

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

| | | |
|--------------------------|---|---------------------|
| IN THE MATTER OF: |) | |
| |) | R14- |
| COAL COMBUSTION WASTE |) | |
| SURFACE IMPOUNDMENTS |) | (Rulemaking- Water) |
| AT POWER GENERATING |) | |
| FACILITIES: PROPOSED NEW |) | |
| 35 ILL. ADM. CODE 841 |) | |

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board Illinois EPA's APPEARANCE; STATEMENT OF REASONS and ATTACHMENTS; PROPOSED NEW 35 ILL. ADM. CODE PARTS 841; and MOTION FOR ACCEPTANCE, a copy of which is herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/Joanne M. Olson
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APPEARANCE

The undersigned hereby enters her appearance as an attorney on behalf of the Illinois Environmental Protection Agency.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

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STATEMENT OF REASONS

NOW COMES the Illinois Environmental Protection Agency (“Illinois EPA” or “Agency”), by and through its counsel, and hereby submits this Statement of Reasons to the Illinois Pollution Control Board (“Board”) pursuant to Sections 13, 22, 27 and 28 of the Environmental Protection Act (“Act”) (415 ILCS 5/13, 22, 27 and 28) and 35 Ill. Adm. Code 102.202 in support of the attached proposed regulations.

I. INTRODUCTION

The Illinois EPA has developed a rule of general applicability for coal combustion waste (“CCW”) surface impoundments at power generating facilities. This proposed rule sets forth a process to monitor CCW surface impoundments and groundwater, as well as a process for preventive response, corrective action and closure. The proposed rule allows each owner or operator to develop a site-specific plan for groundwater monitoring, preventive response, corrective action and closure. The proposed rule includes provisions for Agency review of plans and appeals of Agency decisions to the Board.

II. BACKGROUND

Illinois has 23 power plants which have used coal as a fuel source and may be impacted by this rule. Seventeen of these plants are currently burning coal. Two of these plants have been converted to use natural gas as a fuel source and four of these plants are no longer generating

electricity. When coal is burned at power plants CCW is formed. CCW consists of fly ash, bottom ash, boiler slag, flue gas or fluid bed boiler desulfurization by-products. Fly ash is removed from exhaust gases, and is very fine, powdery, and made mostly of silica. Bottom ash is collected at the bottom of the furnaces, and is coarse, fine gravel sized, and angular. Boiler slag is molten bottom ash quenched with water. Flue gas desulfurization material is a by-product of removing sulfur dioxide from the air emissions of a coal fired power plant. It can be either wet sludge or dry powder. Disposal of CCW can be either a wet or dry system. Wet CCW is generally sluiced by pipe to an on-site surface impoundment. Dry CCW can be disposed in a landfill.

As noted above, in wet CCW handling systems, a piping system transports CCW to the impound system. The impound system can be composed of one or more surface impoundments. Typically, a CCW surface impoundment will have a primary cell where the majority of the solid particles settle out of the waste water. In addition to the primary cell, an impound system may have one or two secondary cells, often referred to as polishing ponds for the settlement of very fine suspended solids. In some instances the CCW surface impoundments have a constructed liner which allows the owner or operator to utilize heavy equipment to remove ash from the surface impoundment and dispose it off-site.

Historically, CCW may have been discharged to low lying areas or borrow pits at some locations. A borrow pit is an excavation where earth materials have been removed for site development. Borrow pits are usually incised, and the CCW and liquid is not contained by a dam, but contained in a depression or hole in the ground where earth materials have been removed. To increase storage capacity, owners or operators would sometimes build a CCW surface impoundment by constructing a diked enclosure. These structures are considered dams

and are required to comply with Illinois' dam safety regulations. The size of the diked enclosure units ranges from less than an acre to over 300 acres.

The Agency is aware of 89 CCW surface impoundments at power generating facilities. Some of surface impoundments are lined with impermeable materials, while others are not.

The chemical make-up of CCW depends on the type of coal used, as well as the combustion technology and pollution control technology used at a facility. CCW can contain antimony, arsenic, barium, boron, beryllium, cadmium, chromium, chloride, iron, lead, mercury, manganese, nickel, selenium, silver, sulfate, and thallium. The presence of these contaminants threatens groundwater as these contaminants are soluble and mobile. When the CCW surface impoundments are not lined with impermeable material, these contaminants may leach into the groundwater, affecting the potential use of the groundwater. While some of these contaminants affect the safety of drinking water, others affect taste and odor, and other potential uses such as irrigation. See Attachment A, Technical Support Document ("TSD") for further discussion.

Illinois Groundwater Protection Act

The Illinois Groundwater Protection Act (IGPA), Public Act 85-863, was enacted on September 24, 1987. 1987 Ill. Laws 3624. Sections 1 – 9 of Public Act 85-863 are now codified as the Illinois Groundwater Protection Act, 415 ILCS 55/1 *et seq.* In the IGPA, the General Assembly found that it is the State of Illinois' policy to restore, protect and enhance the groundwaters of the State. 514 ILCS 55/2(b).

Therefore, it is the policy of the State of Illinois to restore, protect, and enhance the groundwaters of the State, as a natural and public resource. The State recognizes the essential and pervasive role of groundwater in the social and economic well-being of the people of Illinois, and its vital importance to the general health, safety, and welfare. It is further recognized as consistent with this policy that the groundwater resources of the State be utilized for beneficial and legitimate purposes; that waste and degradation of the resources be prevented; and that the underground water resource be managed to allow for maximum benefit of the people of the State of Illinois.

514 ILCS 55/2(b). The IGPA required the Agency to propose and the Board to adopt regulations establishing comprehensive water quality standards specifically for the protection of groundwater. 415 ILCS 55/8(a). The IGPA directed the Board to consider how groundwater differs from surface water, a classification system for groundwater based on its utility as a resource or susceptibility to contamination, and nondegradation provisions including preventive response activities and notification limitations when promulgating groundwater quality standards. 415 ILCS 55/8(b). The Board adopted groundwater quality standards in Part 620. 35 Ill. Adm. Code 620; See R89-14. The Agency has relied on the classification system, nondegradation provisions, groundwater quality standards, and groundwater management zone provisions contained in Part 620 in drafting these proposed rules.

The Public Act 85-863 also added new sections to the Illinois Environmental Protection Act, 415 ILCS 5/ 14.1 through 14.5, 17.1 through 17.4. 1987 Ill. Laws 3636. These sections set forth criteria for establishing setback zones for potable wells, establishing boundaries for regulated recharge areas, a minimal hazard certification program, groundwater protection needs assessment program, and groundwater protection planning program. In addition, the Agency was required to propose groundwater rules to the Board prescribing standards and requirements for certain activities within a setback zone. 415 ILCS5/14.4. The Illinois EPA proposed and the Board adopted these regulations in Parts 615 and 616, Title 35 of the Illinois Administrative Code. The Board's rules in Part 615, Subpart F and Part 616, Subpart F, contain rules for groundwater monitoring, operating and closure of surface impoundments within setback zones. The Agency consulted these rules in drafting this regulatory proposal.

Ash Impoundment Strategy

On December 22, 2008, approximately 3.1 million cubic feet of fly ash and water were released to the Emory River and nearby land as a result of an ash pond failure at a Tennessee Valley Authority facility in Kingston Tennessee. In response, the Illinois EPA developed an aggressive strategy to assess CCW surface impoundments at coal fired power plants in Illinois. Under the ash impoundment strategy, the Illinois EPA identified facilities with CCW surface impoundments, requested groundwater monitoring well data, requested a potable water system surveys, requested hydrogeologic site assessments, required the installation of groundwater monitoring and conferred with the Department of Natural Resources on dam safety. See Attachment B, Letters to Power Generating Facilities. The information gathered as a result of the Illinois EPA's ash impoundment strategy shows that 14 facilities have violations of the numerical groundwater quality standards on-site. Corrective actions, including groundwater management zones, compliance commitment agreements, and consent orders, have been initiated at 11 of these facilities. See Attachment C, Coal Combustion Management in Illinois, September 2010; Attachment D, Illinois EPA Ash Impoundment Strategy Progress Report, October 2010.

Site Specific Rulemaking for Closure of CCW Surface Impoundments

Before the ash pond failure in Kingston Tennessee, and before the Illinois EPA initiated its ash impoundment strategy, Ameren Energy Generating Company ("Ameren") sought to close Ash Pond D, an unlined surface impoundment at its Hutsonville Power Station. The Illinois EPA took the position that the CCW surface impoundment must be closed according to the landfill regulations in Parts 811-815. In response, Ameren sought an adjusted standard from the Board's landfill closure regulations. See AS 09-01. The Board dismissed the case, concluding that a site-specific rulemaking addressing the closure of Ash Pond D is the appropriate source of

regulatory relief and that such regulations should be included in the Board's Subtitle G solid waste regulations. The Board further stated that if the Agency or any other party developed a rule of general applicability, the Board envisioned that it would consider such a proposal as an addition to the Board's Subtitle G waste disposal regulations.

Shortly after the Board dismissed Ameren's petition for an adjusted standard, Ameren filed its site-specific rulemaking to close Ash Pond D. See R09-21 ("Hutsonville Rule"). Thereafter, Agency and Ameren filed a joint proposal. The Board held hearings, and adopted a final rule on January 20, 2011. The Hutsonville Rule added a new Part 840 to Title 35 of the Administrative Code. It requires a hydrogeologic site investigation, a groundwater monitoring system, groundwater monitoring program, groundwater collection trench and discharge system, final slope and final cover system, and post-closure maintenance. The Hutsonville Rule also requires Ameren to prepare a closure plan and post-closure plan, and obtain Agency approval of the plans.

On April 9, 2013, Ameren Energy Resources ("AER"), on behalf of Ameren Energy Resources Generating, AmerenEnergy Generating Company, and Electric Energy, Inc. filed a site-specific rulemaking for the closure of 16 ash ponds at 8 different facilities. See R13-19, Statement of Reasons, p. 2 (April 9, 2013). The following power plants would be subject to the proposed rule: Coffeen Power Station, Duck Creek Power Station, E.D. Edwards Power Station, Grand Tower Power Station, Hutsonville Power Station, Joppa Power Station, Meredosia Power station and Newton Power station. The proposed rule was largely modeled on the Hutsonville Rule. The Board accepted the rulemaking proposal on April 18, 2013.

The Illinois EPA, after reviewing the scope of the AER's proposed rulemaking, began drafting a rule of general applicability that would apply, if adopted, to all of AER's facilities, as

well as all other coal fired power plants with CCW surface impoundments in Illinois. The Agency's proposed rule of general applicability is modeled after the Hutsonville Rule, AER's proposal and Parts 615, 616 and 620 of the Board's rules. As a result of the Illinois EPA's development of a general rule, on July 1, 2013, AER filed a motion to stay its site-specific rulemaking in R13-19. The Board granted AER's motion on July 25, 2013.

Federal Regulations

The United States Environmental Protection Agency ("USEPA") has proposed rules to govern coal combustion residuals from electric utilities. The rule was proposed on June 21, 2010. 75 Fed. Reg. 35128-35264, See Attachment E, Coal Combustion Residual Proposed Rule. USEPA's proposal contains two co-proposals. The first co-proposal would regulate coal combustion residual as a special waste under Subtitle C of the Resource Conservation and Recovery Act ("RCRA"). The second co-proposal would regulate coal combustion residual as a nonhazardous waste under Subtitle D of RCRA. The federal rule has not been finalized, and USEPA has not indicated when it expects to finalize the rule.

IV. REGULATORY PROPOSAL: PURPOSE AND EFFECT

This proposed rule contains a program for groundwater monitoring and the remediation of contaminated groundwater resulting from leaking CCW surface impoundments. Groundwater has an essential and pervasive role in the social and economic well-being of Illinois, and is important to the vitality, health, safety, and welfare of its citizens. This rule has been developed based on the goals above and the principle that groundwater resources should be utilized for beneficial and legitimate purposes. See 415 ILCS 55/1 *et seq.* Its purpose is to prevent waste and degradation of the groundwater. The proposed rule establishes a framework to manage the underground water resource to allow for maximum benefit of the State.

With its proposal, the Illinois EPA intends to fill a regulatory gap in the Board's rules governing CCW surface impoundments at power generating facilities. Many of these impoundments are permitted through an NPDES permit or state operating permit issued by the Agency pursuant to Subtitle C. The Board's Subtitle C regulations, however, do not provide a method for closure or corrective action at these facilities. The Board's rules governing waste disposal in Subtitle G do not apply because surface impoundments are excluded from the definition of landfill. 35 Ill. Adm. Code 720.110; 35 Ill. Adm. Code 810.103. Therefore, the closure provisions for landfills are inapplicable to surface impoundments. As a result, owners or operators of CCW must develop and propose a site-specific rulemaking to complete closure of each CCW surface impoundment.

To close this regulatory gap and avoid numerous site-specific rulemakings, the Illinois EPA now proposes general rules governing monitoring, preventive response, corrective action and closure of CCW surface impoundments. When groundwater quality standards are exceeded, the owner or operator may elect to perform corrective action or to close the CCW surface impoundment. The Agency includes a corrective action process in these rules because closure may not be required in all instances. In addition, monitoring provisions are proposed to be implemented before the facility begins operation or one year after the effective date of these proposed rules. The monitoring network installed before a CCW surface impoundment begins operation will be utilized through the post-closure period. Moreover, the proposed rule acknowledges many owners or operators have taken steps to protect the groundwater (e.g., hydrogeologic characterization, preventive response, and GMZs) by allowing previous work to be used to satisfy the requirements of the proposed rule.

