

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

MIDWEST GENERATION, LLC)	
)	
Petitioner,)	
)	
v.)	PCB
)	(Variance - Land)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY)	
)	
Respondents.)	

NOTICE OF FILING

To: Division of Legal Counsel	Don Brown, Assistant Clerk
Illinois Environmental Protection Agency	Illinois Pollution Control Board
1021 N. Grand Avenue East	James R. Thompson Center
P.O. Box 19276	100 West Randolph Street, Suite 11-500
Springfield, IL 62794-9276	Chicago, IL 60601
Epa.dlc@illinois.gov	

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Pollution Control Board Midwest Generation LLC’s Motion for Expedited Review and supporting affidavit, its Petition for a Variance for the Will County Station with supporting documents, and the Appearances of Susan M. Franzetti, Kristen L. Gale, and Molly Snittjer, a copy of which are herewith served upon you.

Dated: May 11, 2021

MIDWEST GENERATION, L.L.C.

By: /s/ Kristen L. Gale
One of Its Attorneys

Kristen L. Gale
Susan M. Franzetti
Molly Snittjer
Nijman Franzetti LLP
10 S. LaSalle St, Suite 3600
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CERTIFICATE OF SERVICE

The undersigned, an attorney, certifies that a true copy of the foregoing Midwest Generation LLC's Motion for Expedited Review and supporting affidavit, its Petition for a Variance for the Will County Station with supporting documents, and the Appearances of Susan M. Franzetti, Kristen L. Gale, and Molly Snittjer, on May, 11, 2021 with the following:

Division of Legal Counsel
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
Epa.dlc@illinois.gov

Don Brown, Assistant Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

and that true copies were filed to the Agency by FedEx, delivery charge prepaid, and electronic mail, and the Board electronically on May 11, 2021 to the parties listed above.

/s/ Kristen L. Gale

Kristen L. Gale
Susan M. Franzetti
Molly Snittjer
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Respondent.)	

ENTRY OF APPEARANCE OF SUSAN M. FRANZETTI

NOW COMES Susan M. Franzetti, of Midwest Generation, LLC, and hereby enters her appearance as counsel in this matter on behalf of Midwest Generation, LLC. This appearance shall also serve as consent to service via email.

Respectfully submitted,

 /s/Susan M. Franzetti
Susan M. Franzetti
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ENTRY OF APPEARANCE OF KRISTEN L. GALE

NOW COMES Kristen L. Gale, of Midwest Generation, LLC, and hereby enters her appearance as counsel in this matter on behalf of Midwest Generation, LLC. This appearance shall also serve as consent to service via email.

Respectfully submitted,

/s/Kristin L. Gale
Kristen L. Gale
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ENTRY OF APPEARANCE OF MOLLY SNITTJER

NOW COMES Molly Snittjer, of Midwest Generation, LLC, and hereby enters her appearance as counsel in this matter on behalf of Midwest Generation, LLC. This appearance shall also serve as consent to service via email.

Respectfully submitted,

/s/Molly Snittjer
Molly Snittjer
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**MIDWEST GENERATION LLC’S MOTION FOR EXPEDITED REVIEW OF ITS
PETITION FOR VARIANCE FOR THE WILL COUNTY STATION**

NOW COMES Midwest Generation, LLC ("MWG"), by its attorneys, and pursuant to 35 Ill. Adm. Code §101.512, requests that the Illinois Pollution Control Board (the "Board") expedite its review and determination of the Petition for Variance (“Petition”) filed in the above-captioned matter for the Will County Generating Station (“Will County Station”), and further states as follows:

1. As set forth in the Petition, filed contemporaneously, MWG is seeking a variance authorizing deadline extensions for certain data collection and information submission requirements under the new Title 35 of the Illinois Administrative Code Part 845 rules regulating the Disposal of Coal Combustion Residuals in Surface Impoundments (the “Illinois CCR Rule”) for Ponds 1N and 1S at the Will County Station.

2. Ponds 1N and 1S are not federal CCR surface impoundments, but are Illinois CCR surface impoundments. Accordingly, MWG did not, until March 2021, have the necessary monitoring infrastructure in place for both ponds in order to collect the eight groundwater samples required under 35 Ill. Adm. Code §845.650(b)(1)(A). Similarly, MWG does not have

any of the historical groundwater data or other technical information that is needed to complete an operating permit application.

3. MWG is seeking a variance to extend the following deadlines in the Illinois

CCR Rule:

- the 180-day deadline (October 18, 2021) for the requirement under 35 Ill. Adm. Code §845.650(b)(1)(A) to collect and analyze eight independent samples from each background and downgradient well at Ponds 1N and 1S that will be representative of background groundwater quality;
- the October 30, 2021 deadline to submit an operating permit application for Ponds 1N and 1S that must contain 22 extensive, technical submissions (including the analysis of groundwater monitoring data) pursuant to 35 Ill. Adm. Code §845.230(d)
- the deadline to prepare the Initial Emergency Action Plan and the Fugitive Dust Plan pursuant to §§845.520(c) and 845.500(b)(4), which must be submitted as a part of the operation permit application;
- the deadline to designate the closure priority category of Ponds 1N and 1S pursuant to §845.700(c), and;
- the deadline for submission of the construction permit application pursuant to §845.700(h)(2) if Ponds 1N and 1S are designated as a Category 5 CCR Surface Impoundment pursuant to §845.700(g).

4. To collect and analyze eight independent groundwater samples by October 18, 2021, and complete the operating permit application by October 30, 2021, MWG would have to try to complete this work in such a condensed time period that the limited data it could collect would not be complete and representative of groundwater conditions for Ponds 1N and 1S. (Exhibits L and N to the Petition set forth this expedited time schedule). Collection of accurate, representative groundwater data, including consideration of seasonal variations, for both ponds, is integral to developing a sound groundwater monitoring program. Submission of a complete and accurate operating permit application is also dependent upon the collection of accurate, representative groundwater data. Thus, MWG cannot submit a complete application until after the groundwater data is collected. Moreover, because the operating permit application requires

multiple extensive reports and analysis, it is not feasible to prepare complete and accurate reports within a limited deadline.

5. Pursuant to Section 104.232 of the Board's Rules, the Board has 120 days, or until September 8, 2021, to render a decision on this Petition. However, because the deadline in the Illinois CCR Rule to conduct eight rounds of groundwater sampling is 180-days (October 18, 2021), even the relatively short 120-day deadline for a decision by the Board on MWG's petition for a variance is insufficient to provide timely relief.

6. Without an expedited review of MWG's Petition, MWG will suffer material prejudice. If the Board takes its allowed 120 days to render a decision, there will not be enough time for MWG to comply with the CCR Rule should the Board decide not to grant the requested variance. While awaiting the Board's decision, MWG will need to collect limited data on a compressed timeline that will neither be "independent" as required by the CCR Rule nor provide a reliable basis on which to design its groundwater monitoring program. Simultaneously, MWG will have insufficient data on which to start preparing the reports and studies required for an operating permit application. Without expedited variance relief, MWG will have to rush to take what should be unnecessary steps to try to comply with unreasonably tight compliance deadlines that should not be applicable to CCR surface impoundments like Ponds 1N and 1S that have never before been subject to these types of requirements.

7. Attached as Exhibit A is the affidavit of Sharene Shealey, attesting to the truth of the facts cited herein, submitted pursuant to 35 Ill. Adm. Code §101.512(a).

WHEREFORE, MWG respectfully requests that the Board expedite its review and determination of the Petition for Variance for Will County Station, and grant MWG such other and further relief as is deemed appropriate under the circumstances.

Dated: May 11, 2021

Respectfully submitted,
Midwest Generation, LLC

By: /Kristen L. Gale
One of its Attorneys

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AFFIDAVIT OF SHARENE SHEALEY

I, Sharene Shealey, being first duly sworn on oath, depose and state as follows:

1. I am Director of Environmental with NRG Energy, Inc., which in turn indirectly owns Midwest Generation, LLC (“MWG”).

2. I have been personally involved in matters related to initiating and conducting the activities required under new Title 35 of the Illinois Administrative Code Part 845 rules regulating the Disposal of Coal Combustion Residuals in Surface Impoundments (“Illinois CCR Rule”) at the MWG Stations. I have also been personally involved in matters related to conducting the requirements under the federal Coal Combustion Residual Rule, 40 C.F.R. §257 (“federal CCR Rule”). At the MWG Will County Station, Ponds 1N and 1S are not subject to the federal CCR Rule, but are subject to the Illinois CCR Rule. I have been personally involved with conducting the additional requirements under the Illinois CCR Rule applicable to Ponds 1N and 1S, and am familiar with the deadlines set forth in the Illinois CCR Rule.

3. I have read the Motion for Expedited Review of the Variance Petition for the Will County Station dated May 11, 2021, and based upon my personal knowledge and belief, the facts stated relating to MWG are true and correct.

4. If called upon to testify in this matter, I could competently testify to the facts stated herein.

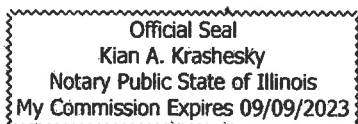
FURTHER AFFIANT SAYETH NOT.

Subscribed and Sworn to before me

On 11th MAY 2021.

Kian A. Krashesky
Notary Public

My Commission Expires: 09/09/2023



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MIDWEST GENERATION, LLC’S PETITION FOR VARIANCE

Pursuant to Sections 35(a) and (b) of the Illinois Environmental Protection Act (“Act”), 415 ILCS 5/35(a) and (b), and Part 104 of Title 35 of the Illinois Administrative Code, 35 Ill. Adm. Code §104.100 *et seq.*, Midwest Generation, LLC (“Midwest Generation” or “MWG”) petitions the Illinois Pollution Control Board (“Board”) for a variance authorizing deadline extensions for certain data collection and information submission requirements under the 35 Illinois Administrative Code Part 845 rules regulating the Disposal of Coal Combustion Residuals in Surface Impoundments (the “Illinois CCR Rule”). Specifically, MWG is seeking a variance for Pond 1 North (“1N”) and Pond 1 South (“1S”) at MWG’s Will County Station authorizing an extension until March 31, 2022 of:

- (i) the October 18, 2021 deadline to collect and submit background groundwater monitoring data pursuant to 35 Ill. Adm. Code §845.650(b)(1)(A); and
- (ii) the October 30, 2021 deadline to submit the operating permit application pursuant 35 Ill. Adm. Code §845.230(d)(1).

Because §§845.520(c) and 845.500(b)(4) of the Illinois CCR Rule specify a similar October 31, 2021 operating permit application deadline for submitting the initial Emergency Action Plan and the Fugitive Dust Plan, MWG also seeks an extension to March 31, 2022 to submit these plans.

MWG also seeks a variance to March 31, 2022 of the §845.700(c) thirty-day deadline for designating the closure priority category of Ponds 1N and 1S. MWG cannot accurately designate the closure priority category of either pond without groundwater monitoring data and it needs additional time to collect that data. Additionally, if Ponds 1N and 1S are designated as Category 4 CCR Surface Impoundments pursuant to §845.700(g), which are inactive ponds that have exceeded a groundwater protection standard, MWG requests a variance authorizing an extension

of the February 1, 2022 construction permit application deadline to July 1, 2022 because the information necessary for the construction permit application builds upon what is required to be submitted with the operating permit application. 35 Ill. Adm. Code §845.700(h)(1). The requested extension is commensurate with the time interval for submitting a Category 4 pond construction permit application after the operating permit application deadline that is otherwise established by the Illinois CCR Rule.

MWG is seeking this variance because compliance with the Illinois CCR Rule deadlines would result in an arbitrary or unreasonable hardship upon MWG. MWG is not requesting a variance from any substantive aspect of the Illinois CCR Rule. It intends to fully comply with the substantive requirements of the rule. But to do so, it needs the reasonable amount of time requested in this variance petition to gather the relevant data needed to submit complete and accurate information in compliance with the substantive requirements of the Illinois CCR Rule.

I. INTRODUCTION

The Board's April 15, 2021 adoption of the Illinois CCR Rule regulating CCR surface impoundments in Illinois for the first time subjected Ponds 1N and 1S at Will County Station to significant regulatory requirements. Because Ponds 1N and 1S at Will County Station were removed from service in 2010 and dewatered in 2013, they were not regulated by the 2015 federal CCR rule which established the first national regulations specific to CCR surface impoundments.¹ (*See* "Disposal of Coal Combustion Residuals from Electric Utilities" 80 Fed. Reg. 21,301 (April 17, 2015), as amended and codified at 40 CFR Part 257 ("the federal CCR rule"). The Illinois CCR Rule replicates many of the requirements of the federal CCR rule. But because Ponds 1N and 1S were not subject to the federal CCR rule, they did not, prior to April 2021, have the necessary monitoring wells infrastructure in place, let alone years of accumulated groundwater data and other technical information that is required to satisfy requirements of the Illinois CCR Rule.

