - F) 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 subsections (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 subsections (a)(1) through (4) of this Section.
- b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.
 - c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.
 - d) The owner or operator of a new CCR surface impoundment or a lateral expansion of a CCR surface impoundment must submit plans and specifications in a construction permit application that demonstrate the CCR surface impoundment will be constructed pursuant to subsection (a) of this Section. Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the CCR surface impoundment or lateral expansion was constructed in accordance with the requirements in subsection (a) of this Section and submit the certification to the Agency in the facility's initial operating permit application.

Section 845.320 Fault Areas

- a) Existing and new CCR surface impoundments, and all lateral expansions of CCR surface impoundments 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 that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR surface impoundment.
- b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.

- c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.
- d) The owner or operator of a new CCR surface impoundment or a lateral expansion of a CCR surface impoundment must submit plans and specifications in a construction permit application that demonstrate the CCR surface impoundment will be constructed pursuant to subsection (a) of this Section. Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the CCR surface impoundment or lateral expansion was constructed in accordance with the requirements in subsection (a) of this Section and submit the certification to the Agency in the facility's initial operating permit application.

Section 845.330 Seismic Impact Zones

- a) Existing and new CCR surface impoundments, and all lateral expansions of CCR surface impoundments must not be located in seismic impact zones unless the owner or operator demonstrates 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 surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.
- c) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.
- d) The owner or operator of a new CCR surface impoundment or a lateral expansion of a CCR surface impoundment must submit plans and specifications in a construction permit application that demonstrate the CCR surface impoundment will be constructed pursuant to subsection (a) of this Section. Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the CCR surface impoundment or lateral expansion was constructed in accordance with the requirements in subsection (a) of this Section and submit the certification to the Agency in the facility's initial operating permit application.

Section 845.340 Unstable Areas

- a) An existing or new CCR surface impoundment, or any lateral expansion of a CCR surface impoundment must not be located in an unstable area unless the owner or operator demonstrates that recognized and generally accepted engineering practices have been incorporated into the design of the CCR surface impoundment to ensure that the integrity of the structural components of the CCR surface impoundment 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, including but not limited to liquefaction, 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 surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.
- d) The owner or operator of an existing CCR surface impoundment must complete the demonstration required by subsection (a) of this Section and submit the completed demonstration along with the qualified professional engineer's certification to the Agency with the facility's initial operating permit application.
- e) The owner or operator of a new CCR surface impoundment or a lateral expansion of a CCR surface impoundment must submit plans and specifications in a construction permit application that demonstrate the CCR surface impoundment will be constructed pursuant to subsection (a) of this Section. Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the CCR surface impoundment or lateral expansion was constructed in accordance with the requirements in subsection (a) of this Section and submit the certification to the Agency in the facility's initial operating permit application.

Section 845.350 Failure to Meet Location Standards

- a) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of this Subpart is subject to the requirements of Section 845.700.
- b) An owner or operator of a new CCR surface impoundment, or any lateral expansion of a CCR surface impoundment who fails to make the demonstration showing

compliance with the requirements of this Subpart is prohibited from placing CCR in the CCR surface impoundment.

SUBPART D: DESIGN CRITERIA

Section 845.400 Liner Design Criteria For Existing CCR Surface Impoundments

- a) An existing CCR surface impoundment is considered to be an existing lined surface impoundment if it has been constructed with either a composite liner that meets the requirements of subsection (b) of this Section or an alternative composite liner that meets the requirements of subsection (c) of this Section.
- b) Composite Liner
 - 1) A composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, and the lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second (cm/sec). The geomembrane liner components consisting of high-density polyethylene (HDPE) must be at least 60-mil. The geomembrane liner or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component.
 - 2) The composite liner must be:
 - A) 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;
 - B) 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;
 - C) 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
 - D) Installed to cover all surrounding earth likely to be in contact with the CCR or leachate.
- c) Alternative Composite Liner

- 1) An alternative composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, 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 1×10^{-7} cm/sec. The geomembrane liner components consisting of high density polyethylene (HDPE) must be at least 60-mil. If the lower component of the alternative liner is compacted soil, the geomembrane liner must be installed in direct and uniform contact with the compacted soil.
- 2) The liquid flow rate through the lower component of the alternative composite liner shall be no greater than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of 1×10^{-7} cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than 1×10^{-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.
- 3) The liquid flow rate comparison must be made using the following equation, which is derived from Darcy's Law for gravity flow through porous media.

$$Q/A = q = k ((h/t)+1)$$

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)

- 4) The alternative composite liner must meet the requirements specified in subsection (b) of this Section.
- d) The hydraulic conductivity of the compacted soil must be determined using recognized and generally accepted methods.
 - e) The owner or operator of an existing CCR surface impoundment that has not completed an Agency approved closure prior to July 30, 2021, must submit an initial operating permit application pursuant to Section 845.230 that demonstrates whether or not the CCR surface impoundment was constructed with either of the following:
 - 1) A composite liner that meets the requirements of subsection (b); or
 - 2) An alternative composite liner that meets the requirements of subsection (c).

- f) A CCR surface impoundment is considered to be an unlined CCR surface impoundment if either:
 - 1) The owner or operator of the CCR surface impoundment determines that the CCR surface impoundment is not constructed with a liner that meets the requirements of subsections (b) or (c) of this Section; or
 - 2) The owner or operator of the CCR surface impoundment fails to document whether the CCR surface impoundment was constructed with a liner that meets the requirements of subsections (b) or (c) of this Section.
- g) All unlined CCR surface impoundments are subject to the requirements of Section 845.700.
- h) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer attesting that the CCR surface impoundment meets the requirements of subsection (a) of this Section and submit the certification to the Agency in the facility's initial operating permit application.

Section 845.410 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 Section 845.400(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 so as to damage the composite liner.
- c) Prior to construction, the owner or operator must obtain certification from a qualified professional engineer that the design of the composite liner or, if applicable, the design of an alternative composite liner complies with the requirements of this Section and submit this certification to the Agency in the facility's construction permit application.
- d) Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the composite liner or if applicable, the alternative composite liner has been constructed in accordance with the requirements of this Section and submit this certification to the Agency in the facility's initial operating permit application.

Section 845.420 Leachate Collection and Removal System

A new CCR surface impoundment must be designed, constructed, operated and maintained with a leachate collection and removal system. The leachate collection and removal system must be designed, constructed, operated, and maintained to collect and remove leachate from the leachate collection system of the CCR surface impoundment during its active life and post-closure care period.

- a) The leachate collection and removal system must:
 - 1) be placed above the liner required by Section 845.400 or Section 845.410;
 - 2) have placed above it a filter layer that has a hydraulic conductivity of no less than 1×10^{-5} cm/sec;
 - 3) have a bottom slope of three percent or more towards the collection pipes;
 - 4) be constructed of granular drainage materials with a hydraulic conductivity of 1×10^{-1} cm/sec or more and a thickness of 24 inches or more above the crown of the collection pipe; or constructed of synthetic drainage materials with a transmissivity of 6×10^{-4} m²/sec or more;
 - 5) be constructed of materials that are chemically resistant to CCR and any non-CCR waste managed in the CCR surface impoundment and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying waste and any waste cover materials and equipment used at the CCR surface impoundment;
 - 6) be designed, constructed and operated with collection pipes at the base of the granular material, to prevent clogging with fines during the active life and post-closure care period;
 - 7) have collection pipes
 - A) designed such that leachate is collected at a sump and is pumped or flows out of the CCR surface impoundment;
 - B) with slopes that allow flow from all points within the CCR surface impoundment to the sump or drain outlet; and
 - C) large enough to conduct periodic cleaning;
 - 8) have a protective layer or other means of deflecting the force of CCR pumped into the CCR surface impoundment; ~~and~~
 - 9) be designed and operated to minimize clogging during the active life and post-closure care period; and

- 10) at a minimum, the leachate collection and removal system must be operated to remove free liquids from the CCR surface impoundment at the time of closure and during post closure care.
- b) The owner or operator must obtain certification from a qualified professional engineer that the design of the leachate collection system complies with the requirements of this Section and submit this certification to the Agency in the facility's construction permit application.
- c) Upon completion, the owner or operator must obtain a certification from a qualified professional engineer that the leachate collection system has been constructed in accordance with the requirements of this Section and submit this certification to the Agency in the facility's initial operating permit application.

Section 845.430 Slope Maintenance

The slopes and pertinent surrounding areas of the CCR surface impoundment must be designed, constructed, operated, and maintained with one of the forms of slope protection specified in subsection (a) of this Section that meets all of the performance standards of subsection (b) of this Section.

- a) Slope protection must consist of one of the following:
- 1) A vegetative cover consisting of grassy vegetation;
 - 2) An engineered cover consisting of a single form or combination of forms of engineered slope protection measures; or
 - 3) A combination of the forms of cover specified in subsections (a)(1) or (a)(2) of this Section.
- b) Any form of cover for slope protection must meet the following performance standards:
- 1) The cover must be installed and maintained on the slopes and pertinent surrounding areas of the CCR surface impoundment;
 - 2) The cover must provide protection against surface erosion, wave action, and adverse effects of rapid drawdown;
 - 3) The cover must be maintained to allow for the observation of and access to the slopes and pertinent surrounding areas during routine and emergency events;

- 4) Woody vegetation must be removed from the slopes or pertinent surrounding areas. Any removal of woody vegetation with a diameter greater than 1/2 inch must be directed by a person familiar with the design and operation of the CCR surface impoundment and in consideration of the complexities of removal of a tree or a shrubbery, who must ensure the removal does not create a risk of destabilizing the CCR surface impoundment or otherwise adversely affect the stability and safety of the CCR surface impoundment or personnel undertaking the removal; and
- 5) The height of vegetation must not exceed 12 inches.

Section 845.440 Hazard Potential Classification Assessment

- a) Hazard potential classification assessments
 - 1) The owner or operator of the CCR surface impoundment must conduct an initial and annual hazard potential classification assessment of the CCR surface impoundment. The owner or operator must document the hazard potential classification of each CCR surface impoundment as either a Class 1 or Class 2 CCR surface impoundment. The owner or operator must also document the basis for each hazard potential classification.
 - 2) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the initial hazard potential classification and each annual classification was conducted in accordance with the requirements of this Section.
 - 3) Timeframe for submission of the Hazard Potential Classification Assessments and Certifications
 - A) The owner or operator of a new CCR surface impoundment must submit the initial hazard potential classification assessment certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.
 - B) The owner or operator of an existing CCR surface impoundment must submit the initial hazard potential classification assessment certification with its first annual inspection report required by Section 845.540(b).
 - C) The owner or operator of a CCR surface impoundment must submit the annual hazard potential classification assessment certification each year with the annual inspection required by Section 845.540(b).

- D) The owner or operator of a CCR surface impoundment must place each hazard potential classification assessment in the facility's operating record, as required by Section 845.800(d)(4).
- b) The requirements of this Section apply to all CCR surface impoundments, except for those CCR surface impoundments that are incised CCR surface impoundments. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR surface impoundment no longer meets the definition of an incised CCR surface impoundment, the CCR surface impoundment is subject to the requirements of this Section.

Section 845.450 Structural Stability Assessment

- a) The owner or operator of a CCR surface impoundment must conduct initial and annual structural stability assessments and document whether the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted 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 surface impoundment has been designed, constructed, operated, and maintained with:
 - 1) Stable foundations and abutments;
 - 2) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;
 - 3) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR surface impoundment;
 - 4) Slope protection consistent with Section 845.430;
 - 5) A single spillway or a combination of spillways configured as specified in subsection (a)(5)(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 subsection (a)(5)(B) of this Section.
 - A) All spillways must be either:
 - i) Of non-erodible construction and designed to carry sustained flows; or
 - ii) 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:
 - i) Probable maximum flood for a Class 1 CCR surface impoundment; or
 - ii) 1000-year flood for a Class 2 CCR surface impoundment.
- 6) Hydraulic structures underlying the base of the CCR surface impoundment or passing through the dike of the CCR surface impoundment that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the CCR surface impoundment; and
- 7) For CCR surface impoundments 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.
- b) The annual assessment described in this Section must identify any structural stability deficiencies associated with the CCR surface impoundment in addition to recommending corrective measures. If a deficiency or a release is identified during the periodic assessment, the owner or operator of the surface impoundment must submit to the Agency a construction permit application including documentation detailing proposed corrective measures and must obtain any necessary permits from the Agency as soon as feasible.
- c) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the initial structural stability assessments and each annual assessment thereafter was conducted in accordance with the requirements of this Section.
- d) Timeframe for submission of structural stability assessment
 - 1) The owner or operator of a new CCR surface impoundment must submit the initial structural stability assessment certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.
 - 2) The owner or operator of an existing CCR surface impoundment must submit the initial structural stability assessment certification with its first annual inspection report required by Section 845.540(b).
 - 3) The owner or operator of a CCR surface impoundment must submit the annual structural stability assessment certification each year with the annual inspection required by Section 845.540(b).

- 4) The owner or operator of a CCR surface impoundment must place each structural stability assessment in the facility's operating record, as required by Section 845.800(d)(5).
- f) The requirements of this Section apply to all CCR surface impoundments, except for those CCR surface impoundments that are incised CCR surface impoundments. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR surface impoundment no longer meets the definition of an incised CCR surface impoundment, the CCR surface impoundment is subject to the requirements of this Section.

Section 845.460 Safety Factor Assessment

- a) The owner or operator of a CCR surface impoundment must conduct an initial and annual safety factor assessments for each CCR surface impoundment and document whether the calculated factors of safety for each CCR surface impoundment achieve the minimum safety factors specified in 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.
 - 1) For new CCR surface impoundments, 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.
 - 2) The calculated static factor of safety under the long-term, maximum storage pool loading condition must equal or exceed 1.50.
 - 3) The calculated static factor of safety under the maximum surcharge pool loading condition must equal or exceed 1.40.
 - 4) The calculated seismic factor of safety must equal or exceed 1.00.
 - 5) For dikes constructed of soils that have susceptibility to liquefaction, the calculated liquefaction factor of safety must equal or exceed 1.20.
- b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the initial safety factor assessment and each annual assessment thereafter was conducted in accordance with the requirements of this Section.
- c) Timeframe for submission of the safety factor assessment

- 1) The owner or operator of a new CCR surface impoundment must submit the initial safety factor assessment certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.
 - 2) The owner or operator of an existing CCR surface impoundment must submit the initial safety factor assessment certification with its first annual inspection report required by Section 845.540(b).
 - 3) The owner or operator of a CCR surface impoundment must submit the annual safety factor assessment certification each year with the annual inspection required by Section 845.540(b).
 - 4) The owner or operator of a new CCR surface impoundment must place each safety factor assessment in the facility's operating record as required by Section 845.800(d)(6).
- d) Failure to document minimum safety factors.
- 1) For new CCR surface impoundments, until the date an owner or operator of a CCR surface impoundment documents that the calculated factors of safety achieve the minimum safety factors specified in this section, the owner or operator is prohibited from placing CCR in such CCR surface impoundment.
 - 2) An owner or operator of the CCR surface impoundment who either fails to complete a timely safety factor assessment or fails to demonstrate minimum safety factors as required by this Section is subject to the requirements of Section 845.700.
- e) The requirements of this Section apply to all CCR surface impoundments, except for those CCR surface impoundments that are incised CCR surface impoundments. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR surface impoundment no longer meets the definition of an incised CCR surface impoundment, the CCR surface impoundment is subject to the requirements of this Section.

SUBPART E: OPERATING CRITERIA

Section 845.500 Air Criteria

- a) The owner or operator of a CCR surface impoundment, or any lateral expansion of a CCR surface impoundment must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR surface impoundments, roads, and other CCR management and material handling activities.

- b) CCR fugitive dust control plan. The owner or operator of the CCR surface impoundment must prepare and operate in accordance with a CCR fugitive dust control plan as specified in subsections (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, including but not limited to 29 CFR 1910.1018, 29 CFR 1910.1024, 29 CFR 1910.1025, 29 CFR 1910.1027, and 1910.1053, or any other State or federal law.
- 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) The CCR fugitive dust control plan must include procedures to log ~~citizen~~ complaints from members of the public received by the owner or operator involving CCR fugitive dust events at the facility.
 - 3) 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.
 - 4) The owner or operator of a CCR surface impoundment must prepare an initial CCR fugitive dust control plan for the facility no later than September 30, 2021, or by initial receipt of CCR in any CCR surface impoundment at the facility if the owner or operator becomes subject to this Part after September 30, 2021.
 - 5) Amendment of the plan. The owner or operator of a CCR surface impoundment subject to the requirements of this Section may amend the written CCR fugitive dust control plan at any time provided the revised plan is submitted to the Agency. 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 surface impoundment.
 - 6) The owner or operator must place the initial and any amendments to the fugitive dust control plan in the facility's operating record as required by

Section 845.800(d)(7). The owner or operator shall make the fugitive dust control plan available to the Agency at any time upon request.