The Illinois EPA used a significant amount of the structure from the adopted Hustonville Rule and concepts from the Board's adopted technology control regulations at 35 Ill. Adm. Code 615 and 616 to draft this proposed regulation. These proposed regulations have been tightly integrated with the Board's groundwater standards in 35 Ill. Adm. Code 620, including the groundwater classification system that differentiates resource groundwaters from others, preventive response processes in 35 Ill. Adm. Code 620.310(c), and the corrective action process in 35 Ill. Adm. Code 620.250.

The proposed rules do not prescribe how all CCW surface impoundments must be closed, or how each site with groundwater contamination must be remediated. Instead, the rule provides a process. If the groundwater monitoring shows statistically significant increasing constituent concentration, the owner or operator may be required to carry out a preventive response. If a site has groundwater contamination that is attributable to a release from a CCW surface impoundment, the owner or operator has a choice between corrective action or closure. The preventive response, corrective action plan or closure plan is site-specific. The proposed rule also provides a framework for closing surface impoundments that have not caused groundwater contamination.

IV. REGULATORY PROPOSAL: LANGUAGE

The following is a section-by-section summary of the Illinois EPA's proposal.

Subpart A: General

Proposed Subpart A sets forth who is subject to these rules as well as generally applicable provisions.

Section 841.100: Purpose

This Section states the purpose of Part 841 is to establish criteria, requirements and standards that govern surface impoundments containing CCW or leachate from CCW.

Section 841.105 Applicability

Under this Section, the universe of CCW surface impoundments subject to this Part is delineated. These proposed rules would apply to all CCW surface impoundments currently in operation or currently with groundwater quality standards exceedences, unless the surface impoundment is specifically exempted. The exemptions include facilities operated as a solid waste landfill or an exempt landfill, facilities subject to site-specific rules governing closure in 35 Ill. Adm. Code 840, facilities used to temporarily store de minimis amounts of CCW, and facilities used to collect stormwater that does not contain CCW leachate.

Section 841.110 Definitions

In addition to definitions contained in the Act, the Illinois EPA proposes adding definitions of compliance point, leachate, off-site, on-site, operator, owner, practical quantitation limit, professional engineer, professional geologist, statistically significant, storm, surface impoundment, unit, and woody species. The definition of unit is limited to any surface impoundment containing CCW or leachate from CCW. Throughout these rules, the Illinois EPA has used the term “unit” to refer surface impoundments containing CCW. For further discussion, See Attachment A, TSD, pp. 18-20.

Section 841.115 Abbreviations and Acronyms

This section contains abbreviations and acronyms used throughout the proposed rule.

Section 841.120 Incorporations by Reference

This Section sets forth the material to be incorporated by reference in the proposed rule, in accordance with 1 Ill. Adm. Code 100.385.

Section 841.125 Groundwater Quality Standards

The Board has adopted groundwater quality standards in 35 Ill. Adm. Code 620. In this Section, the Illinois EPA proposes that CCW surface impoundments subject to this Part must follow the existing groundwater quality standards in Part 620. The groundwater quality standards in Part 620 include the numerical limits in 35 Ill. Adm. Code 620.Subpart D, and the nondegradation provisions in 35 Ill. Adm. Code 620.Subpart C. Under this proposed Section, compliance is demonstrated at the compliance point or points, by using the appropriate statistical method.

Section 841.130 Compliance Period

This Section states when the owner or operator of a CCW surface impoundment must implement these rules. The compliance period begins one year after the effect date of these rules, or when the surface impoundment first receives CCW, whichever is later. The proposed regulations provide that the hydrogeologic site characterization, groundwater monitoring system and plan must be completed by the time the compliance period begins. In addition, the background values of groundwater must also be established before the compliance period begins. The compliance period ends when the post-closure care period ends.

Section 841.135 Recordkeeping

In order to show compliance with the proposed rules, records must be kept. The Agency proposes that the owner or operator keep the following records on-site: the groundwater monitoring plan, all monitoring data for 10 years, the corrective action plan, closure plan and

post-closure plan while the facility is undergoing corrective action or closure, the corrective action report, closure report and post-closure reports for 10 years, and any construction quality assurance reports for two years.

Section 841.140 Submission of Plans, Reports, and Notifications

This Section sets forth how to submit plans, reports, modifications and notifications to the Agency. It also lists the types of documents that must be signed by a professional engineer or professional geologist.

Section 841.145 Previous Investigations, Plans and Programs

The Illinois EPA recognizes that many facilities have existing groundwater monitoring systems and plans, and may have previously conducted hydrogeologic site investigations or characterizations. Under this Section, the owner or operator can use previous work, with the approval of the Agency, and is not expected to redevelop groundwater monitoring networks or repeat site investigation to comply with this Part. In addition, the existence of a groundwater management zone, preventive response plan, compliance commitment agreement, or court or Board order may be used to satisfy the requirements of this Part.

Section 841.150 Modification of Existing Permits

Under this proposed Section, an owner and operator is obligated to update all permits impacted by preventive response, corrective action or closure. Submission of plans under this Part is not sufficient to modify existing permits.

Section 841.155 Construction Quality Assurance Program

This Section requires the owner or operator to have a construction quality assurance program when building components of a preventive response plan, corrective action plan, or closure plan. Subsection (b) sets forth the program requirements, which includes a construction

quality officer, recordkeeping, supervision of construction, and necessary certifications. This Section is similar to 35 Ill. Adm. Code 840.146 and 811.Subpart E.

Section 841.160 Photographs

The purpose of this Section is to set forth minimum requirements that must be met when using photographs to show the progress or acceptability of work performed under this Part. The photographs must include documentation of the date, time and location of the photograph, and the name and signature of the photographer. This Section is similar to 35 Ill. Adm. Code 811.505(c).

Section 841.165 Public Notice

Under Illinois EPA's proposal, whenever the Agency receives proposed corrective action or closure plans, the Agency must place these plans on its website for a period of 30 days. Members from the public can comment on the proposed plans. The Agency is required to take these comments into consideration in making its final decision, but is not required to respond to any comment.

Subpart B: Monitoring

Proposed Subpart B contains monitoring provisions which must be followed until the end of the post-closure period.

Section 841.200 Hydrogeologic Site Characterization

This proposed Section requires all owners or operators to conduct a site investigation to determine potential contamination migration pathways and other hydrogeologic information of the site. This Section also provides examples of how hydrogeologic site investigations are used. For further discussion, See Attachment A, TSD, p. 23.

Section 841.205 Groundwater Monitoring System

Under Illinois EPA's proposal, one component of the groundwater monitoring plan is the groundwater monitoring system. This Section contains standards for monitoring well design and construction. The groundwater monitoring system can be designed for a single CCW surface impoundment or multiple CCW surface impoundments. This Section specifies how to determine how many wells are necessary and where these wells must be placed. For further discussion, See Attachment A, TSD, pp. 24-25.

Section 841.210 Groundwater Monitoring Plan

In this Section, Illinois EPA proposes that an owner or operator develop a groundwater monitoring plan and evaluate the groundwater beneath and around the unit to determine compliance with the groundwater quality standards. In the event there is off-site contamination, this Section further requires the owner or operator to determine the full extent of off-site impact, either through modeling or sampling. Subsection (b) contains the necessary components of the groundwater monitoring plan, and subsections (c) through (e) specifies how the owner or operator should analyze samples. For further discussion, See Attachment A, TSD, pp. 25-26.

Section 841.215 Chemical Constituents and Other Data to be Monitored

The purpose of this Section is to specify which parameters must be monitored in the groundwater monitoring plan. In addition to chemical constituents, the Illinois EPA proposes field parameters be monitored; these field parameters do not need to be analyzed by a certified laboratory. For further discussion, See Attachment A, TSD, pp. 26-27.

Section 841.220 Determining Background

Under this Section, an owner or operator must determine background values of the chemical constituents monitored under this Part. Background can be established by various

statistical methods, and the number and types of samples necessary to determine background will depend on the chosen statistical method. In addition, the intrawell statistical method can be used, with Agency approval, in cases where other activities at the site could be impacting the groundwater. Background must be recalculated every five years. For further discussion, See Attachment A, TSD, pp. 27-28.

Section 841.225 Statistical Methods

This Section outlines the statistical methods that may be used to establish background and to evaluate compliance with the groundwater quality standards. For further discussion, See Attachment A, TSD, p. 28-32.

Section 841.230 Sampling Frequency

All groundwater monitoring plans must have as sampling frequency that complies with this Section. As a baseline, the Illinois EPA proposes a semi-annual frequency if such frequency is consistent with the chosen statistical method. During the compliance period, owners or operators must sample for all chemical constituents listed in proposed Section 841.215 at least semi-annually. The Agency proposes requiring increased sampling frequency when the CCW surface impoundment is the cause of groundwater quality standards violation, and when the chemical constituents in the down-gradient wells differ to a statistically significant degree from the up-gradient wells. For further discussion, See Attachment A, TSD, pp. 32-33

Section 841.235 Annual Statistical Analysis

This Section provides that the owner or operator must perform an annual statistical analysis for each monitoring well located down-gradient of the CCW surface impoundment. If the annual analysis shows a statistically significant increase, the owner or operator must conduct further investigation and evaluation. If the investigation and evaluation shows an impairment or

exclusion of an existing or potential use of Class I or Class III groundwater, the owner or operator must develop a preventive response plan. For further discussion, See TSD, pp. 33-36.

Section 841.240 Inspection

This Section requires the owner or operator to perform weekly inspections, and keep records of each inspection. In the event a weekly inspection reveals a sudden and unexpected drop in the liquid level, the owner or operator is required to notify the Agency. For further discussion, See Attachment A, TSD, pp. 36-37.

Subpart C: Corrective Action

Proposed Subpart C contains provisions governing corrective action.

Section 841.300 Confirmation Sampling

This Section provides the process for completing confirmation sampling, and three alternatives for action if the samples results are confirmed. If groundwater monitoring results show an exceedence of the groundwater quality standard, the owner or operator has 30 days to resample and analyze a second sample. Upon receipt of a sample confirming the groundwater standards violation, the owner or operator can either (1) close the unit, (2) perform corrective action, or (3) show another source is the cause of the exceedence. For further discussion, See Attachment A, TSD, p. 37.

Section 841.305 Alternative Cause Demonstration

This Section provides that a groundwater quality violation is not attributable to the CCW surface impoundment when there is an error in sampling, the exceedence is due to natural causes or to a source other than the unit. The timelines for completing the alternative cause demonstration are found in subsections (b) and (c). The owner or operator is provided with an

opportunity to appeal the Agency's determination on the alternative cause demonstration to the Board. For further discussion, See Attachment A, TSD, p.38.

Section 841.310 Corrective Action Plan

After a groundwater quality standard exceedence is confirmed, and the owner or operator elects to perform corrective action instead of closing the CCW surface impoundment or showing an alternative cause is responsible for the exceedence, the owner or operator must submit a corrective action plan. The requirements of a corrective action plan are set forth in subsection (e). In addition, the owner or operator must provide potable water if a release from the CCW surface impoundment is affecting a potable water supply. The timeframe for completing the corrective action shall be proposed by the owner or operator and approved by the Agency as a part of the corrective action plan. For further discussion, See Attachment A, TSD, pp 39-40.

Section 841.315 Groundwater Collection System

This Section requires plans for a groundwater collection system to be included in the corrective action plan when such systems are used. This Section also provides criteria for discontinuing a groundwater collection system once compliance with the groundwater quality standards has been achieved. For further discussion, See Attachment A, TSD, pp. 39-40.

Section 841.320 Groundwater Discharge System

When a groundwater collection system is used, this Section requires that plans for a groundwater discharge system be included in the corrective action plan, and an NPDES permit obtained if the discharge is to waters of the United States. For further discussion, See Attachment A, TSD, pp. 39-40.

Section 841.325 Corrective Action Report and Certification

After completion of the corrective action, the owner or operator must submit for Agency approval a corrective action report, supporting documentation and a certification that the release from the CCW surface impoundment has been mitigated. For further discussion, See Attachment A, TSD, pp. 39-40.

Subpart D: Closure

Proposed Subpart D contains provisions governing closure.

Section 841.400 Surface Impoundment Closure

This Section provides a narrative standard for closing all CCW surface impoundments in subsection (a). Subsection (b) provides the standards for closing a CCW surface impoundment by complete removal. Subsection (c) provides the standard for closing CCW surface impoundment by means other than complete removal. For further discussion, See Attachment A, TSD, p. 40.

Section 841.405 Closure Prioritization

This Section provides a timeline for closing CCW surface impoundments with groundwater quality standard exceedences, which owners or operators with multiple CCW surface impoundments can use in prioritizing the closure order. The Agency proposes four categories: (1) units impacting existing potable water supplies, (2) inactive units, (3) active units and (4) units over Class IV groundwater. Category 1, if applicable, will always govern the closure time frames. If category 1 is not applicable, and category 4 is applicable, category 4 will govern the closure timeframe. Categories 2 and 3 apply when categories 1 and 4 are inapplicable. The amount of time to close a CCW surface impoundment increases from two years in category 1 to six years in category 4. If the CCW surface impoundment is not causing a

groundwater quality standard exceedence, the timeframe for closure is the time agreed to by the owner or operator and the Agency. For further discussion, See Attachment A, TSD, pp. 40-42

Section 841.410 Closure Plan

The purpose of this Section is to specify what must be included in a closure plan. In addition, under subsection (b) the Agency may request additional information. For further discussion, See Attachment A, TSD, pp. 42-43

Section 841.415 Final Slope and Stabilization

This Section provides the technical requirements for the final slope of the CCW surface impoundment when closure is not by complete removal. The Agency consulted 35 Ill. Adm. Code 840.124 and Ill. Adm. Code 811.205 when drafting this proposed language. For further discussion, See Attachment A, TSD, p. 43.