MWG and its environmental consultant, KPRG and Associates, Inc. ("KPRG") have conducted a thorough evaluation of the time and effort that would be required to comply with the

¹ In the preamble to the federal CCR rule, USEPA stated that the rule was not applicable to "dewatered ponds" because they do not present the risks associated with CCR Surface Impoundments that the rule attempts to mitigate. 80 Fed. Reg. 21342. *See also* Ex. D, ¶15.

deadlines in the Illinois CCR Rule. Based on the results of that evaluation, there is simply not enough time to thoroughly and adequately comply with the Illinois CCR Rule's six-month deadline for:

- (i) collecting and analyzing eight independent samples from each background and downgradient well [some of which were only installed as of April 2021] that will be representative of background groundwater quality; and
- (ii) compiling the information needed to submit an operating permit application that must contain 22 extensive, technical submissions (including the analysis of groundwater monitoring data referenced above).²

To qualify as "independent samples", the eight groundwater monitoring events must be conducted at not less than one-month intervals, which requires a minimum of 8 months to complete after the monitoring wells are installed. These same eight independent groundwater samples are also necessary to make a "Closure Prioritization" designation for Ponds 1N and 1S under Section 845.700(g) of the Illinois CCR Rule. MWG cannot submit this designation by the imminent May 21, 2021 deadline for this requirement because the eight groundwater monitoring events simply cannot be completed by this deadline. Absent this groundwater monitoring data, MWG's only potential compliance option would be to guess at what the correct closure priority category designation should be for these ponds based on underdeveloped or incomplete information for the sake of making a timely submission.

As described in more detail below, the requested variance will permit MWG to continue to collect the groundwater data required under 35 Ill. Adm. Code §845.650(b)(1)(A) over a period of time that ensures representative data and, based thereon, to develop the information necessary to submit a complete operating permit application, including the Initial Emergency Action Plan and Fugitive Dust Plan as required under §§845.230(d), 845.520(c), 845.500(b)(4).³

² The full list of technical documents required under Section 845.230(d) are the following: History of Construction; CCR Chemical Constituents Analysis; All Waste Streams Chemical Analysis; Location Standards Demonstrations; Permanent Markers Procurement, Installation and Evidence; Slope Protection/Incised Documentation; Emergency Action Plan; Fugitive Dust Control Plan; Groundwater Monitoring Information; Closure Design; Preliminary Written Closure Plan; Initial Written Closure Plan; Liner Certification; History of GWPS Known Exceedances; Financial Assurance Certification; Hazard Potential Classification; Structural Stability Assessment; Safety Factor Assessment; Inflow Design Flood Control System Plan; Health and Safety Plan; Closure priority Category Designation.

³ The Initial Emergency Action Plan and Fugitive Dust Control Plan are included in this variance request because they are required to be submitted with the operating permit application but have separately stated, yet identical

With both the necessary groundwater data in hand and a reasonable time to analyze it, MWG can make an accurate closure priority category designation for Ponds 1N and 1S pursuant to 35 Ill. Adm. Code §845.700(g). Because the closure priority category designation determines the applicable construction permit application deadline under 35 Ill. Adm. Code §845.700(h), only then can MWG identify the permit application deadline for Ponds 1N and 1S.

The requested variance will not adversely impact human health or the environment because it will not affect implementation of any substantive aspect of the Illinois CCR Rule. This is not a situation that threatens either human health or the environment. Ponds 1N and 1S are inactive, have been dewatered so that they are unable to accumulate liquids, and there are no potable downgradient wells that could potentially have an impact to human health. Thus, granting the additional time requested is warranted to enable MWG to provide thorough and accurate information, which will ensure that its efforts to protect human health and the environment are directed where they will be most effective.

II. REGULATIONS FROM WHICH THE VARIANCE IS SOUGHT

A. Regulatory Background

The deadlines at issue here for the background and downgradient well samples, permit applications and associated plans, and closure prioritization category designation were set by the Illinois Environmental Protection Agency (“Illinois EPA or “Agency”) and adopted by the Board on April 15, 2021 after a rulemaking for the Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments. *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB 20-19* (“rulemaking”). The rulemaking was mandated by Section 22.59(g) of the Coal Ash Pollution Prevention Act (“CAPP Act”) which was enacted in Illinois on July 30, 2019 to regulate CCR surface impoundments at the State level. Public Act 101-0171, 415 ILCS 5/22.59(g). Illinois EPA filed proposed new standards for the permitting, operation, maintenance and closure of CCR surface impoundments as the new Part 845 of the Board’s Rules on March 30, 2020. *Illinois EPA Statement of Reasons, In the Matter of: Standards for the Disposal of Coal*

deadlines as the operating permit application deadline (*i.e.*, October 30, 2021). MWG is seeking a variance for these components of the operating permit application to avoid submitting a piecemeal operating permit application.

Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB R20-19, March 30, 2020 (“Statement of Reasons”). The Statement of Reasons is provided here as Exhibit A.

Prior to the enactment of the CAPP Act and the adoption of the Illinois CCR Rule, CCR surface impoundments were regulated by the federal CCR rule. In its Statement of Reasons, Illinois EPA stated that one of the purposes of the proposed Illinois CCR rule was to “adopt the federal CCR rules in Illinois.” Ex. A, p. 10. The Illinois EPA’s proposed Illinois CCR Rule closely mirrors the federal CCR rule, but deviates from it in several critical areas. In particular, the definition of “CCR Surface Impoundment” is applied more broadly to encompass ponds that are not regulated as CCR surface impoundments under the federal CCR rule.⁴

For those CCR surface impoundments identified by Illinois EPA that were already regulated by the same or similar requirements in the 2015 federal CCR rule, regulated parties had begun (or completed) collecting the relevant data and information necessary to meet the tight deadlines provided in the Illinois CCR Rule. But this is not the case for Ponds 1N and 1S and other ponds not regulated by the federal CCR Rule. In the rulemaking, Illinois EPA acknowledged both that this “unregulated” subset of ponds existed, and that it created a disparity in the level of initial effort necessary to comply with the rules based on the information and data available to the regulated parties. (See Exhibit B, 8/11/20 Hearing Transcript, p. 74:1-24; Exhibit C, 8/13/20 Hearing Transcript, p. 140:21-141:17). Illinois EPA admitted that “[f]or the disputed [*i.e.*, previously unregulated] CCR surface impoundments, the data may not be there.” *Id.*

During the rulemaking, MWG proposed an extension of the deadline to collect and analyze the groundwater monitoring data specifically for ponds like Ponds 1N and 1S that were not subject to the federal CCR rule.⁵ MWG sought an extension of the groundwater sample collection deadline so that it would be possible to obtain independent data that captured seasonal groundwater variability and hence, was truly representative of groundwater conditions. MWG proposed a longer deadline, similar to the federal CCR rule, to collect the same number of

⁴ CCR Surface Impoundment means: “a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the surface impoundment treats, stores, or disposes of CCR.” 415 ILCS 5/3.143; 40 C.F.R. 257.53; “CCR surface impoundment or impoundment means a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.”

⁵*In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB R20-19*, MWG Post-Hearing Brief, pp. 4-6.

independent samples as has been required for existing CCR surface impoundments regulated by the federal CCR rule.⁶ (*See* 40 CFR 257.94(b)).

On February 4, 2021, the Board issued its Second Notice Order and Opinion (“Second Notice”) for the Illinois CCR Rule accepting both the Illinois EPA’s proposed 180-day deadline for collecting the eight groundwater samples, and the six-month deadline for submission of the operating permit application. (*See In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB 20-19, Order* (February 4, 2021), p. 24, 71). Importantly, the Board recognized that site-specific data may warrant an extension of these deadlines and invited parties like MWG with site-specific circumstances to seek a variance. *Id.* at p. 25.

B. Deadlines from which a Variance is Sought.

Based on the site-specific circumstances for Ponds 1N and 1S at Will County Station, MWG is requesting a variance allowing additional time to comply with the following Illinois CCR Rule deadlines:

- (1) 35 Ill. Adm. Code §845.650(b)(1)(A): The deadline to collect, analyze, and statistically evaluate the eight independent samples from each background and downgradient well that determine the representative background levels is October 18, 2021. MWG seeks a variance to extend the deadline to January 31, 2022.
- (2) 35 Ill. Adm. Code §§845.230(d)(1), 845.520(c), 845.500(b)(4): The deadline to submit an initial operating permit application, the initial emergency action plan and fugitive dust control plan is October 30, 2021. MWG seeks a variance to extend the deadline to March 31, 2022.
- (3) 35 Ill. Adm. Code §845.700(c): The deadline to submit the Category designations of Ponds 1N and 1S Closure Prioritization under Section 845.700(g) is May 21, 2021. MWG seeks a variance to extend the deadline to March 31, 2022, concurrent with the initial operating permit application.
- (4) 35 Ill. Adm. Code §845.700(h)(1): If Ponds 1N and 1S are designated Category 4 CCR surface impoundments, the deadline to submit a construction permit application for CCR Surface Impoundments in Category 4 is February 1, 2022. MWG seeks a

⁶ MWG was not alone in expressing concerns about this Proposed CCR Rule requirement. Dynegy’s witness, Cynthia Vodopivec, also testified that 180 days to collect 8 independent samples is not sufficient to gather a representative sample of groundwater conditions and recommended at least 18-24 months to conduct the sampling effort. *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB R20-19*, Cynthia Vodopivec prefiled testimony (Aug. 27, 2020), p. 16.

variance of the deadline to submit the construction permit application to July 1, 2022, which would allow the same amount of time for submission after the initial operating permit application deadline as in the current rule.

The compliance deadlines requested above will permit MWG to collect representative and accurate background groundwater monitoring data as required under 35 Ill. Adm. Code §845.650(d) and to develop accurate information necessary to complete operating permit application, Initial Emergency Action Plan, and Fugitive Dust Control Plan as required under §§845.230(d), 845.520(c), 845.500(b)(4). These extended compliance deadlines build in adequate time for MWG to analyze the relevant monitoring data and to make an accurate pond closure prioritization category designation pursuant to 35 Ill. Adm. Code §845.700(g). This additional time is also necessary to determine the appropriate construction permit application deadline under §845.700(h).

C. Automatic Stay of Variance Provisions

Section 38(b) of the Illinois Environmental Protection Act, 415 ILCS 5/38(b), provides that if a variance is sought within 20 days of the effective date of a rule or regulation, the operation of the rule or regulations is stayed as to such person pending disposition of the petition. *See* 415 ILCS 5/38(b). This variance request has been timely filed within 20 days of the effective date of the rule, April 21, 2021. Therefore, the deadlines stated in Section II.B. above are stayed for Ponds 1N and 1S at Will County Stations until a decision is made with respect to this request.

III. NATURE OF THE ACTIVITY THAT IS THE SUBJECT OF THIS VARIANCE

A. Description of Will County Station

The Will County Station is a power plant located in Romeoville, Illinois. (Ex. D, Affidavit of Bradley Castle, ¶3). The Station began operations as a coal-fired power-plant with two coal-burning units in 1955, with third and fourth units added in 1957 and 1963, respectively. Ex. D, ¶4. It has been owned and operated by MWG since 1999, and currently employs approximately 45 people. *Id.* at ¶¶5, 6.

Ponds 1N and 1S at the Station were constructed in 1977. *Id.* at ¶7. Both ponds collected the bottom ash fines from Units 1 and 2, with the bulk of the bottom ash from the units collected on a concrete retention pad next to the ponds, not in the ponds, and was taken offsite for

beneficial use. *Id.* at ¶8. Ponds 1N and 1S were taken out of service in 2010 when Units 1 and 2 ceased operating. After the ponds were taken out of service, they did not collect either ash or process water. *Id.* at ¶¶9, 11.

In 2013, as part of a Compliance Commitment Agreement (“CCA”) with Illinois EPA, MWG implemented a dewatering system for Ponds 1N and 1S that prevented the ponds from accumulating liquids as they had when operating. A copy of the 2013 CCA is attached as Exhibit E. To accomplish this, it was agreed that the dewatering system would “not allow water to exceed a depth of one foot above the bottom of Ponds 1N and 1S.” Ex. E, Part III.e. Ex. D, ¶10.⁷ MWG engaged an engineering firm to install the dewatering system which consists of a drainage system that drains all liquids from the two ponds to the Station’s wastewater treatment plant so that the depth of stormwater entering the inactive ponds does not exceed the one-foot requirement. A copy of the engineering drawings for the system is attached as Exhibit F. Ex. D, ¶13. Following treatment, the Station’s wastewater is either recycled back to the Station or discharged via one of the Station’s NPDES permitted outfalls. Ex. D, ¶14. Because the ponds were taken out of service and dewatered, they are not regulated by the federal CCR rule. *Id.* at ¶15.