- 7) The owner or operator must obtain a certification from a qualified professional engineer 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 surface impoundment 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 from members of the public, and a summary of any corrective measures taken. The annual CCR fugitive dust control report must be submitted as a part of the annual consolidated report required by Section 845.550.

Section 845.510 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 subsections (a)(1) and (2) of this Section.
 - 1) The inflow design flood control system must adequately manage flow into the CCR surface impoundment during and following the peak discharge of the inflow design flood specified in subsection (a)(3) of this Section.
 - 2) The inflow design flood control system must adequately manage flow from the CCR surface impoundment to collect and control the peak discharge resulting from the inflow design flood specified in subsection (a)(3) of this Section.
 - 3) The inflow design flood, at a minimum, is:
 - A) For a Class 1 CCR surface impoundment, as determined under Section 845.440(a), the probable maximum flood;
 - B) For a Class 2 CCR surface impoundment, as determined under Section 845.440(a), the ~~1,000~~1000-year flood; or
 - C) For an incised CCR surface impoundment, the 25-year flood.
- b) Discharge from the CCR surface impoundment must be handled in accordance with the surface water requirements in Section 845.110(b)(3) and 35 Ill. Adm. Code Subtitle C.

- c) Inflow design flood control system plan
 - 1) Content of the plan. The owner or operator must prepare initial and annual inflow design flood control system plans for the CCR surface impoundment. 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.
 - 2) Amendment of the plan. The owner or operator of the CCR surface impoundment may amend the written inflow design flood control system plan at any time. 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) The owner or operator must obtain a certification from a qualified professional engineer stating that the initial and periodic inflow design flood control system plans meet the requirements of this Section
 - 4) Timeframe for plan submission
 - A) The owner or operator of a new CCR surface impoundment must submit to the Agency the initial inflow design flood control system plan certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.
 - B) The owner or operator of an existing CCR surface impoundment must submit the initial inflow design flood control system plan certification with its first annual inspection report required by Section 845.540(b).
 - C) The owner or operator of a CCR surface impoundment must submit the annual inflow design flood control system plan certification each year with the annual inspection required by Section 845.540(b).
 - D) The owner or operator of a new CCR surface impoundment must place each inflow design flood control system plan in the facility's operating record, as required by Section 845.800(d)(8).

Section 845.520 Emergency Action Plan

- a) The owner or operator of a CCR surface impoundment must prepare and maintain a written Emergency Action Plan (EAP). The owner or operator must place the EAP and any amendment of the EAP in the facility's operating record, as required by Section 845.800(d)(9).

- b) At a minimum, the EAP must:
 - 1) Define the events or circumstances involving the CCR surface impoundment 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;
 - 2) Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR surface impoundment;
 - 3) Provide contact information of emergency responders;
 - 4) Include a map which delineates the downstream area which would be affected in the event of a CCR surface impoundment failure and a physical description of the CCR surface impoundment; and
 - 5) Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR surface impoundment and the local emergency responders.
- c) The owner or operator of a CCR surface impoundment must prepare an initial Emergency Action Plan for the facility no later than September 30, 2021, or by initial receipt of CCR in any CCR surface impoundment at the facility if the owner or operator becomes subject to this Part after September 30, 2021.
- d) Amendment of the plan
 - 1) The owner or operator of a CCR surface impoundment may amend the written EAP at any time.
 - 2) The owner or operator must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect.
 - 3) The written EAP must be evaluated, at a minimum, every five years to ensure the information required in this Section is accurate.
- e) The owner or operator of the CCR surface impoundment 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 this Section.
- f) Activation of the EAP. The EAP must be implemented once events or circumstances involving the CCR surface impoundment that represent a safety emergency are detected, including conditions identified during any structural stability assessments, annual inspections, and inspections by a qualified person. The owner or operator of the CCR surface impoundment must submit records

documenting all activations of the EAP to the Agency and place the documentation in the facility's operating record as required by Section 845.800(d)(10).

- g) The owner or operator of a CCR surface impoundment must document the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR surface impoundment and the local emergency responders as required by subsection (b)(5). The owner or operator of the CCR surface impoundment must place this documentation in the facility's operating record as required by Section 845.800(d)(11).

Section 845.530 Safety and Health Plan

- a) The owner or operator of the CCR surface impoundment shall develop a Safety and Health Plan and ensure that employees, contract workers, and third-party contractors are informed regarding the Safety and Health Plan. The owner or operator shall conduct ongoing worker hazard analyses and ensure employees, contract workers, and third-party contractors are aware of said analyses. The plan shall be updated as needed based on the worker hazard analyses, but at least annually. The plan and all amendments to the plan, shall be placed in the facility's operating record as required by Section 845.800(d)(12), and on the owner or operator's publicly accessible internet site.
- b) For worker exposure safety, in addition to all other applicable local, state and federal requirements, the owner or operator of the CCR surface impoundment, for all chemical constituents identified in the CCR pursuant to Sections 845.230(a)(15) and 845.230(d)(2)(C), must:
 - 1) consider the recommendations in the most recent "NIOSH Pocket Guide to Chemical Hazards", Department of Human Health and Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health;
 - 2) implement the Occupational Safety and Health Administration regulations in Chapter 17 of Title 29 of the Code of Federal Regulations for all hazards not otherwise classified as defined in 29 CFR 1910.1200(c); and
 - 3) provide safety data sheets (Globally Harmonized System of Classification and Labeling of Chemicals adopted by OSHA) or create a facility-specific safety data sheet pursuant to 29 CFR 1910.1200(g).
- c) The Safety and Health Plan must include a personnel training program that meets the following minimum requirements:
 - 1) Employees, contract workers, and third-party contractors must successfully complete a training program that informs them of the hazards at the facility to ensure compliance with the requirements of this Part. The facility must

maintain an outline of the training program used (or to be used) at the facility and a brief description of training program updates.

- 2) At a minimum, the training program must be designed to ensure that employees, contract workers, and third-party contractors understand and are able to respond effectively to the following:
 - A) procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
 - B) communications or alarm systems;
 - C) response to fires or explosions;
 - D) response to a spill or release of CCR;
 - E) the training pursuant to the Occupational Safety and Health Standards in 29 CFR 1910.120, 29 CFR 1926.65, and the OSHA 10-hour or 30-hour construction safety training;
 - F) information about chemical hazards and hazardous materials identified in subsection (b) of this Section; and
 - G) the use of engineering controls, administrative controls, and personal protective equipment.
- d) Employees, contract workers, and third-party contractors must successfully complete the program required in subsection (c) of this Section prior to undertaking any activity to construct, operate or close a CCR surface impoundment.
- e) Employees, contract workers, and third-party contractors must take part in an annual review of the initial training required in subsection (c) of this Section.
- f) The owner or operator of the CCR surface impoundment must perform, at a minimum, the following hazard communication activities:
 - 1) post signs at the facility identifying the hazards of CCR, including dust inhalation when handling CCR;
 - 2) post signs at the facility identifying unstable CCR areas which may make operation of heavy equipment hazardous; and
 - 3) post signs at the facility where the CCR surface impoundment is located identifying safety measures and necessary precautions, including the proper use of personal protective equipment.

Section 845.540 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:
 - A) At intervals not exceeding seven days and after each 25-year, 24-hour storm, inspect for the following:
 - i) 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 surface impoundment;
 - ii) deterioration, malfunctions or improper operation of overtopping control systems where present;
 - iii) sudden drops in the level of the CCR surface impoundment's contents;
 - iv) erosion that creates rills, gullies, or crevices six inches or deeper, other signs of deterioration including failed or eroded vegetation in excess of 100 square feet, or cracks in dikes or other containment devices; and
 - v) any visible releases.
 - B) At intervals not exceeding seven days, inspect the discharge of all outlets of hydraulic structures which pass underneath the base of the CCR surface impoundment or through the dike of the CCR surface impoundment for abnormal discoloration, flow or discharge of debris or sediment;
 - C) At intervals not exceeding 30 days, monitor all CCR surface impoundment instrumentation; and
 - D) The owner or operator shall prepare a report for each inspection which includes the date of the inspection, condition of the CCR surface impoundment, any repairs made to the CCR surface impoundment and the date of the repair. The results of the inspection by a qualified person must be recorded in the facility's operating record as required by Section 845.800(d)(13).
 - E) If a 25-year, 24-hour storm is identified more than 48 hours before the next scheduled weekly inspection, an additional inspection shall

be conducted within 24 hours of the end of the identified storm event, prior to the scheduled seven-day inspection.

- 2) The owner or operator of a CCR surface impoundment must initiate the inspections required under subsection (a) no later than March 30, 2021, or by initial receipt of CCR in an CCR surface impoundment if the owner or operator becomes subject to this Part after March 30, 2021. The inspections required under subsection (a) must continue until the completion of closure by removal or the completion of post-closure care.
- b) Annual inspections by a qualified professional engineer.
- 1) The CCR surface impoundment must be inspected on an annual basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted engineering standards. The inspection must, at a minimum, include:
 - A) A review of available information regarding the status and condition of the CCR surface impoundment, including, but not limited to, files available in the operating record (e.g., CCR surface impoundment design and construction information required by Sections 845.220(a)(1) and 845.230(d)(2)(A), previous structural stability assessments required under Section 845.450, the results of inspections by a qualified person, and results of previous annual inspections);
 - B) A visual inspection of the CCR surface impoundment to identify signs of distress or malfunction of the CCR surface impoundment and appurtenant structures;
 - C) A visual inspection of any hydraulic structures underlying the base of the CCR surface impoundment or passing through the dike of the CCR surface impoundment for structural integrity and continued safe and reliable operation;
 - D) The annual hazard potential classification certification, required by Section 845.440, if applicable;
 - E) The annual structural stability assessment certification, required by Section 845.450, if applicable;
 - F) The annual safety factor assessment certification, required by Section 845.460, if applicable; and

- G) The inflow design flood control system plan certification, required by Section 845.510(c).
- 2) Inspection report. The qualified professional engineer must prepare a report following each inspection that addresses the following:
- A) Any changes in geometry of the impounding structure since the previous annual inspection;
 - B) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;
 - C) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;
 - D) The storage capacity of the impounding structure at the time of the inspection;
 - E) The approximate volume of the impounded water and CCR at the time of the inspection;
 - F) Any appearances of an actual or potential structural weakness of the CCR surface impoundment, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR surface impoundment and appurtenant structures; and
 - G) Any other changes which may have affected the stability or operation of the impounding structure since the previous annual inspection.
- 3) By January 31 of each year, the inspection report must be completed and ~~submitted~~ included with the annual consolidated report required by Section 845.550.
- 4) Frequency of inspections. The owner or operator of the CCR surface impoundment must conduct the inspection required by subsections (b)(1) and (2) of this Section on an annual basis. The deadline for conducting a subsequent inspection is based on the date of conducting the previous inspection.
- 5) If a deficiency or release is identified during an inspection, the owner or operator must submit to the Agency documentation detailing proposed corrective measures and obtain any necessary permits from the Agency.

Section 845.550 Annual Consolidated Report

- a) No later than January 31 of each year, the owner or operator of the CCR surface impoundment must prepare an annual consolidated report for the preceding calendar year that includes the following:
 - 1) Annual CCR fugitive dust control report, required by Section 845.500(c);
 - 2) Annual inspection report, required by Section 845.540(b), including
 - A) annual hazard potential classification certification, required by Section 845.440, if applicable;
 - B) annual structural stability assessment certification, required by Section 845.450, if applicable;
 - C) annual safety factor assessment certification, required by Section 845.460, if applicable; and
 - D) inflow design flood control system plan certification, required by Section 845.510(c).
 - 3) Annual Groundwater Monitoring and Corrective Action Report, required by Section 845.610(e).
- b) The owner or operator of the CCR surface impoundment must submit the annual consolidated report to the Agency in addition to placing ~~place~~ the annual consolidated report in the facility's operating record as required by Section 845.800(d)(14).

SUBPART F: GROUNDWATER MONITORING AND CORRECTIVE ACTION

Section 845.600 Groundwater Protection Standards

- a) For existing CCR surface impoundments and for inactive CCR surface impoundments
 - 1) The groundwater protection standards at the waste boundary shall be:
 - A) Antimony: 0.006 mg/L
 - B) Arsenic: 0.010 mg/L

- C) Barium: 2.0 mg/L
 - D) Beryllium: 0.004 mg/L
 - E) Boron: 2 mg/L
 - F) Cadmium: 0.005 mg/L
 - G) Chloride: 200 mg/L
 - H) Chromium: 0.1 mg/L
 - I) Cobalt: 0.006 mg/L
 - J) Fluoride: 4.0 mg/L
 - K) Lead: 0.0075 mg/L
 - L) Lithium: 0.04 mg/L
 - M) Mercury: 0.002 mg/L
 - N) Molybdenum: 0.1 mg/L
 - O) pH: 6.5-9.0 units
 - P) Selenium: 0.05 mg/L
 - Q) Sulfate: 400 mg/L
 - R) Thallium: 0.002 mg/L
 - S) Total Dissolved Solids: 1200 mg/L
 - T) Radium 226 and 228 combined: 5 pCi/L
- 2) For constituents with a background concentration higher than the levels identified under subsection (a)(1) of this Section, the background concentration shall be the groundwater protection standard.
- b) For new CCR surface impoundments, the groundwater protection standards at the waste boundary shall be background for the constituents listed in subsection (a)(1), ~~and~~ Calcium and Turbidity.
 - c) The owner or operator of a CCR surface impoundment may not obtain alternative groundwater quality standards in 35 Ill. Adm. Code 620.450(a)(4) for the

constituents in subsections (a) and (b) before the end of post-closure care pursuant to Section 845.780, when closing with a final cover system, or before the end of groundwater monitoring pursuant to Section 845.740(b), when closing by removal.

Section 845.610 General Requirements

- a) All CCR surface impoundments and lateral expansions of CCR surface impoundments are subject to the groundwater monitoring and corrective action requirements under this Subpart.
- b) Required submissions and Agency approvals for groundwater monitoring
 - 1) Existing CCR surface impoundments. The owner or operator of an existing CCR surface impoundment must submit the following to the Agency in an initial operating permit application:
 - A) a hydrogeologic site characterization meeting the requirements of Section 845.620;
 - B) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630;
 - C) a groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Section 845.640; and
 - D) a monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b).
 - 2) New CCR surface impoundments. The owner or operator of a new CCR surface impoundment and all lateral expansions of a CCR surface impoundment must submit the information required in subsection (b)(1)(A)-(C) in a construction permit application, and the information required in subsection (b)(1)(D) in an operating permit application.
 - 3) All owners and operators of CCR surface impoundments must:
 - A) conduct groundwater monitoring pursuant to a monitoring program approved by the Agency under this Subpart;
 - B) evaluate the groundwater monitoring data for statistically significant levels over background levels for the constituents listed in Section 845.600 after each sampling event;

- C) determine compliance with the groundwater protection standards in Section 845.600 after each sampling event; and
 - D) submit all groundwater monitoring data to the Agency and any analysis performed under subsection (b)(3)(B) and (b)(3)(C) within 60 days after completion of sampling, and place the groundwater monitoring data in the facility's operating record as required by Section 845.800(d)(15).
- c) Once the groundwater monitoring system and the groundwater monitoring program have been established at the CCR surface impoundment 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 surface impoundment or the time period specified in Section 845.740(b) when closure is by removal.
- d) In the event of a release from a CCR surface impoundment, the owner or operator must immediately take all necessary measures to control all sources of the release 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 surface impoundment must comply with all applicable requirements in Sections 845.660, 845.670, 845.680.
- e) Annual Groundwater Monitoring and Corrective Action Report
- 1) The owner or operator of the CCR surface impoundment must prepare and submit to the Agency an annual groundwater monitoring and corrective action report as a part of the annual consolidated report required by Section 845.550.
 - 2) For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action plan for the CCR surface impoundment, summarize key actions completed, including but not limited to the status of permit applications and Agency approvals, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.
 - 3) At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:
 - A) A map, aerial image, or diagram showing the CCR surface impoundment, all background (or upgradient) and downgradient monitoring wells, including the well identification numbers, that are part of the groundwater monitoring program for the CCR surface impoundment, and a visual delineation of any exceedances of the groundwater protection standards;

- B) 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;
 - C) A potentiometric surface map for each groundwater elevation sampling event required by Section 845.650(b)(2);
 - D) In addition to all the monitoring data obtained under this Subpart, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, and the dates the samples were collected;
 - E) A narrative discussion of any statistically significant increases over background levels for the constituents listed in Section 845.600; and
 - F) Other information required to be included in the annual report as specified in this Subpart.
- 4) A section at the beginning of the annual report must provide an overview of the current status of groundwater monitoring program and corrective action plan for the CCR surface impoundment. At a minimum, the summary must:
- A) specify whether groundwater monitoring data shows a statistically significant increase over background concentrations for one or more constituents listed in Section 845.600;
 - B) identify those constituents having a statistically significant increase over background concentrations and the names of the monitoring wells associated with such an increase;
 - C) specify whether there have been any exceedances of the groundwater protection standards for one or more constituents listed in Section 845.600;
 - D) identify those constituents with exceedances of the groundwater protection standards in Section 845.600 and the names of the monitoring wells associated with such an exceedance;
 - E) provide the date when the assessment of corrective measures was initiated for the CCR surface impoundment;
 - F) provide the date when the assessment of corrective measures was completed for the CCR surface impoundment;

- G) specify whether a remedy was selected pursuant to Section 845.670 during the current annual reporting period, and if so, the date of remedy selection; and
- H) specify whether remedial activities were initiated or are ongoing pursuant to Section 845.780 during the current annual reporting period.