Section 841.420 Final Cover System

This Section provides the technical requirements for the final cover system when closure is not by complete removal. The Agency consulted 35 Ill. Adm. Code 840.126 and Ill. Adm. Code 811.204 when drafting this proposed language. For further discussion, See Attachment A, TSD, p. 43.

Section 841.425 Closure Report and Certification

After completion of all closure activities, the owner or operator must submit for Agency approval a closure report, supporting documentation and a certification that the CCW surface impoundment has been closed in accordance with the approved plan. For further discussion, See Attachment A, TSD, p.43.

Section 841.430 Post-Closure Maintenance of Cover System

This Section contains the cover care requirements after the CCW surface impoundment is closed. The Illinois EPA proposes requiring quarterly inspections, repair of erosion, holes, depressions, tears, rips, punctures or other damage to the cover system. This Section also provides that use of the property must not disturb the integrity of the cover, and any disturbance of the cover must be approved by the Agency. The Agency consulted 35 Ill. Adm. Code 840.136 And Ill. Adm. Code 811.111 when drafting this proposed language. For further discussion, See Attachment A, TSD, pp. 43-45.

Section 841.435 Post-Closure Care Plan

Under the Illinois EPA's proposal, the post-closure care plan must be submitted at the same time as the closure plan. Subsection (c) contains the minimum elements all post-closure care plans must have. These elements include proposed post-closure care activities, description of the operation and maintenance of groundwater collection systems, if used, and statement of planned uses of the property. For further discussion, See Attachment A, TSD, pp. 43-45.

Section 841.440 Post-Closure Report and Certification

After completion of all post-closure activities, the owner or operator must submit for Agency approval a post-closure report, supporting documentation and a certification that the post-closure care of the CCW surface impoundment was in accordance with the approved plan. For further discussion, See Attachment A, TSD, pp. 43-45.

Section 841.445 Closure and Post-Closure Annual Reporting

Under this proposed Section, the owner or operator must complete an annual report, in addition to the annual statistical analysis, during the closure and post-closure care period. This report would include the annual statistical analysis, summary of completed activities, and actions

taken to mitigate statistically significant increasing constituent concentrations, if any. For further discussion, See Attachment A, TSD, p. 45

Section 841.450 Resource Conservation and Recovery Act

This proposed Section provides that any rules governing CCW adopted under RCRA will apply if more stringent or inconsistent with the rules contained in this Part.

Subpart E: Agency Review Procedures

Proposed Subpart E sets forth how plans, reports, and certifications will be reviewed by the Agency, and when an owner or operator can appeal the Agency's decision to the Board.

Section 841.500 Plan Review, Approval, and Modification.

The Illinois EPA proposes, in Section 841.500, a review procedure for all plans submitted under this Part. These plans include a groundwater monitoring plan, preventive response plan, corrective action plan, closure plan and post-closure care plan. The groundwater monitoring system and hydrologic site characterization are included in the groundwater monitoring plan, and therefore, are reviewed under the provisions of this subpart as well. The Agency proposes a 90 day review period to either approve, approve with conditions or disapprove a plan. If the Agency disapproves a plan, a written notification must include an explanation of why the plan was disapproved. Subsection (c) contains criteria for Agency review of the plans. The owner or operator can appeal the Agency's final decision to the Board within 35 days of the Agency's decision.

Section 841.505 Plan Review, Approval, and Modification.

The Illinois EPA proposes a review process for reports and certifications. This process is the same as for plans under proposed Section 841.500. Subsections (c) contains standards for reviewing corrective action reports and certifications. Subsection (d) contains standards for

reviewing closure reports and certifications. Subsection (e) contains standards for reviewing post-closure care reports and certification.

V. TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

Because the proposed regulation does not require installation of any particular technology for preventive response, corrective action and closure, it is difficult to quantify the technical feasibility and economic costs. The proposed rule requires groundwater monitoring and provides a framework to complete corrective action and closure. The Illinois EPA's proposal does not create new obligations for power generating facilities because a facility that causes, threatens or allows groundwater pollution is currently subject to enforcement actions under the Act, including remedial actions and fines. The Agency has previously asked many of these facilities to install groundwater monitoring wells. See Attachment B. Therefore, the Illinois EPA does not believe the proposed rules will have a negative economic impact. The economic impact will be positive, as the proposed rule is designed to prevent groundwater contamination by catching statistically significant increases of groundwater contaminants before the groundwater quality standards are violated. Preventing groundwater contamination preserves the State's natural resources for current and future use. As recognized in the IGPA, groundwater has an essential and pervasive role in the social and economic well-being of the people of Illinois.

The proposed rule ensures that CCW surface impoundments are closed in a manner that minimizes impacts to the environment including groundwater, surface water and air medias. A surface impoundment may be closed with removal of the CCW or with CCW left in place. In some cases, recovering useable materials from the CCW surface impoundments may be technically feasible and economically reasonable, but reuse of CCW materials is highly dependent on local market conditions. If the CCW is not removed, and instead left in place, the

CCW surface impoundment must be stabilized in order to construct a final cover system. The final cover system must be designed to minimize impacts to groundwater. Where necessary, groundwater collection systems will be utilized to intercept contaminants.

The size of existing CCW surface impoundments range from less than an acre to over 300 acres. The technical feasibility of corrective action or closure of these surface impoundments depends on their size. In some instances the CCW surface impoundments are lined and the materials are removed and disposed of off-site. For larger CCW surface impoundments, it is appropriate to minimize the movement of contaminants utilizing containment (Hauser, 2009 and Russell, 2012). This can be done by constructing a low permeability cover on the CCW surface impoundment. This cover may be constructed using low permeability clay soils or a synthetic cover material. The cover system would be constructed using standard construction techniques utilized for landfills. When using this approach it is important that site grading is completed to maximize runoff. In addition, post closure care of the cover material will maintain the integrity of the cover.

In some cases corrective action plans will require the migration of contaminated groundwater to be intercepted or controlled using pumping wells or collection trenches (Russell, 2012). These devices remove contaminated groundwater from the aquifer. The application of these collection devices is based on site specific conditions and is standard practice for remediation involving the interception of contaminated groundwater. Collection trenches are constructed using standard earth moving equipment, and wells may be constructed using standard equipment used to drill drinking water wells.

Water collected in groundwater collection systems may contain inorganic contaminants. Treatment for inorganic contaminants would require reverse osmosis. TDS, sulfate and boron

are examples of inorganic contaminants which require reverse osmosis. This treatment would be technically unreasonable for the owners or operators (Nyer, Evan K., 1992). See Attachment A, TSD, p. 1. The corrective action or closure process under the proposed rule takes into account the difficulties associated with treatment of the groundwater. The proposed rule affords the potentially affected facilities the ability to avail themselves of current and future technologies that achieve the requirements of the rule.

VI. AFFECTED FACILITIES AND OUTREACH

Power generating facilities with CCW surface impoundments may be affected by the Illinois EPA's proposed rule. These facilities include:

| Name of Facility | Number of CCW Surface Impoundments |
|---------------------------|------------------------------------|
| Midwest Generation | |
| Will County Station | 4 |
| Waukegan Station | 2 |
| Powerton | 5 |
| Joliet 29 | 3 |
| Dynegy Midwest | |
| Baldwin Energy Cen. | 7 |
| Havana Station | 4 |
| Hennepin Station | 8 |
| Wood River Station | 5 |
| Vermilion Station | 5 |
| Ameren Energy | |
| Newton Station | 2 |
| Edwards Station | 1 |

| | |
|---------------------------------------|---|
| Duck Creek Station | 7 |
| Coffeen Station | 5 |
| Meredosia Station | 3 |
| Hutsonville Station | 5 |
| Venice | 2 |
| Grand Tower | 1 |
| Electric Energy Inc. | |
| Electric Energy Inc. | 2 |
| Kincaid Generation | |
| Kincaid Generation | 1 |
| City Water Light and Power | |
| City Water Light and Power | 2 |
| Prairie Power Inc. | |
| Prairie Power Inc. | 1 |
| Southern Illinois Power Co-op. | |
| Southern Illinois Power Co-op. | 7 |
| Prairie State Generation | |
| Prairie State Generation | 7 |

Because this rulemaking was initiated in response to AER's site-specific rulemaking, the Illinois EPA initially shared an early draft of these rule with AER on May 8, 2013. After working through AER's comments, the Agency circulated a revised draft to a stakeholder workgroup. The stakeholder workgroup included representatives from Ameren, Dynegy, Midwest Generation, City Water Light and Power, Southern Illinois Power Cooperative, Prairie State Generating Company, Electric Energy, Kincaid Generation, Prairie Power, Exelon, Illinois Environmental Regulatory Group, the Office of the Attorney General, Illinois Department of

Natural Resources, Environmental Law and Policy Center, Prairie Rivers Network, Sierra Club, Environmental Integrity Project. A public outreach meeting was held at the Illinois EPA's headquarters in Springfield on June 27, 2013. During the outreach session, the environmental groups and the Attorney General's office suggested adding two requirements: (1) public notice and participation for corrective action and closure plans; and (2) financial assurance requirements for all CCW surface impoundments. The Agency accepted public comments after the outreach session, and encouraged the parties to comment on the public notice and participation, and financial assurance. In finalizing the language in this proposal, the Agency reviewed all comments received.

Regarding public participation, the industry stakeholders generally disfavored its addition. Some industry stakeholders commented the public notice and participation requirement should be limited in duration and scope to prevent disruption of the Agency's review timeframes. The environmental groups proposed a 60 day comment period with the possibility of a public information meeting. The Illinois EPA has chosen to include a public notice and participation process in its proposal. Under the proposed rules, the Illinois EPA will post corrective action and closure plans on its website and accept written public comments on the plans for a period of 30 days. The Agency will review and evaluate the written comments that are submitted within the 30 day comment period.

Regarding financial assurance, the environmental groups and the Attorney General's Office favored a financial assurance requirement. The industry stakeholders opposed such a requirement. The Illinois EPA elected not to include a financial assurance requirement in its proposal.

VII. SYNOPSIS OF TESTIMONY

The Illinois EPA anticipates presenting four witnesses during the Board's hearings on this proposal. The witnesses are Agency employees within the Division of Public Water Supplies. They are (1) Rick Cobb, Deputy Division Manager; (2) Bill Buscher, Manager of the Hydrogeology and Compliance Unit; and (3) Lynn Dunaway, Environmental Protection Specialist, and (4) Amy Zimmer, Environmental Protection Geologist III.

Rick Cobb has a Bachelor of Science in Geology from Illinois State University, and is an Illinois licensed professional geologist. He has worked in the Division of Public Water Supplies at Illinois EPA for 28 years, has been the manager of the Groundwater Section since 1991, and has been the Deputy Division Manager since 2002. During this time he has worked on the development, implementation and enforcement of groundwater laws and regulations in Illinois. Illinois EPA anticipates that Mr. Cobb will testify regarding policy considerations underlying the proposed rules. Mr. Cobb is also expected to testify and answer questions about the general provisions in Subpart A of the proposed rule as well as the Agency review process in Subpart E.

Bill Buscher graduated from the University of Missouri-Rolla with a Bachelor of Science in Geological Engineering and is a licensed professional geologist. He has worked in Bureau of Water for over 25 years. His primary responsibilities include application of the Illinois Environmental Protection Act and Illinois Pollution Control Board's rules which pertain to groundwater. Mr. Buscher will testify about the corrective action and closure process.

Lynn Dunaway graduated from the Bradley University with a Bachelor of Science, in Geology. Mr. Dunaway has been an Illinois Licensed Professional Geologist since 1998. He has worked in the Groundwater Section, Bureau of Water, for the past 25 years. In addition to implementation of programs under the Groundwater Protection Act, he deals with groundwater

standards compliance issues, including implementation of protective measures at the time of permitting and regulatory development. Mr. Dunaway is expected to testify about statistical methods to determine background and compliance, sampling frequency, the annual statistical analysis, preventive response and confirmation sampling.

Amy Zimmer has worked in the Groundwater Section of the Division of Public Water Supplies since 1998. Before joining the Agency, she graduated from Northern Illinois University with a Bachelor of Science in Geology. Ms. Zimmer's job duties include conducting geologic investigations and hydrogeologic characterization of aquifers utilized by community water supplies, developing conceptual and mathematical models of flow systems, identifying groundwater flowpaths, evaluating groundwater models and hydrogeologic data received from regulated sites and community water supplies, providing technical input for special projects requiring geologic expertise, and assisting in the preparation of routine reports concerning various aspects of the state's groundwater protection programs. Ms. Zimmer will present testimony and answer questions related to the hydrogeologic site characterization, groundwater monitoring system, groundwater monitoring program, chemical constituents to be monitored, inspections, and alternative cause demonstrations.