**B. Description of Pollution Control Equipment at the Will County Station
Ponds 1N & 1S**

All of the ash ponds at Will County Station, including 1N and 1S, were constructed with a 36 inch poz-o-pac liner, which remains in place today. Ex. D, ¶¶7,12. Poz-o-pac, a very dense material, is an aggregate liner similar to concrete. Ex. G, (2009 Hydrogeological Assessment of MWG Electric Generating Stations). The liner has at least six 6-inch layers—the bottom two layers were each 6-inches of poz-o-pac; the middle two layers were rimmed with two layers of 6-inch poz-o-pac surrounding 12 inches of fill in the middle; and the top two layers were each 6-inches of poz-o-pac. Ex. H (Will County Ponds, 1977 drawings). In the 2009 Hydrogeological Assessment of Will County Station, it was noted that even when the ponds were active and able to accumulate liquid, the potential for release was low because the ponds were lined with poz-o-pac liners. *See* Ex. G.

⁷ The one-foot allowance was in consideration of rainfall that could cause temporary accumulations of water before the drainage system could drain all of the water.

C. MWG Prior Variances/ Permits Affected

MWG has not previously petitioned the Board for a variance concerning an extension of time to collect data or to submit a permit application, and there will be no impact to any of the Will County Station's permits.

IV. COMPLIANCE WITH DEADLINES CANNOT BE ACHIEVED BY THE REGULATORY REQUIRED DATES.

A. Nature and Extent of the Anticipated Failure to Meet the Deadlines in the Illinois CCR Rule and the Efforts Necessary to Achieve Immediate Compliance.

Without the requested variance, MWG will not be able to comply with the deadlines for the submission of the eight independent and representative samples from each background and downgradient well and a complete operating permit application. Until MWG collects and analyzes these samples and develops the technical data required for the operating permit application, it cannot properly designate a closure priority category which in turn determines the required compliance date for the construction permit application.

1. The Anticipated Inability to Meet Groundwater Monitoring Schedule Pursuant to Section 845.650(b) and the Scientifically and Technically Reasonable Efforts to Comply.

The anticipated failure to meet the groundwater sample collection deadline has no impact on MWG's compliance with the substantive requirements of the Illinois CCR Rule for Ponds 1N and 1S, it only reasonably extends the initial data submission requirements. To collect and analyze the eight independent, representative samples from each of the background and downgradient monitoring wells to comply with §845.650(b), the following steps are required:

- (1) install the groundwater monitoring network for Ponds 1N and 1S that complies with the requirements in §845.630;
- (2) collect eight independent samples to establish the representative background concentrations;
- (3) analyze the sample results for all constituents listed in §845.600; and
- (4) complete a statistical evaluation based on all monitoring results and develop site specific groundwater protection standards for subsequent data comparisons and evaluations.

Because Ponds 1N and 1S were not subject to the federal CCR rules, before April 2021, MWG did not have an existing monitoring well system for Ponds 1N and 1S that complies with the requirements of §845.630(c) of the Illinois CCR Rule. (Exhibit I, KPRG Affidavit, ¶4). Six groundwater monitoring wells were installed around the ponds in 2010, but there was only one downgradient well of each of the ponds. *Id.* Section 845.630(c) requires that there be at least three downgradient monitoring wells for each pond. 35 Ill. Adm. Code 845.630(c). Based on MWG consultant KPRG's evaluation, three new monitoring wells are needed to meet Section 845.630's requirements. (See the monitoring wells location map and cost estimate attached as Exhibits J and K.)

Although MWG moved forward to install the additional three wells before the Illinois CCR Rule became final, it still took time to do so. The site had to be cleared/grubbed and an existing fence moved to make room for the well drilling equipment to access the area. After the new wells are installed, they had to be developed and surveyed by a licensed surveyor and dedicated well pumps needed to be ordered based on the geometry of the final well construction. Ex. I, ¶6. The well installation was completed on April 28, 2021 – just seven days after the Board's adoption of the rule. *Id.* at ¶7. The dedicated pumps were installed on May 3, 2021. *Id.*

MWG collected the first of eight rounds of independent samples at the 1N and 1S monitoring wells on May 3-4, 2021. *Id.* at ¶8. KPRG developed a schedule to meet the Illinois CCR Rule deadlines (“Regulation Schedule”) that shows the level of effort and associated timeline necessary to meet the October 18, 2020 deadline for sample collection and analysis. This Regulation Schedule is attached as Exhibit L. It shows that meeting the deadline would require taking a sample about every 14 to 17 days. It typically takes 14 to 21 days to receive the laboratory analytical results for the required parameters, depending upon the type of analytical work being performed, although radium data generally takes on the order of 30 days or more. Ex. I, ¶14. The statistical analysis required after all samples are received is estimated to take approximately two months to ensure a quality evaluation. Ex. L. According to the Regulation Schedule, all eight samples would need to be collected by September 3, 2021, and all of the results, including radium data, received by October 10, 2021. *Id.* If this extremely expedited sample collection and analysis schedule were followed, the statistical analysis must be completed in less than one month. *Id.* It is questionable whether a statistical analysis performed in such a

short amount of time would be adequate to evaluate the full scope of the groundwater data collected.

But even putting aside the issue of the infeasibility of doing the full extent of sampling and analysis that the rule contemplates and requires, this expedited approach does not make good technical or scientific sense. It does not allow MWG to obtain accurately representative background data for Ponds 1N and 1S, which is integral to developing a sound groundwater monitoring program. Background data establishes the baseline against which subsequently collected groundwater data is compared. It is used in the statistical analysis of groundwater data as the monitoring progresses. Accordingly, it is critically important that the development of background concentration data accurately reflects the actual groundwater passing below the waste boundary, so that the groundwater monitoring program can reliably detect a potential release from a CCR surface impoundment. (*See* Ex. M, p. 10 (Testimony of Richard Gnat 8/27/20)).

The Regulation Schedule forces compliance without the quality of data that should be gathered to inform the subsequent, substantive requirements of the Illinois CCR Rule. It does not allow for the collection of data that captures seasonal variations in groundwater or eight truly “independent” sets of groundwater data, both of which are integral to fully understanding groundwater conditions. Ex. I, ¶11. The Regulation Schedule condenses the sampling period that only late spring and summer (May through September) seasonal conditions will be monitored. (*See* Exhibit L). As MWG's expert, Richard Gnat, testified in the rulemaking, “limiting the timeframe to 180-days completely eliminates addressing seasonal or temporal fluctuations within the statistical program for analysis of the monitoring results.” Ex. M, p. 11. The Board and Illinois EPA have acknowledged that a longer monitoring period would allow the consideration of seasonal and temporal changes in establishing background groundwater quality, and “yield a better statistical estimation of true constituent concentrations.” (*See* Second Notice Order, p. 24, 71).

The Illinois CCR Rule requires eight “independent” groundwater samples. An “independent sample” is one that it is spaced in time far enough apart from another sample to ensure that the groundwater sampled by both is not, in effect, the same groundwater. USEPA guidance recommends collecting a minimum of at least 8 to 10 independent background samples

before conducting a statistical analysis. (*See* Unified Guidance on the Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (“USEPA Unified Guidance”), Attachment 4 to attached Exhibit M at p. 5 3.1 and p. 11). When sampling events are spaced too close together, it can result in “autocorrelated data” – meaning data that is similar between measurements as a function of time between the measurements. *Id.* at p. 12, citing Attachment 4, p. 3-4. Autocorrelated data is contrary to the USEPA Unified Guidance, which states that a background sample should satisfy the key statistical assumptions, including statistical independence by the lack of autocorrelation. *Id.*, Attachment 4, p. 5-4. As USEPA recommends, “practically speaking, the best way to ensure some degree of statistical independence is to allow as much time as possible to elapse between sampling events.” *Id.*

The Regulation Schedule shows that in order to take eight samples within 180 days, and still have just days after receiving all of the analytical results to complete the statistical analysis, they would have to be taken every 14 to 17 days. Ex. L. This is not enough time to ensure that the groundwater sampled is truly “independent” and not autocorrelated. *Id.* at p. 11; Ex. I, ¶11-12.

2. The Anticipated Inability to Complete the Operating Permit Application by October 30, 2021 and the Efforts to Comply are not Logistically Possible.

The Illinois CCR Rule operating permit application must contain a substantial amount of information, with over twenty-two different technical documents included. 35 Ill. Adm. 845.230(d)(1). The application must also contain the proposed groundwater monitoring program that “includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b).” 35 Ill. Adm. Code. 845.230(d)(2)(I)(iv). The operating permit application cannot be complete without the completed groundwater monitoring data, which as described above, cannot be collected and analyzed in time to meet the deadline and result in a truly representative dataset for background.

After careful consideration of the amount of time needed to develop all of the data required for a complete operating permit application, KPRG concluded it cannot be accomplished by the October 30, 2021 deadline. Ex. I, ¶17. To support this conclusion, KPRG prepared the attached Operating Permit Application Schedule to Meet Current Regulation Deadlines (*see* Exhibit N). The schedule shows that it is not logistically possible to complete the

operating permit application without working on multiple aspects of the application every day between now and the October 30, 2021 deadline, which is an infeasible task especially for owners/operators of multiple CCR surface impoundments.

3. It is not Feasible to Meet the Pond Priority Category Deadline for Ponds 1N and 1S Because the Designation Relies Upon the Groundwater Monitoring Results.

MWG cannot comply with the May 21, 2021 deadline to designate a priority closure category under Section 845.700(c). Under Section 845.700(c), an owner or operator must identify to Illinois EPA which of the seven priority categories, described in Section 845.700(g), apply to Ponds 1N and 1S. These categories are dependent upon the groundwater monitoring results. Depending on the groundwater monitoring results, Ponds 1N and 1S may fall within Category 4, inactive CCR surface impoundments that have an exceedance of the groundwater protection standards. Alternatively, Category 6, inactive CCR surface impoundment that are in compliance with the groundwater protection standards, may instead apply.⁸ KPRG's proposed timelines for the groundwater monitoring data and operating permit application in Exhibits L and N make it clear that this information simply cannot and will not be available by May 21, 2021. Because both ponds do not have sufficient groundwater data, MWG cannot identify whether the ponds are in compliance with the groundwater protection standards, thus MWG cannot identify whether Ponds 1N or 1S are Category 4 or Category 6 CCR Surface Impoundments.

4. Depending Upon the Groundwater Monitoring Results and the Category Designation, MWG May Not Be Able to Timely Submit the Construction Permit Application for Ponds 1N and 1S.

Because the construction permit application deadline is determined by the pond category designation, the deadlines for the Pond 1N and 1S construction permit applications are unknown at this time. It is only if the accurate designation of Ponds 1N and 1S turns out to be as Category 4 inactive CCR surface impoundments, which have a February 1, 2022 deadline, that MWG will need an extension of the construction permit application deadline. *See* 35 Ill. Adm. Code §845.700(h). Whether Category 4 applies to either pond cannot be determined until after analyzing the groundwater data to be collected pursuant to the rule. The Category 4 CCR surface

⁸ Because there are no potable wells downgradient of Ponds 1N and 1S, both are not Category 1 ponds. Similarly, there is currently no evidence to suggest that the ponds fall within Category 2. Also, neither of the ponds are Category 3 because they are not located in areas of environmental justice concern. Ex. D, ¶16-17.

impoundment February 1, 2022 construction permit deadline is only about three months after the Illinois CCR Rule's operating permit application October 30, 2021 deadline. As described above, MWG is unable to meet the operating permit application deadline. If MWG determines that Ponds 1N and 1S fall within Category 4, it will also need more time to complete the construction permit application for these ponds because that application's content requirements build on the information presented in the operating permit application. 35 Ill. Adm. Code §845.220(a). MWG is requesting a variance of the construction permit application deadline to July 1, 2022, which is commensurate with the time interval otherwise established by the Illinois CCR Rule. However, if alternatively, MWG determines that Ponds 1N and 1S fall within Category 6, then MWG does not need an extension of the construction permit application deadline. Thus, MWG's request for a variance is limited to the scenario where Ponds 1N and 1S are Category 4 CCR surface impoundments.

MWG cannot risk waiting to seek a variance authorizing an extension of the construction permit application deadline once it has determined whether Ponds 1N or 1S fall within Category 4 because the short time interval between when this determination can be made and the deadline for submitting the construction permit application does not allow enough time to ensure that the Board can consider and rule upon a variance petition for an extension of the February 1, 2022 deadline. MWG would be at risk of noncompliance with the application deadline because the automatic stay which applies to this proceeding would not apply to a later filed variance petition. Further, including this prospective variance request here will also serve to save time and resources of the Board instead of initiating an additional variance petition proceeding in the future.

V. DENYING THIS VARIANCE WOULD IMPOSE AN ARBITRARY AND UNREASONABLE HARDSHIP ON MWG

Denying this variance would impose an arbitrary and unreasonable hardship on MWG for the following reasons: (1) compliance is not logistically possible without sacrificing the sufficiency and quality of the data to be relied upon to satisfy the substantive requirements of the Illinois CCR Rule; and (2) the requested variance will have no environmental impacts.