Section 845.620 Hydrogeologic Site Characterization

- a) The owner or operator of the CCR surface impoundment must design and implement a hydrogeologic site characterization.
- b) The hydrogeologic site characterization shall include but not be limited to the following:
 - 1) Geologic well logs/boring logs;
 - 2) Climatic aspects of the site, including seasonal and temporal fluctuations in groundwater flow;
 - 3) Identification of nearby surface water bodies and drinking water intakes;
 - 4) Identification of nearby pumping wells and associated uses of the groundwater;
 - 5) Identification of nearby dedicated nature preserves;
 - 6) Geologic setting;
 - 7) Structural characteristics;
 - 8) Geologic cross-sections;
 - 9) Soil characteristics;
 - 10) Identification of confining layers;
 - 11) Identification of potential migration pathways;
 - 12) Groundwater quality data;
 - 13) Vertical and horizontal extent of the geologic layers to a minimum depth of 100 feet below land surface, including lithology and stratigraphy;

- 14) A map displaying any known underground mines beneath a CCR surface impoundment;
- 15) Chemical and physical properties of the geologic layers to a minimum depth of 100 feet below land surface;
- 16) Hydraulic characteristics of the geologic layers identified as migration pathways and geologic layers that limit migration, including:
 - A) water table depth;
 - B) hydraulic conductivities;
 - C) effective and total porosities;
 - D) direction and velocity of groundwater flow; and
 - E) map of the potentiometric surface;
- 17) groundwater classification pursuant to 35 Ill. Adm. Code 620; and
- 18) Any other information requested by the Agency.

Section 845.630 Groundwater Monitoring Systems

- a) Performance standard. The owner or operator of a CCR surface impoundment must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples that:
 - 1) Accurately represent the quality of background groundwater that has not been affected by leakage from a landfill containing CCR or CCR surface impoundment. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the CCR management area where:
 - A) Hydrogeologic conditions do not allow the owner or operator of the CCR surface impoundment to determine what wells are hydraulically upgradient; or
 - B) Sampling at other wells will provide an indication of background groundwater quality that is demonstratively 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 surface impoundment. The downgradient monitoring system

must be installed at the waste boundary that ensures detection of groundwater contamination. All potential contaminant pathways must be monitored.

- b) The number, spacing, and depths of monitoring system wells shall be determined based upon site-specific technical information identified in the hydrogeologic site characterization conducted under Section 845.620.
- c) The groundwater monitoring system must include a sufficient number of monitoring wells necessary to meet the performance standards specified in subsection (a) of this Section based on the site-specific information specified in subsection (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 surface impoundment and the quality of groundwater passing the waste boundary of the CCR surface impoundment.
- d) Multiunit groundwater monitoring system
 - 1) The owner or operator of multiple CCR surface impoundments may install a multiunit groundwater monitoring system instead of separate groundwater monitoring systems for each CCR surface impoundment.
 - 2) The multiunit groundwater monitoring system must be equally as capable of detecting monitored constituents at the waste boundary of the CCR surface impoundment as the individual groundwater monitoring system specified in subsections (a) through (c) of this Section for each CCR surface impoundment based on the following factors:
 - A) number, spacing, and orientation of each CCR surface impoundment;
 - B) hydrogeologic setting;
 - C) site history; and
 - D) engineering design of the CCR surface impoundment.
- e) Monitoring wells must be properly constructed in a manner consistent with the standards of 77 Ill. Adm. Code 920.170.
 - 1) The owner or operator must document and include in the facility's 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 subsection (g) 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 of a new CCR surface impoundment must submit a construction permit application containing documentation showing that the groundwater monitoring system is designed to meet the requirements of this Section. The owner or operator of all CCR surface impoundments must submit an operating permit application containing documentation showing that the groundwater monitoring system has been constructed to meet the requirements of this Section.
- g) The owner or operator must obtain a certification from a qualified professional engineer 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 subsection (c)(1) of this Section, the certification must document the basis supporting this determination. The certification must be submitted to the Agency with the appropriate permit application.

Section 845.640 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 Section 845.630. The owner or operator of the CCR surface impoundment 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

constituents and other monitoring parameters in groundwater samples. For purposes of this Subpart, the term constituent refers to both constituents and other monitoring parameters listed in Section 845.600.

- c) ~~Groundwater elevations must be measured in each well prior to purging, each time groundwater is sampled. The owner or operator of the CCR 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. The owner or operator must perform the following each time ground water is sampled:~~
- 1) Measure groundwater elevations in each well prior to purging;
 - 2) Determine the rate and direction of groundwater flow; and
 - 3) Measure groundwater elevations in wells which monitor the same CCR management area within a time period 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 surface impoundment must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the constituents listed in Section 845.600. Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR surface impoundment if it meets the requirements of Section 845.630(a)(1).
- e) The number of samples collected when conducting monitoring (for both downgradient and background wells) must be consistent with the statistical procedures chosen under subsection (f) of this Section and the performance standards under subsection (g) of this Section. The sampling procedures shall be those specified under Section 845.650(a) through (c).
- f) The owner or operator of the CCR surface impoundment must select one of the statistical methods specified in subsections (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 subsection (g) of this Section.
- 6) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR surface impoundment. The certification must include a narrative description of the statistical method selected to evaluate the groundwater monitoring data. The certification must be submitted to the Agency with the appropriate permit application.
- 7) The owner or operator of the CCR surface impoundment must submit the following to the Agency in an operating permit application:
 - A) documentation of the statistical method chosen; and
 - B) the qualified professional engineer certification required under subsection (f)(6).
- g) Any statistical method chosen under subsection (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 surface impoundment 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 constituent values shall be such that this approach is at least as effective as any other approach in this Section for evaluating groundwater data. The constituent 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 prediction 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 constituents 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 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. For the constituents identified in Section 845.600(a)(1), the practical quantitation limit must be less than the groundwater protection standards.
- 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 surface impoundment must determine whether or not there is a statistically significant increase over background values for each constituent in Section 845.600.

- 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 Section 845.630(a)(2) or (d)(1) to the background value of that constituent, according to the statistical procedures and performance standards specified under subsections (f) and (g) of this Section.
- 2) Within 60 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) All groundwater samples taken pursuant to this Subpart must be analyzed by a certified laboratory using Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, incorporated by reference in Section 845.150.

Section 845.650 Groundwater Monitoring Program

- a) The owner or operator of a CCR surface impoundment must conduct groundwater monitoring consistent with this Section. At a minimum, groundwater monitoring must include groundwater monitoring for all constituents with a groundwater protection standard in Section 845.600, ~~and~~ Calcium and Turbidity. The owner or operator of the CCR surface impoundment must submit a groundwater monitoring plan to the Agency with its operating permit application.
- b) Monitoring Frequency
 - 1) The monitoring frequency for all constituents with a groundwater protection standard in Section 845.600, ~~and~~ Calcium and Turbidity shall be at least quarterly during the active life of the CCR surface impoundment and the post-closure care period or period specified in Section 845.740(b) when closure is by removal.
 - A) For existing CCR surface impoundments, a minimum of eight independent samples from each background and downgradient well must be collected and analyzed for all constituents with a groundwater protection standard listed in Section 845.600(a), ~~and~~ Calcium and Turbidity no later than 180 days after the effective date of this Part.

- B) For new CCR surface impoundments, and all lateral expansions of CCR surface impoundments, a minimum of eight independent samples for each background well and downgradient well must be collected and analyzed for all constituents with a groundwater protection standard listed in Section 845.600(a), ~~and~~ Calcium and Turbidity during the first 180 days of sampling.
- 2) The groundwater elevation monitoring frequency shall be monthly.
- 3) Measurement of water elevation within the CCR surface impoundment shall be conducted each time the groundwater elevations are measured pursuant to Section 845.650(b)(2) prior to dewatering for closure.
- c) The number of samples collected and analyzed for each background well and downgradient well during subsequent quarterly sampling events must be consistent with Section 845.640, and must account for any unique characteristics of the site, but must include at least one sample from each background and downgradient well.
- d) If one or more constituents are detected, and confirmed by an immediate resample, in exceedance of the groundwater protection standards in Section 845.600 in any sampling event, the owner or operator must notify the Agency which constituent exceeded the groundwater protection standard and place the notification in the facility's operating record as required by Section 845.800(d)(16). The owner or operator of the CCR surface impoundment 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 surface impoundment pursuant to Section 845.660. The owner or operator of the CCR surface impoundment must submit the characterization to the Agency and place the characterization in the facility's operating record as required by Section 845.800(d)(16). Characterization of the release includes the following minimum measures:
 - A) Install additional monitoring wells necessary to define the contaminant plume(s);
 - B) Collect data on the nature and estimated quantity of material released including specific information on the constituents listed in Section 845.600 and the levels at which they are present in the material released;
 - C) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with subsection (a) and (b) of this Section; and

- D) Sample all wells in accordance with subsection (a) and (b) of this Section to characterize the nature and extent of the release.
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- 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 as indicated by sampling of wells in accordance with subsection (d)(1) of this Section. The owner or operator must send notifications made pursuant to this subsection (d)(2) to the Agency and place the notifications in the facility's operating record as required by Section 845.800(d)(16).
 - 3) Except as provided in subsection (d)(4), within 90 days of the detected exceedance of the groundwater protection standard, initiate an assessment of corrective measures as required by Section 845.660.
 - 4) Alternative Source Demonstration. The owner or operator of a CCR surface impoundment may, within 60 days of the detected exceedance of the groundwater protection standard, submit a demonstration to the Agency that a source other than the CCR surface impoundment caused the contamination and the CCR surface impoundment did not contribute to the contamination, or that the exceedance of the groundwater protection standard resulted from error in sampling, analysis, statistical evaluation, natural variation in groundwater quality, or a change in the potentiometric surface and groundwater flow direction. 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.
 - A) The Agency shall provide a written response either concurring or not concurring with the demonstration within 30 days.
 - B) If the Agency concurs with the demonstration, the owner or operator must continue monitoring in accordance with this Section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by Section 845.610(e), in addition to the certification by a qualified professional engineer.
 - C) If the Agency does not concur with the written demonstration made pursuant to subsection (d)(4) of this Section, the owner or operator of the CCR surface impoundment must initiate the assessment of corrective measures requirements under Section 845.660.

Section 845.660 Assessment of Corrective Measures

- a) Unless the Agency has concurred with an alternative source demonstration made pursuant to Section 845.650(d)(4), the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore the affected area.
 - 1) The assessment of corrective measures must be initiated within 90 days of finding that any constituent listed in Section 845.600 has been detected in exceedance of the groundwater protection standards in Section 845.600, at the downgradient waste boundary or immediately upon detection of a release of CCR from a CCR surface impoundment.
 - 2) The assessment of corrective measures must be completed and submitted to the Agency within 90 days of initiation of assessment of corrective measures, unless the owner or operator demonstrates to the Agency the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must submit this demonstration along with a certification from a qualified professional engineer attesting that the demonstration is accurate to the Agency within 60 days of initiating an assessment of corrective measures. The Agency shall either approve or disapprove the demonstration within 30 days. 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 Agency approved demonstration in the annual groundwater monitoring and corrective action report required by Section 845.610(e), in addition to the certification by a qualified professional engineer.
- b) The owner or operator of the CCR surface impoundment must continue to monitor groundwater in accordance with the monitoring program as specified in Section 845.650.
- c) The assessment under subsection (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 corrective action plan as described under Section 845.670 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 corrective action plan; and
 - 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 corrective action plan.

- d) The owner or operator of the CCR surface impoundment 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 as required by Section 845.240.
- e) When the owner or operator of a CCR surface impoundment is completing closure and corrective action simultaneously, the owner or operator may combine the requirements of this Section and Section 845.710 into one assessment of alternatives.

Section 845.670 Corrective Action Plan

- a) The owner or operator must prepare a semi-annual report describing the progress in selecting a remedy and developing a corrective action plan. The semi-annual report must be submitted to the Agency and placed in the operating record as required by Section 845.800(d)(17).
- b) Within one year of completing the assessment of corrective measures as specified in Section 845.660, and after completion of the public meeting in Section 845.660(d), the owner or operator of the CCR surface impoundment must submit a corrective action plan, which identifies—the selected remedy, in a construction permit application to the Agency. This requirement applies in addition to, not in place of, any applicable standards under any other State or federal law.
- c) The corrective action plan must meet the following requirements:
 - 1) be based on the results of the corrective measures assessment conducted under Section 845.660;
 - 2) identify a selected remedy, which at a minimum, meets the standards listed in subsection (d) of this Section;
 - 3) contain the corrective action alternatives analysis specified in subsection (e); and
 - 4) contain proposed schedules for implementation, including an analysis of the factors in subsection (f);
- d) The selected remedy in the corrective action plan must:
 - 1) Be protective of human health and the environment;
 - 2) Attain the groundwater protection standards as specified in Section 845.600;

- 3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents in Section 845.600 of this Part into the environment;
 - 4) Remove from the environment as much of the contaminated material that was released from the CCR surface impoundment as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems; and
 - 5) Comply with standards for management of wastes as specified in Section 845.680(d).
- e) Corrective Action Alternatives Analysis. In selecting a remedy that meets the standards of subsection (d) of this Section, the owner or operator of the CCR 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:
 - A) Magnitude of reduction of existing risks;
 - B) Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy;
 - C) The type and degree of long-term management required, including monitoring, operation, and maintenance;
 - D) 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 contaminants;
 - E) Time until groundwater protection standards in Section 845.600 are achieved;
 - F) The 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, containment or changes in groundwater flow;
 - G) The long-term reliability of the engineering and institutional controls, including an analysis of any off-site, nearby destabilizing activities; and

- H) 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:
 - A) The extent to which containment practices will reduce further releases; and
 - B) 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:
 - A) Degree of difficulty associated with constructing the technology;
 - B) Expected operational reliability of the technologies;
 - C) Need to coordinate with and obtain necessary approvals and permits from other agencies;
 - D) Availability of necessary equipment and specialists; and
 - E) 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).
- f) The owner or operator must specify, as part of the corrective action plan, a schedule 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 subsections (f)(1) through (6) of this Section. The owner or operator of the CCR surface impoundment 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 Section 845.650(d);
 - 2) Reasonable probabilities of remedial technologies in achieving compliance with the groundwater protection standards established under Section 845.600 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:
 - A) Current and future uses, including but not limited to potential, residential, agricultural, commercial industrial and ecological uses;
 - B) Proximity and withdrawal rate of users;
 - C) Groundwater quantity and quality;
 - D) The potential impact to the subsurface ecosystem, wildlife, other natural resources, crops, vegetation, and physical structures caused by exposure to CCR constituents;
 - E) The hydrogeologic characteristic of the facility and surrounding land; and
 - F) The availability of alternative water supplies; and
- 6) Other relevant factors.