VIII. SUPPORTING DOCUMENTS

A. Documents Relied Upon

The Illinois Administrative Procedure Act provides that all proposed rulemakings must include:

a descriptive title or other description of any published study or research report used in developing the rule, the identity of the person who performed such study, and a description of where the public may obtain a copy of any such study or research report. If the study was performed by an agency or by a person or entity that contracted with the agency for the performance of the study, the agency shall also make copies of the

underlying data available to members of the public upon request if the data are not protected from disclosure under the Freedom of Information Act.

5 ILCS 100/5-40(b)(3.5). The Board's procedural rules require the same information to be included with any rulemaking proposal filed with the Board in 35 Ill. Adm. Code 102.202(e). A complete list of the published studies and other documents relied upon by the Agency in developing this proposal is provided below.

| List of Documents Relied Upon |
|---|
| Adler, H.L. and E.B. Roessler, 1964, <i>Introduction to Probability and Statistics</i> , W.H. Freeman and Company, Third Edition, p. 123. |
| American Water Works Association (AWWA), 1995, <i>Water Treatment</i> , 630 pps. |
| AWWA, 1996, <i>Water Transmission and Distribution</i> , AWWA, 630 pps. |
| Fetter, C.W., 1993, <i>Contaminant Hydrogeology</i> , Macmillan Publishing, 458 pps. |
| Gorelick, S.M., Freeze, R.A., Donohue, D., and J.F. Keely, 1993, <i>Groundwater Contamination: Optimal Capture and Containment</i> , Lewis Publishers, 385 pps. |
| Hauser, V.L., 2009, <i>Evapotranspiration Covers for Landfills and Waste Sites</i> , CRC Press Taylor and Francis Group, 203 pps. |
| Helsel, D.R. and R.M. Hirsch. 1993. <i>Statistical Methods in Water Resources</i> . U.S. Geological Survey. Elsevier Press. |
| Hem, J.D. 1992. <i>Study and Interpretation of the Chemical Characteristics of Natural Water</i> . United States Geological Survey Water –Supply Paper 2254. |
| Illinois EPA, 2010, <i>Illinois Integrated Water Quality Report and Section 303(d) List - Volume II - Groundwater – 2010</i> , http://www.epa.state.il.us/water/tmdl/303d-list.html#2012 , 46 pp. |
| Natusch, D. F. S., and others, <i>Characterization of trace elements in fly ash</i> : Institute for Environmental Studies, University of Illinois; IES Research Report no. 3, 34 pps. |
| Nyer, E. K., 1992, <i>Groundwater Treatment Technology</i> , Van Nostrand Reinhold, 297 pps. |
| Russel, D.L., 2012, <i>Remediation Manual for Contaminated Sites</i> , CRC Press Taylor and Francis Group, 241 pps. |
| Suloway, John J. and others, 1983, <i>Chemical and Toxicological Properties of Coal Fly Ash</i> , Environmental Geology Notes 105, Champaign, Il, Illinois Natural History Survey and Illinois State Geological Survey, 77 pps. |
| United States Environmental Protection Agency (U.S. EPA), March 2009, <i>Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance</i> , EPA 530/R-09-007, 268 pps |
| U.S. EPA, 1999, <i>Health Effects from Exposure to High Levels of Sulfate in Drinking Water Study</i> , 25 pps. |

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| U.S. EPA, July 1996, <i>Pump-and-Treat Ground-Water Remediation- A Guide for Decision Makers and Practitioners</i> , EPA/625/R-95/005, 74 pps. |
| U.S. EPA, 1986, <i>Quality Criteria for Water</i> , 477 pps |
| United States Geological Survey (USGS), October 1997, <i>Radioactive Elements in Coal and Fly Ash: Abundance, Forms, and Environmental Significance</i> , Factsheet FS-163-97, http://pubs.usgs.gov/fs/1997/fs163-97/FS-163-97.html |

This list includes all the references provided in the Agency's TSD as well as some additional references relied on in rule development and the Statement of Reasons. The Agency did not perform any new studies, nor did the Agency contract with any outside entities to perform any studies for the development of this rulemaking proposal. Because no studies were conducted, there is no underlying data meeting the requirements of 5 ILCS 100/5-40(b)(3.5).

B. Incorporations by Reference and Attachments

This section of the Statement of Reasons provides a list of documents that are incorporated by reference in the proposed rule. Section 102.202(d) requires the Agency to submit “[c]opies of any material to be incorporated by reference within the proposed rule pursuant to section 5-75 of the IAPA [5 ILCS 100/5-75].” The Agency proposes incorporating nine documents by reference. These documents include the documents incorporated in the Hustonville Rule and one additional USEPA publication: “Statistical Methods of Groundwater Monitoring Data at RCRA Facilities—Unified Guidance.” These nine incorporations by reference are listed below. Copies of each of these documents are included with this rulemaking proposal.

| Documents Incorporated By Reference |
|---|
| "Methods for Chemical Analysis of Water and Wastes," March 1983, Doc. No. PB84-128677. EPA 600/4-79-020 (available on-line at http://nepis.epa.gov/). |
| "Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, Doc. No. PB94-120821 (referred to as "USEPA Environmental Inorganic Methods"). EPA 600/R-93-100 (available online at http://nepis.epa.gov/) |

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| "Methods for the Determination of Metals in Environmental Samples," June 1991, Doc. No. PB91-231498. EPA 600/4-91-010 (available on-line at http://nepis.epa.gov/). |
| "Methods for the Determination of Metals in Environmental Samples Supplement I," May 1994, Doc. No. PB95-125472. EPA 600/4-94-111 (available on-line at http://nepis.epa.gov/). |
| "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water: Volume I," EPA 815-R-00-014 (August 2000) (available on-line at http://nepis.epa.gov/). |
| "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA Publication No. SW-846, as amended by Updates I, II, IIA, IIB, III, IIIA, and IIIB (Doc. No. 955-001-00000-1), (available on-line at http://www.epa.gov/epaoswer/hazwaste/test/main.htm). |
| "Practical Guide for Ground-Water Sampling," EPA Publication No. EPA/600/2-85/104 (September 1985), Doc. No. PB 86-137304. National Technical Information Service, 5285 Port Royal Road, Springfield VA 22161, (703) 605-6000. |
| 2009 Unified Guidance. "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities—Unified Guidance," March 2009, EPA 530/R-09-2007. United States Environmental Protection Agency, National Service Center for Environmental Publications, P.O. Box 42419, Cincinnati, OH 45242-0419 (accessible on-line and available by download from http://www.epa.gov/nscep/). |
| "Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents," Book I, Chapter D2 (1976). United States Geological Survey, 1961 Stout St., Denver CO 80294, (303) 844-4169. |

C. Attachments

This section of the Statement of Reasons provides list of documents attached to this rulemaking proposal.

| Letter | Attachments |
|--------|--|
| A | Illinois EPA's Technical Support Document (TSD) |
| B | Letters to Power Generating Facilities |
| C | Coal Combustion Management in Illinois, September 2010;) |
| D | Illinois EPA Ash Impoundment Strategy Progress Report, October 2010. |
| E | Coal Combustion Residual Proposed Rule Federal Register 73:225 (2008), Revised |

| | |
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| | National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision: Final rule, pp. 70418-70486, November 20, 2008 |
|--|---|

IX. CONCLUSION

WHEREFORE, the Illinois EPA respectfully requests the Board to adopt the Illinois EPA's proposed regulation in its entirety as submitted.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

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

PART 841
COAL COMBUSTION
WASTE SURFACE IMPOUNDMENTS AT POWER GENERATING FACILITIES

SUBPART A: GENERAL

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SUBPART B: MONITORING

| Section | |
|---------|--|
| 841.200 | Hydrogeologic Site Characterization |
| 841.205 | Groundwater Monitoring System |
| 841.210 | Groundwater Monitoring Plan |
| 841.215 | Chemical Constituents and Other Data to Be Monitored |
| 841.220 | Determining Background Values |
| 841.225 | Statistical Methods |
| 841.230 | Sampling Frequency |
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| 841.240 | Inspection |

SUBPART C: CORRECTIVE ACTION

| Section | |
|---------|---------------------------------|
| 841.300 | Confirmation Sampling |
| 841.305 | Alternative Cause Demonstration |
| 841.310 | Corrective Action Plan |
| 841.315 | Groundwater Collection System |
| 841.320 | Groundwater Discharge System |

841.325 Corrective Action Report and Certification

SUBPART D: CLOSURE

Section

841.400 Surface Impoundment Closure
841.405 Closure Prioritization
841.410 Closure Plan
841.415 Final Slope and Stabilization
841.420 Final Cover System
841.425 Closure Report and Certification
841.430 Post-Closure Maintenance of Cover System
841.435 Post-Closure Care Plan
841.440 Post-Closure Report and Certification
841.445 Closure and Post-Closure Annual Reporting
841.450 Resource Conservation and Recovery Act

SUBPART E: AGENCY REVIEW PROCEDURES

Section

841.500 Plan Review, Approval, and Modification
841.505 Review and Approval of Reports and Certifications

AUTHORITY: Implementing Sections 12 and 22 of the Environmental Protection Act [415 ILCS 5/12 and 22] and authorized by Sections 13, 22, 27, and 28 of the Environmental Protection Act [415 ILCS 5/13, 22, 27, and 28].

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

SUBPART A: GENERAL

Section 841.100 Purpose

This Part establishes criteria, requirements and standards for site characterization, groundwater monitoring, preventive response, corrective action and closure of surface impoundment units containing coal combustion waste or leachate from coal combustion waste at power generating facilities.

Section 841.105 Applicability

- a) Except as specified in subsection (b) of this Section, this Part applies to all surface impoundments at power generating facilities containing coal combustion waste or leachate from coal combustion waste that are:
 - 1) operated on or after the effective date of these rules, or

- 2) not operated after the effective date of these rules, but whose coal combustion waste or leachate from coal combustion waste causes or contributes to an exceedence of the groundwater quality standards on or after the effective date of these rules.
- b) This Part does not apply to any surface impoundment unit:
- 1) operated under a solid waste landfill permit issued by the Agency;
 - 2) operated pursuant to procedural requirements for a landfill exempt from permits under 35 Ill. Adm. Code 815;
 - 3) subject to 35 Ill. Adm. Code 840;
 - 4) used to store coal combustion waste or leachate from coal combustion waste when all of the following conditions are met:
 - A) at least two feet of material with a permeability equal or superior to 1×10^{-7} centimeters per second, or an equivalent synthetic liner lines the bottom of the unit;
 - B) the coal combustion waste or leachate from coal combustion waste remains in the unit for no longer than one year; and
 - C) the unit's maximum volume is no more than 25 cubic yards; or
 - 5) used to only collect stormwater runoff, which does not contain leachate.

Section 841.110 Definitions

Unless otherwise specified, the definitions of the Environmental Protection Act (Act) [415 ILCS 5] apply to this Part. The following definitions also apply:

"Agency" means the Illinois Environmental Protection Agency.

"Aquifer" means saturated (with groundwater) soils and geologic materials which are sufficiently permeable to readily yield economically useful quantities of water to wells, springs, or streams under ordinary hydraulic gradients. [415 ILCS 55/3(b)]

"Board" means the Illinois Pollution Control Board.

"Coal combustion waste" means any fly ash, bottom ash, slag, or flue gas or fluid bed boiler desulfurization by-products generated as a result of the combustion of:

- (1) coal, or

- (2) *coal in combination with: (i) fuel grade petroleum coke, (ii) other fossil fuel, or (iii) both fuel grade petroleum coke and other fossil fuel, or*
- (3) *coal (with or without: (i) fuel grade petroleum coke, (ii) other fossil fuel, or (iii) both fuel grade petroleum coke and other fossil fuel) in combination with no more than 20% of tire derived fuel or wood or other materials by weight of the materials combusted; provided that the coal is burned with other materials, the Agency has made a written determination that the storage or disposal of the resultant wastes in accordance with the provisions of item (r) of Section 21 would result in no environmental impact greater than that of wastes generated as a result of the combustion of coal alone, and the storage disposal of the resultant wastes would not violate applicable federal law. [415 ILCS 5/3.140]*

"Compliance point" means any point in groundwater designated at a lateral distance of 25 feet from the outer edge of the unit, or property boundary, whichever is less, and a depth of 15 feet from the bottom of the unit. If the owner or operator has a GMZ for the site or unit, compliance point means any point in the groundwater at which a contaminant released from the unit could pass beyond the Agency approved GMZ boundary. There may be more than one compliance point for a particular unit(s)/GMZ.

"Contaminant" means any solid, liquid or gaseous matter, any odor, or any form of energy, from whatever source. [415 ILCS 5/3.165]

"Leachate" means any liquid, including any suspended components in the liquid, that has been or is in direct contact with, percolated through or drained from coal combustion waste. Leachate does not include stormwater runoff that may come into contact with fugitive ash.

"Off-site" means not on-site.

"On-site", "on the site", or "on the same site" means the same or geographically contiguous property which may be divided by public or private right-of-way, provided the entrance and exit between the properties is at a crossroads intersection and access is by crossing as opposed to going along the right-of-way. Noncontiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access is also considered on-site property.

"Operator" means the person responsible for the operation and maintenance of a unit.

"Owner" means a person who has an interest, directly or indirectly, in land, including a leasehold interest, on which a person operates and maintains a unit. The "owner" is the "operator" if there is no other person who is operating and maintaining a unit.