A. Compliance with the Illinois CCR Rule Deadlines is logistically not possible.

Simply stated, there is not enough time for MWG to comply with the initial data collection and information submission deadlines required under the Illinois CCR Rule for Ponds 1N and 1S. MWG's only potential alternatives to comply with these deadlines would be to submit incomplete and incompletely analyzed information to meet the permit application deadline and to make a potentially inaccurate designation of the closure priority for these ponds based on guesswork as to potential groundwater conditions. A regulated party should not have to "guess" at what the correct closure priority designation is for a CCR surface impoundment or be forced to assume the highest priority without having the opportunity to collect and analyze the necessary groundwater data on which to accurately make that designation. A wrong "guess" may result in noncompliance with the priority designation requirement of the Illinois CCR Rule and an overly conservative guess would subject MWG to regulatory obligations that should not apply.

1. Collecting and Analyzing Accurate and Reliable Groundwater Monitoring Data Is Not Feasible.

Constraining the required eight samples of groundwater data for these existing CCR surface impoundments to a six-month collection period imposes an arbitrary and unreasonable hardship upon MWG because it arbitrarily and unreasonably shortens the time period allowed for the establishment of background groundwater concentrations. It is not feasible to collect and analyze samples that comply with the well-established principles concerning seasonal variability or truly "independent" samples within the proscribed 180-day deadline. Ex. L, Ex. I, ¶11. Even with a timeline that spaces out the samples as far as possible within the allowed 180-day period, there is no way to avoid having to submit incomplete or potentially inaccurate data in order to achieve deadline compliance.

As recognized by both the Board and Illinois EPA, a longer monitoring period would allow the consideration of seasonal and temporal changes in establishing background groundwater quality, and "yield a better statistical estimation of true constituent concentrations." (Second Notice Order, p. 24, 71). MWG does not have the ability to rely on, and simply supplement, groundwater data collected earlier under the federal CCR Rule as both the Board and Illinois EPA thought would typically justify the 180-day groundwater sampling period.

Ponds 1N and 1S were not regulated by the federal CCR rule so there is no existing data to supplement the data to be collected. The additional wells required by Section 845.630 were only just installed in late April 2021. Ex. I, ¶7.

Nor can MWG reasonably be accused of not starting this groundwater monitoring before the Board adopted the Illinois CCR Rule. First, the law did not and could not reach backward to start the “clock” on the deadline. Second, throughout the rulemaking, MWG in good faith asserted that Ponds 1N and 1S should not be regulated as CCR surface impoundments under the Illinois CCR Rule, just as they were not under the federal CCR rule.⁹ Until the Board issued its February 4, 2021 opinion establishing the new definition of “Inactive CCR surface impoundment,” MWG could not know whether the rule’s definition would regulate Ponds 1N and 1S.

It would impose an arbitrary and unreasonable hardship upon MWG to comply with the deadline for Ponds 1N and 1S because it cannot obtain quality information within this time period, despite taking all reasonable efforts to do so. The generally applicable deadline in the rule may be sufficient for previously regulated CCR surface impoundments that have years of existing data upon which to rely to establish the background groundwater quality, but this is not the case for Ponds 1N and 1S. Requiring MWG to rely on data developed solely in the 180-day period when other federally-regulated ponds do not have the same restrictions is contrary to the CAPP Act’s purpose to ensure “consistent, responsible regulation of all existing CCR Surface Impoundments.” 415 ILCS 5/22.59(a)(4).

2. Meeting the Operating Permit Application October 30, 2021 Deadline is not Possible.

Because the §845.650(b) groundwater data cannot be fully and reliably developed in the 180-day period the rule allows, it follows that requiring compliance with the October 30, 2021 deadline for the operating permit application would be arbitrary and unreasonable. It will not be possible for MWG to submit a complete application for the reasons stated above. Submitting an operating permit application without complete and reliable groundwater information would make the rest of the submission essentially meaningless. For much of the remaining 21 technical

⁹ Multiple participants in the CCR rulemaking advocated to modify the proposed definition of “Inactive CCR surface impoundment.” The proposal to modify the proposed definition of “Inactive CCR surface impoundment” was based upon the definition within the federal CCR rule, which excludes Pond 1N and 1S.

submissions required to be submitted with the operating permit application, MWG also does not have the benefit of existing data and must develop it. As the timeline developed by KPRG in Exhibit O shows, there is not enough time allowed under the Illinois CCR Rule to develop this amount of information. The rule's deadline provides no "breathing room" whatsoever, such as to accommodate interruptions or delays caused by adverse weather, laboratory errors/issues, the unavailability of equipment, or ongoing restrictions due to the Covid-19 pandemic.

The Agency's preference for an early submission of operating permit applications should not apply in a way that denies the owner or operator a reasonable amount of time to collect quality data, prepare accurate reports, and submit accurate information. An owner or operator reasonably should be afforded the time necessary to "get it right the first time" by submitting a complete, accurate and reliable application to the Agency. The Illinois CCR Rule should not impose an unavoidable risk of failure to submit a complete operating permit application created by an unreasonably short deadline that leads to information gaps or inadvertent errors. The public and the environment both benefit from a complete and accurate permit application where the additional time requested, as here, is not unreasonable. The Agency also benefits because a complete and accurate application reduces the administrative time necessary to review and approve it.¹⁰

As MWG noted in the rulemaking, the six-month deadline is in stark contrast to other Illinois regulations that created new permitting programs. When the Board adopted the rule for existing solid waste landfills, it provided those owner/operators up to 48 months to file permit applications. 35 Ill. Adm Code 814.104(c). Yet, even with a deadline that was 8 times as long as the operating permit application deadline here, the Board granted at least eight variances from this application deadline due to site specific circumstances that necessitated additional time.¹¹

¹⁰ See e.g., *Envirite Corp. v. Illinois EPA*, PCB 94-161, 1994 Ill. ENV. LEXIS *8-9 (Aug. 11, 1994) ("Requiring Envirite to file an application prior to completion of the siting process for its proposed expansion would result in petitioner subsequently filing a second, largely duplicative application, and would unnecessarily waste the time and resources of petitioner and the Agency.")

¹¹ See *Id.* (granting a 12 month deadline extension for the permit application); *Atkinson Landfill Company, Inc v. Illinois EPA*, PCB No. 94-259, 1995 Ill. ENV LEXIS 28 (granting a sixteen month variance for same); *Waste Management of Illinois Inc. v. Illinois EPA*, 94-212 1994 Ill. ENV LEXIS 1273 (Oct. 6, 1994)(granting a six month variance for same); *USA Waste Services, Inc. v. Illinois EPA*, PCB 94-92 Ill. ENV LEXIS 928 (July 21, 1994) (granting a six month variance for same); *Illinois Landfill Inc. v. Illinois EPA*, PCB 94-200 1994 ENV LEXIS 1512 (Dec. 1, 1994)(granting a 12 month variance for same); *Macon County Landfill Corp v. Illinois EPA*, PCB 94-158 1994 Ill. ENV LEXIS 993 (Aug. 11, 1994) (granting a 12 month variance for same); *Land and Lakes company v. Illinois EPA*, PCB 96-198 1996 ENV LEXIS 609 (Sept. 5, 1996) (granting a 6 month variance for same).

MWG only found one instance in which the Board denied a variance request for an extension of the permit application deadline in that rulemaking, and it only because the party failed to file a variance petition until 22 months after the deadline and requested it be applied retroactively. *Community Landfill Corp. v. Illinois EPA*, PCB 95-137, 1995 Ill. ENV LEXIS 899 (Sept. 21, 1995).

With respect to the Initial Emergency Action Plan and Fugitive Dust Control Plan submissions for which a variance is requested, both of these plans are required to be submitted with the operating permit application. These plans have separately stated but identical deadlines as the operating permit application deadline. While separately stated, the clear intent is that both of these plans accompany the submission of the operating permit application. It would be arbitrary and unreasonable here to require MWG to submit these two plans before it can complete the rest of the operating permit application. Such a piecemeal approach to an operating permit application process serves no valid purpose. Further, Ponds 1N and 1S have been and will continue to be operated pursuant to the Stations' operating procedures and safety and health procedures which comply with the Occupational Safety and Health Act ("OSHA") regulations. As such, it would be an arbitrary and unreasonable hardship to require these two plans at an earlier date than the operating permit application deadline.

3. Because the Groundwater Monitoring Data is Insufficient, MWG Cannot Provide the Category Designation for Both Ponds.

It would be an arbitrary and unreasonable hardship on MWG to require a priority categorization designation by the May 21, 2021 deadline in Section 845.700(c) because of the lack of sufficient data on which to make that designation. If MWG were to make this designation without the underlying groundwater data, it would defeat the purpose of prioritization entirely. Section 22.59(g)(9) of the CAPP Act requires the Board to adopt rules to prioritize closure of those impoundments which "pose the greatest risk to public health, the environment, and those located in environmental justice communities." 415 ILCS 22.59(g)(9). In the Statement of Reasons, Illinois EPA said that the "the proposed prioritization scheme assists owners and operators in determining where and how to spend their resources." Ex. A, p. 26. The purposes of the rule are best served if MWG allocates its time and efforts to where they are needed most for the ponds at its four stations, which includes making accurate priority designations for Ponds 1N

and 1S. MWG is filing this variance request because it does not have the information it needs to make this critically important categorization. To require MWG to make an arbitrary designation based on incomplete information would effectively make the prioritization process not just arbitrary, but also meaningless.

4. If Ponds 1N and 1S are Category 4 Ponds, the February 1, 2022 Deadline to Submit the Construction Permit Application is not Feasible.

MWG is only requesting the amount of time commensurate with what is already in the Illinois CCR Rule to complete this requirement. Because MWG cannot ascertain the priority closure category designation of Ponds 1N and 1S until at least March of 2022, it would not know what the applicable construction permit application deadline would be until after the February 1, 2022 Category 4 construction permit application deadline has already passed. Therefore, it would be an arbitrary and unreasonable hardship to hold MWG to a construction permit deadline that (a) may not be applicable; or (b) if applicable, is unreasonable because MWG has demonstrated that it will not have the operating permit application completed by then.

B. Compelling Compliance with an Unreasonable Deadline where Minimal or No Environmental Benefit is Conferred Justifies Granting Variance Relief.

There is no potential environmental benefit to requiring MWG to meet the subject Illinois CCR Rule deadlines under the circumstances presented here. The requested variance relief is limited to the timing of representative data collection and initial information submission requirements. The substantive requirements of the Illinois CCR Rule will be fully maintained if this relief is granted, as those requirements are not part of this variance request. The unreasonably hurried pace of these deadlines confers no additional environmental benefit here because Ponds 1N or 1S are already inactive and dewatered. There is no "head" in the ponds that could cause a release of ash constituents to groundwater. It would be arbitrary to impose the strict deadlines that would result in submission of underdeveloped or potentially inaccurate information that does not reasonably inform or guide future permitting decisions. The environment is better served by allowing MWG the time it reasonably needs to collect the required information.

VI. MWG's COMPLIANCE PLAN FOR PONDS 1N AND 1S

The proposed compliance plan will allow MWG to collect and analyze independent groundwater data upgradient and downgradient of Ponds 1N and 1S, thus providing accurate and reliable background data to support the operating permit applications, including a proposed groundwater monitoring program for the two ponds, and also to provide an accurate Category designation for both ponds. Further, because of the extensive information required to be developed to prepare the operating permit applications for Ponds 1N and 1S, MWG's compliance plan provides a reasonable opportunity to submit a complete and more accurate operating permit application.

A. Groundwater Monitoring Compliance Schedule

MWG estimates that it will take until January 31, 2022 to comply with the §845.650(b)(1)(A) requirements for groundwater sampling and statistical evaluations based on the timeline prepared by KPRG (*see* Exhibit O.) MWG is not trying to delay its compliance with these deadlines. It already has started collecting the new rule's required groundwater data, with the first groundwater sampling event already having taken place on May 3-4, 2021. The KPRG timeline starts with this completed sampling event and accounts for the collection of the required seven remaining monthly samples from each of the background and downgradient wells to establish the background concentrations. Consistent with the previously discussed USEPA sampling guidance, the sampling events are adequately spaced in time so that they will be independent, and account for seasonal variability. Ex. I, ¶9. The timeline also builds in sufficient time to complete the necessary statistical analysis of the results of all eight sampling events and to develop site specific applications of groundwater protection standards for subsequent data comparisons and evaluations. *Id.* at ¶13.

B. Modified Operating Permit Application Deadline

MWG estimates that it will take until March 31, 2022 to submit a complete operating permit application pursuant to §845.230(d), including the Initial Emergency Action Plan and the Fugitive Dust Plan. KPRG's attached timeline shows the proposed, feasible deadlines to meet the operating permit application requirements, including all required 22 technical components (*see*

Exhibit P). The timeline is based on the resources available, and level of effort required to complete each task. Ex. I, ¶18.