Section 845.680 Implementation of the Corrective Action Plan

- a) Within 90 days of the Agency's approval of the corrective action plan submitted under Section 845.670, the owner or operator must initiate corrective action. Based on the schedule approved by the Agency for implementation and completion of corrective action, the owner or operator must:
 - 1) Establish and implement a corrective action groundwater monitoring program that:
 - A) At a minimum, meets the requirements of the monitoring program under Section 845.650;
 - B) Documents the effectiveness of the corrective action remedy; and
 - C) Demonstrates compliance with the groundwater protection standard pursuant to subsection (c) of this Section.
 - 2) Implement the corrective action remedy approved by the Agency under Section 845.670; and
 - 3) Take any interim measures necessary to reduce the contaminants leaching from the CCR surface impoundment, 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 Section 845.670. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

- A) Time required to develop and implement a final remedy;
 - B) Actual or potential exposure of nearby populations or environmental receptors to any of the constituents listed in Section 845.600 of this Part;
 - C) Actual or potential contamination of sensitive ecosystems or current or potential drinking water supplies;
 - D) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
 - E) Weather conditions that may cause any of the constituents listed in Section 845.600 of this Part to migrate or be released;
 - F) Potential for exposure to any of the constituents listed in Section 845.600 of this Part as a result of an accident or failure of a container or handling system; and
 - G) Other situations that may pose threats to human health and the environment.
- b) If the Agency or an owner or operator of the CCR surface impoundment, determines, at any time, that compliance with the requirements of Section 845.670(d) 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. These methods or techniques must receive approval by the Agency before implementation.
- c) Corrective action shall be considered complete when:
- 1) The owner or operator of the CCR surface impoundment demonstrates compliance with the groundwater protection standards established under Section 845.600 has been achieved at all points within the plume of contamination that lie beyond the waste boundary;
 - 2) Compliance with the groundwater protection standards has been achieved by demonstrating that concentrations of constituents listed in Section 845.600 of this Part have not exceeded the groundwater protection

standards for a period of three consecutive years using the statistical procedures and performance standards in Section 845.640(f) and (g); and

- 3) All actions required to complete the remedy have been satisfied.
- d) All CCR managed pursuant to a remedy approved by the Agency under Section 845.670, or an interim measure required under subsection (a)(3) of this Section, shall be managed in a manner that complies with this Part.
- e) Upon completion of the corrective action plan, the owner or operator must submit to the Agency a corrective action completion report and certification.
 - 1) The corrective action completion report must contain supporting documentation, including, but not limited to:
 - A) Any 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 845.290 of this Part;
 - B) A written summary of the implementation of the corrective action plan as set forth in the construction permit and this Part;
 - C) Groundwater monitoring data demonstrating compliance with Section 845.680(c);
 - D) Any remedial actions completed pursuant to Section 845.680(d);
 - E) Documentation showing compliance with the selected remedy requirements of Section 845.670(b); and
 - F) Any other information relied upon by the qualified professional engineer in making the closure certification.
 - 2) The corrective action completion certification must include a statement from a qualified professional engineer attesting that the corrective action plan has been completed in compliance with the requirements of subsection (c) of this Section.
 - 3) The owner or operator must place the corrective action completion report and certification in the facility's operating record as required by Section 845.800(d)(18).

SUBPART G: CLOSURE AND POST-CLOSURE CARE

Section 845.700 Required Closure or Retrofit of CCR Surface Impoundments

- a) Required closure. The owner or operator of the following CCR surface impoundments must cease placing CCR or non-CCR waste streams in the CCR surface impoundment and must initiate closure of the CCR surface impoundment:
 - 1) an existing CCR surface impoundment that has not demonstrated compliance with any of the following location restrictions:
 - A) uppermost aquifer location as specified in Section 845.300;
 - B) wetlands, as specified in Section 845.310;
 - C) fault areas, as specified in Section 845.320;
 - D) seismic impact zones, as specified in Section 845.330; or
 - E) unstable areas, as specified in Section 845.340.
 - 2) The owner or operator of any CCR surface impoundment that has failed to complete the initial or any subsequent annual safety factor assessment required by Section 845.460 or that has failed to document the calculated factors of safety for the CCR surface impoundment to achieve the minimum safety factors specified in Section 845.460(a)(1) through (5).
- b) Required Closure or Retrofit. The owner or operator of an existing unlined CCR surface impoundment, as determined under Section 845.400(f), must cease placing CCR and non-CCR waste streams into such CCR surface impoundment and either retrofit or close the CCR surface impoundment in accordance with the requirements of Subpart G. The owner or operator of a CCR surface impoundment electing to retrofit must submit the written preliminary retrofit plan pursuant to subsection 845.770(a)(3) and a construction permit application to retrofit pursuant to Section 845.770 according to the schedule in subsection (h);
- c) Beginning on the effective date of this Part, the owner or operator of the CCR surface impoundment required to close under subsection (a) or electing to close under subsection (b) must immediately take steps to categorize the CCR surface impoundment pursuant to subsection (g) of this Section and to comply with the closure alternatives analysis requirements in Section 845.710. No later than 30 days after the effective date of this Part, the owner or operator must send the category designation, including a justification for the category designation, for each CCR surface impoundment to the Agency for review. The owner or operator of the CCR surface impoundment must submit a construction permit application containing a final closure plan pursuant to the schedule in subsection (h) of this Section.
- d) Timeframes for Closure

- 1) Except as provided in subsection (d)(2), the owner or operator must cease placing CCR and non-CCR waste streams in the impoundment and initiate closure within six months of failing to complete any of the demonstrations listed in subsection (a).
- 2) For CCR surface impoundments required to close under subsection (a)(1) or electing to close under subsection (b):
 - A) If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has not satisfied an alternative closure requirement of 40 CFR 257.103 that allows for the continued receipt of CCR or non-CCR waste streams, the owner or operator must not place CCR or non-CCR waste streams into the CCR surface impoundment after the effective date of this Part.
 - B) If on or before November 30, 2020, the owner or operator of a CCR surface impoundment has submitted a complete demonstration to USEPA seeking an alternative deadline to cease receipt of waste and complete closure pursuant to 40 CFR 257.103(f), the deadline to cease receipt of waste shall be tolled until USEPA issues a decision. If USEPA determines that a submission is incomplete, an owner or operator must immediately cease receipt of waste and comply with all applicable deadlines of Section 845.700(d)(1).
 - C) If USEPA disapproves the requested alternative deadline to cease receipt of waste and complete closure, the owner or operator of the CCR surface impoundment shall immediately cease the receipt of waste and initiate closure within six months of the USEPA denial of the extension and shall be subject to Section 845.760(a).
 - ~~BD)~~ If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has demonstrated USEPA approves a demonstration that alternative disposal capacity is infeasible under 40 CFR 257.103(f)(1), the owner or operator must cease placing CCR or non-CCR waste streams into the CCR surface impoundment by the end of the initial time extension approved under 40 CFR 257.103 or once alternative capacity becomes available, whichever is sooner. In no case may the owner or operator of the CCR surface impoundment place CCR or non-CCR waste streams into ~~the~~ an eligible CCR surface impoundment after October 15, 2024, or into any other CCR surface impoundment subject to closure under Section 845.700(a) or (b), after October 15, 2023.
 - ~~CE)~~ If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has demonstrated USEPA approves a demonstration for permanent cessation of coal-fired power boiler(s)

by a certain date under 40 CFR 257.103(f)(2), the owner or operator must:

- i) for CCR surface impoundments that are 40 acres or smaller, cease operation of the coal-fired boiler and complete closure no later than October 17, 2023; or
- ii) for CCR surface impoundments that are larger than 40 acres, cease operation of the coal-fired boiler and complete closure no later than October 17, 2028.

F) The USEPA's decision to approve or deny the demonstration requesting an alternative deadline to initiate closure shall, within 30 days, be submitted to the Agency and placed in the owner's or operator's operating record as required by Section 845.800(d)(19).

~~DG)~~ Failure to remain in compliance with any of the requirements of this Part will result in the automatic loss of authorization under subsection (d)(2)(~~BD~~) and ~~subsection~~ (d)(2)(~~CE~~).

EH) The owner or operator of the CCR surface impoundment with a USEPA-approved extension will not be given extensions of the timeframes for completion of closure under Section 845.760(c).

- e) Semi-Annual Reports. The owner or operator of a CCR surface impoundment closing under the time frames in subsection (d)(2)(B) and (d)(2)(C) shall prepare semi-annual reports consistent with the requirements in 40 CFR 257.103 until the owner or operator has initiated closure.
- f) An owner or operator of a CCR surface impoundment required to close pursuant to this Section must prepare the notification required under Section 845.730(d) that the CCR surface impoundment is closing under this Section.
- g) Closure Prioritization
 - 1) The owner or operator of a CCR surface impoundment required to close under this Section must assign the CCR surface impoundment to one of the following categories. Category 1 has the highest priority for closure. Category 7 has the lowest priority category for closure.
 - A) Category 1 includes CCR surface impoundments that have impacted an existing potable water supply well or that have impacted groundwater quality within the setback of an existing potable water supply well.

- B) Category 2 includes CCR surface impoundments that are an imminent threat to human health or the environment as determined by the Agency pursuant to subsection (g)(5).
 - C) Category 3 includes CCR surface impoundments located in areas of environmental justice concern as determined by the Agency pursuant to subsection (g)(6).
 - D) Category 4 includes inactive CCR surface impoundments that have an exceedance of the groundwater protection standards in Section 845.600.
 - E) Category 5 includes existing CCR surface impoundments that have exceedances of the groundwater protection standards in Section 845.600.
 - F) Category 6 includes inactive CCR surface impoundments that are in compliance with the groundwater protection standards in Section 845.600.
 - G) Category 7 includes existing CCR surface impoundments that are in compliance with the groundwater protection standards in Section 845.600.
- 2) If a CCR surface impoundment can be categorized in more than one category, the owner or operator of the CCR surface impoundment must assign the CCR surface impoundment the highest priority category.
 - 3) Whenever an owner or operator of a CCR surface impoundment has more than one CCR surface impoundment that must close under this Section, the owner or operator shall close the CCR surface impoundments in order of priority.
 - 4) If the CCR surface impoundment meets the criteria for Category 1, the owner or operator must take immediate steps to mitigate the impact to any existing potable water supply. The owner or operator of the CCR surface impoundment shall act to replace the water supply with a supply of equal or better quality and quantity within 30 days of notice that such impact has occurred.
 - 5) The Agency may designate a CCR surface impoundment as a Category 2 surface impoundment when:
 - A) the CCR surface impoundment has failed to document that the calculated factors of safety for the CCR surface impoundment

- achieve the minimum safety factors specified in Section 845.460(a)(1) through (5);
- B) the CCR surface impoundment has not demonstrated compliance with the location restrictions in Subpart C of this Part;
 - C) the owner or operator has been enjoined pursuant to 415 ILCS 5/43;
 - D) an exceedance of the groundwater protection standards in Section 845.600 has migrated off-site; or
 - E) the Agency finds that an emergency condition exists creating an immediate danger to public health or welfare, or the environment.
- 6) For the purposes of this Part and only this Part, areas of environmental justice concern are identified as any area that meets either of the following:
- A) any area within one-mile of a census block group where the number of low-income persons is twice the statewide average, where low income means the number or percent of a census block group's population in households where the household income is less than or equal to twice the federal poverty level; or
 - B) any area within one-mile of a census block group where the number of minority persons is twice the statewide average, where minority means the number or percent of individuals in a census block group who list their racial status as a race other than white alone or list their ethnicity as Hispanic or Latino.
- 7) For purposes of subsection (6), if any part of a facility falls within one-mile of the census block group, the entire facility, including all of its CCR surface impoundments, shall be considered an area of environmental justice concern.
- 8) The Agency may designate a CCR surface impoundment as another Category when site-specific conditions contradict the designations provided by the owner or operator in Section 845.700(c) and the categories in Sections 845.700(g)(1)(A) through 845.700(g)(1)(G).
- h) Application Schedule
- 1) Category 1, Category 2, Category 3, and Category 4 CCR surface impoundment owners or operators must submit either a construction permit application containing a final closure plan or submit a construction permit application to retrofit the CCR surface impoundment in accordance with the requirements of this Part no later than January 1, 2022.

- 2) Category 5 CCR surface impoundment owners or operators must submit either a construction permit application containing a final closure plan or submit a construction permit application to retrofit the CCR surface impoundment in accordance with the requirements of this Part no later than July 1, 2022.
- 3) Category 6 and Category 7 CCR surface impoundment owners or operators must submit either a construction permit application containing a final closure plan or submit a construction permit application to retrofit the CCR surface impoundment in accordance with the requirements of this Part no later than July 1, 2023.
- 4) Owners or operators consolidating one or more CCR surface impoundments for closure must meet the application schedule of the highest priority CCR surface impoundment.
- 5) If the Agency denies a construction permit application submitted pursuant to this Section, the owner and operator must submit a revised construction permit application addressing all deficiencies identified by the Agency. The revised construction permit application for closure must be submitted to the Agency within 90 days after the Agency's denial if the Agency's denial is not appealed pursuant to Section 845.270. If the Agency's denial is appealed and upheld, the owner or operator must submit a revised construction permit application for closure within 90 days after a final decision by the Illinois Pollution Control Board is rendered. The owner or operator of the CCR surface impoundment must discuss the owner or operator's proposed response to all deficiencies identified by the Agency in a public meeting with interested and affected parties held pursuant to Section 845.240.

Section 845.710 Closure Alternatives

- a) Closure of a CCR surface impoundment, or any lateral expansion of a CCR surface impoundment, 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 surface impoundment, as described in Sections 845.720 through 845.760.
- b) Before selecting a closure method, the owner or operator of each CCR surface impoundment must complete a closure alternatives analysis. The closure alternatives analysis must examine the following for each closure alternative:
 - 1) the long- and short-term effectiveness and protectiveness of the closure method, including identification and analyses of the following factors:
 - A) the magnitude of reduction of existing risks;

- B) the magnitude of residual risks in terms of likelihood of future releases of CCR;
 - C) the type and degree of long-term management required, including monitoring, operation, and maintenance;
 - D) the short-term risks that might be posed to the community or the environment during implementation of such a closure, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal of contaminants;
 - E) the time until closure and post-closure care or the completion of groundwater monitoring pursuant to Section 845.740(b) is completed;
 - F) the 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, containment or changes in groundwater flow;
 - G) the long-term reliability of the engineering and institutional controls, including an analysis of any off-site, nearby destabilizing activities; and
 - H) potential need for future corrective action of the closure alternative.
- 2) the effectiveness of the closure method in controlling future releases based on analyses of the following factors:
- A) the extent to which containment practices will reduce further releases; and
 - B) the extent to which treatment technologies may be used.
- 3) the ease or difficulty of implementing a potential closure method based on analyses of the following types of factors:
- A) degree of difficulty associated with constructing the technology;
 - B) expected operational reliability of the technologies;
 - C) need to coordinate with and obtain necessary approvals and permits from other agencies;
 - D) availability of necessary equipment and specialists; and

- E) available capacity and location of needed treatment, storage, and disposal services.
- 4) the degree to which the concerns of the residents living within communities where the CCR will be handled, transported and disposed are addressed by the closure method.
- c) The owner or operator of the CCR surface impoundment must analyze complete removal of the CCR as one closure alternative in the closure alternatives analysis. The closure alternative analysis must identify whether the facility has an onsite landfill with remaining capacity, which can legally accept CCR, and, if not, whether constructing an onsite landfill is possible. The owner and operator of the CCR surface impoundment must include any other closure method in the alternatives analysis if requested by the Agency.
- d) The analysis for each alternative completed pursuant to this Section must:
 - 1) meet or exceed a class 4 estimate under the AACE Classification Standard, incorporated by reference in Section 845.150, or a comparable classification practice as provided in the AACE Classification Standard;
 - 2) contain the results of groundwater contaminant transport modeling and calculations showing how the closure alternative will achieve compliance with the applicable groundwater protection standards;
 - 3) include a description of the fate and transport of contaminants with the closure alternative over time including consideration of seasonal variations; and
 - 4) assess impacts to waters in the state.
- e) At least 30 days before submission of a construction permit application for closure, the owner or operator of the CCR surface impoundment must discuss the results of the closure alternatives analysis in a public meeting with interested and affected parties as required by Section 845.240.
- f) After completion of the public meeting pursuant to subsection (e), the owner or operator of a CCR surface impoundment must select a closure method and submit a final closure plan to the Agency pursuant to Section 845.720(b). All materials demonstrating completion of the closure alternatives analysis specified in this Section must be submitted with the final closure plan.
- g) The selected closure method must meet the requirements and standards of this Part, ensure the protection of human health and the environment, and achieve compliance with the groundwater protection standards in Section 845.600.

Section 845.720 Closure Plan

- a) Preliminary written closure plan
 - 1) Content of the preliminary closure plan. The owner or operator of a new CCR surface impoundment or an existing CCR surface impoundment not required to close under Section 845.700 must prepare a preliminary written closure plan that describes the steps necessary to close the CCR surface impoundment at any point during the active life of the CCR surface impoundment consistent with recognized and generally accepted engineering practices. The preliminary written closure plan must include, at a minimum, the information specified in subsections (a)(1)(A) through (F) of this Section.
 - A) A narrative description of how the CCR surface impoundment will be closed in accordance with this Part.
 - B) If closure of the CCR surface impoundment will be accomplished through removal of CCR from the CCR surface impoundment, a description of the procedures to remove the CCR and decontaminate the CCR surface impoundment in accordance with Section 845.740.
 - C) If closure of the CCR surface impoundment will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with Section 845.750, 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 Section 845.750.
 - D) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR surface impoundment.
 - E) An estimate of the largest area of the CCR surface impoundment ever requiring a final cover as required by Section 845.750 at any time during the CCR surface impoundment's active life.
 - F) 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 surface impoundment will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR surface impoundment, 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 surface impoundment closure. When preparing the preliminary written closure plan, if the owner or operator of a CCR surface impoundment estimates that the time required to complete closure will exceed the timeframes specified in Section 845.760(a), the preliminary written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under Section 845.760(b).