"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, State agency, or any other legal entity, or their legal representative, agent or assigns. [415 ILCS 5/3.315]

"Practical Quantitation Limit" or "PQL" means the lowest concentration or level that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions in accordance with "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846, incorporated by reference at Section 841.120.

"Professional engineer" means *a person licensed under the laws of the State of Illinois to practice professional engineering. [225 ILCS 325].*

"Professional geologist" means *an individual who is licensed under the Professional Geologist Licensing Act to engage in the practice of professional geology in Illinois. [225 ILCS 745]*

"Site" means any location, place, tract of land and facilities, including but not limited to buildings, and improvements used for purposes subject to regulation or control by the Act or regulations thereunder. [415 ILCS 5/3.460]

"Statistically significant" means the application of a statistical method pursuant to Section 841.225 of this Part to determine whether consecutive groundwater sampling data showing greater or lesser concentrations of chemical constituents represents a pattern rather than chance occurrence.

“Storm” means a maximum 24-hour precipitation event with a probable recurrence interval of once in 25 years, as defined by the National Weather Service in NOAA Atlas 14-Precipitation Frequency Atlas of the United States, Volume 2, Version 3.0 (2004), found at http://hdsc.nws.noaa.gov/hdsc/pfds/orb/il_pfds.html.

"Surface impoundment" means a natural topographical depression, man-made excavation, or diked area where earthen materials provide structural support for the containment of liquid wastes or wastes containing free liquids.

“Unit” means any surface impoundment at a power generating facility that contains coal combustion waste or leachate from coal combustion waste.

“Woody species” means perennial plants with stem(s) and branches from which buds and shoots develop.

Section 841.115 Abbreviations and Acronyms

| | |
|--------|---|
| Agency | Illinois Environmental Protection Agency |
| CQA | Construction Quality Assurance |
| GMZ | Groundwater Management Zone |
| Mg\l | Milligrams per Liter |
| NPDES | National Pollutant Discharge Elimination System |
| TDS | Total Dissolved Solids |
| PQL | Practical Quantitation Limit |

Section 841.120 Incorporations by Reference

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

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

"Methods for Chemical Analysis of Water and Wastes," March 1983, Doc. No. PB84-128677. EPA 600/4-79-020 (available on-line at <http://nepis.epa.gov/>).

"Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, Doc. No. PB94-120821 (referred to as "USEPA Environmental Inorganic Methods"). EPA 600/R-93-100 (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Metals in Environmental Samples," June 1991, Doc. No. PB91-231498. EPA 600/4-91-010 (available on-line at <http://nepis.epa.gov/>).

"Methods for the Determination of Metals in Environmental Samples Supplement I," May 1994, Doc. No. PB95-125472. EPA 600/4-94-111 (available on-line at <http://nepis.epa.gov/>).

"Methods for the Determination of Organic and Inorganic Compounds in Drinking Water: Volume I," EPA 815-R-00-014 (August 2000) (available on-line at <http://nepis.epa.gov/>).

"Practical Guide for Ground-Water Sampling," EPA Publication No. EPA/600/2-85/104 (September 1985), Doc. No. PB 86-137304,

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA Publication No. SW-846, as amended by Updates I, II, IIA, IIB,

III, IIIA, and IIIB (Doc. No. 955-001-00000-1), (available on-line at <http://www.epa.gov/epaoswer/hazwaste/test/main.htm>).

USEPA, NSCEP. United States Environmental Protection Agency, National Service Center for Environmental Publications, P.O. Box 42419, Cincinnati, OH 45242-0419 (accessible on-line and available by download from <http://www.epa.gov/nscep/>).

2009 Unified Guidance. "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities—Unified Guidance," March 2009, EPA 530/R-09-2007.

USGS. United States Geological Survey, 1961 Stout St., Denver CO 80294, (303) 844-4169.

"Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents," Book I, Chapter D2 (1976).

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

Section 841.125 Groundwater Quality Standards

The owner or operator shall comply with the groundwater standards in 35 Ill. Adm. Code 620, including the corrective action process in 35 Ill. Adm. Code 620.250. Compliance shall be measured at the compliance point, or compliance points if more than one compliance point exists. The number and kinds of samples collected to establish compliance must be appropriate for the form of statistical test employed, as prescribed in Section 841.225 of this Part and the 2009 Unified Guidance, incorporated by reference in Section 841.120 of this Part.

Section 841.130 Compliance Period

The compliance period begins when the unit first receives coal combustion waste, or leachate from coal combustion waste, or one year after the effective date of this rule, whichever occurs later, and ends when the post-closure care period ends. The post-closure care period for a unit is the time period described in Section 841.440(a) of this Part. The owner or operator shall conduct a hydrogeologic site characterization, establish background values, develop a groundwater monitoring system, and groundwater monitoring plan before the compliance period begins. If the owner or operator wishes to use previous site investigations or characterization, plans or programs to satisfy the requirements of this Part pursuant to Section 841.145, the owner or operator must submit the previous investigations, characterizations, plans or programs to the Agency for approval of this Part before the compliance period begins.

Section 841.135 Recordkeeping

- a) The owner or operator of the unit must maintain paper copies of the following on-site:
 - 1) groundwater monitoring plan;
 - 2) all monitoring data, including inspection reports, for 10 years following generation of the data;
 - 3) corrective action plan, until completion of the corrective action;
 - 4) corrective action report for 10 years following Agency approval of the report;
 - 5) closure plan until the end of the post-closure period;
 - 6) closure report for 10 years following Agency approval of the report;
 - 7) post-closure care plan for 10 years following the certification of the post-closure report;
 - 8) post-closure report for 10 years following Agency approval of the report; and
 - 9) any CQA reports for 2 years following the completion of the construction.
- b) All information required to be maintained by an owner or operator under this Part must be made available to the Agency upon request for inspection and photocopying during normal business hours.

Section 841.140 Submission of Plans, Reports and Notifications

- a) All reports, plans, modifications and notifications required under this Part to be submitted to the Agency must be submitted in writing to the Bureau of Water, Division of Public Water Supplies, Attn: Hydrogeology and Compliance Unit, 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 or electronically as authorized by the Agency.
- b) Whenever any of the following documents are submitted to the Agency, the document must contain the seal and signature of either a professional engineer or professional geologist.
 - 1) hydrogeologic site characterization;
 - 2) groundwater monitoring system; and
 - 3) groundwater monitoring plan;

- c) Whenever any of the following documents are submitted to the Agency, the document must contain the seal and signature of a professional engineer.
 - 1) corrective action plan, corrective action report and corrective action certification;
 - 2) closure plan, closure report and closure certification; and
 - 3) post-closure care plan, post-closure report and post-closure certification.

Section 841.145 Previous Investigations, Plans and Programs

The Agency may approve the use of any hydrogeologic site investigation or characterization, groundwater monitoring well or system, groundwater monitoring plan, groundwater management zone or preventive response plan, compliance commitment agreement, or court or Board order existing prior to the effective date of these rules to satisfy the requirements of this Part.

Section 841.150 Modification of Existing Permits

The owner or operator of the unit must submit to the Agency an application to revise any state operating permits or NPDES permits issued by the Agency as necessary as a result of preventive response, corrective action, or closure under this Part.

Section 841.155 Construction Quality Assurance Program

- a) The following components of a preventive response plan pursuant to Subpart B of this Part, a corrective action plan pursuant to Subpart C of this Part and a closure plan pursuant to Subpart D of this Part must be constructed according to a CQA program, if applicable:
 - 1) Installation of the groundwater collection system and discharge system;
 - 2) Compaction of the final cover system subgrade and foundation to design parameters;
 - 3) Application of final cover, including installation of the geomembrane; and
 - 4) Construction of ponds, ditches, lagoons and berms.
- b) The CQA program must meet the following requirements, if applicable:
 - 1) The operator must designate a CQA officer who is an Illinois licensed 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 unit shall retain all weekly summary reports approved by the CQA officer pursuant to Section 841.135 of this Part.
- 3) The CQA officer must certify the following, when applicable:
 - A) the bedding material contains no undesirable objects;
 - B) the preventive response, closure plan or corrective action plan 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) the groundwater collection system is constructed to intersect the water table;
 - G) a 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;
 - I) proper filter material consisting of uniform granular fill, to avoid clogging, is used in construction; and
 - 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.
- 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;
 - C) Installation of the groundwater collection system and discharge system; and
 - D) Construction of ponds, ditches, lagoons and berms.
- 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:
 - i) the reasons for his or her absence;
 - ii) a designation of a person who must exercise professional judgment in carrying out the duties of the CQA officer-in-absentia;
 - iii) 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.

Section 841.160 Photographs

When photographs are used to document the progress and acceptability of work performed under this Part, each photograph shall be identified with the following information:

- a) the date, time and location of photograph;
- b) the name of photographer; and
- c) the signature of photographer.

Section 841.165 Public Notice

- a) The Agency shall post all proposed corrective action plans and closure plans, or modifications thereto, on the Agency's webpage for a period not shorter than 30 days.
- b) The Agency shall accept written comments for a period of 30 days beginning on the day the proposed corrective action or closure plan, or modification thereto, was posted on the Agency's webpage.
- c) While the Agency may respond to the comments received pursuant to subsection (b) of this Section, such response is not required.
- d) The Agency shall take any comments received into consideration in making its final decision and shall post its final decisions on the proposed corrective action plans and closure plans, or modifications thereto, on the Agency's webpage for a period not shorter than 30 days.

SUBPART B: MONITORING

Section 841.200 Hydrogeologic Site Characterization

- a) The owner or operator of any unit must design and implement a hydrogeologic site characterization to determine the nature and extent of the stratigraphic horizons that are potential contamination migration pathways, and to develop hydrogeologic information for the uses set forth in this Section.
- b) The uses of the hydrogeologic site characterization shall include, but not be limited to:
 - 1) Providing information to define hydrogeology, including a map of the potentiometric surface and background groundwater quality concentrations, and to assess whether there are any impacts to groundwater quality attributable to any releases from the unit;
 - 2) Providing information to establish a groundwater monitoring system; and
 - 3) Providing information to develop and perform modeling to assess possible changes and benefits of potential groundwater impact mitigation alternatives.

Section 841.205 Groundwater Monitoring System

- a) The owner or operator of a unit must develop and submit a proposal for a groundwater monitoring system as a part of the groundwater monitoring plan required by Section 841.210 of this Part. If the site contains more than one unit, separate groundwater monitoring systems are not required for each unit, provided

that provisions for sampling the groundwater will enable detection and measurements of contaminants that enter the groundwater from all units.

- b) Standards for monitoring well design and construction.
 - 1) All monitoring wells must be cased in a manner that maintains the integrity of the bore holes.
 - 2) Wells must be screened to allow sampling only at a specified interval.
 - 3) All wells must be covered with vented caps, unless located in flood-prone areas, and equipped with devices to protect against tampering and damage.
- c) The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples to:
 - 1) represent the background quality of groundwater that has not been affected by the unit;
 - 2) represent the quality of groundwater at the compliance point or points;
 - 3) determine compliance with applicable groundwater quality standards in 35 Ill. Adm. Code Part 620; and
 - 4) distinguish between chemical constituent concentrations attributable to a regulated unit and other activities.
- d) Monitoring wells must be located in stratigraphic horizons that are potential contamination migration pathways.
- e) The groundwater monitoring system must be approved by the Agency pursuant to Subpart E of this Part as a part of the groundwater monitoring plan.

Section 841.210 Groundwater Monitoring Plan

- a) The owner or operator of a unit must develop a groundwater monitoring plan to monitor and evaluate groundwater quality to demonstrate compliance with the groundwater quality standards in 35 Ill. Adm. Code Part 620, and to determine the full extent, measured or modeled, of the presence of any contaminant monitored pursuant to Section 841.215 of this Part above background concentrations, if any.
- b) The groundwater monitoring plan must contain the following:
 - 1) A groundwater monitoring quality assurance program for sample collection, preservation and analysis.

- 2) A site map that identifies the following:
 - A) all the units located at the site;
 - B) all existing and proposed groundwater monitoring wells;
 - C) all buildings and pertinent features; and
 - D) other information if requested by the Agency.
- 3) A description of the unit(s), including but not limited to:
 - A) the date each unit began operation;
 - B) a description of the contents of each unit, specifying, to the extent practicable and where such information is available:
 - i) the date when each unit began receiving coal combustion waste, or leachate from coal combustion waste;
 - ii) changes in the coal source (e.g. Powder River Basin versus Illinois Basin) including dates and/or tons of material from each coal source;
 - iii) changes in the type of coal combustion waste, or leachate deposited (e.g. fly ash versus flue gas desulfurization sludge) including dates and/or tons of each material deposited; and
 - iv) if applicable, the date when the unit stopped receiving coal combustion waste or leachate.
 - C) the estimated volume of material contained in each unit; and
 - D) a description of the engineered liner, if any, including the date of installation for each unit.
- 4) A description and results of all hydrogeologic site characterizations performed at the site.
- 5) Plans, specifications, and drawings for the groundwater monitoring system developed pursuant to Section 841.205 of this Part.
- 6) A maintenance plan for the groundwater monitoring system.