C. Modified Deadline for Designation of the Prioritization Category

MWG expects to comply with the requirement to designate the closure priority category for Ponds 1N and 1S in §845.700(g) at the time of its submission of the operating permit application by March 31, 2022. KPRG's proposed timelines in Exhibit O and P show that the necessary groundwater data and operating permit application technical documents will be collected by the end of March 2022, and at that time, MWG will have the information needed to make a designation of a closure priority category for Ponds 1N and 1S to include with the operating permit application.

D. Potential Modified Construction Permit Application Deadline

If Ponds 1N and 1S are designated as Category 4 ponds, MWG estimates that it can submit the construction permit application by July 1, 2022, which would be three months after the March 31, 2022 operating permit application deadline also being requested in this variance petition. This is simply a request for the same amount of time to complete the construction permit application after the operating permit application is submitted that is provided in the Illinois CCR Rule.

E. Compliance Costs

The total cost of executing the proposed compliance plan including the costs for the new monitoring wells installation, site clearing and grubbing, fence modifications, the eight rounds of groundwater sampling, and the statistical data evaluations is estimated at approximately \$104,000.¹² Ex. I, ¶20. The cost estimate is provided as Exhibit K. The estimated total cost of the operating permit application's preparation is approximately \$50,000, and the estimated cost of preparing a construction permit application is approximately \$150,000. *Id.* at ¶21; Ex. K. There are no increased costs associated with immediate compliance by the deadline for the data collection and information submission requirements. The cost to MWG is in the quality and thoroughness of the data collected and information submitted. *Id.* at ¶19.

¹² The cost estimate for groundwater monitoring does not include a cost estimate for the analytical results because these results would be part of a larger package of results for the Will County Station.

VII. THERE ARE NO ENVIRONMENTAL IMPACTS OF THE VARIANCE

As has been stated above, the requested variance will have no adverse effect on human health or the environment primarily because it does not seek to change in any way the substantive requirements of the Illinois CCR Rule – just to provide a reasonable amount of time to satisfy those requirements. Moreover, although this is the first regulatory program applicable specifically to the CCR in Ponds 1N and 1S, it is not the only regulation that applies to them. They have been subject to multiple federal and state statutes and regulations for decades, including the Station's NPDES permit, which are intended to protect human health and the environment.

Public health will not be jeopardized by the requested variance relief. As the evidence presented in the rulemaking demonstrated, there are no active potable water supply wells or surface water intakes that are at risk from any CCR surface impoundment in Illinois, including Ponds 1N and 1S. More specifically, there are no potable wells located downgradient of the Will County ash ponds. *See* Ex. G, Ex. D, ¶17. The only potable wells located at the Will County Station are two MWG wells which are used only for the Station's purposes. These wells are approximately 1,500 feet below ground surface, which puts their depth below the Maquoketa shale confining layer that effectively separates the shallow aquifer from the deep aquifer that these wells draw water from. Hence, there is no potential impact to these two MWG wells from any of the ponds at Will County Station, including Ponds 1N and 1S. *Id.* For these reasons, the requested variance relief will not result in any adverse impacts to public health or the environment.

VIII. PROPOSED VARIANCE CONDITIONS

MWG proposes that the requested variance from the deadlines imposed by the Illinois CCR Rule be granted subject to the following conditions:

- a. The variance applies only to MWG's Will County Station, Ponds 1N and 1S.
- b. MWG shall collect and analyze eight independent samples from each background and downgradient well for all constituents with a groundwater protection standard listed in Section 845.600(a) and also for Calcium, and Turbidity by January 31, 2022.
- c. MWG shall submit the operating permit application required by Section 845.230 for Pond 1N and Pond 1S by March 31, 2022.

- d. MWG shall submit the closure category designation required by Section 845.700(c) for Ponds 1N and 1S to the Illinois EPA by March 31, 2022.
- e. If MWG designates Ponds 1N and 1S as Category 4 CCR surface impoundments, then it shall submit the construction permit applications pursuant to Section 845.220 by July 1, 2022.
- f. If Ponds 1N and 1S are not designated as Category 4 CCR Surface Impoundments, no variance relief from the construction permit application deadline is has been requested or granted.
- g. The variance shall begin on May 11, 2021.
- h. The variance ends on March 31, 2022 if Ponds 1N and 1S are not designated as Category 4 CCR Surface Impoundments pursuant to Section 845.700(g). The variance ends on July 1, 2022 if Ponds 1N and 1S are instead designated as Category 4 CCR Surface Impoundments.

IX. CONSISTENCY WITH FEDERAL LAW

The requested variance is consistent with federal law. Section 104.208(d) of the Board's rules specify that petitions for variances from the Board's waste disposal regulations "must indicate whether the Board may grant the requested relief consistent with the Resource Conservation and Recovery Act ("RCRA") (42 USC 6902 *et seq.*) and the federal regulations adopted under RCRA (40 CFR 256 through 258, 260 through 268, 273, 279, and 280." 35 Ill. Adm. Code §104.208(d). The variance would be consistent with 40 CFR 257 because Ponds 1N and 1S are not federally regulated as CCR surface impoundments, thus any regulation of these ponds is beyond the requirements in the federal rule. In any case, this variance requests less than 1 year to collect the eight groundwater samples required by Section 845.650(b)(1)(A), which is less than the 24 months permitted by the federal CCR rule. For collecting the groundwater monitoring data, granting this variance will actually be more consistent with federal requirements because it will allow MWG to collect truly "independent" samples in accordance with USEPA Unified Guidance. Ex. M, Attachment 4.

X. AFFIDAVITS VERIFYING FACTS

As required by Section 104.204(m), two affidavits are attached as Exhibits D and I to verify the facts submitted in this petition. These affidavits include: the affidavit of Bradley Castle, of MWG verifying both that the facts stated in this petition relating to MWG and Will County Station are accurate and the attached exhibits are true and accurate copies (*see* Exhibit

D); and the Affidavit of Richard Gnat, of KPRG and Associates Inc. verifying that the facts stated in this petition relating to the compliance plan, the associated estimated compliance plan timetable and costs, and the conclusions regarding environmental impacts drawn therefrom are accurate (*see* Exhibit I).

XI. HEARING

Midwest Generation requests a hearing regarding this petition.

XII. CONCLUSION

This petition for variance should be granted by the Board because it satisfies the requirements of both Section 35(a) of the Act and the regulatory requirements of Part 104, Subpart B of the Board rules. The Petition demonstrates that it would cause MWG an arbitrary or unreasonable hardship if it is required to comply with the new Illinois CCR Rule deadlines for Ponds 1N and 1S. MWG respectfully requests that the Board grant the requested variance from provisions of Sections 845.230(d), 845.650(b)(1), 845.700(c) beginning May 11, 2021 through March 31, 2022, or if a variance from Section 845.700(h)(1) is necessary, through July 1, 2022.

Respectfully submitted,
Midwest Generation, LLC

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**MIDWEST GENERATION, LLC INDEX OF EXHIBITS FOR ITS PETITION FOR A
VARIANCE FOR THE WILL COUNTY STATION**

Ex. A: Illinois EPA Statement of Reasons, *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB R20-19*, March 30, 2020.

Ex. B: Excerpt of Aug. 11, 2020 Hearing Transcript, *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB 20-19*

Ex. C: Excerpt of Aug. 13, 2020 Hearing Transcript, *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB 20-19*

Ex. D: Affidavit of Bradley Castle

Ex. E: Illinois EPA Compliance Commitment Agreement, 2012

Ex. F: Drawings of Pond 1N and 1S Modifications

Ex. G: 2009 Hydrogeological Assessment of MWG Electric Generating Stations

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Ex. I: Affidavit of Richard Gnat, KPRG & Associates, Inc. (KPRG)

Ex. J: KPRG Map of Well Locations

Ex. K: KPRG Cost Estimates

Ex. L: KPRG Regulation Compliance Timeline (GW Monitoring)

Ex. M: Richard Gnat prefiled testimony, *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, PCB 20-19* (Aug. 27, 2020), and Attachment 4.

Ex. N: KPRG Regulation Compliance Timeline (Operating Permit)

Ex. O: KPRG Proposed Compliance Schedule (GW Monitoring)

Ex. P: KPRG Proposed Compliance Schedule (Operating Permit)

EXHIBIT A

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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

STATEMENT OF REASONS

NOW COMES the Illinois Environmental Protection Agency (“Illinois EPA”), 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 residual (“CCR”) surface impoundments at power generating facilities. The proposal contains comprehensive rules for the design, construction, operation, corrective action, closure and post-closure care of surface impoundments containing CCR. CCR is commonly referred to as coal ash, and CCR surface impoundments are commonly referred to as coal ash ponds or coal ash pits. This proposed rule includes groundwater protection standards applicable to each CCR surface impoundment at the waste boundary and requires each owner or operator to monitor groundwater. Illinois EPA’s proposed rule will include a permitting program as well as all federal standards for CCR surface impoundments promulgated by the United States Environmental Protection Agency (“USEPA”) under the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. 6901. In addition, the proposed rules

include procedures for public participation, closure alternatives analyses, and closure prioritization. The proposal also includes financial assurance requirements for CCR surface impoundments.

The Illinois EPA has prepared these draft rules as directed by a statutory mandate found in Public Act 101-171¹, which requires Illinois EPA to file the draft rule with the Board no later than March 30, 2020, and the Board to adopt the rules no later than one year after receipt.

II. BACKGROUND

Based upon information and belief, Illinois has 23 power plants which have used coal as a fuel source and may be impacted by this rule. *See* listing in Section VI. Ten of these plants are currently burning coal. Five of these plants have been converted to use natural gas as a fuel source and eight of these plants are no longer generating electricity. When coal is burned at power plants CCR is formed. CCR 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 CCR can be either a wet or dry system. Wet CCR is generally sluiced by pipe to an on-site surface impoundment. Dry CCR can be disposed in a landfill.

As noted above, in wet CCR handling systems, a piping system transports CCR to the impound system. The impound system can be composed of one or more surface impoundments. Typically, a CCR surface impoundment will have a primary cell where the majority of the solid

¹ *See* Public Act 101-171, eff. 7-30-19 attached as Attachment D.

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 CCR 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, CCR 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 CCR 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 CCR surface impoundment by constructing a diked enclosure. These structures are considered dams and are required to comply with Illinois' dam safety regulations. *See* 17 Ill. Adm. Code 3702.20. The size of the diked enclosure units ranges from less than an acre to over 300 acres.

The Illinois EPA has identified 73 CCR surface impoundments at power generating facilities. *See* Section VI. Some of surface impoundments are lined with impermeable materials, while others are not. Illinois EPA believes there are up to 6 CCR surface impoundments with liners that comply with the federal liner standards in 40 CFR 257.

The chemical make-up of CCR depends on the type of coal used, as well as the combustion technology and pollution control technology used at a facility. CCR can contain constituents such as antimony, arsenic, barium, beryllium, boron, cadmium, chloride, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, radium 226 and 228, selenium, sulfate, and thallium. The presence of these contaminants threatens groundwater as these contaminants are soluble and mobile. When the CCR 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.

Regulatory Development

Until the adoption of Section 22.59 of the Act in P.A. 101-171 on July 30, 2019, the Illinois EPA had generally permitted the construction and operation of CCR surface impoundments as a waste water treatment unit under Title III of the Act Subtitle C of the Board's administrative rules. Many of these impoundments are permitted through a National Pollutant Discharge Elimination System (NPDES) permit or state operating permit issued under Section 12(b) of the Act.

The regulation of CCR surface impoundments became a national focus on December 22, 2008, after a dike ruptured at the Kingston Fossil Plant in Kingston Tennessee and approximately 1.1 billion gallons of CCR was released to the Emory River. In response, USEPA began developing rules for coal ash ponds and coal ash landfills under RCRA. *See* 75 Fed. Reg. 35137 (June 21, 2010). Illinois EPA responded by developing a coal ash impoundment strategy that required groundwater monitoring at all power plants in Illinois that use coal as a fuel source.

Under the ash impoundment strategy, the Illinois EPA identified facilities with CCR surface impoundments, requested groundwater monitoring well data, requested potable water system surveys, requested hydrogeologic site assessments, required the installation of groundwater monitoring and conferred with the Illinois Department of Natural Resources on dam safety. The information gathered under Illinois EPA's ash impoundment strategy showed that 14 facilities had violations of the numerical groundwater quality standards on-site.

In 2009, the Board held that coal ash ponds should not be regulated under the existing on-site landfill regulations, and instead the ash ponds required their own regulations, either site-

specific or generally applicable. *In Re: Ameren (Hutsonville Power Station)*, AS 2009-01, Order (March 5, 2009). The Board's rules governing waste disposal in Subtitle G are not applicable to surface impoundments 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.