- 2) The owner or operator of the CCR surface impoundment must submit the preliminary written closure plan to the Agency with its initial operating permit application. The owner or operator of the CCR surface impoundment must submit the most recently amended preliminary closure plan to the Agency with each operating permit renewal application. The owner or operator must place preliminary and amended preliminary written closure plans in the facility's operating record as required by Section 845.800(d)(1920).
 - 3) Amendment of a preliminary written closure plan.
 - A) The owner or operator may amend the preliminary written closure plan at any time.
 - B) The owner or operator must amend the preliminary written closure plan whenever:
 - i) There is a change in the operation of the CCR surface impoundment that would substantially affect the written closure plan in effect; or
 - ii) Before closure activities have commenced, unanticipated events necessitate a revision of the written closure plan.
 - C) 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 surface impoundment, or no later than 60 days after an unanticipated event requires the need to revise an existing written closure plan.
 - 4) The owner or operator of the CCR surface impoundment must obtain and submit with its initial and renewal operating permit applications a written certification from a qualified professional engineer that the initial and any amendment of the preliminary written closure plan meets the requirements of this Part.
- b) Final Closure Plan

- 1) The owner or operator of a CCR surface impoundment must submit, as a part of a construction permit application for closure, a final closure plan to the Agency before the installation of a final cover system or removal of CCR from the surface impoundment for the purpose of closure.
- 2) Except as otherwise provided in Section 22.59 of the Act, the owner or operator of a CCR surface impoundment must not close a CCR surface impoundment without a construction permit issued pursuant to this Part.
- 3) The final closure plan must identify the proposed selected closure method, and include the information required in subsection (a)(1) of this Section and the closure alternatives analysis as specified in Section 845.710.
- 4) If a final written closure plan revision is necessary after closure activities have commenced for a CCR surface impoundment, the owner or operator must submit a request to modify the construction permit no later than 60 days following the triggering event.
- 5) The owner or operator of the CCR surface impoundment must obtain and submit with its construction permit application for closure a written certification from a qualified professional engineer that the final written closure plan meets the requirements of this Part.

Section 845.730 Initiation of Closure

Initiation of closure activities. Except as provided for in this Section, the owner or operator of a CCR surface impoundment must initiate closure of the CCR surface impoundment no later than the applicable timeframes specified in either subsections (a) or (b) of this Section. For purposes of this Part, closure of the CCR surface impoundment has been initiated if the owner or operator has ceased placing waste in the CCR surface impoundment and has submitted to the Agency a construction permit application pursuant to Section 845.220(d).

- a) Known Final Receipt. The owner or operator must initiate closure of the CCR surface impoundment no later than 30 days after the date on which the CCR surface impoundment either:
 - 1) Receives the known final placement of waste, either CCR or any non-CCR waste stream; or
 - 2) Removes the known final volume of CCR from the CCR surface impoundment for the purpose of beneficial use of CCR.
- b) Temporarily Idled CCR Surface Impoundments.
 - 1) Except as provided by subsection (b)(2) of this Section, the owner or operator must initiate closure of a CCR surface impoundment 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.

- 2) Notwithstanding subsection (b)(1) of this Section, the owner or operator of the CCR surface impoundment may secure an additional two years to initiate closure of the idle surface impoundment if the Agency approves the owner or operator's written demonstration that the CCR surface impoundment 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 subsections (b)(2)(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 surface impoundment will accept wastes in the foreseeable future or will remove CCR from the surface impoundment for the purpose of beneficial use. The owner or operator must place each Agency approved demonstration, if more than one time extension is sought, in the facility's operating record as required by Section 845.800(d)(~~2021~~) prior to the end of any two-year period.
 - A) Information documenting that the CCR surface impoundment has remaining storage or disposal capacity or that the CCR surface impoundment can have CCR removed for the purpose of beneficial use; and
 - B) Information demonstrating that that there is a reasonable likelihood that the CCR surface impoundment 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 surface impoundment will resume receiving CCR or non-CCR waste streams. The situations listed in subsections (b)(2)(B)(i) through (iv) of this Section are examples of situations that would support a determination that the CCR surface impoundment will resume receiving CCR or non-CCR waste streams in the foreseeable future.
 - i) Normal plant operations include periods during which the CCR surface impoundment does not receive CCR or non-CCR waste streams, such as the alternating use of two or more CCR surface impoundments whereby at any point in time one CCR surface impoundment is receiving CCR while CCR is being removed from a second CCR surface impoundment after its dewatering.

- ii) The CCR surface impoundment is dedicated to a coal-fired boiler surface impoundment 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.
 - iii) The CCR surface impoundment is dedicated to an operating coal-fired boiler (i.e., CCR is being generated); however, no CCR are being placed in the CCR surface impoundment because the CCR is being entirely diverted to beneficial uses, but there is a reasonable likelihood that the CCR surface impoundment will again be used in the foreseeable future.
 - iv) The CCR surface impoundment 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 surface impoundment will again receive non-CCR waste streams in the future.
- 3) In order to obtain additional time extension(s) to initiate closure of a CCR surface impoundment beyond the two years provided by subsection (b)(1) of this Section, the owner or operator of the CCR surface impoundment must submit the demonstration required by subsection (b)(2) of this Section to the Agency for review and approval. The written documentation must include 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.

- c) The timeframes specified in subsections (a) and (b) of this Section do not apply to an owner or operator of a CCR surface impoundment closing the CCR surface impoundment as required by Section 845.700:
- d) No later than the date the owner or operator initiates closure of a CCR surface impoundment, the owner or operator must prepare a notification of intent to close

a CCR surface impoundment. The notification must be placed in the facility's operating record as required by Section 845.800(d)(2+22).

Section 845.740 Closure by Removal

- a) Closure by removal of CCR. An owner or operator may elect to close a CCR surface impoundment by removing all CCR and removing and decontaminating all areas affected by releases of CCR from the CCR surface impoundment. CCR removal and decontamination of the CCR surface impoundment are complete when all CCR and CCR residues, containment system components such as the impoundment liner and contaminated subsoils, and CCR impoundment structures and ancillary equipment have been removed. Closure by removal shall be completed before the completion of a groundwater corrective action pursuant to Subpart F. ~~the CCR in the surface impoundment and any areas affected by releases from the CCR surface impoundment have been removed.~~
- b) After closure by removal has been completed, the owner or operator must continue groundwater monitoring pursuant to Subpart F for three years after the completion of closure or for three years after groundwater monitoring does not show an exceedance of the groundwater protection standard established pursuant to Section 845.600, whichever is longer.
- c) The owner or operator of a CCR surface impoundment removing CCR during closure must responsibly handle and transport the CCR consistent with this subsection.
 - 1) Transportation
 - A) Manifests
 - i) When transporting CCR off-site by motor vehicle, manifests must be carried as specified in 35 Ill. Adm. Code 809. For purposes of this Part, coal combustion fly ash that is removed from a CCR surface impoundment is not exempt from the manifest requirement.
 - ii) When transporting CCR off-site by any other mode or method, including but not limited to trains or barges, manifests must be carried specifying, at a minimum, the following information: the volume of the CCR; the location from which the CCR was loaded onto the mode of transportation and the date the loading took place; and the location where the CCR is being taken and the date it will be delivered.

- B) The owner or operator of a CCR surface impoundment from which CCR is removed and transported off-site shall develop a CCR transportation plan, which shall include:
 - i) identification of the transportation method selected, including whether a combination of transportation methods will be used;
 - ii) the frequency, time of day, and routes of CCR transportation;
 - iii) any measures to minimize noise, traffic, and safety concerns caused by the transportation of the CCR;
 - iv) measures to limit fugitive dust from any transportation of CCR;
 - v) installation and use of a vehicle washing station;
 - vi) a means of covering the CCR for any mode of CCR transportation, including conveyor belts; and
 - vii) a requirement that, for transport by motor vehicle, the CCR is transported by a permitted special waste hauler pursuant to 35 Ill. Adm. Code 809.201.

- 2) The owner or operator of a CCR surface impoundment must develop and implement onsite dust controls, which must include:
 - A) A water spray or other commercial dust suppressant to suppress dust in CCR handling areas and haul roads; and
 - B) CCR must be handled to minimize airborne particulates and offsite particulate movement during any weather event or condition.

- 3) The owner or operator of a CCR surface impoundment must provide the following public notices:
 - A) signage must be posted at the property entrance warning of the hazards of CCR dust inhalation; and
 - B) when CCR is transported off-site, a written notice explaining the hazards of CCR dust inhalation, the transportation plan and tentative transportation schedule must be provided to units of local government through which the CCR will be transported.

- 4) The owner or operator of the surface impoundment must take measures to prevent contamination of surface water, groundwater, soil and sediments from the removal of CCR, including but not limited to the following:
 - A) CCR removed from the surface impoundment may only be temporarily stored, and must be stored in a lined landfill, CCR surface impoundment, enclosed structure or a CCR storage pile.
 - B) CCR storage piles shall
 - i) be tarped or constructed with wind barriers to suppress dust and to limit stormwater contact with storage piles;
 - ii) be periodically wetted or have periodic application of dust suppressants;
 - iii) have a storage pad, or a geomembrane liner, with a hydraulic conductivity no greater than 1×10^{-7} cm/sec, that is properly sloped to allow appropriate drainage;
 - iv) be tarped over the edge of the storage pad where possible;
 - v) be constructed with fixed and mobile berms where appropriate to reduce run-on and run-off of stormwater to and from the storage pile, and minimize stormwater-CCR contact; and
 - vi) have a groundwater monitoring system that is consistent with the requirements of Section 845.630 and approved by the Agency.
 - C) The owner or operator of the CCR surface impoundment shall incorporate general housekeeping procedures such as daily cleanup of CCR, tarping of trucks, maintaining the pad and equipment, and good practices during unloading and loading.
 - D) The owner or operator of the CCR must minimize the amount of time the CCR is exposed to precipitation and wind.
 - E) The discharge of stormwater runoff which has come in contact with CCR must be covered by an individual National Pollutant Discharge Elimination System (NPDES) permit. The owner or operator shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) in addition to any other requirements of the facility's NPDES permit. Any construction permit application for closure must include a copy of the SWPPP.

- d) At the end of each month where CCR is being removed from a CCR surface impoundment, the owner or operator must prepare a report that describes the weather, precipitation amounts, the amount of CCR removed from the CCR surface impoundment, the amount and location of CCR being stored on-site, the amount of CCR transported offsite, the implementation of good housekeeping procedures required by Section 845.740(c)(4)(C), the implementation of dust control measures, and documents worker safety measures implemented. The owner or operator of the CCR surface impoundment must place the monthly report in the facility's operating record as required by Section 845.800(d)(~~2223~~).
- e) Upon completion of CCR removal and decontamination of the CCR surface impoundment pursuant to subsection (a) of this Section, the owner or operator of the CCR surface impoundment must submit to the Agency a completion of CCR removal and decontamination report and a certification from a qualified professional engineer that CCR removal and decontamination of the CCR surface impoundment has been completed in accordance with this Section. The owner or operator must place the CCR removal and decontamination report and certification in the facility's operating record as required by Section 845.800(d)(~~3032~~).
- f) Upon completion of groundwater monitoring required pursuant to subsection (b) of this Section, the owner or operator of the CCR surface impoundment must submit to the Agency a completion of groundwater monitoring report and a certification from a qualified professional engineer that groundwater monitoring has been completed in accordance with this Section. The owner or operator must place the groundwater monitoring report and certification in the facility's operating record as required by Section 845.800(d)(~~2324~~).

Section 845.750 Closure with a Final Cover System

Closure performance standard when leaving CCR in place:

- a) The owner or operator of a CCR surface impoundment must ensure that, at a minimum, the CCR surface impoundment is closed in a manner that will:
 - 1) 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;
 - 2) Preclude the probability of future impoundment of water, sediment, or slurry;
 - 3) 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;

- 4) Minimize the need for further maintenance of the CCR surface impoundment; and
 - 5) Be completed in the shortest amount of time consistent with recognized and generally accepted engineering practices.
- b) 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 subsection (b) of this Section prior to installing the final cover system required under subsection (c) of this Section.
- 1) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.
 - 2) Remaining wastes must be stabilized sufficient to support the final cover system.
- c) Final cover system. If a CCR surface impoundment 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 this subsection (c) of this Section. The final cover system must consist of a low permeability layer and a final protective layer. The design of the final cover system must be included in the preliminary and final written closure plans required by Section 845.720 and the construction permit application for closure submitted to the Agency.
- 1) Standards for the low permeability layer. The low permeability layer must have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a hydraulic conductivity no greater than 1×10^{-7} cm/sec, whichever is less. The low permeability layer must be constructed in accordance with the following standards in either subsections (c)(1)(A) or (c)(1)(B) of this Section, unless the owner or operator demonstrates that another low permeability layer construction technique or material provides equivalent or superior performance to the requirements of either subsections (c)(1)(A) or (c)(1)(B) of this Section and is approved by the Agency.
 - A) A compacted earth layer constructed in accordance with the following standards:
 - i) The minimum allowable thickness must be 0.91 meter (3 feet); and

- ii) The layer must be compacted to achieve a hydraulic conductivity of 1×10^{-7} cm/sec or less and minimize void spaces.
 - B) A geomembrane constructed in accordance with the following standards:
 - i) 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 1×10^{-7} cm/sec;
 - ii) The geomembrane must have strength to withstand the normal stresses imposed by the waste stabilization process; and
 - iii) The geomembrane must be placed over a prepared base free from sharp objects and other materials that may cause damage.
- 2) Standards for the final protective layer. The final protective layer must meet the following requirements, unless the owner or operator demonstrates that another final protective layer construction technique or material provides equivalent or superior performance to the requirements of subsection (c)(2) of this Section and is approved by the Agency.
 - A) Cover the entire low permeability layer;
 - B) Be at least 3 feet thick and must be sufficient to protect the low permeability layer from freezing and minimize root penetration of the low permeability layer;
 - C) Consist of soil material capable of supporting vegetation;
 - D) Be placed as soon as possible after placement of the low permeability layer; and
 - E) Be covered with vegetation to minimize wind and water erosion.
- 3) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.
- 4) The owner or operator of the CCR surface impoundment must obtain and submit with its construction permit application for closure a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of this Section.

- d) This subsection specifies the allowable uses of CCR in the closure of CCR surface impoundments closing pursuant Section 845.700. Notwithstanding the prohibition on further placement in Section 845.700, CCR may be placed in such surface impoundments, but only for the purposes of grading and contouring in the design and construction of the final cover system if:
- 1) The CCR placed must have been generated at the facility and be located at the facility at the time closure was initiated;
 - 2) CCR must be placed entirely above the elevation of CCR in the surface impoundment, following dewatering and stabilization as required in subsection (b);
 - 3) The CCR must be placed entirely within the perimeter berms of the CCR surface impoundment; and
 - 4) The final cover system must be constructed with either:
 - A) A slope not steeper than 5% grade after allowance for settlement; or
 - B) At a steeper grade, if the Agency determines that the steeper slope is necessary based on conditions at the site, to facilitate run-off and minimize erosion, and that side slopes are evaluated for erosion potential based on a stability analysis to evaluate possible erosion potential. The stability analysis, at a minimum, must evaluate the site geology; characterize soil shear strength; construct a slope stability model; establish groundwater and seepage conditions, if any; select loading conditions; locate critical failure surface; and iterate until minimum factor of safety is achieved.

Section 845.760 Completion of Closure Activities

- a) Except as provided for in subsection (b) of this Section, the owner or operator must complete closure of existing and new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, within the timeframe approved by the Agency in the final closure plan, or within five years of obtaining a construction permit for closure, whichever is less.
- b) Extensions of closure timeframes.
 - 1) The timeframes for completing closure of a CCR surface impoundment specified under subsection (a) of this Section may be extended if the owner or operator has demonstrated to the Agency that it was not feasible to complete closure of the CCR surface impoundment within the required timeframes due to factors beyond the facility's control.

- 2) The demonstration must include a narrative discussion explaining the basis for additional time.
 - 3) The owner or operator must submit the demonstration to the Agency with a renewal construction permit application for closure.
 - 4) 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 surface impoundment or the characteristics of the CCR in the surface impoundment;
 - C) The geology and terrain surrounding the CCR surface impoundment will affect the amount of material needed to close the CCR surface impoundment; or
 - D) Time required or delays caused by the need to coordinate with and obtain necessary approvals and permits from the Agency or other agencies.
- c) Maximum time extensions.
- 1) CCR surface impoundments of 40 acres or smaller that are not closing by removal may extend the time to complete closure by no longer than two years.
 - 2) CCR surface impoundments larger than 40 acres that are not closing by removal may extend the timeframe to complete closure of the CCR surface impoundment 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.
 - 3) CCR surface impoundments that are closing by removal may extend the time to complete closure 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. In no instance may the time allowed for closure by removal be extended beyond the completion of a groundwater corrective action pursuant to 845.680(c)(1).

- d) In order to obtain additional time extension(s) to complete closure of a CCR surface impoundment beyond the times provided by subsection (a) of this Section, the owner or operator of the CCR surface impoundment must include with the demonstration required by subsection (b) 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.