- 7) An explanation of sample size, sample procedure and statistical method used to determine background, assessment monitoring and compliance monitoring.
 - 8) The location of compliance points.
 - 9) A schedule for submission of annual reports pursuant to Section 841.235 of this Part.
- c) Representative samples from the groundwater monitoring system must be collected and analyzed in accordance with the procedures for groundwater monitoring and analysis set forth in the following documents, incorporated by reference at Section 841.120 of this Part, or other procedures approved by the Agency in the groundwater monitoring program plan:
- 1) "Methods for Chemical Analysis of Water and Wastes";
 - 2) "Methods for the Determination of Inorganic Substances in Environmental Samples";
 - 3) "Methods for the Determination of Metals in Environmental Samples";
 - 4) "Methods for the Determination of Metals in Environmental Samples – Supplement I";
 - 5) "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water: Volume I";
 - 6) "Practical Guide for Ground-Water Sampling";
 - 7) "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (SW-846), as amended by Updates I, II, IIA, IIB, III, IIIA, and IIIB;
 - 8) "Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents";
 - 9) "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities—Unified Guidance."
- d) Sampling and analysis data from groundwater monitoring must be reported to the Agency within 60 days after completion of sampling.
- e) All groundwater samples taken pursuant to this Section must be analyzed for the chemical constituents listed in Section 841.215 of this Part by a certified laboratory.

- f) The groundwater monitoring plan and any modifications to the groundwater monitoring plan must be approved by the Agency pursuant to Subpart E of this Part.

Section 841.215 Chemical Constituents and Other Data to Be Monitored

The owner or operator of a unit shall monitor for all chemical constituents identified in 35 Ill. Adm. Code 620.410(a) and (e) except radium-226 and radium-228. Field parameters of specific conductance, groundwater elevation, monitoring well depth and field pH must be determined and recorded with the collection of each sample, and does not need to be analyzed by a certified laboratory.

Section 841.220 Determining Background Values

- a) The owner or operator of a unit must determine the background values of the chemical constituents to be monitored pursuant to Section 841.215 of this Part and must submit the background value determination with the annual statistical analysis pursuant to Section 841.235 of this Part.
- b) The number and kinds of samples collected to establish background must be appropriate for the type of statistical test employed, as prescribed in Section 841.225 of this Part and the 2009 Unified Guidance, incorporated by reference in Section 841.120 of this Part.
- b) Where wells up-gradient of the unit could be affected by activities at the site, the owner or operator may, with Agency approval, use the intrawell statistical method as specified in the 2009 Unified Guidance to determine background values.
- c) The owner or operator shall recalculate background chemical constituent concentrations consistent with the recommendations contained in the 2009 Unified Guidance, but no less often than every five years.

Section 841.225 Statistical Methods

- a) When determining background values and when conducting compliance or assessment monitoring, the owner or operator of the unit must specify one or more of the following statistical methods to be used. The statistical test chosen must be conducted separately for each monitored chemical constituent in each well. Where PQLs are used in any of the following statistical procedures to comply with subsection (b)(5) of this Section, the PQL must be proposed by the owner or operator and approved by the Agency. Use of any of the following statistical methods must adequately protect human health and the environment and must comply with the performance standards outlined in subsection (b) of this Section.

- 1) A parametric analysis of variance followed by multiple comparisons procedures to identify statistically significant evidence of contamination.
 - 2) An analysis of variance based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination.
 - 3) A tolerance or prediction interval procedure in which an interval for each chemical constituent is established from the distribution of the background data, and the level of each chemical constituent in each compliance well is compared to the upper tolerance or prediction limit. In the case of pH, the upper and lower limits shall be considered.
 - 4) A control chart approach that gives control limits for each chemical constituent.
 - 5) Another statistical test method submitted by the owner or operator and approved by the Agency.
- b) Any statistical method chosen pursuant to subsection (a) of this Section must comply with the following performance standards, as appropriate:
- 1) The statistical method used to evaluate groundwater monitoring data must be appropriate for the distribution of chemical constituent concentrations. If the distribution of the chemical constituent concentrations is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the chemical constituent concentrations differ, more than one statistical method may be needed.
 - 2) If an individual well comparison procedure is used to compare an individual compliance well chemical constituent concentration with background chemical constituent concentrations, the test must be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment-wise error rate for each testing period must be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals or control charts.
 - 3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter value must be proposed by the owner or operator and may be approved by the Agency if the Agency finds it to adequately protect human health and the environment.

- 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, must be proposed by the owner or operator and may be approved by the Agency if the Agency finds these parameters to adequately protect human health and the environment. These parameters will be determined after considering the number of samples in the background database, the data distribution, and the range of the concentration values for each constituent of concern.
 - 5) The statistical method must account for data below the limit of detection with one or more statistical procedures that adequately protect human health and the environment. Any PQL approved by the Agency pursuant to subsection (a) of this Section that is used in the statistical method must be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.
 - 6) The statistical method must include procedures to control or correct for seasonal and spatial variability, as well as temporal correlation in the data.
- c) **Sample Size:** The sample size must be as large as necessary to ensure with reasonable confidence that a contaminant release to groundwater from a facility will be detected.

Section 841.230 Sampling Frequency

- a) **Semi-Annual Monitoring.** All chemical constituents monitored pursuant to this Part shall be sampled at least semi-annually if allowed by the statistical method selected pursuant to Section 841.225 of this Part.
- b) **Quarterly Monitoring.** In addition to semi-annual monitoring required under subsection (a) of this Section, the following shall apply:
 - 1) If any chemical constituents monitored pursuant to this Part exceed the standards set forth in 35 Ill. Adm. Code 620.Subpart D the owner or operator shall sample each well on a quarterly basis for those chemical constituents that exceed the standards in 35 Ill. Adm. Code 620.Subpart D.
 - 2) Pursuant to Section 841.235(c)(2) of this Part, when a unit(s) may be the cause of a statistically significant increasing concentration, the owner or operator shall sample each well on a quarterly basis for any chemical constituents with a statistically significant increasing concentration.
 - 3) If any chemical constituents monitored pursuant to this Part have a concentration that differs to a statistically significant degree from the

concentrations detected in the up-gradient wells, the owner or operator shall sample each well on a quarterly basis for those chemical constituents that differ to a statistically significant degree.

- c) Reduction of Quarterly Monitoring. Any owner or operator of a unit conducting quarterly sampling pursuant to subsection (b) of this Section may reduce the quarterly sampling to semi-annual sampling when:
 - 1) the monitored chemical constituent is not detectable in the down-gradient wells for four consecutive quarters;
 - 2) the monitored chemical constituent has a concentration that does not differ to a statistically significant degree from the concentration detected in the up-gradient wells for four consecutive quarters; or
 - 3) the Agency has approved the owner or operator's alternative cause demonstration pursuant to Sections 841.305 or 841.235(c)(1) of this Part.
- d) The owner or operator of the unit must modify the groundwater monitoring plan and obtain Agency approval pursuant to Subpart E of this Part before reducing monitoring.
- e) The owner or operator of a unit may discontinue groundwater monitoring upon Agency approval of the certified post-closure report for that unit required by Section 841.440 of this Part.

Section 841.235 Annual Statistical Analysis

- a) The owner or operator of a unit must perform an annual statistical analysis using the appropriate statistical method pursuant to Section 841.225 of this Part for each monitoring well located down-gradient of any unit for all chemical constituents monitored in accordance with Section 841.215 of this Part.
- b) When a chemical constituent monitored pursuant to Section 841.215 of this Part does not exceed the numerical groundwater standards in 35 Ill. Adm. Code 620, the annual statistical analysis shall determine whether any increase of the chemical constituent's concentration is statistically significant.
- c) If the increase is statistically significant, the owner or operator of the unit must investigate the cause.
 - 1) If an investigation attributes a statistically significant increasing concentration to an alternate cause, the owner or operator must notify the Agency in writing within 60 days after submission of the annual statistical analysis, stating the cause of the increasing concentration and providing the rationale used in that determination. The procedures in Section

841.305 of this Part shall apply to the alternative cause demonstration made pursuant to this subsection.

- 2) If there is not an alternative cause for the statistically significant increasing concentration, then the owner or operator must:
 - A) sample any chemical constituent with statistically significant increasing concentration on a quarterly basis;
 - B) conduct further investigation that includes groundwater flow and contaminant transport modeling when the unit is located over Class I groundwater under 35 Ill. Adm. Code 620.210(a)(1), (a)(2), or (a)(3), or Class III groundwater under 35 Ill. Adm. Code 620.230;
 - C) determine whether the statistically significant increasing concentration demonstrates that a release attributable to the unit threatens a resource groundwater such that:
 - i) Treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater; or
 - ii) An existing or potential use of such groundwater is precluded; and
 - D) notify the Agency in writing of the findings within 30 days of making the determinations.
- 3) When the owner or operator determines pursuant to subsection (c)(2)(C) of this Section that release attributable to a unit causes, threatens or allows an impairment or exclusion of existing or potential use, and the groundwater is Class I groundwater under 35 Ill. Adm. Code 620.210(a)(1), (a)(2), or (a)(3), or Class III groundwater under 35 Ill. Adm. Code 620.230, the owner or operator of the unit shall develop a preventive response plan to control, minimize and prevent migration of any release from the unit to the resource groundwater. This preventive response plan shall:
 - A) be consistent with the requirements of 35 Ill. Adm. Code 620.310;
 - B) be submitted to the Agency within 180 days after the submission of the annual statistical analysis; and
 - C) require the owner or operator to conduct a hydrogeologic investigation or additional site investigation if the statistically

significant increasing concentration continues over a period of two or more consecutive years.

- D) be approved by the Agency pursuant to Subpart E of this Part.
- d) If a groundwater management zone is established pursuant to 35 Ill. Adm. Code 620.250, the annual statistical analysis shall be conducted as set forth in the groundwater management zone or as otherwise approved by the Agency.
- e) The annual statistical analysis shall be submitted to the Agency in accordance with a schedule approved by the Agency in the groundwater monitoring plan pursuant to Section 841.210 of this Part.

Section 841.240 Inspection

- a) While a unit is in operation, it must be inspected at least once every seven days and after each storm to detect evidence of any of the following:
 - 1) Deterioration, malfunctions or improper operation of overtopping control systems;
 - 2) Sudden drops in the level of the unit's contents;
 - 3) Severe erosion (eg. rills, gullies, and crevices six inches or deeper) or other signs of deterioration (eg. failed or eroded vegetation in excess of 100 square feet or cracks) in dikes or other containment devices; and
 - 4) A visible leak.
- b) The owner or operator shall prepare a report for each inspection which includes the date of the inspection, condition of the unit, any repairs made to the unit and the date of the repair and shall maintain a record of such reports pursuant to Section 841.135 of this Part.
- c) The owner or operator shall notify the Agency when a visual inspection shows the level of liquids in the unit suddenly and unexpectedly drops and the drop is not caused by changes in the influent or effluent flows.

SUBPART C: CORRECTIVE ACTION

Section 841.300 Confirmation Sampling

- a) If the results of groundwater monitoring conducted pursuant to this Part show an exceedence of the groundwater quality standards in 35 Ill. Adm. Code 620 at the compliance point(s), the owner or operator shall confirm the detection by resampling the monitoring well or wells. This resampling shall be analyzed for each chemical constituent exceeding the groundwater quality standards in the first

sample. The confirmation sampling results must be submitted to the Agency within 30 days after the date on which the original sample analysis was submitted to the Agency pursuant to Section 841.210(d) of this Part.

- b) If confirmation sampling confirms the detection of concentrations above any groundwater quality standard, the owner or operator shall:
 - 1) submit to the Agency an alternative cause demonstration pursuant to Section 841.305 of this Part that shows the exceedence of the groundwater quality standard at a compliance point is not attributable to a release from a unit or units on-site;
 - 2) submit to the Agency a corrective action plan as provided in Section 841.310 of this Part; or
 - 3) submit to the Agency a closure plan as provided in Subpart D of this Part.
- c) When an exceedence of the groundwater quality standards has been confirmed, the owner or operator must notify the Agency of the owner or operator's intended action pursuant to subsection (b) of this Section. This notification must indicate in which wells and for which chemical constituents a groundwater standard has been exceeded, and must be submitted within 30 days after submitting the confirmation sample results.

Section 841.305 Alternative Cause Demonstration

An owner or operator may demonstrate that an exceedence of a groundwater quality standard confirmed at a compliance point is not attributable to a release from a unit. A release is not attributable to a unit when any exceedence is due to error in sampling, analysis or evaluation, any exceedence is due to natural causes, or any exceedence is due to a source other than the unit.

- a) In making such demonstration, the owner or operator shall submit a report to the Agency that demonstrates an alternative cause within 180 days after the date of submission of the confirmation samples pursuant to Section 841.300 of this Part.
- b) The Agency shall provide a written response within 90 days to the owner or operator based upon the written demonstration and any other relevant information submitted by the owner or operator that specifies either:
 - 1) Concurrence with the written demonstration; or
 - 2) Non-concurrence with the written demonstration and the reasons for non-concurrence.
- c) An owner or operator who receives a written response of non-concurrence pursuant to subsection (b) shall

- 1) submit a corrective action plan in accordance with the requirements of this Subpart or a closure plan in accordance with the requirements of Subpart D of this Part within 90 days of the day the Agency's non-concurrence was mailed to the owner or operator; or
- 2) appeal the Agency's decision of non-concurrence to the Board within 35 days of the day the Agency's non-concurrence was mailed to the owner or operator.