In response to the Board's holding in Hutsonville Power Station's petition for an adjusted standard, Ameren Energy Generating Company closed ash pond D at Hutsonville through a site-specific rulemaking. *Ameren Ashpond Closure Rules*, R 2009-21, Order (Jan. 20, 2011); *See* 35 Ill. Adm. Code 840, Subpart A. In 2013, Ameren filed another site-specific rule to close 16 ash ponds at 8 other facilities. *In Re: Site-Specific Rule for the Closure of Ameren Energy Resources Ash Ponds*, R2013-19. Shortly thereafter, the Illinois EPA filed a rule of general applicability for all coal ash ponds located at power plants. *In re: CCW Ash Ponds, R2014-10* (CCW rulemaking). The Illinois EPA was motivated to file a rule of general applicability because Illinois has 23 coal burning facilities, each with multiple ash ponds. The Illinois EPA wanted to avoid a piece-meal process of numerous site-specific rules for each pond or facility. Additionally, the groundwater monitoring results the Illinois EPA received under the ash impoundment strategy revealed widespread groundwater contamination at these power plants.

After completion of the hearings and post-hearing comment process in the CCW rulemaking before the Board, USEPA issued a final rule regulating CCR surface impoundments under Subtitle D of RCRA. 80 Fed. Reg. 21302 (April 17, 2015); *See* 40 C.F.R. Part 257. The federal CCR rule, as initially adopted, created a self-implementing program. Power plants were required to independently conduct groundwater monitoring and corrective action in response to exceedances of the federally designated groundwater quality standards. The rule contained

location restrictions, stability requirements, design criteria, and operating, closure and post closure care requirements. Clay-lined ponds were initially considered lined ponds. Unlined ponds could continue operation so long as the federal groundwater quality standards were not violated. The federal rule did not apply to legacy ponds—ponds located at sites no longer generating power. As initially adopted, USEPA would not issue permits to these CCR surface impoundments or enforce compliance with the federal rules. The federal rule was appealed by both environmental groups and industrial groups. *See Util. Solid Waste Activities Group v. Env'tl. Prot. Agency*, 901 F.3d 414 (D.C. Cir. 2018), judgment entered, 15-1219, 2018 WL 4158384 (D.C. Cir. Aug. 21, 2018). In June 2016, USEPA, the environmental groups and industrial groups agreed to remand certain provisions of the federal rule back to USEPA. *Id.*

In July 2016, the Illinois EPA amended its proposal in the CCW rulemaking, eliminating most of the substantive requirements. Instead, the Illinois EPA proposed to permit the closure and post-closure of these facilities through water construction and operating permits under Section 12(b) of the Act. Under the amended proposal any permit issued by the Illinois EPA would have to be as stringent as the federal rule.

In December 2016, the President signed the Water Infrastructure Improvements for the Nation (WIIN) Act, P.L. No 114-322. This act amended RCRA, allowing USEPA to enforce violations of the federal CCR rules and required USEPA to develop a federal permitting program for CCR surface impoundments. 42 U.S.C. 6945(d)(2)(B). The WIIN Act also provided for state program delegation if a state's program is at least as stringent as the federal rule. 42 U.S.C. 6945(d)(1)(B).

In August 2018, the United States Court of Appeals issued its opinion on the portions of the federal CCR rule appeal that had not been remanded. *Utility Solid Waste Activities Group, et*

al., v. Environmental Protection Agency, 901 F.3d 414 (D.C. Cir. 2018). The court's decision in *Utility Solid Waste Activities Group (USWAG)* expanded the scope of the federal rule by finding that USEPA acted arbitrarily and capriciously when it exempted legacy ponds. The court held that USEPA acted contrary to RCRA in failing to require the closure of unlined CCR surface impoundments and classifying clay-lined CCR surface impoundments as lined. *Id.* at 449. The court vacated certain provisions in the rule and remanded the rule back to USEPA. The appellate court's decision was not appealed. *See* USWAG decision attached as Attachment C.

On July 30, 2019, Governor JB Pritzker signed into law Public Act 101-171, which amended the Act to create a new Section 22.59. The new state law prohibits the discharge of contaminants from a CCR surface impoundment into the environment and the placement of CCR on the land so as to cause a violation of Section 22.59 or the Board's Rules. 415 ILCS 5/22.59(b). It also prohibits the construction, installation, operation, modification, or closure of a CCR surface impoundment without a permit granted by the Illinois EPA. *Id.* Before any CCR surface impoundment is closed, the owner or operator must conduct a closure alternatives analysis that considers closure by removal in addition to other closure methods. 415 ILCS 5/22.59(d). Section 22.59 includes a permitting exception for those facilities that have obtained a permit from the USEPA under the federal CCR rule. 415 ILCS 5/22.59(c). Further, those facilities that have submitted a closure plan to the Illinois EPA before May 1, 2019, and have completed closure by July 30, 2021, are not required to obtain a construction permit for closure, and therefore, they are not required to conduct the closure alternatives analysis required by Section 22.59(d). 415 ILCS 5/22.59(e).

Public Act 101-171 contains a rulemaking mandate in Section 22.59(g) directing the Board to adopt rules "establishing construction permit requirements, operating permit requirements,

design standards, reporting, financial assurance, and closure and post-closure care requirements for CCR surface impoundments”. 415 ILCS 5/22/59(g). Board’s rules must (1) be as protective and comprehensive as the federal CCR rule in Subpart D of 40 CFR 257, (2) specify the permitting requirements and procedures, (3) specify meaningful public participation procedures, (4) prescribe the types and amounts of financial assurance, (5) specify procedures to identify areas of environmental justice concern in relation to CCR surface impoundments, (6) specify a method to prioritize CCR surface impoundments required to close under the federal CCR rule, (7) define when complete removal is achieved, and (8) describe the process and standards for identifying alternative sources of groundwater pollution.

Proposed Amendments to the Federal CCR Rule

USEPA has three pending regulatory proposals to amend the federal CCR rule that have not yet been finalized.^{2,3}

The first proposed amendment was published in the Federal Register on March 15, 2018. *See* 83 Fed. Reg. 11584 (March 15, 2018). On July 30, 2018, USEPA finalized certain provisions of the March 2018 proposal, including the proposed revision of the groundwater protection standard for constituents that do not have an established maximum contaminant level (MCL). 83 Fed. Reg. 36435 (July 18, 2018). The July 30, 2018 final rule also extended the deadline to initiate closure to close to October 31, 2020, for certain facilities that are required to close under the federal rule. 83 Fed. Reg. 36454. The environmental groups appealed this final rule, challenging the deadline extension. *Waterkeeper Alliance, Inc., et al. v. USEPA* (D.C. Cir. 2019), *See* Order No 18-

² On February 19, 2020, USEPA submitted a pre-publication proposal that proposes to allow facilities to use an alternate liner and CCR during closure, an additional closure option for removal, and annual closure progress reports. USEPA seeks public comments for 45-days (April 4, 2020) *See* USEPA Docket No. EPA-HQ-OLEM-2019-0173.

³ On February 20, 2020, USEPA proposed a federal permitting program under 40 CFR 257, Subtitle E for nonparticipating states. However, Illinois intends to become a participating state under 40 CFR 257 and obtain partial federal program delegation from the USEPA.

1289. The court remanded the rule back to USEPA without vacatur on March 19, 2019. *Id.* The remaining portions of the March 2018 proposal have not been finalized.

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

The third proposed amendment was published in the Federal Register on December 2, 2019. 84 Fed. Reg. 65941. Here, USEPA proposes to amend the federal CCR rule to reflect the *USWAG* decision and address the *Waterkeeper* remand. *Id.* Specifically, USEPA proposes to remove the provision classifying clay lined CCR surface impoundments as lined and the provision allowing unlined CCR surface impoundments to continue operation unless they leak. *Id.* at 65944-65958. This proposal also addresses the deadline extension to cease accepting CCR and commence closure by proposing an August 31, 2020 deadline. The proposed rule includes procedures for facilities to extend the August 31, 2020, deadline to November 30, 2020, under the short term self-implementing alternative or a longer USEPA-approved extension for lack of alternative capacity or permanent cessation of the coal-fired boilers. *Id.* at 65953-65954.

III. REGULATORY PROPOSAL: PURPOSE AND EFFECT

The Illinois EPA's regulatory proposal for CCR surface impoundments is expansive, creating an entirely new permitting and regulatory structure. The Illinois EPA's stated purpose and effect encapsulated within this section of the Statement of Reasons is intended to highlight with

broad strokes Illinois EPA's goals. A more detailed explanation of the proposed rules' purpose and effect is set forth in the Section IV: Regulatory Proposal: Language.

As noted above, Section 22.59(g) of the Act requires the Illinois EPA to propose CCR rules to the Board no later than March 30, 2020. The foremost purpose and effect of this regulatory proposal is to fulfill Illinois EPA's statutory obligation to propose CCR rules consistent with the requirements in Section 22.59(g).

The second purpose and effect of this regulatory proposal is to protect the groundwater within the state of Illinois. The proposed rule contains a program for groundwater monitoring and the remediation of contaminated groundwater resulting from leaking CCR 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 Illinois' groundwater. The proposed rule establishes a framework to manage the underground water resource to allow for maximum benefit of the State.

The third purpose and effect of this proposed rule is to adopt the federal CCR rules in Illinois and obtain federal approval of Illinois' CCR surface impoundment program. The federal CCR rules provide a framework for Illinois to fill the regulatory gap that exists when CCR surface impoundments are no longer operating as waste water treatment units. With the adoption of these proposed rules, Illinois will have a program that covers the design, construction, operation, corrective action and closure of CCR surface impoundments. The proposed rules contain groundwater protection standards that apply in addition to the groundwater quality standards in Part 620. Owners or operators of CCR surface impoundments will be required to conduct

groundwater monitoring to detect exceedances of the groundwater protection standards at the CCR surface impoundment's waste boundary.

The fourth purpose and effect of this regulatory proposal is to adopt procedures to ensure CCR surface impoundments are closed in an environmentally protective way. Under the federal CCR rule, several CCR surface impoundments must cease receiving CCR and close by quickly-approaching federal deadlines. The proposed prioritization scheme assists owners and operators in determining where and how to spend their resources by categorizing impoundments based on risk to health and the environment and the impoundment's proximity to areas of environmental justice concern. In addition to a closure prioritization scheme, the proposed rule includes a closure alternatives analysis of the long-term and short-term effectiveness of the closure methods, whether the closure methods will control future releases, the ease or difficulty in implementation, and the degree to which community concerns are addressed. This analysis must be conducted prior to submitting a construction permit application for closure and must be presented to the public for review and comment.

The fifth purpose and effect of this proposed rule is to ensure meaningful public participation. Illinois EPA proposes that public participation begins before the owner or operator applies for a permit. Under the proposed rule, owners and operators of CCR surface impoundments will be required to hold at least two public meetings before the submission of any construction permit application. Before an owner or operator submits a construction permit to build, modify, retrofit or close a CCR surface impoundment or submits a construction permit to perform corrective action of a release from the CCR surface impoundment, the owner or operator must share with the public its intended plan, including any alternatives analyses required by the rule. The Illinois EPA believes early and sustained public participation is vital to assisting owners and

operators in developing corrective action and closure plans that account for impacts to individuals living in communities where CCR will be generated, handled, transported and disposed. After the submission of a permit application and the Illinois EPA has reached a tentative determination, the Illinois EPA will circulate the draft permit with the public and hold a public meeting whenever a significant degree of public interest exists. The proposed post-application public participation process is modeled after the NDPES permit program, which provides an opportunity to ask questions, and to provide comments and other information which the Illinois EPA uses in reaching its final permitting decisions.

The sixth purpose and effect of this proposed rule is to set forth clear permitting requirements and procedures. In Illinois, most regulatory programs require a construction permit before a facility or equipment capable of causing or designed to prevent pollution is built or installed; once built, an operating permit must be obtained before operation of the facility or equipment commences. Consistent with the other permitting programs administered by the Illinois EPA, this regulatory proposal envisions the same two types of permits: construction and operating permits. Before the construction of new CCR surface impoundments or the modification, retrofit or closure of CCR surface impoundments, an owner or operator must obtain a construction permit. Once the facility or equipment is built, and before receipt of CCR, the owner or operator must obtain an operating permit. If a facility must perform corrective action, a construction permit must be obtained for the installation of any new equipment, monitoring wells or modifications to the surface impoundment. The owner or operator will have to modify the facility's operating permit to account for the planned corrective action. A construction permit is necessary before closure may commence.

The last purpose and effect of the proposed rule is to ensure that owners and operators of

CCR surface impoundments provide adequate financial assurance for the completion of closure, post-closure care, and remediation of releases also referred to as corrective action. The Illinois EPA proposes that financial assurance be provided within specified timeframes; based on detailed written cost estimates and, in the case of corrective action, an additional preliminary cost estimate updated regularly for approved plan changes and for inflation; and maintained continuously until an Illinois EPA release is obtained. Available financial assurance mechanisms include a trust fund, a surety bond guaranteeing payment, a surety bond guaranteeing performance, or an irrevocable letter of credit.