- e) Upon completion of all closure activities required by this Part and approved in the final closure plan, the owner or operator of the CCR surface impoundment must submit to the Agency a closure report and a closure certification.
- 1) The closure report must contain supporting documentation, including, but not limited to:
 - A) 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 845.290 of this Part;
 - B) Photographs including time, date and location information of the photograph of the final cover system and groundwater collection system, if applicable, and any other photographs relied upon to document construction activities;
 - C) A written summary of closure requirements and completed activities as set forth in the closure plan and this Part; and
 - D) Any other information relied upon by the qualified professional engineer in making the closure certification.
 - 2) The closure certification must include a statement from a qualified professional engineer that closure has been completed in accordance with the Agency-approved final closure plan and the requirements of this Section.

- 3) The owner or operator must place the closure report and certification in the facility's operating record as required by Section 845.800(d)(~~23~~24).
- f) Within 30 days of the Agency's approval of the closure report and closure certification submitted pursuant to subsection (e) of this Section, the owner or operator must prepare a notification of closure of the CCR surface impoundment. The notification must include the certification by a qualified professional engineer as required by subsection (e)(2) of this Section. The owner or operator must place the notification in the facility's operating record as required by Section 845.800(d)(~~24~~25).
- g) If an owner or operator of a CCR surface impoundment has completed closure of the CCR surface impoundment before the effective date of this Part, the owner or operator must notify the Agency of the completed closure by September 30, 2021 if such notification has not previously been submitted.
- h) Deed notations.
 - 1) Following closure of a CCR surface impoundment, 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:
 - A) The land has been used as a CCR surface impoundment; and
 - B) Its use is restricted under the post-closure care requirements as provided by Section 845.780(d)(1)(C) or groundwater monitoring requirements in Section 845.740(b).
 - 3) Within 30 days of recording a notation on the deed to the property, the owner or operator must submit to the Agency a notification stating that the notation has been recorded. The owner or operator must place the notification in the facility's operating record as required by 845.800(d)(~~25~~26).

Section 845.770 Retrofitting

Retrofit of a CCR surface impoundment must be completed in accordance with the requirements of this Section.

- a) To retrofit an existing CCR surface impoundment, the owner or operator must:
 - 1) First remove all CCR, including any liners, as necessary, and contaminated soils and sediments from the CCR surface impoundment; ~~and~~

- 2) Comply with the requirements in Sections 845.410 and 845.420; and
 - 3) No later than 30 days after the effective date of this Part, the owner or operator electing to retrofit a CCR surface impoundment pursuant to this Section shall submit a written preliminary retrofit plan to the Agency and post the written preliminary retrofit plan in the facility's operating record as required by Section 845.800(d)(27). The written preliminary retrofit plan must include a prioritization categorization under Section 845.700(g) and the expected construction permit application date under 845.700(h).
- b) A CCR surface impoundment undergoing a retrofit remains subject to all other requirements of this Part, including the requirement to conduct any necessary corrective action.
- c) Written retrofit plan
- 1) Content of the plan. The owner or operator must prepare a written retrofit plan that describes the steps necessary to retrofit the CCR surface impoundment consistent with recognized and generally accepted 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 surface impoundment in accordance with this section.
 - B) A description of the procedures to remove all CCR, liners as necessary, and contaminated soils and sediments from the CCR surface impoundment.
 - C) An estimate of the maximum amount of CCR and other contaminated materials that will be removed as part of the retrofit operation.
 - D) An estimate of the largest area of the CCR surface impoundment 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 surface impoundment will be completed.
 - 2) The owner or operator must submit the written retrofit plan with the construction permit application and must obtain a construction permit before retrofitting a CCR surface impoundment.

- 3) Amendment of a written retrofit plan.
 - A) The owner or operator may submit a permit modification application to amend the initial or any subsequent written retrofit plan at any time.
 - B) The owner or operator must seek to amend the written retrofit plan whenever:
 - i) There is a change in the operation of the CCR surface impoundment that would substantially affect the written retrofit plan in effect; or
 - ii) unanticipated events necessitate a revision of the written retrofit plan either before or after retrofit activities have commenced.
 - C) The owner or operator must seek to amend the retrofit plan at least 60 days prior to a planned change in the operation of the facility or CCR surface impoundment, or no later than 60 days after an unanticipated event requires the revision of an existing written retrofit plan. If a written retrofit plan needs to be revised after retrofit activities have commenced for a CCR surface impoundment, the owner or operator must submit a request to modify the construction permit no later than 60 days following the triggering event.
- 4) The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer that the activities outlined in the written retrofit plan, including any amendment of the plan, meet the requirements of this Section.
- d) No later than the date the owner or operator submits a construction permit application to the Agency to retrofit a CCR surface impoundment, the owner or operator must prepare a notification of intent to retrofit a CCR surface impoundment. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by Section 845.800(d)(~~2628~~).
- e) When activities related to retrofitting the CCR surface impoundment include the removal of CCR from the surface impoundment, the handling and removal of CCR must be performed in a manner consistent with the requirements in Section 845.740.
- f) Deadline for completion of activities related to the retrofit of a CCR surface impoundment. Any CCR surface impoundment that is being retrofitted must complete all retrofit activities within the timeframe approved by the Agency in the

retrofit plan, or within five years of obtaining a construction permit, whichever is less. The same procedures specified for the extension closure timeframes in Section 845.760(b) apply to extension of retrofit timeframes.

- g) Upon completion of all retrofit activities required by this Part and approved by the Agency in a construction permit, the owner or operator of the CCR surface impoundment must submit to the Agency a retrofit completion report and certification.
- 1) The retrofit completion report must contain supporting documentation, including, but not limited to:
 - A) 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 845.290 of this Part;
 - B) Photographs including time, date and location information of the photograph of the liner system and leachate collection system, and any other photographs relied upon to document construction activities;
 - C) A written summary of retrofit requirements and completed activities as set forth in the construction permit and this Part; and
 - D) Any other information relied upon by the qualified professional engineer in making the closure certification.
 - 2) The retrofit certification must include a statement from a qualified professional engineer that retrofit has been completed in accordance with the retrofit plan specified in subsection (b) of this Section and the requirements of this Part.
 - 3) The owner or operator must place the retrofit completion report and certification in the facility's operating record as required by Section 845.800(d)(~~27~~29).
- h) Within 30 days of the Agency's approval of the retrofit completion report and certification submitted pursuant to subsection (f) of this Section, the owner or operator must prepare a notification of completion of retrofit activities. The notification must include the certification by a qualified professional engineer as required by subsection (g)(2) 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 Section 845.800(d)(~~28~~30).

- i) At any time after the initiation of a CCR surface impoundment retrofit, the owner or operator may cease the retrofit and seek to initiate closure of the CCR surface impoundment in accordance with the requirements of this Subpart G. The owner or operator of the CCR surface impoundment must obtain an approved construction permit for closure.

Section 845.780 Post-Closure Care Requirements

- a) Applicability
 - 1) Except as provided by subsection (a)(2) of this Section, this Section applies to the owners or operators of CCR surface impoundments who have completed an Agency approved closure.
 - 2) An owner or operator of a CCR surface impoundment that elects to close a CCR surface impoundment by removing CCR as provided by Section 845.740 is not subject to the post-closure care criteria under this Section.
- b) Post-closure care maintenance requirements. Following closure of the CCR surface impoundment, the owner or operator must conduct post-closure care for the CCR surface impoundment, 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 surface impoundment is subject to the design criteria under Section 845.420, 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 Section 845.420; and
 - 3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of Subpart F.
- c) Post-closure care period.
 - 1) Except as provided by subsection (c)(2) of this Section, the owner or operator of the CCR surface impoundment must conduct post-closure care for 30 years.
 - 2) At the end of the 30-year post-closure care period, the owner or operator of the CCR surface impoundment must continue to conduct post-closure care until the groundwater monitoring data shows the concentrations are:

- A) below the groundwater protections standards in Section 845.600; and
 - B) not increasing for those constituents over background, using the statistical procedures and performance standards in Section 845.640(f) and (g), provided that:
 - i) concentrations have been reduced to the maximum extent feasible; and
 - ii) concentrations are protective of human health and the environment.
- d) Written post-closure care plan
- 1) Content of the plan. The owner or operator of a CCR surface impoundment must prepare a written post-closure care plan that includes, at a minimum, the information specified in subsections (d)(1)(A) through (C) of this Section.
 - A) A description of the monitoring and maintenance activities required in subsection (b) of this Section for the CCR surface impoundment and the frequency at which these activities will be performed;
 - B) 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
 - C) A description of the planned uses of the property during the post-closure care 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 Part. Any other disturbance is allowed if the owner or operator of the CCR surface impoundment 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 and must be submitted to the Agency.
 - 2) Deadline to prepare the initial written post-closure care plan. The owner or operator of a CCR surface impoundment must submit to the Agency an initial written post-closure care plan consistent with the requirements specified in subsection (d)(1) of this Section with its initial operating permit application.

- 3) Amendment of a written post-closure care plan.
 - A) The owner or operator may submit an operating permit modification application to amend the initial or any subsequent written post-closure care plan developed pursuant to subsection (d)(1) of this Section at any time.
 - B) The owner or operator must seek to amend the written closure care plan whenever:
 - i) There is a change in the operation of the CCR surface impoundment that would substantially affect the written post-closure care plan in effect; or
 - ii) unanticipated events necessitate a revision of the written post-closure care plan, after post-closure activities have commenced.
 - C) The owner or operator must seek to amend the written post-closure care plan at least 60 days prior to a planned change in the operation of the facility or CCR surface impoundment, or no later than 60 days after an unanticipated event requires the need to revise an existing written post-closure care plan. If a written post-closure care plan is revised after post-closure activities have commenced for a CCR surface impoundment, the owner or operator must submit a request to modify the operating permit no later than 30 days following the triggering event.
- 4) The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written post-closure care plan meets the requirements of this Section.
- e) Upon the completion of the post-closure care period, the owner or operator of the CCR surface impoundment must submit a request to the Agency to terminate post-closure care. The request must include a certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the post-closure care plan specified in subsection (d) of this Section and the requirements of this Section.
- f) Notification of completion of post-closure care period. Within 30 days of the Agency's approval of owner or operator's request to terminate post-closure care, the owner or operator must prepare a notification of completion of post-closure care and must place the notification in the facility's operating record as required by Section 845.800(d)(~~2931~~).

SUBPART H: RECORDKEEPING

Section 845.800 Facility Operating Record

- a) Each owner or operator of a CCR surface impoundment subject to the requirements of this Part must maintain files of all information required by this Section in a written operating record at the facility.
- b) Unless specified otherwise, each file must be retained for at least three years past the date the Agency approved the owner or operator's request to terminate post-closure care, when closure is with a final cover system, or the completion of groundwater monitoring pursuant to Section 845.740(b), when closure is by removal.
- c) An owner or operator of more than one CCR surface impoundment subject to the provisions of this Part may comply with the requirements of this Section in one recordkeeping system provided the system identifies each file by the name and identification number of each CCR surface impoundment. 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 surface impoundment must place the following in the facility's operating record:
 - 1) copies of all permit applications and permits issued under this Part;
 - 2) documentation recording the public meetings held pursuant to Section 845.240;
 - 3) weekly CQA reports Section 845.290(b);
 - 4) hazard potential classification assessments for CCR surface impoundments, as required by Section 845.440(a)(3)(D);
 - 5) structural stability assessments for CCR surface impoundments, as required by Section 845.450(d)(4);
 - 6) safety factor assessments for CCR surface impoundments, as required by Section 845.460(c)(4);
 - 7) the CCR fugitive dust control plan and any subsequent amendment of the plan, as required by Section 845.500(b)(6), except that only the most recent fugitive dust control plan must be maintained in the facility's operating record irrespective of the time requirement specified in subsection (b) of this Section;

- 8) inflow design flood control system plans for CCR surface impoundments, as required by Section 845.510(c)(4)(D);
- 9) Emergency Action Plan, as required by Section 845.520(a), except that only the most recent EAP must be maintained in the facility's operating record irrespective of the time requirement specified in subsection (b) of this Section;
- 10) documentation prepared by the owner or operator recording all activations of the EAP as required Section 845.520(f);
- 11) 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 surface impoundment and the local emergency responders as required by Section 845.520(g);
- 12) Safety and Health Plan, as required by Section 845.530(a);
- 13) documentation recording the results of each inspection and instrumentation monitoring by a qualified person as required by Section 845.540(a)(1)(D);
- 14) annual consolidated report, as required by Section 845.550, which contains the following:
 - A) the annual CCR fugitive dust control report required by 845.500(c);
 - B) the annual inspection report as required by Section 845.540(b)(3); and
 - C) the annual groundwater monitoring and corrective action report as required by Section 845.610(e).
- 15) all groundwater monitoring data submitted to the Agency and any analysis performed, as required by Section 845.610(b)(3)(D);
- 16) within 30 days of detecting one or more monitored constituents above the groundwater protection standard, the notifications as required by Section 845.650(d);
- 17) the semi-annual report describing the progress in selecting and designing the remedy as required by Section 845.670(a);
- 18) within 30 days of completing the corrective action plan, the notification as required by Section 845.680(e);

- ~~19~~) USEPA-approved or denied demonstration as required by Section 845.700(d)(2)(F).
- ~~19~~~~20~~) the preliminary written closure plan, and any amendment of the plan, as required by Section 845.720(a), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in subsection (b) of this Section;
- ~~20~~~~21~~) the written demonstration(s), including the certification required by Section 845.730(b)(3), for a time extension for initiating closure as required by Section 845.730(b)(2);
- ~~21~~~~22~~) the notification of intent to close a CCR surface impoundment as required by Section 845.730(d);
- ~~22~~~~23~~) the monthly reports for closure by removal, as required by Section 845.740(d);
- ~~23~~~~24~~) the closure report and certification, as required by Section 845.760(e)(3), or completion of groundwater monitoring report and certification, as required by Section 845.740(f);
- ~~24~~~~25~~) the notification of completion of closure of a CCR surface impoundment as required by Section 845.760(f);
- ~~25~~~~26~~) the notification recording a notation on the deed as required by Section 845.760(h);
- ~~27~~) The preliminary written retrofit plan for a CCR surface impoundment as required by Section 845.770(a)(3).
- ~~26~~~~28~~) the notification of intent to initiate retrofit of a CCR surface impoundment as required by Section 845.770(d);
- ~~27~~~~29~~) the retrofit completion report and certification, as required by Section 845.770(g)(3);
- ~~28~~~~30~~) the notification of completion of retrofit activities as required by Section 845.770(h);
- ~~29~~~~31~~) the notification of completion of post-closure care period as required by Section 845.780(f);
- ~~30~~~~32~~) the completion of CCR removal and decontamination report and certification, as required by Section 845.740(e); and
- ~~31~~~~33~~) the most current cost estimates pursuant to Section 845.940(d).

Section 845.810 Publicly Accessible Internet Site Requirements

- a) Each owner or operator of a CCR surface impoundment subject to the requirements of this Part must maintain a publicly accessible Internet site (CCR website) containing the information specified in this Section. The owner or operator's website must be titled "Illinois CCR Rule Compliance Data and Information."
- b) An owner or operator of more than one CCR surface impoundment subject to the provisions of this Part may comply with the requirements of this Section by using the same Internet site for multiple CCR surface impoundments provided the CCR website clearly delineates information by the name and identification number of each CCR surface impoundment.
- c) Unless otherwise required in this Section, the information required to be posted to the CCR website must be made available to the public on the CCR website until 3 years after post-closure care (where closure is with a final cover system) or the completion of groundwater monitoring pursuant to Section 845.740(b) (where closure is by removal).
- d) Unless otherwise required in this Section, the information must be posted to the CCR website within 30 days of placing the pertinent information required by Section 845.800 in the operating record.
- e) The owner or operator of a CCR surface impoundment subject to this Part must place all the information specified under Section 845.800(d) on the owner or operator's CCR website.
- f) The owner or operator of a CCR surface impoundment subject to this Part must place all the information specified under Section 845.240(e) on the owner or operator's CCR website at least 14 days prior to the public meeting.
- g) The owner or operator of a CCR surface impoundment subject to this Part must notify the Agency of the web address of the publicly accessible Internet site, including any change to the web address. The Agency must maintain a list of these web addresses on the Agency's website.