Section 841.310 Corrective Action Plan

Whenever any applicable groundwater quality standards under 35 Ill. Adm. Code 620.Subpart D are exceeded, this exceedence is confirmed pursuant to Section 841.300 of this Part, the owner or operator has not made an alternative cause demonstration pursuant to Section 841.305 of this Part, and the owner or operator does not elect to close the unit(s), the owner or operator shall undertake the following corrective action:

- a) Sample and analyze on a quarterly basis according to the provisions of Section 841.230(b) of this Part.
- b) If a release from a unit has impacted a potable water supply well that is in use, the owner or operator of the unit shall act to replace the water supply with a supply of equal or better quality and quantity within 30 days of discovering that such impact has occurred. For the purposes of this Section, a potable water supply well is impacted if the concentration of any chemical constituent monitored pursuant to this Part exceeds the groundwater quality standards in 35 Ill. Adm. Code 620.Subpart D within the well's setback zone.
- c) The owner or operator shall take corrective action that results in compliance with the groundwater quality standards.
- d) The owner or operator shall submit a corrective action plan within 180 days after submission of confirmation sampling results. This requirement is waived if no groundwater quality standard is exceeded in the samples taken pursuant to subsection (a) of this Section for two consecutive quarters.
- e) The corrective action plan must contain the following:
 - 1) description of the activities to be performed at the site, in accordance with the requirements of this Part, to mitigate the groundwater quality standard exceedence;
 - 2) proposed plans, specifications, and drawings for the proposed corrective action;

- 3) proposed timeline for implementation and completion of all proposed corrective actions;
 - 4) a copy of the following plans and investigations:
 - A) groundwater monitoring plan required pursuant to Section 841.210 of this Part,
 - B) hydrogeologic site characterization required by Section 841.200 of this Part and any other hydrogeological site investigation performed under this Part; and
 - C) a copy of the most recent annual statistical analysis required by Section 841.235 of this Part;
 - 6) estimates of the cost of the corrective action;
 - 7) a proposal for a GMZ as set forth in 35 Ill. Adm. Code 620.250, if applicable, including but not limited to groundwater modeling results and supporting documentation;
 - 8) description of the CQA program required by Section 841.155 of this Part.
 - 9) description of institutional controls prohibiting potable uses, if applicable, and copies of the instruments achieving those controls.;
 - 10) an evaluation of the effects of a cover, when requested by the Agency;
 - 11) description of any preventive response plan developed pursuant to Section 841.235 of this Part or 35 Ill. Adm. Code 620.230, if applicable, including, but not limited to, plans, specifications, and drawings for any structures or devices that were constructed; and
 - 12) the signature and seal of the professional engineer supervising the preparation of the corrective action plan.
- f) The Agency may request additional information from the owner or operator when necessary to evaluate the proposed corrective action plan.
- g) Upon Agency approval of the corrective action plan, an owner or operator shall implement corrective action in accordance with the timelines approved in the corrective action plan, and shall provide annual progress reports to the Agency regarding implementation of the corrective action plan.

- h) The owner or operator shall continue corrective action measures to the extent necessary to ensure that no groundwater quality standard is exceeded at the compliance point or points.
- i) If the owner or operator determines that the corrective action program no longer satisfies the requirements of this Section, the owner or operator shall, within 90 days of that determination, submit a modification of the corrective action plan to the Agency.
- j) The Agency shall review the corrective action plan, and any modifications, according to the provisions of Subpart E of this Part.

Section 841.315 Groundwater Collection System

- a) A groundwater collection system includes, but is not limited to, recovery wells, trenches, sumps or piping.
- b) When the corrective action plan includes the use of a groundwater collection system, the owner or operator must:
 - 1) include plans for the groundwater collection system, including, but not limited to, a plan for operation and maintenance, which must be approved by the Agency in the corrective action plan.
 - 2) construct the groundwater collection system in accordance with a CQA program that meets the requirements of Section 841.155 of this Part.
- c) Once compliance with the groundwater quality standards set forth in 35 Ill. Adm. Code 620 or in the groundwater management zone established pursuant to 35 Ill. Adm. Code 620.250 have been achieved, the owner or operator of the unit may discontinue operation of the groundwater collection system.
 - 1) Upon discontinuing operation of the groundwater collection system, the owner or operator must perform four quarterly samples of the groundwater monitoring system wells to ensure compliance with the applicable groundwater quality standards.
 - 2) Results of the four quarterly samples must be included in the corrective action report documentation under Section 841.325. If compliance is not confirmed, operation of the groundwater collection system and discharge system must be resumed, and the owner or operator must notify the Agency.

Section 841.320 Groundwater Discharge System

When the corrective plan includes the use of a groundwater discharge system:

- a) Water discharged to waters of the United States must be discharged in accordance with an NPDES Permit.
- b) The groundwater discharge system must be constructed according to a CQA program that meets the requirements of Section 841.155 of this Part.
- c) Plans for the groundwater discharge system, including, but not limited to, a plan for operation and maintenance, must be approved by the Agency in the corrective action plan.

Section 841.325 Corrective Action Report and Certification

- a) No later than 90 days after the completion of all corrective actions contained in the corrective action plan approved by the Agency, the owner or operator must prepare and submit a corrective action report and corrective action certification for Agency review and approval.
- b) The corrective action report also must contain supporting documentation, including, but not limited to:
 - 1) Engineering and hydrogeology reports, including, but not limited to, monitoring well completion reports and boring logs, all CQA reports, certifications, and designations of CQA officers-in-absentia required by Section 841.155 of this Part;
 - 2) Photographs of construction activities;
 - 3) A written summary of corrective action requirements and activities as set forth in the corrective action plan and this Part; and
 - 4) Any other information relied upon by the professional engineer in making the corrective action certification.
 - 5) The signature and seal of the professional engineer supervising the implementation of the corrective action plan, and the preparation of the corrective action report.
- c) The corrective action certification must be made on forms prescribed by the Agency and must contain a certification by a professional engineer that the release attributable to the unit has been mitigated in accordance with the approved corrective action plan required by Section 841.310 of this Part and the requirements of this Part. The certification must be signed by the owner or operator and by the certifying registered professional engineer.

SUBPART D: CLOSURE

Section 841.400 Surface Impoundment Closure

- a) All units shall be closed in a manner that:
 - 1) Controls, minimizes or eliminates releases from the unit; and
 - 2) Minimizes the need for maintenance during and beyond the post-closure care period;
- b) If closure is to be by removal of all impounded coal combustion waste, and leachate from coal combustion waste, the owner or operator shall remove all coal combustion waste, as well as containment system components (liners, etc). All coal combustion waste must be properly disposed unless beneficially reused.
- c) If closure is not to be by removal of all impounded coal combustion waste and leachate from coal combustion waste, the owner or operator shall:
 - 1) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues.
 - 2) Stabilize remaining wastes to a bearing capacity sufficient to support final cover.
 - 3) Cover the unit with a final cover designed and constructed to meet the requirements of Section 841.420 of this Part.

Section 841.405 Closure Prioritization

- a) Whenever any applicable groundwater standards under 35 Ill. Adm. Code 620.Subpart D are exceeded, this exceedence is confirmed pursuant to Section 841.300 of this Part, the owner and operator has not made an alternative cause demonstration pursuant to Section 841.305 of this Part, and the owner or operator elects to close the unit(s), the owner or operator shall close the unit according to the following schedule:
 - 1) Category 1: Impact to Existing Potable Water Supply
 - A) Category 1 applies where an existing potable water supply well is impacted by a release attributable to the unit. An existing potable water supply is impacted if the level of a contaminant attributable to a release from the unit exceeds an applicable groundwater standard in 35 Ill. Adm. Code 620.Subpart D within the setback of an existing potable water supply well.

- B) If the unit 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 unit 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.
 - C) If Category 1 applies, the owner or operator shall submit a closure plan to the Agency that meets Section 841.410 of this Part within 180 days from the submission of groundwater monitoring results confirming the impact. The unit shall be closed within two years of the Agency's approval of the closure plan, unless the Agency approves a longer timeline.
- 2) Category 2: Inactive Unit
- A) Unless Category 1 or 4 apply, Category 2 applies where the unit is inactive. For the purposes of this Part, a unit is considered inactive if it has not received coal combustion waste, or leachate from coal combustion waste within the most recent period of eighteen months.
 - B) If the unit is inactive, a closure plan must be submitted to the Agency within 180 days from the submission of groundwater monitoring results confirming an exceedence of the applicable groundwater quality standards attributable to a release from a unit at an approved compliance point. The unit shall be closed within five years of the Agency's approval of the closure plan, unless the Agency approves a longer timeline.
- 3) Category 3: Active Unit
- A) Unless Category 1 or 4 apply, Category 3 applies where the unit is active. For the purposes of this Part, a unit is considered active if it has received coal combustion waste, or leachate from coal combustion waste within the most recent period of eighteen months.
 - B) If the unit is active, a closure plan must be submitted to the Agency within 2 years from the submission of groundwater monitoring results confirming an exceedence of the applicable groundwater quality standards attributable to a release from a unit at an approved compliance point. The unit shall be closed within five years of the Agency's approval of the closure plan, unless the Agency approves a longer timeline.

- 4) Category 4: Class IV Groundwater
 - A) Unless Category 1 applies, Category 4 applies where the unit is located on a site that has been characterized as Class IV groundwater beyond a lateral distance of 25 feet from the edge of the unit.
 - B) If the unit is located in a Class IV groundwater area, a closure plan must be submitted to the Agency within three years from the submission of groundwater monitoring results confirming an exceedence of the applicable groundwater quality standards attributable to a release from a unit at an approved compliance point. The unit shall be closed within six years of the Agency's approval of the closure plan, unless the Agency approves a longer timeline.
- b) Whenever the applicable groundwater standards under 35 Ill. Adm. Code 620.Subpart D are not exceeded and the owner or operator elects to close the unit, the closure schedule shall be determined by the owner or operator and approved by the Agency in the closure plan.

Section 841.410 Closure Plan

Before a unit may be closed, the owner or operator must submit a closure plan to the Agency for review and approval.

- a) The closure plan must contain, at a minimum, the following information or documents:
 - 1) description of the closure activities to be performed in accordance with this Part and any additional activities performed by the owner or operator with regards to closing the unit, including any dewatering;
 - 2) proposed plans, specifications and drawings for the closure of the unit, which may include but are not limited to the following illustrative measures:
 - A) the groundwater collection system and discharge system, if applicable, set forth in Sections 841.315 and 841.320 of this Part;
 - B) the final slope design and construction and demonstration of compliance with the stability criteria required in Section 841.415 of this Part;
 - C) the final cover system required by Section 841.420 of this Part;

- D) containment using a low permeability vertical barrier; and
 - E) other remedial measures approved by the Agency;
- 3) evaluation of alternatives to the proposed closure activities, when requested by the Agency.
 - 4) proposed timeline for implementation and completion of all proposed closure activities, including an estimate of the time required for hydrostatic equilibrium of groundwater beneath the unit.
 - 5) estimates of the cost of closure and post-closure care;
 - 6) a copy of the following plans and investigations:
 - A) groundwater monitoring plan required pursuant to Section 841.210 of this Part,
 - B) hydrogeologic site characterization required by Section 841.200 of this Part and any other hydrogeological site investigation performed under this Part; and
 - C) a copy of the most recent annual statistical analysis required by Section 841.235 of this Part;
 - 7) a proposal for a GMZ as set forth in 35 Ill. Adm. Code 620.250, if applicable, and including, but not limited to, plans, specifications, drawings for any structures or devices that must be constructed, and groundwater modeling results and supporting documentation where appropriate;
 - 8) description of the CQA program required by Section 841.155 of this Part.
 - 9) description of institutional controls prohibiting potable uses, if applicable, and copies of the instruments achieving those controls;
 - 10) description of previous preventive response plan developed pursuant to Section 841.235 of this Part or 35 Ill. Adm. Code 620.230, or corrective action pursuant to Subpart C of this Part or 35 Ill. Adm. Code 620.250, if applicable, including, but not limited to, plans, specifications, and drawings for any structures or devices that were constructed; and
 - 11) the signature and seal of the professional engineer supervising the preparation of the closure plan.

- b) The Agency may request additional information from the owner or operator when necessary to evaluate the proposed closure plan.

Section 841.415 Final Slope and Stabilization

When closure is not by removal of all coal combustion waste or leachate from coal combustion waste:

- a) All final slopes must be designed and constructed to achieve a minimum static slope safety factor of 1.5 and a minimum seismic safety factor of 1.3, and a grade capable of supporting vegetation and minimizing erosion.
- b) All slopes must be designed to drain runoff away from the cover and to prevent ponding, unless otherwise approved by the Agency.
- c) The unit must meet the stability criteria of 35 Ill. Adm. Code 811.304.
- d) The owner or operator may use coal combustion waste generated at the site in establishing the final grade and slope as provided below:
 - 1) The earthen berms surrounding the unit must be regraded to eliminate any freeboard between the top of the berm and the adjacent surface of the coal combustion waste, unless otherwise approved by the Agency.
 - 2) Additional coal combustion waste may be placed only directly on top of coal combustion waste that is already in place;

Section 841.420 Final Cover System

- a) When the unit is closed by means other than removal of all coal combustion waste, the owner or operator shall design and install a final cover system for the unit. The final cover must be designed and constructed to:
 - 1) Provide long-term minimization of the migration of liquids through the closed impoundment unit;
 - 2) Function with minimum maintenance;
 - 3) Promote drainage and minimize erosion or abrasion of the final cover; and
 - 4) Accommodate settling and subsidence so that the cover's integrity is maintained.
- b) The final cover system must consist of a low permeability layer and a final protective layer.