The proposed rules do not prescribe how all CCR 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 over the groundwater protection standards, the owner or operator must perform corrective action. 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 Provisions

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

Section 845.100: Scope and Purpose

This Section states the purpose of Part 845 is to establish criteria for determining which CCR surface impoundments do not pose a reasonable probability of adverse effects on health or

the environment. The requirements of Part 845 apply to owners and operators of new and existing CCR surface impoundments (including any lateral expansions of CCR surface impoundments that dispose or otherwise engage in solid waste management of CCR generated from the combustion of coal at electric utilities and independent power producers), inactive CCR surface impoundments at active and inactive electric utilities or independent power producers (regardless of the fuel currently used at the facility to produce electricity), and, subject to Section 845.170, inactive CCR surface impoundments. Further, this Section provides that this Part does not apply to wastes consistent with 40 CFR 257.50(f), beneficial use of CCR, CCR placement at active or abandoned underground or surface coal mines, and landfills that receive CCR.

Section 845.110: Applicability of Other Regulations

This Section denotes that compliance with Part 845 does not affect the need for the owner or operator of a CCR surface impoundment or lateral expansion of a CCR surface impoundment, to comply with all other applicable federal, state, tribal, or local laws or other requirements. This Section further expressly delineates that any CCR surface impoundment or lateral expansion of a CCR surface impoundment continues to be subject to floodplain requirements, the Illinois Endangered Species Protection Act, the federal requirements within 40 CFR 257.3-2, federal surface water requirements, and the Rivers, Lakes and Streams Act.

Section 845.120: Definitions

In addition to definitions contained within the Act, the Illinois EPA proposes adding definitions from 40 CFR 257.53.

Section 845.130: Surface Impoundment Identification

This Section prescribes how owners or operators of CCR surface impoundments identify CCR surface impoundments.

Section 845.140: Right of Inspection

This Section provides the requirement for owners or operators to allow the Illinois EPA and duly authorized representatives to perform inspections within its authority under the Act.

Section 845.150: 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 845.160: Severability

This severability clause Section provides that if any provision of the Part 845, or its application to any person or under any circumstances is adjudged invalid, such adjudication shall not affect the validity of this Part as a whole or of any portion not adjudged invalid.

Section 845.170: Inactive Closed CCR Surface Impoundments

This Section outlines the provisions of Part 845 that apply to inactive closed CCR surface impoundments.

Subpart B: Permitting

Proposed Subpart B contains provisions, process, and requirements for the permitting of CCR surface impoundments and the public participation within that process.

Section 845.200: Permit Requirements and Standards of Issuance

This Section establishes that an owner or operator must obtain a construction permit to install or modify a CCR surface impoundment and to perform a corrective action. This Section requires owners or operators to obtain an operating permit before receiving CCR and includes the standards for issuance of such permits.

Section 845.210: General Provisions

This Section describes the application process to obtain a permit from the Illinois EPA and

allows the applicant to submit previously completed demonstrations and assessments for some of the requirements in Part 845.

Section 845.220: Construction Permits

In this Section the Illinois EPA specifies what information and documentation a construction permit application must contain for building a new CCR surface impoundment, construction related to corrective actions, and construction related to closure activities.

Section 845.230: Operating Permits

In this Section the Illinois EPA specifies what information and documentation an operating permit application must contain to obtain an initial and renewal operating permit for a CCR surface impoundment, a post-closure care operating permit, and an initial operating permit for existing, inactive and inactive closed CCR surface impoundments. Operating permits shall be issued for fixed terms not to exceed five years.

Section 845.240: Pre-Application Public Notification and Public Meeting

This Section specifies the public notification requirements for owners or operators to conduct at least two public meetings prior to submitting a construction permit application to the Illinois EPA. In this meeting the owner operator must outline the decision-making process for the project, including, where applicable, the corrective action alternatives and the closure alternatives considered.

Section 845.250: Tentative Determination and Draft Permit

Once a complete application for a construction permit, operating permit or a joint construction and operating permit has been received and reviewed, the Illinois EPA will provide either a tentative determination to issue or deny the permit to the applicant. The Illinois EPA will also notify the applicant of its intent to circulate public notice of its tentative decision.

Section 845.260: Draft Permit Public Notice and Participation

This Section contains the requirements for notifying the public of a tentative Illinois EPA decision on a permit, provides the opportunity for the public to comment on the tentative permit and request a public hearing on the tentative permit. It specifies the process and requirements the Illinois EPA must follow to provide public notice of the hearing, allow for public commenting, hold a public hearing, and requires the Illinois EPA to prepare a responsiveness summary addressing issues raised by the public.

Section 845.270: Final Permit Determination and Appeal

This Section lays out the procedures for notification by the Illinois EPA of its final decision on a permit and species the process for appealing an Illinois EPA determination.

Section 845.280: Transfer, Modification and Renewal

This Section establishes process and criteria for the transfer, modification, or renewal of a permit. This Section includes criteria for an Illinois EPA -initiated modification, an owner or operator-initiated modification, an Illinois EPA minor modification, and the timeframes and requirements for filing an application for renewal of a permit.

Section 845.290: Construction Quality Assurance Program

This Section establishes the requirement to develop and implement a Construction Quality Assurance Program, and what such a program must include.

Subpart C: Location Restrictions

Proposed Subpart C provides the location restrictions for existing, new, and laterally expanded CCR surface impoundments. The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the location demonstrations meet the location requirements of each respective location restriction.

Section 845.300: Placement Above the Uppermost Aquifer

This Section requires that the base of a CCR surface impoundment must not be within five (5) feet of the top of the uppermost aquifer, including during seasonally high periods. This requirement must be demonstrated and provided in both the initial operating permit application and in a construction permit application. This Section is consistent with 40 CFR 257.60.

Section 845.310: Wetlands

This Section provides the location restrictions relative to wetlands consistent with 40 CFR 257. Requirements of this Section require that protection of wetlands will occur. This Section is consistent with 40 CFR 257.61.

Section 845.320: Fault Areas

The purpose of this Section is to provide location restrictions and determine proximity to fault areas. This Section is consistent with 40 CFR 257.62.

Section 845.330: Seismic Impact Zones

This Section restricts the location of CCR surface impoundments regarding seismic impact zones as provided in Part 257. Requirements of this Section pertain to liners and other structural components of the CCR surface impoundment. This Section is consistent with 40 CFR 257.63.

Section 845.340: Unstable Areas

This Section provides what is considered an unstable area and precludes the location of a CCR surface impoundment in an unstable area. This Section is consistent with 40 CFR 257.64.

Section 845.350: Failure to Meet Location Standards

This Section provides that the owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements Subpart C are subject to the closure or retrofit provisions of Section 845.700 and are precluded from placing CCR in the CCR surface

impoundment.

Subpart D: Design Criteria

Proposed Subpart D contains the proposed design criteria for CCR surface impoundments.

Section 845.400: Liner Design Criteria for Existing CCR Surface Impoundments

In this Section, the Illinois EPA lays out the specifications and requirements for a composite liner and an alternative composite liner consistent with 40 CFR 257. The owner or operator must demonstrate whether or not existing CCR surface impoundments, that have not completed an Illinois EPA-approved closure prior to July 30, 2021, have been constructed with federally compliant liners. All unlined CCR surface impoundments are subject to the closure or retrofit provisions of Section 845.700.

Section 845.410: Liner Design Criteria for New CCR Surface Impoundments and Any Lateral Expansion of a CCR Surface Impoundment

This Section of the proposal specifies requirements for new, and lateral expansions of, CCR surface impoundments and refers to the design criteria contained in Section 845.400.

Section 845.420: Leachate Collection and Removal System

A new CCR surface impoundment must be designed, constructed, operated and maintained with a leachate collection and removal system. The purpose of this Section is to minimize the amount of head on the liner system which will decrease the potential for the movement of fluids through the liner. The system is similar to leachate collection systems required for solid waste landfills.

Section 845.430: Slope Maintenance

The slopes, and pertinent surrounding areas of the CCR surface impoundment, must be designed, constructed, operated, and maintained with one of the forms of slope protection specified in Subsection (a) of this Section. Further, this Section provides requirements on the final cover

system that generally require the cover system be properly maintained to protect it from erosion, be mowed on a regular basis, and kept free of woody vegetation.

Section 845.440: Hazard Potential Classification Assessment

This Section provides the requirements for the owner or operator of the CCR surface impoundment to complete and document a hazard potential classification assessment of each CCR surface impoundment. The owner or operator must document the hazard potential classification of each CCR surface impoundment as either a Class 1 or Class 2 CCR surface impoundment. The owner or operator must also document the basis for each hazard potential classification.

Section 845.450: Structural Stability Assessment

This Section provides the requirements for the owner or operator to conduct an initial and annual structural stability assessment and document whether the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded.

Section 845.460: Safety Factor Assessment

This Section provides the requirements for the owner or operator to conduct an initial and annual safety factor assessment for each CCR surface impoundment and document whether the calculated factors of safety for each CCR surface impoundment achieve the minimum safety factors specified for the critical cross section of the embankment.

Subpart E: Operating Criteria

Proposed Subpart E contains the criteria for operating CCR surface impoundments.

845.500 Air Criteria

This Section provides the requirements for the owner or operator to provide dust control

measures for activities related to the CCR surface impoundments. Dust control measures will be documented in a Fugitive Dust Control Plan and an Annual Fugitive Dust Control Report. This Section is consistent with 40 CFR 257.80.

845.510 Hydrologic and Hydraulic Capacity Requirements for CCR Surface Impoundments

This Section specifies the requirements for inflow flood control system for CCR surface impoundments. The requirements for the inflow flood control system include design, construction, operation, maintenance and submission of plan and amendments to the plan to Illinois EPA. This Section is consistent with 40 CFR 257.82.

845.520 Emergency Action Plan

This Section provides that the owner or operator of a CCR surface impoundment must prepare and maintain a written Emergency Action Plan (“EAP”) and defines the minimum requirements for the EAP. Illinois EPA proposes measures that include, *inter alia*, notification and annual meetings with local first responders.

845.530 Safety and Health Plan

This Section provides that the owner or operator of the CCR surface impoundment must develop a Safety and Health Plan (“SHP”), ensure that employees, contract workers, and third-party contractors are informed regarding the SHP, and defines the minimum requirements for the SHP including a personnel training program with minimum requirements. For worker exposure safety, the owners and operators must implement The United States Department of Labor’s Occupational Safety and Health Administration (“OSHA”) standards in 29 CFR 1910.120 and 29 CFR 1926.65. Owners and operators must provide Safety Data Sheets (SDSs) or a specific SDS created for impoundment specific CCR. Finally, this Section provides minimum requirements for hazard communications.

845.540 Inspection Requirements for CCR Surface Impoundments

This Section details the minimum requirements for inspections conducted by a qualified person and the annual inspections by a qualified professional engineer. Documented inspections are required of CCR surface impoundments after storms for deterioration of the CCR surface impoundment structure. Additionally, weekly inspections of discharge flow mechanisms within and around the CCR surface impoundment require inspection. Finally, a qualified professional engineer will perform a detailed annual inspection of the CCR surface impoundment to document the integrity of the structure and supporting structures. Annual inspection reports and proposed corrective actions will be provided to the Illinois EPA.

845.550 Annual Consolidated Report

This Section details the requirements of an Annual Consolidated Report to include the Annual CCR Fugitive Dust Control Report, Annual Inspection Report, and Annual Groundwater Monitoring and Correction Action Report by January 31st of each year.

Subpart F: Groundwater Monitoring and Corrective Action

Proposed Subpart F contains the provisions of Part 845 that concern groundwater monitoring and corrective action.

Section 845.600: Groundwater Protection Standards

In this proposed Section, the Illinois EPA establishes the groundwater protection standards that are applicable to new, existing and inactive CCR surface impoundments. This Section also establishes the point of compliance relative to groundwater monitoring at CCR surface impoundments. The groundwater protection standards proposed in this Section correspond to 40 CFR 257, Appendix III and Appendix IV. Additionally, this proposed Section includes some elements of 40 CFR 257.94 and 40 CFR 257.95 including the requirement for the groundwater

protection standards to meet background at the waste boundary.

Section 845.610: General Requirements

In this proposed Section, the Illinois EPA establishes the requirements for groundwater monitoring for all CCR surface impoundments subject to Subpart F during the entire active life of the CCR surface impoundment which include operation, closure, post-closure care and any required corrective action. These requirements include hydrogeologic site characterization to establish the basis for the required groundwater monitoring system, and groundwater sampling and analysis requirements, including appropriate statistical analysis. This Section also establishes the requirement to initiate corrective action based on the analysis of groundwater monitoring and establishes the requirement for annual reporting along with the required contents of the annual reports. The proposed Section generally corresponds to the applicability requirements of 40 CFR 257.90.