SUBPART I: FINANCIAL ASSURANCE

Section 845.900 General Provisions

- a) This Subpart provides procedures by which the owner or operator of a CCR surface impoundment, subject to this Part, provides financial assurance satisfying the requirements of Section 22.59(f) of the Act.
- b) The owner or operator must provide financial assurance to ensure the following:

- 1) completion of closure;
 - 2) completion of post-closure care, if applicable; and
 - 3) remediation of releases from a CCR surface impoundment.
- c) The owner or operator shall maintain financial assurance equal to or greater than the current cost estimates calculated pursuant to Section 845.930 at all times, except as otherwise provided by Section 845.910.
- d) Financial assurance shall be provided, as specified in Section 845.950, by a trust agreement, a surety bond guaranteeing payment, a surety bond guaranteeing payment or performance, or an irrevocable letter of credit. The owner or operator shall provide financial assurance to the Agency within the timeframe(s) set forth in Section 845.950(c).
- e) This Subpart does not apply to the State of Illinois, its agencies and institutions, to any unit of local government, or to any not-for-profit electric cooperative as defined in Section 3.4 of the Electric Supplier Act [220 ILCS 30].
- f) The Agency is authorized to enter into such contracts and agreements as it may deem necessary to carry out the purposes of this Subpart and of Section 22.59(f) of the Act. Neither the State, nor the Director of the Illinois Environmental Protection Agency, nor any State employee shall be liable for any damages or injuries arising out of or resulting from any action taken under this Part.
- g) The Agency may sue in any court of competent jurisdiction to enforce its rights under financial instruments. The filing of an enforcement action before the Board is not a condition precedent to such an Agency action, except when this Subpart or the terms of the instrument provide otherwise.
- h) The Agency shall have the authority to approve or disapprove any financial assurance mechanism posted or submitted pursuant to this Subpart.
- i) The following Agency actions may be appealed to the Board as a permit denial pursuant to Section 845.270(e) and Section 22.59(f)(3) of the Act:
- 1) A refusal to accept financial assurance tendered by the owner or operator;
 - 2) A refusal to release the owner or operator from the requirement to maintain financial assurance;
 - 3) A refusal to release excess funds from a trust;
 - 4) A refusal to approve a reduction in the penal sum of a bond; and

- 5) A refusal to approve a reduction in the amount of a letter of credit.
- j) An owner or operator must notify the Agency by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 of the United States Code (Bankruptcy) naming any of the owners or operators as debtor, within 10 days after commencement of the proceeding.
- k) An owner or operator that fulfills the requirements of Sections 845.960, 845.970, 845.980, or 845.990 by obtaining a trust fund, surety bond, or letter of credit will be deemed to be without the required financial assurance in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond or letter of credit to issue such instruments. The owner or operator must establish alternative financial assurance within 60 days after such an event.

Section 845.910 Upgrading Financial Assurance

- a) The owner or operator shall increase the total amount of financial assurance so as to equal or exceed the current cost estimate within 60 days after either of the following occurrences:
 - 1) An increase in the current cost estimate; or
 - 2) A decrease in the value of a trust fund.
- b) The owner or operator of a CCR surface impoundment shall annually make adjustments for inflation if required pursuant to Sections 845.930 or 845.940.

Section 845.920 Release of Financial Institution and Owner or Operator

- a) The Agency shall release a trustee, surety, or other financial institution when:
 - 1) An owner or operator substitutes alternative financial assurance such that the total financial assurance for the CCR surface impoundment is equal to or greater than the current cost estimate, without counting the amounts to be released; or
 - 2) The Agency releases the owner or operator from the requirements of this Subpart pursuant to subsection (b).
- b) The Agency will release an owner or operator of a CCR surface impoundment from the requirements of this Subpart under the following circumstances:
 - 1) Completed Closure. In the Agency's approval of the closure report and certification pursuant to Section 845.760, the Agency will notify the owner

or operator in writing that it is no longer required by this Subpart to maintain financial assurance for closure of the CCR surface impoundment.

- 2) Completed Post-Closure Care. In the Agency's approval of the owner or operator's request to terminate post-closure care pursuant to Section 845.780, the Agency will notify the owner or operator in writing that it is no longer required by this Subpart to maintain financial assurance for post-closure care of the CCR surface impoundment.
- 3) Completed Corrective Action. In the Agency's approval of the corrective action completion report and certification pursuant to Section 845.680, the Agency will notify the owner or operator in writing that it is no longer required by this Subpart to maintain financial assurance for corrective action.

Section 845.930 Cost Estimates

- a) The owner or operator shall prepare and submit to the Agency, for approval, written cost estimates for:
 - 1) the total costs for closure and post-closure care;
 - 2) preliminary corrective action costs; and
 - 3) the total costs of the ~~correction~~ corrective action plan for remediation of any releases from a CCR surface impoundment.
- b) Written cost estimate for closure and post-closure
 - 1) The owner or operator must have a detailed written estimate, in current dollars, of the cost of closing the CCR surface impoundment in accordance with this Part and providing post-closure care on an annual basis, when required, in accordance with this Part. The cost estimate is the total cost for closure and post-closure care.
 - 2) The cost estimate must equal the cost of final closure and post-closure care at the point in the CCR surface impoundment's active life when the extent and manner of its operation would make closure and post-closure care the most expensive.
 - 3) The cost estimate must be based on the assumption that the Agency will contract with a third party at the appropriate prevailing wage(s), pursuant to the Prevailing Wage Act, 820 ILCS 130, if applicable, to implement the closure and post-closure care plans. A third party is a party who is neither a parent nor a subsidiary of the owner or operator.

- 4) The cost estimate may not be reduced by allowance for the salvage value of facility structures or equipment, for the resale value of land, for the sale of CCR or its beneficial reuse if permitted by the Agency pursuant to this Part, or for other assets associated with the facility at the time of partial or final closure.
 - 5) The owner or operator must not incorporate a zero cost for CCR, if permitted by the Agency pursuant to this Part, that might have economic value.
 - 6) The cost estimate must, at a minimum, include all costs for all activities necessary to close the CCR surface impoundment and provide post-closure care in accordance with all requirements of this Part.
 - 7) The post-closure care portion of the cost estimate must, at a minimum, be based on the following elements:
 - A) 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;
 - B) If the CCR surface impoundment is subject to the design criteria under Section 845.420, 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 Section 845.420; and
 - C) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of this Part.
- c) Cost Estimate for Corrective Action
- 1) Preliminary Corrective Action Cost Estimate. An owner or operator of a CCR surface impoundment with a release that has caused an exceedance of the groundwater protection standard in Section 845.600 or groundwater quality standard in 35 Ill. Adm. Code 620, must provide a preliminary corrective action cost estimate that is equal to 25% of the costs calculated pursuant subsection (b).
 - 2) Corrective Action Cost Estimate. The owner or operator must provide to the Agency a detailed written estimate, in current dollars, of the cost of hiring a third party at the appropriate prevailing wage(s), pursuant to the Prevailing Wage Act, 820 ILCS 130, if applicable, to implement the approved corrective action plan in accordance with this Part. The corrective action

cost estimate must account for the total costs of corrective action activities as described in the approved corrective action plan for the entire corrective action period.

- 3) The owner or operator must annually adjust the cost estimates in this subsection for inflation (see Section 845.940(a)) until the approved corrective action plan is completed.
- 4) The owner or operator must increase the corrective action cost estimates in this subsection and the amount of financial assurance provided if changes in the corrective action plan or CCR surface impoundment conditions increase the maximum costs of corrective action.
- 5) The owner or operator may reduce the amount of the corrective action cost estimate, upon Agency approval, if the cost estimate exceeds the maximum remaining costs of corrective action.

Section 845.940 Revision of Cost Estimates

- a) During the active life of the CCR surface impoundment, the owner or operator shall adjust the cost estimates of closure, post-closure care, and corrective action for inflation on an annual basis. Such adjustments shall occur within 60 days prior to the anniversary date of the establishment of the financial instruments used to comply with Section 845.950. The adjustment may be made by recalculating the maximum costs of closure, post-closure care, or corrective action in current dollars, or by using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product (Deflator) as published by the U.S. Department of Commerce in its Survey of Current Business (Table 1.1.9), as specified in subsections (a)(1) and (a)(2). The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year.
 - 1) The first adjustment is made by multiplying the cost estimate by the inflation factor. The result is the adjusted cost estimate.
 - 2) Subsequent adjustments are made by multiplying the latest adjusted cost estimate by the latest inflation factor.
- b) During the active life of the CCR surface impoundment, the owner or operator must revise the cost estimate no later than 30 days after the Agency has approved a request to modify the corrective action plan, closure plan or post-closure care plan, if the change in the modified plan increases the cost of corrective action, closure or post-closure care. The revised cost estimate must be adjusted for inflation, as specified in subsection (a).

- c) At least 60 days prior to submitting any closure plan to the Agency, the owner or operator must revise the cost estimate if the selected closure method increases the estimated closure or post-closure care costs.
- d) The owner or operator must keep the most current cost estimates in the facility's operating record during the operating life of the CCR surface impoundment.

Section 845.950 Mechanisms for Financial Assurance

- a) The owner or operator of a CCR surface impoundment shall utilize any of the mechanisms listed in subsections (a)(1) through (a)(4) to provide financial assurance for closure and post-closure care, and for corrective action at a CCR surface impoundment. An owner or operator of a CCR surface impoundment shall also meet the requirements of subsections (b), (c), and (d). The mechanisms are as follows:
 - 1) A trust fund (see Section 845.960);
 - 2) A surety bond guaranteeing payment (see Section 845.970);
 - 3) A surety bond guaranteeing performance (see Section 845.980); or
 - 4) An irrevocable letter of credit (see Section 845.990).
- b) The owner or operator of a CCR surface impoundment shall ensure that the language of the mechanisms listed in subsection (a), when used for providing financial assurance for closure, post-closure, and corrective action, is consistent with the forms prescribed by the Agency and satisfies the following:
 - 1) The amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action; and
 - 2) The funds will be available in a timely fashion when needed.
- c) The owner or operator of a CCR surface impoundment shall provide financial assurance utilizing one or more of the mechanisms listed in subsection (a) within the following timeframes:
 - 1) An owner or operator of an existing CCR surface impoundment shall provide financial assurance to the Agency for closure and post-closure care within 60 days from the effective date of this Part;
 - 2) An owner or operator of a new CCR surface impoundment shall provide financial assurance to the Agency for closure and post-closure care at least 60 days before the date of initial receipt of CCR in the CCR surface impoundment.

- 3) In the case of corrective action required pursuant to this Part, the owner or operator of the CCR surface impoundment shall provide preliminary financial assurance for corrective action no later than when the owner or operator initiates an assessment of corrective measures pursuant to Section 845.650(d)(3). The preliminary financial assurance for corrective action must be maintained until replaced with financial assurance based on the cost estimate of the corrective action. The owner or operator of the CCR surface impoundment shall provide financial assurance based on the approved corrective action plan to the Agency no later than 60 days after the Agency's approval or the effective date of this Part, whichever is later.
- d) The owner or operator shall provide continuous financial assurance coverage until the owner or operator is released from the financial assurance requirements of this Subpart pursuant to Section 845.920(b).
- e) Use of Multiple Financial Assurance Mechanisms. An owner or operator may satisfy the requirements of this Subpart by establishing more than one financial mechanism per CCR surface impoundment. These mechanisms are limited to trust funds, surety bonds guaranteeing payment, and letters of credit. The mechanisms must be as specified in Sections 845.960, 845.970, and 845.990, as applicable, except that it is the combination of mechanisms, rather than the single mechanism, that must provide financial assurance for an aggregate amount at least equal to the current cost estimate for closure, post-closure care, and corrective action, except that mechanisms guaranteeing performance, rather than payment, may not be combined with other instruments. The owner or operator may use any or all of the mechanisms to provide financial assurance for corrective action, closure and post-closure care.
- f) Use of a Financial Assurance Mechanism for Multiple CCR Surface Impoundments in Illinois. An owner or operator may use a financial assurance mechanism specified in this Subpart to meet the requirements of this Subpart for more than one CCR surface impoundment located in Illinois. Evidence of financial assurance submitted to the Agency must include a list showing, for each CCR surface impoundment, the identification number (see Section 845.130), name, address and the amount of funds assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each CCR surface impoundment. The amount of funds available to the Agency must be sufficient to close and provide post-closure care for all of the owner or operator's CCR surface impoundments. In directing funds available through a single mechanism for the closure and post-closure care of any single CCR surface impoundment covered by that mechanism, the Agency shall direct only that amount of funds designated for that CCR surface impoundment, unless the owner or operator agrees to the use of additional funds available under that mechanism.

Section 845.960 Trust Fund

- a) An owner or operator may satisfy the requirements of this Subpart by establishing a fully funded trust fund that conforms to the requirements of this Section and submitting an original signed duplicate of the trust agreement to the Agency.
- b) The trustee must be an entity that has the authority to act as a trustee and of whom either of the following is true:
 - 1) It is an entity whose trust operations are examined by the Illinois Department of Financial and Professional Regulation pursuant to the Illinois Banking Act [205 ILCS 5]; or
 - 2) It is an entity that complies with the Corporate Fiduciary Act [205 ILCS 620].
- c) The trust agreement must be on forms prescribed by the Agency. The trust agreement must be updated within 60 days after a change in the amount of the current closure, post-closure, and corrective action cost estimates covered by the agreement.
- d) The trust fund must be fully funded from the date that the trust agreement becomes effective.
- e) The trustee must evaluate the trust fund annually, as of the day the trust was created or on such earlier date as may be provided in the agreement. The trustee must notify the owner or operator and the Agency of the value within 30 days after the evaluation date.
- f) If the owner or operator of a CCR surface impoundment establishes a trust fund after having used one or more alternative mechanisms specified in this Subpart, the trust fund must be fully funded and established according to the specifications of this Section.
- g) Release of excess funds.
 - 1) If the value of the financial assurance is greater than the total amount of the current cost estimate, the owner or operator may submit a written request to the Agency for a release of the amount in excess of the current cost estimate.
 - 2) Within 60 days after receiving a request from the owner or operator for a release of funds, the Agency must instruct the trustee to release to the owner or operator such funds as the Agency specifies in writing to be in excess of the current cost estimate.
- h) Reimbursement for closure, post-closure care, and corrective action expenses.

- 1) After initiating corrective action, closure, or post-closure care an owner or operator, or any other person authorized to perform corrective action, closure, or post-closure care, may request reimbursement for closure, post-closure care, or corrective action expenditures, by submitting itemized bills to the Agency.
- 2) Within 60 days after receiving the itemized bills for closure, post-closure care, or correction action activities, the Agency must determine whether the expenditures are in accordance with the closure, post-closure care, or corrective action plan. The Agency must instruct the trustee to make reimbursement in such amounts as the Agency specifies in writing as expenditures in accordance with the closure, post-closure care, or corrective action plan.
- 3) If the Agency determines, based on such information as is available to it, that the cost of closure and post-closure care or corrective action will be greater than the value of the trust fund, it must withhold reimbursement of such amounts as it determines are necessary to preserve the fund in order to accomplish closure and post-closure care or corrective action until it determines that the owner or operator is no longer required to maintain financial assurance for closure and post-closure care or corrective action. In the event the fund is inadequate to pay all claims, the Agency must pay claims according to the following priorities:
 - A) Persons with whom the Agency has contracted to perform closure, post-closure care, or corrective action activities (first priority);
 - B) Persons who have completed closure, post-closure care, or corrective action authorized by the Agency (second priority);
 - C) Persons who have completed work that furthered the closure, post-closure care, or corrective action (third priority);
 - D) The owner or operator and related business entities (last priority).

Section 845.970 Surety Bond Guaranteeing Payment

- a) An owner or operator may satisfy the requirements of this Subpart by obtaining a surety bond which conforms to the requirements of this Section and submitting the bond to the Agency.
- b) The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. Circular 570 is available on the Internet from the following website: <https://fiscal.treasury.gov/surety-bonds/circular-570.html>

- c) The surety bond must be on forms prescribed by the Agency.
- d) Any payments drawn from or made under the bond will be placed in the Coal Combustion Residual Surface Impoundment Financial Assurance Fund within the State Treasury.
- e) Conditions:
 - 1) The bond must guarantee that the owner or operator will:
 - A) Provide closure and post-closure care in accordance with the approved closure and post-closure care plans and, if the bond is a corrective action bond, provide corrective action in accordance with this Part; and
 - B) Provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the surety that the bond will not be renewed for another term.
 - 2) The surety will become liable on the bond obligation when, during the term of the bond, the owner or operator fails to perform as guaranteed by the bond. The owner or operator fails to perform when the owner or operator:
 - A) Abandons the CCR surface impoundment;
 - B) Is adjudicated bankrupt;
 - C) Fails to initiate closure of the CCR surface impoundment or post-closure care or corrective action when ordered to do so by the Board pursuant to Title VIII of the Act, or when ordered to do so by a court of competent jurisdiction;
 - D) Notifies the Agency that it has initiated closure or corrective action, or initiates closure or corrective action, but fails to close the CCR surface impoundment or provide post-closure care or corrective action in accordance with the Agency-approved closure and post-closure care or corrective action plans;
 - E) For a corrective action bond, fails to implement or complete corrective action at a CCR surface impoundment in accordance with Section 845.670; or

- F) Fails to provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the surety that the bond will not be renewed for another term.
- 3) If the owner or operator does not establish alternative financial assurance, as specified in this Subpart, and obtain written approval of such alternative assurance from the Agency within 90 days after receipt by both the owner or operator and the Agency of a notice of nonrenewal from the surety (see subsection (g)(2)), the Agency must draw on the bond. During the last 30 days of any such notice of nonrenewal the Agency must draw on the bond if the owner or operator has failed to provide alternative financial assurance, as specified in this Section, and obtain written approval of such assurance from the Agency.
- f) Penal sum:
 - 1) The penal sum of the bond must be in an amount at least equal to the current cost estimate.
 - 2) Whenever the current cost estimate decreases, the penal sum may be reduced to the amount of the current cost estimate following written approval by the Agency.
 - 3) Whenever the current cost estimate increases to an amount greater than the penal sum, the owner or operator, within 90 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current cost estimate and submit evidence of that increase to the Agency or obtain other financial assurance, as specified in this Subpart, to cover the increase and submit evidence of the alternative financial assurance to the Agency.
- g) Term:
 - 1) The bond must be issued for a term of at least one year and must not be cancelable during that term.
 - 2) The surety bond must provide that, on the current expiration date and on each successive expiration date, the term of the surety bond will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the surety notifies both the owner or operator and the Agency by certified mail of a decision not to renew the bond. Under the terms of the surety bond, the 120 days will begin on the date when both the owner or operator and the Agency have received the notice, as evidenced by the return receipts.