- 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. In the event that there is no bottom liner present, the cover shall have a permeability of less than or equal to 1×10^{-7} cm/sec. The low permeability layer must be constructed in accordance with the following standards in either subsections (b)(1)(A) or (b)(2)(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 (b)(1)(A) or (b)(2)(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 permeability of 1×10^{-7} centimeters per second 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} centimeters per second.
 - ii) The geomembrane must have strength to withstand the normal stresses imposed by the waste stabilization process.
 - 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, unless otherwise approved by the Agency, meet the following requirements:
 - 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.
 - E) Be covered with vegetation to minimize wind and water erosion.
- 3) CQA Program. The final cover system must be constructed according to a CQA program that meets the requirements of Section 841.155 of this Part.

Section 841.425 Closure Report and Certification

- a) No later than 90 days after the completion of all closure activities required by this Part and approved in the closure plan, the owner or operator of the unit must prepare and submit to the Agency a closure report and a closure certification for review and approval.
- b) The closure report must contain supporting documentation, including, but not limited to:
 - 1) Engineering and hydrogeology reports, including, but not limited to, monitoring well completion reports and boring logs, all CQA reports, certifications, and designations of CQA officers-in-absentia required by Section 841.155 of this Part;
 - 2) Photographs of the final cover system and groundwater collection system, if applicable, and any other photographs relied upon to document construction activities;
 - 3) A written summary of closure requirements and completed activities as set forth in the closure plan and this Part;
 - 4) Any other information relied upon by the professional engineer in making the closure certification; and
 - 5) The signature and seal of the professional engineer supervising the implementation of the closure plan, and the preparation of the closure report.
- c) The closure certification must be made on forms prescribed by the Agency and must contain a certification by a professional engineer that the unit has been closed in accordance with the approved closure plan required by Section 841.410 of this Part and the requirements of this Part. The certification must be signed by the owner or operator and by the certifying registered professional engineer.

Section 841.430 Post-Closure Maintenance of Cover System

If a final cover system is used to close the unit, the owner or operator of the unit must maintain the surface of the cover system beginning immediately after construction until approval of the post-closure report by the Agency.

- a) After closure, and until completion of the post-closure report, the owner or operator of the unit must conduct inspections of the cover system quarterly and after storm events.
- b) The owner or operator of the unit must fill all rills, gullies, and crevices six inches or deeper. Areas identified as particularly susceptible to erosion must be recontoured.
- c) The owner or operator of the unit must repair all eroded and scoured drainage channels and must replace lining material, if necessary.
- d) The owner or operator of the unit must fill and recontour all holes and depressions created by settling so as to prevent standing water.
- e) The owner or operator of the unit must revegetate all areas of failed or eroded vegetation in excess of 100 square feet, cumulative.
- f) The owner or operator of the unit must repair all tears, rips, punctures, and other damage to the geosynthetic membrane.
- g) The owner or operator must prevent the growth of woody species on the protective cover.
- h) Postclosure use of the property must not disturb the integrity of the final cover, liner, any other components of the containment system, or the function of the monitoring systems, unless necessary to comply with the requirements of this Part.
- i) Any disturbance of the final cover, liner or any other components of the containment system, or the function of monitoring systems and post closure use must be approved by the Agency prior to such disturbance or use.

Section 841.435 Post-Closure Care Plan

- a) The owner or operator of the unit must prepare and submit to the Agency a post-closure care plan for review and approval at the same time it submits the closure plan pursuant to Section 841.410 of this Part.
- b) The owner or operator must maintain the post-closure care plan on-site or at a location specified in the post-closure care plan.

- c) The post-closure care plan, or modification of the plan, must include, at a minimum, the following elements:
 - 1) description of the post-closure care activities required by Section 841.430 of this Part;
 - 2) description of the operation and maintenance that will be required for the groundwater collection system and discharge systems, if applicable;
 - 3) the information and documents required in the closure plan pursuant to Section 841.410 of this Part; and
 - 4) a description of the planned uses of the property during the postclosure care period.
 - 5) The signature and seal of the professional engineer supervising the preparation of the post-closure care plan.

Section 841.440 Post-Closure Report and Certification

- a) Post-closure care must continue until
 - 1) compliance with the groundwater quality standards set forth in 35 Ill. Adm. Code 620 or in a groundwater management zone established pursuant to 35 Ill. Adm. Code 620.250; and
 - 2) a minimum of ten years from the Agency's approval of the closure report.
- b) The owner or operator of the unit must prepare and submit to the Agency for review and approval a post-closure report and post-closure certification within 90 days after the post closure period specified in subsection (a) of this Section.
- c) A professional engineer or professional geologist may supervise post-closure care activities as appropriate under the Professional Engineering Practice Act [225 ILCS 325] or the Professional Geologist Licensing Act [225 ILCS 745].
- d) The post-closure report also must contain supporting documentation, including, but not limited to:
 - 1) Engineering and hydrogeology reports, including, but not limited to, documentation of compliance with the applicable groundwater quality standards;
 - 2) Any photographs relied upon to document construction activities, including but not limited to, photographs of the final cover system and groundwater collection system, if applicable;

- 3) A written summary of post-closure care requirements and activities as set forth in the post-closure care plan and their completion;
 - 4) Any other information relied upon by the professional engineer or professional geologist, as appropriate for the activity, in making the post-closure care certifications;
 - 5) The signature and seal of the professional engineer or professional geologist supervising the implementation of the post-closure care plan; and
 - 6) The signature and seal of the professional engineer supervising preparation of the post-closure report.
- e) The post-closure certification must be made on forms prescribed by the Agency and must contain a certification by a professional engineer that the post-closure care period for the unit was performed in accordance with the specifications in the approved post-closure plan required by Section 841.435 of this Part and the requirements set forth in this Part. The certification must be signed by the owner or operator and by the certifying registered professional engineer.

Section 841.445 Closure and Post-Closure Annual Reporting

- a) The owner or operator of the unit must file an annual report with the Agency no later than January 31 of each year during the closure of the unit and for the entire post-closure care period. Once the requirements of Section 841.440 of this Part have been met, annual reports are no longer required.
- b) All annual reports must contain the following information:
 - 1) Annual statistical analyses required by Section 841.235 of all groundwater monitoring data generated by the groundwater monitoring program required by Section 841.210 of this Part;
 - 2) A copy of any notice submitted to the Agency pursuant to Section 841.235(c)(1) of this Part;
 - 3) A discussion of any statistically significant increasing concentrations and actions taken to mitigate such increases in accordance with Section 841.235(c)(3) of this Part; and
 - 4) The completed closure or post-closure activities performed during the preceding year.

Section 841.450 Resource Conservation and Recovery Act

Nothing in this Subpart shall be construed to be less stringent than or inconsistent with the provisions of the federal Resource Conservation and Recovery Act of 1976 (P.L. 94-580), as amended, or regulations adopted under that Act. To the extent that any rules adopted in this Subpart are less stringent than or inconsistent with any portion of RCRA applicable to the closure of a unit, RCRA will prevail.

SUBPART E: AGENCY REVIEW PROCEDURES

Section 841.500 Plan Review, Approval, and Modification

Any plan prepared and submitted to the Agency pursuant to this Part, and any modifications to those plans, must be reviewed and approved by the Agency prior to implementation.

- a) The Agency will have 90 days from the receipt of a plan or proposed modification to conduct a review and make a final determination to approve or disapprove a plan or modification or to approve a plan or modification with conditions.
 - 1) The Agency's record of the date of receipt of a plan or proposed modification to a plan will be deemed conclusive unless a contrary date is proved by a dated, signed receipt from the Agency or certified or registered mail.
 - 2) Submission of an amended plan or amended modification to a plan restarts the time for review.
 - 3) The owner or operator may in writing waive the Agency's decision deadline upon a request from the Agency or at the owner's or operator's discretion.
- b) A proposed modification to any plan must include the reason for the modification, all the information and supporting documentation that will be changed from or will supplement the information provided in the original or most recently approved plan, and the signature and seal of the professional engineer or professional geologist, as appropriate, supervising the preparation of the proposed modification.
- c) When reviewing a plan or modification, the Agency must consider:
 - 1) Whether the plan or modification contains, at a minimum, all the elements required pursuant to this Part and has been accompanied by the information and supporting documentation necessary to evaluate the compliance of the proposed plan relative to the standards and requirements of this Part;

- 2) Whether the activities, structures and devices proposed are in accordance with the applicable standards and requirements of this Part and are otherwise consistent with generally accepted engineering practices and principles of hydrogeology, accepted groundwater modeling practices, appropriate statistical analyses, and appropriate sampling techniques and analytical methods;
 - 3) When reviewing a corrective action plan, closure plan or post closure plan, or modification to any of these plans:
 - A) The likelihood that the plan or modification will result in the containment of the coal combustion waste or leachate from coal combustion waste and the attainment of the applicable groundwater quality standards set forth in 35 Ill. Adm. Code 620.
 - B) The management of risk relative to any remaining contamination, including, but not limited to, provisions for the use of long-term restrictions on the use of groundwater as a potable water supply, if appropriate;
 - 5) Whether the plan or modification contains the required professional signatures and seals.
- d) Upon completion of the review, the Agency must notify the owner or operator in writing of its final determination on the plan or proposed modification. The notification must be post-marked with a date stamp. The Agency's final determination will be deemed to have taken place on the post-marked date that the notice is mailed. If the Agency disapproves a plan or modification or approves a plan or modification with conditions, the written notification must contain the following information, as applicable:
- 1) An explanation of the specific type of information or documentation, if any, that the Agency deems the owner or operator did not provide;
 - 2) A list of the provisions of the Act, this Part, or other applicable regulations that may be violated if the plan or modification is approved as submitted;
 - 3) A statement of the specific reasons why the Act, this Part, or other applicable regulations may be violated if the plan or modification is approved as submitted; and
 - 4) A statement of the reasons for conditions if conditions are required.
- f) If the Agency disapproves a plan or modification, or approves a plan or modification with conditions, the owner or operator may, within 35 days after the post-marked date that the notice is mailed or after the expiration of the review

period specified in subsection (a) of this section, file an appeal with the Board. Appeals to the Board are subject to review under Section 40 of the Act [415 ILCS 5/40]. The Agency's failure to issue a final determination within the applicable review time shall be considered a disapproval of the plan or modification.

Section 841.505 Review and Approval of Reports and Certifications

The corrective action report, certification of corrective action, closure report, certification of closure, post-closure report, and certification of completion of post-closure care prepared and submitted to the Agency in accordance with this Part must be reviewed and approved by the Agency prior to the completion of corrective action, closure, or post-closure care.

- a) Corrective action, closure and post-closure activities will not be deemed complete until the reports are approved by the Agency.
- b) Submission, review, and approval procedures and deadlines, notification requirements, and rights of appeal shall be the same as those set forth in Section 841.500 of this Part.
- c) When reviewing a corrective action report and certification of corrective action, the Agency must consider whether the documentation demonstrates that the activities, structures and devices approved in the corrective action plan have been completed, operated and maintained in accordance with this Part and the approved corrective action plan.
- d) When reviewing a closure report and certification of completion of closure, the Agency must consider whether the documentation demonstrates that the activities, structures and devices approved in the closure plan have been completed in accordance with this Part and the approved closure plan.
- e) When reviewing a post-closure report and certification of completion of post-closure care plan, the Agency must consider whether the documentation demonstrates that the activities, structures and devices approved in the post-closure care plan have been completed, operated and maintained in accordance with this Part and the approved post-closure care plan.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

| | | |
|--------------------------|---|---------------------|
| IN THE MATTER OF: |) | |
| |) | R14- |
| COAL COMBUSTION WASTE |) | |
| SURFACE IMPOUNDMENTS |) | (Rulemaking- Water) |
| AT POWER GENERATING |) | |
| FACILITIES: PROPOSED NEW |) | |
| 35 ILL. ADM. CODE 841 |) | |

MOTION FOR ACCEPTANCE

NOW COMES the Illinois Environmental Protection Agency ("Illinois EPA"), by and through its attorneys, and pursuant to 35 Ill. Adm. Code 102.106, 102.200, and 102.202, moves that the Illinois Pollution Control Board accept for hearing the Illinois EPA's proposal for the adoption of a new 35 Ill. Adm. Code Part 841. This regulatory proposal includes (1) Notice of Filing; (2) Appearance; (3) Statement of Reasons; (4) Technical Support Document and Attachments to the Statement of Reasons; (5) Proposed Regulations; (6) Certificate of Service; and (7) a computer disc containing the Proposed Regulations and Incorporations by Reference.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/Joanne M. Olson
Joanne M. Olson
Assistant Counsel
Division of Legal Counsel

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CERTIFICATE OF SERVICE

Joanne M. Olson, Assistant Counsel for the Illinois EPA, herein certifies that she has served a copy of the foregoing NOTICE OF FILING; APPEARANCE; STATEMENT OF REASONS and ATTACHMENTS; PROPOSED NEW 35 ILL. ADM. CODE PARTS 841; and MOTION FOR ACCEPTANCE upon persons listed on the Service List by mailing, unless otherwise noted on the Service List, a true copy thereof in an envelope duly addressed bearing proper first class postage and deposited in the United States mail at Springfield, Illinois on October 28, 2013.

/s/Joanne M. Olson

Joanne M. Olson

SERVICE LIST

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