- 3) The Agency shall release the surety by providing written authorization for termination of the bond to the owner or operator and the surety when either of the following occurs:
 - A) An owner or operator substitutes alternative financial assurance, as specified in this Subpart; or
 - B) The Agency releases the owner or operator from the requirements of this Subpart in accordance with Section 845.920(b).
- h) Cure of default and refunds:
 - 1) The Agency shall release the surety if, after the surety becomes liable on the bond, the owner or operator or another person provides financial assurance for closure and post-closure care of the CCR surface impoundment or corrective action at a CCR surface impoundment; unless the Agency determines that the closure, post-closure care, or corrective action plan, or the amount of substituted financial assurance, is inadequate to provide closure and post-closure care or implement corrective action in compliance with this Part.
 - 2) After closure and post-closure care have been completed in accordance with the plans and requirements of this Part or after the completion of corrective action at a CCR surface impoundment in accordance with this Part, the Agency shall refund any unspent money which was paid into the Coal Combustion Residual Surface Impoundment Financial Assurance Fund by the surety, subject to appropriation of funds by the Illinois General Assembly.

Section 845.980 Surety Bond Guaranteeing Performance

- a) An owner or operator may satisfy the requirements of this Subpart by obtaining a surety bond which conforms to the requirements of this Section and submitting the bond to the Agency.
- b) The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. Circular 570 is available on the Internet from the following website: <https://fiscal.treasury.gov/surety-bonds/circular-570.html>
- c) The surety bond must be on forms prescribed by the Agency.
- d) Any payments made under the bond will be placed in the Coal Combustion Residual Surface Impoundment Financial Assurance Fund within the State Treasury.

e) Conditions:

- 1) The bond must guarantee that the owner or operator will:
 - A) Provide closure and post-closure care in accordance with the approved closure and post-closure care plans and, if the bond is a corrective action bond, provide corrective action in accordance with this Part; and
 - B) Provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the surety that the bond will not be renewed for another term.
- 2) The surety will become liable on the bond obligation when, during the term of the bond, the owner or operator fails to perform as guaranteed by the bond. The owner or operator fails to perform when the owner or operator:
 - A) Abandons the CCR surface impoundment;
 - B) Is adjudicated bankrupt;
 - C) Fails to initiate closure of the CCR surface impoundment or post-closure care or corrective action when ordered to do so by the Board pursuant to Title VIII of the Act, or when ordered to do so by a court of competent jurisdiction;
 - D) Notifies the Agency that it has initiated closure or corrective action, or initiates closure or corrective action, but fails to close the CCR surface impoundment or provide post-closure care or corrective action in accordance with the Agency-approved closure and post-closure care or corrective action plans;
 - E) For a corrective action bond, fails to implement or complete corrective action at a CCR surface impoundment in accordance with Section 845.670; or
 - F) Fails to provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the surety that the bond will not be renewed for another term.

- 3) Upon failure of the owner or operator to perform as guaranteed by the bond, the surety shall have the option of:
 - A) providing closure and post-closure care in accordance with the approved closure and post-closure care plans; or
 - B) carrying out corrective action in accordance with the corrective action plan; or
 - C) paying the penal sum.
- f) Penal sum:
 - 1) The penal sum of the bond must be in an amount at least equal to the current cost estimate.
 - 2) Whenever the current cost estimate decreases, the penal sum may be reduced to the amount of the current cost estimate following written approval by the Agency.
 - 3) Whenever the current cost estimate increases to an amount greater than the penal sum, the owner or operator, within 90 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current cost estimate and submit evidence of that increase to the Agency or obtain other financial assurance, as specified in this Subpart, and submit evidence of the alternative financial assurance to the Agency.
- g) Term:
 - 1) The bond must be issued for a term of at least one year and must not be cancelable during that term.
 - 2) The surety bond must provide that, on the current expiration date and on each successive expiration date, the term of the surety bond will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the surety notifies both the owner or operator and the Agency by certified mail of a decision not to renew the bond. Under the terms of the surety bond, the 120 days will begin on the date when both the owner or operator and the Agency have received the notice, as evidenced by the return receipts.
 - 3) The Agency shall release the surety by providing written authorization for termination of the bond to the owner or operator and the surety when either of the following occurs:

- A) An owner or operator substitutes alternative financial assurance, as specified in this Subpart; or
 - B) The Agency releases the owner or operator from the requirements of this Subpart in accordance with Section 845.920(b).
- h) Cure of default and refunds:
- 1) The Agency shall release the surety if, after the surety becomes liable on the bond, the owner or operator or another person provides financial assurance for closure and post-closure care of the CCR surface impoundment or corrective action at a CCR surface impoundment; unless the Agency determines that the closure, post-closure care, or corrective action plan, or the amount of substituted financial assurance, is inadequate to provide closure and post-closure care or implement corrective action in compliance with this Part.
 - 2) After closure and post-closure care have been completed in accordance with the plans and requirements of this Part or after the completion of corrective action at a CCR surface impoundment in accordance with this Part, the Agency shall refund any unspent money which was paid into the Coal Combustion Residual Surface Impoundment Financial Assurance Fund by the surety, subject to appropriation of funds by the Illinois General Assembly.
- i) The surety will not be liable for deficiencies in the performance of closure, post-closure care, or corrective action by the owner or operator after the Agency releases the owner or operator from the requirements of this Subpart.

Section 845.990 Letter of Credit

- a) An owner or operator may satisfy the requirements of this Subpart by obtaining an irrevocable standby letter of credit which conforms to the requirements of this Section and submitting the letter to the Agency.
- b) The issuing institution shall be an entity that has the authority to issue letters of credit and:
 - 1) Whose letter of credit operations are regulated by the Illinois Department of Financial and Professional Regulation pursuant to the Illinois Banking Act [205 ILCS 5]; or
 - 2) Whose deposits are insured by the Federal Deposit Insurance Corporation.
- c) Forms:

- 1) The letter of credit must be on forms prescribed by the Agency.
 - 2) The letter of credit must be accompanied by a letter from the owner or operator, referring to the letter of credit by number, the name and address of the issuing institution, and the effective date of the letter, and providing the following information: the name and address of the CCR surface impoundment, the identification number (see Section 845.130), and the amount of funds assured by the letter of credit for closure and post-closure care of the CCR surface impoundment, or for corrective action at the CCR surface impoundment.
- d) Any amounts drawn by the Agency pursuant to the letter of credit will be deposited in the Coal Combustion Residual Surface Impoundment Financial Assurance Fund within the State Treasury.
- e) Conditions on which the Agency shall draw on the letter of credit:
- 1) The Agency shall draw on the letter of credit if the owner or operator fails to perform closure or post-closure care in accordance with the approved closure and post-closure care plans, or fails to perform corrective action at a CCR surface impoundment in accordance with this Part.
 - 2) The Agency shall draw on the letter of credit if the owner or operator:
 - A) Abandons the CCR surface impoundment;
 - B) Is adjudicated bankrupt;
 - C) Fails to initiate closure of the CCR surface impoundment or post-closure care or corrective action when ordered to do so by the Board pursuant to Title VIII of the Act, or when ordered to do so by a court of competent jurisdiction;
 - D) Notifies the Agency that it has initiated closure or corrective action, or initiates closure or corrective action, but fails to provide closure and post-closure care or corrective action in accordance with the Agency-approved closure and post-closure care or corrective action plans;
 - E) For a corrective action letter of credit, fails to implement or complete corrective action at a CCR surface impoundment in accordance with Section 845.670; or
 - F) Fails to provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator

and the Agency of a notice from the issuing institution that the letter of credit will not be extended for another term.

- 3) If the owner or operator does not establish alternative financial assurance, as specified in this Subpart, and obtain written approval of such alternative assurance from the Agency within 90 days after receipt by both the owner or operator and the Agency of a notice of expiration from the issuing institution (see subsection (g)(2)), the Agency must draw on the letter of credit. During the last 30 days of any such notice of expiration the Agency must draw on the letter of credit if the owner or operator has failed to provide alternative financial assurance, as specified in this Section, and obtain written approval of such assurance from the Agency.

f) Amount:

- 1) The letter of credit must be issued in an amount at least equal to the current cost estimate.
- 2) Whenever the current cost estimate decreases, the amount of credit may be reduced to the amount of the current cost estimate following written approval by the Agency.
- 3) Whenever the current cost estimate increases to an amount greater than the amount of the credit, the owner or operator, within 90 days after the increase, must either cause the amount of the credit to be increased to an amount at least equal to the current cost estimate and submit evidence of that increase to the Agency or obtain other financial assurance, as specified in this Subpart, to cover the increase and submit evidence of the alternative financial assurance to the Agency.

g) Term:

- 1) The letter of credit must be issued for a term of at least one year and must be irrevocable during that term.
- 2) The letter of credit must provide that, on the current expiration date and on each successive expiration date, the letter of credit will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the Agency by certified mail of a decision not to extend the letter of credit for another term. Under the terms of the letter of credit, the 120 days will begin on the date when both the owner or operator and the Agency have received the notice, as evidenced by the return receipts.
- 3) The Agency must return the letter of credit to the issuing institution for termination when either of the following occurs:

- A) An owner or operator substitutes alternative financial assurance, as specified in this Subpart; or
 - B) The Agency releases the owner or operator from the requirements of this Subpart in accordance with Section 845.920(b).
- h) Cure of default and refunds:
- 1) The Agency shall release the financial institution if, after the Agency is allowed to draw on the letter of credit, the owner or operator or another person provides financial assurance for closure and post-closure care of the CCR surface impoundment or corrective action at a CCR surface impoundment; unless the Agency determines that the closure, post-closure care, or corrective action plan, or the amount of substituted financial assurance, is inadequate to provide closure and post-closure care or implement corrective action in compliance with this Part.
 - 2) After closure and post-closure care have been completed in accordance with the plans and requirements of this Part or after the completion of corrective action at a CCR surface impoundment in accordance with this Part, the Agency shall refund any unspent money which was drawn and paid into the Coal Combustion Residual Surface Impoundment Financial Assurance Fund by the financial institution, subject to appropriation of funds by the Illinois General Assembly.



*HUMAN AND ECOLOGICAL
RISK ASSESSMENT OF COAL
COMBUSTION RESIDUALS*

Final

December 2014

U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response
Office of Resource Conservation and Recovery

Regulation Identifier Number: 2050-AE81

Conclusions

Based on the analyses presented in this document, EPA concludes that current management practice of placing CCR waste in surface impoundments and landfills poses risks to human health and the environment within the range that OSWER typically regulates. On a national scale, surface impoundments presented higher risks than landfills. Risks to ecological receptors were identified from exposures to aluminum, arsenic, barium, beryllium, boron, cadmium, chloride, chromium, selenium and vanadium through direct exposure to impoundment wastewater. Risks to residential receptors were identified primarily from exposures to arsenic and molybdenum in ground water used as a source of drinking water, but additional risks from boron, cadmium, cobalt, fluoride, mercury and thallium were identified for specific subsets of national disposal practices.

Sensitivity analyses on liner type indicate that disposal of CCR wastes in unlined surface impoundments and landfills presents the greatest risks to human health and the environment. As modeled, the national risks from clay-lined units are lower than those for unlined units, but such units can exceed risk criteria at individual sites. Composite liners were the only liner type modeled that effectively reduced risks from all pathways and constituents far below human health and ecological criteria in every sensitivity analysis conducted. Sensitivity analyses on waste type indicate that the acidic conditions that result from codisposal of CCR waste with coal refuse and the basic conditions that result from disposal of FGD waste result in higher risks from arsenic and other constituents than CCR waste disposed alone.

The risk results are consistent with the ground water damage cases compiled by EPA. These damage cases were primarily associated with unlined units and were most frequently associated with releases of arsenic. Recent surveys of the industry indicate the majority of newly constructed units are lined, and that the practice of codisposal with coal refuse has declined. However, this risk assessment presents a static snapshot of current disposal practices. While newer units may be managed in a more protective manner, older units, which still comprise the majority of current units, continue to operate in a manner that poses risks to human health and the environment within the range that OSWER typically regulates.

CERTIFICATE OF SERVICE

I, the undersigned, on affirmation state the following:

That I have served the attached **NOTICE OF FILING** and **ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S FINAL POST-HEARING COMMENTS** by e-mail upon Don Brown at the e-mail address of don.brown@illinois.gov, upon Renee Snow at the e-mail address of Renee.Snow@Illinois.Gov, upon Matt Dunn at the e-mail address of mdunn@atg.state.il.us, upon Stephen Sylvester at the e-mail address of ssylvester@atg.state.il.us, upon Andrew Armstrong at the e-mail address of aarmstrong@atg.state.il.us, upon Kathryn A. Pamenter at the e-mail address of KPamenter@atg.state.il.us, upon Virginia I. Yang at the e-mail address of virginia.yang@illinois.gov, upon Nick San Diego at the e-mail address of nick.sandiego@illinois.gov, upon Robert G. Mool at the e-mail address of bob.mool@illinois.gov, upon Vanessa Horton at the e-mail address of Vanessa.Horton@Illinois.gov, upon Paul Mauer at the e-mail address of Paul.Mauer@illinois.gov, upon Deborah Williams at the e-mail address of Deborah.Williams@cwlp.com, upon Kim Knowles at the e-mail address of Kknowles@prairierivers.org, upon Andrew Rehn at the e-mail address of Arehn@prairierivers.org, upon Faith Bugel at the e-mail address of fbugel@gmail.com, upon Jeffrey Hammons at the e-mail address of Jhammons@elpc.org, upon Keith Harley at the e-mail address of kharley@kentlaw.edu, upon Daryl Grable at the e-mail address of dgrable@clclaw.org, upon Michael Smallwood at the e-mail address of Msmallwood@ameren.com, upon Mark A. Bilut at the e-mail address of Mbilut@mwe.com, upon Abel Russ at the e-mail address of aruss@environmentalintegrity.org, upon Susan M. Franzetti at the e-mail address of Sf@nijmanfranzetti.com, upon Kristen Laughridge Gale at the e-mail address of kg@nijmanfranzetti.com, upon Vincent R. Angermeier at the e-mail address of va@nijmanfranzetti.com, upon Alec M. Davis at the e-mail address of adavis@ierg.org, upon Jennifer M. Martin at the e-mail address of Jmartin@heplerbroom.com, upon Kelly Thompson at the e-mail address of kthompson@ierg.org, upon Walter Stone at the e-mail address of Walter.stone@nrgenergy.com, upon Cynthia Skrukud at the e-mail address of Cynthia.Skrukud@sierraclub.org, upon Jack Darin at the e-mail address of Jack.Darin@sierraclub.org, upon Christine Nannicelli at the e-mail address of christine.nannicelli@sierraclub.org, upon Stephen J. Bonebrake at the e-mail address of sbonebrake@schiffhardin.com, upon Joshua R. More at the e-mail address of jmore@schiffhardin.com, upon Ryan C. Granholm at the e-mail address of rgranholm@schiffhardin.com, upon N. LaDonna Driver at the e-mail address of LaDonna.Driver@heplerbroom.com, upon Alisha Anker at the e-mail address of aanker@ppi.coop, upon Chris Newman at the e-mail address of newman.christopherm@epa.gov, upon Claire A. Manning at the e-mail address of cmanning@bhslaw.com, upon Anthony D. Schuering at the e-mail address of aschuering@bhslaw.com, upon Jennifer Cassel at the e-mail address of jcassel@earthjustice.org, upon Melissa Brown at the e-mail address of Melissa.Brown@heplerbroom.com, upon Thomas Cmar at the e-mail address of

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That my e-mail address is Stefanie.Diers@illinois.gov

That the number of pages in the e-mail transmission is 239

That the e-mail transmission took place before 4:30 p.m. on the date of October 30, 2020.

/s/ Stefanie Diers
October 30, 2020