Section 845.620: Hydrogeologic Site Characterization

In this proposed Section, the Illinois EPA requires all owners or operators to conduct a comprehensive site investigation and evaluation to determine potential contamination migration pathways and to develop other hydrogeologic information for the facility. In addition to the establishment of a groundwater monitoring system, the data from the hydrogeologic site investigation will be useful when evaluating corrective action and closure options.

Section 845.630: Groundwater Monitoring Systems

In this proposed Section, the Illinois EPA establishes the specific design requirements of the groundwater monitoring system including the number of monitoring wells, their location and construction for each CCR surface impoundment, or if appropriate a combination of CCR surface impoundments. The proposed Section generally corresponds to the groundwater monitoring

systems requirements of 40 CFR 257.91.

Section 845.640: Groundwater Sampling and Analysis Requirements

In this proposed Section, the Illinois EPA establishes the requirements for sample collection, preservation and chain of custody. Requirements to use appropriate data collection, sampling and analytical methods are included along with general guidance on the types of statistical methods which are acceptable for the analysis of the groundwater monitoring data collected, and how those statistical methods are used in compliance determination. This proposed Section generally corresponds with elements of the groundwater sampling and analysis requirements of 40 CFR 257.93; the detection monitoring program requirements of 40 CFR 257.94; and the assessment monitoring program requirements of 40 CFR 257.95.

Section 845.650: Groundwater Monitoring Program

In this proposed Section, the Illinois EPA establishes the constituents that must be monitored, the frequency of groundwater monitoring and the requirements for the monitoring program to fit with the selected statistical methods. This proposed Section also establishes the process by which owners and operators determine if they must initiate corrective action or are able to provide an alternative source demonstration. The proposed Section contains elements of the detection monitoring program requirements of 40 CFR 257.94 and the assessment monitoring program requirements of 40 CFR 257.95.

Section 845.660: Assessment of Corrective Measures

In this proposed Section, the Illinois EPA establishes the mechanism by which the assessment of corrective measures is initiated. It also sets forth the time frames for initiating and completing the corrective measures assessment, lists general criteria for consideration during the corrective measures assessment, confirms the requirement to continue groundwater monitoring

during the corrective measures assessment and establishes a requirement for public participation as part of the corrective measures assessment. This proposed Section contains elements of the assessment of corrective measures requirements found in 40 CFR 257.96.

Section 845.670: Corrective Action Plan

In this proposed Section, the Illinois EPA establishes the schedule for submission of a corrective action plan to the Illinois EPA. It also sets forth a list of the requirements that must be fulfilled by the corrective action plan. The corrective measures incorporated into the corrective action plan must be protective of human health and the environment, meet the groundwater protection standards of Part 845.600, control to the extent feasible further releases to the environment, remove from the environment as much released material as feasible and comply with the management of waste requirements of Part 845.680. This proposed Section requires the submission of data supporting the selected remedy which is detailed in the corrective action alternatives analysis. The owner or operator must also provide a schedule for implementing and completing the corrective action, taking into consideration facility specific details such as the character and extent of contamination, the availability of treatment and disposal capacity, risks posed to human health and the environment, local groundwater use with regard to quality and quantity including possible impacts on the groundwater and the availability of alternative water supplies. The proposed Section generally corresponds to the selection of remedy requirements found in 40 CFR 257.97.

Section 845.680: Implementation of the Corrective Action Plan

In this proposed Section, the Illinois EPA establishes the timeframe for implementing the Illinois EPA approved corrective action, which must meet applicable groundwater monitoring requirements, document the effectiveness of the remedial action and demonstrate compliance with

groundwater protection standards. The proposed Section also requires that owners and operators take interim measures to prevent further releases while the final corrective action measures are being implemented, along with requirements to amend the corrective action plan if it is determined that the approved corrective action will not be successful in meeting the requirements of the corrective action. This proposed Section also sets forth the criteria for determining when corrective action has been completed and the steps owners and operators must take to verify completion of corrective action. The proposed Section generally corresponds to the implementation of the corrective action program found in 40 CFR 257.98.

Subpart G: Closure and Post-Closure Care

Proposed Subpart G contains provisions for closure and post-closure care of CCR surface impoundments.

Section 845.700: Required Closure or Retrofit of CCR Surface Impoundments

As this proposal requires Illinois EPA's review and approval of proposed closures, the owners and operators of CCR surface impoundments and the Illinois EPA must prioritize which CCR surface impoundments close first. The proposed prioritization scheme assists owners and operators in determining where and how to spend their resources by categorizing impoundments based on risk to health and the environment and the impoundment's proximity to areas of environmental justice concern, requiring those with the highest risk and those located in areas of environmental justice concern to submit a closure application first, approximately nine months after the proposed rules will become effective. The impoundments posing a slightly lower risk would be required to submit closure permit applications six months later, and those with the least amount of risk would be required to submit permit applications 18 months later.

Section 845.710: Closure Alternatives

This Section provides the requirements and factors required when considering closure of a CCR surface impoundment and evaluating closure alternatives. For closure of a CCR surface impoundment, or closure of any lateral expansion of a CCR surface impoundment, the Illinois EPA requires that closure alternatives be considered including, but not limited to, closure by removal. Before selecting a closure method, the owner or operator of each CCR surface impoundment must complete a closure alternatives analysis that considers the long and short term effectiveness and protectiveness of the closure method, the effectiveness of the closure method in controlling future releases, the ease or difficulty of implementing a potential closure method, and the degree to which the concerns of the residents living within communities where the CCR will be handled, transported and disposed are addressed by the closure method. A closure alternatives analysis must be included in the closure plan submitted to the Illinois EPA and must ensure the protection of human health and the environment and achieve compliance with the groundwater protection standards. The alternatives analysis must also meet or exceed a class 4 estimate under the AACE Classification Standard, contain the results of groundwater modeling showing how the closure alternative will achieve compliance with the applicable groundwater protection standards, including seasonal variations, and assess impacts to waters of the State. The analysis must also identify whether the facility has an onsite landfill with remaining capacity that can accept CCR or the ability to construct an onsite landfill. At least 30 days before submission of a construction permit application for closure, the owner or operator must hold a public meeting concerning the closure alternatives.

Section 845.720: Closure Plan

The purpose of this Section is to specify what must be included within closure plans. This Section provides the requirements of a closure plan with submission of a preliminary written closure plan, amendments to the preliminary written closure plan, and final closure plan. The closure plan is

required prior to initiation of the closure activities. The final closure plan must also detail characteristics of the closure activities, CCR surface impoundment, closure alternatives, design of the closure, and any amendments to the preliminary written closure plan.

Section 845.730: Initiation of Closure

This Section provides the requirements for how closure activities must be initiated and when closure is required due to completion of the use of the CCR surface impoundment as an active CCR surface impoundment. The owner or operator must initiate closure of a CCR surface impoundment no later than the timeframes specified if the owner or operator has ceased placing waste in the CCR surface impoundment. Owners and operators of temporarily idled CCR surface impoundments may obtain two year extensions on for initiation of closure with documentation that the impoundment has remaining storage or disposal capacity or that the impoundment can have CCR removed for the purpose of beneficial use and that there is a reasonable likelihood the that impoundment will resume receiving waste or CCR will be removed for the purpose of beneficial reuse. The documentation must be submitted for Illinois EPA review and approval.

Section 845.740: Closure by Removal

This Section provides the requirements for closure by removal. An owner or operator may elect to close a CCR surface impoundment by removing and decontaminating all areas affected by releases from the impoundment. Once closure by removal is completed, groundwater monitoring must continue for three years after closure or for three years after groundwater monitoring does not show an exceedance of the groundwater protection standards. The owner or operator must responsibly handle and transport the CCR, including manifests, transportation plans, onsite dust controls, public notices, and prevent contamination of surface water, groundwater, soil and sediments. Upon completion of CCR removal and decontamination of the CCR surface impoundment, a completion of CCR removal and decontamination report and a certification from

a qualified professional engineer that CCR removal and decontamination of the CCR surface impoundment has been completed must be placed in the facility's operating record pursuant to Section 845.800. Upon completion of groundwater monitoring, the owner or operator of the CCR surface impoundment must complete a groundwater monitoring report and a certification from a qualified professional engineer that groundwater monitoring has been completed and place this report in the facility's operating record.

Section 845.750: Closure with a Final Cover System

This Section provides the technical requirements for the final cover system when closure is not by complete removal. The Illinois EPA consulted 35 Ill. Adm. Code 811.204 and Ill. Adm. Code 840.126 when drafting this proposed language. This Section details the closure performance standard for the final cover system when closing by leaving CCR in place. The performance standard will help prevent contamination release through design, optimize drainage, stabilization, minimize infiltration and erosion, and support vegetation. CCR may be placed in the surface impoundment, but only for the purposes of grading and contouring in the design and construction of the final cover.

Section 845.760: Completion of Closure Activities

This Section provides the requirements for the owner or operator to complete closure of existing and new CCR surface impoundments, and any lateral expansion of a CCR surface impoundment, within the timeframe approved by the Illinois EPA in the final closure plan, or within five years of obtaining a construction permit for closure, whichever is less. The Section details the timeframe requirements in which closure is to occur, timeframe extensions for closure by removal and associated demonstrations, maximum time extensions, closure report requirements, and property deed notations for future use.

Section 845.770: Retrofitting

Retrofit of a CCR surface impoundment must be completed in accordance with the requirements of this Section. Retrofitting requires removal of CCR, including any liners, contaminated soils and sediments, conduct any necessary corrective action, and an installation of a compliant liner and leachate collection system. Information about the plan to retrofit must be included in a written retrofit plan submitted with a construction permit before retrofitting begins. The retrofit plan may be amended as needed. Handling and removal of CCR must be consistent with Section 845.740. A retrofit completion report is required after completion of the retrofit activities. At any time after the initiation of a CCR surface impoundment retrofit, the owner or operator may cease the retrofit and seek to initiate closure of the surface impoundment.

Section 845.780: Post-Closure Care Requirements

This Section provides the post-closure care requirements and applies to the owners or operators of CCR surface impoundments who have completed an Illinois EPA-approved closure. However, an owner or operator of a CCR surface impoundment that elects to close by removal is not subject to the post-closure care requirement under this Section. The owner or operator must conduct post-closure care consisting of maintaining the integrity and effectiveness of the final cover system, maintaining the integrity and effectiveness of and operating the leachate collection and removal system and maintaining and operating the groundwater monitoring system. Post closure care must continue for 30 years. At the end of 30 years, the owner or operator must continue to conduct post-closure care until the groundwater monitoring shows concentrations are below the groundwater protection standards, and not increasing for those constituents over background provided concentrations have been reduced to the maximum extent feasible and concentrations are protective of human health and the environment. This Section includes the requirements for a

written post-closure care plan and amendments to the plan that may be submitted via an operating permit modification application.

Subpart H: Recordkeeping

In order to show compliance with the proposed rules, records must be kept by the owner or operator. Subpart H provides the requirements for recordkeeping.

Section 845.800: Facility Operating Record

This Section provides the requirements for each owner or operator of a CCR surface impoundment to maintain files of information required by this Part in a written operating record at the facility and maintain that record for given timeframes.

Section 845.810: Publicly Accessible Internet Site Requirements

This Section requires the owner or operator to provide a website entitled, "CCR Rule Compliance Data and Information" for each CCR surface impoundment. The section provides dates for website content and determines length of time for information to be stored on the required website. Further, this Section requires the owner or operator to notify and provide any updates to location of website. The Illinois EPA will maintain a list of these web addresses for public access.

Subpart I: Financial Assurance

Proposed Subpart I provides procedures by which the owner or operator of a CCR surface impoundment provides financial assurance satisfying the requirements of Section 22.59(f) of the Act.

Section 845.900: General Provisions

This Section outlines a number of general provisions regarding financial assurance, including applicability, exemptions, available mechanisms, Illinois EPA authority and enforcement rights, and procedures for appealing certain Illinois EPA actions.

Section 845.910: Upgrading Financial Assurance

This Section details when financial assurance cost estimates must be upgraded and adjusted. The Illinois EPA proposes that, in addition to annually adjusting for inflation, owners and operators must increase the total amount of financial assurance provided in response to increases in the current cost estimate or decreases in the value of a trust fund.

Section 845.920: Release of Financial Institution and Owner or Operator

This Section describes the instances and manner by which the Illinois EPA will release financial institutions, such as trustees and sureties, and owners or operators from the financial assurance requirements of Subpart I. The Illinois EPA proposes that financial institutions be released when the owner or operator obtains alternative financial assurance, or when the Illinois EPA releases the owner or operator from the financial assurance requirements. Owners or operators would be released from the financial assurance requirements only after the Illinois EPA verified completion of closure, post-closure care, and corrective action pursuant to this Part.

Section 845.930: Cost Estimates

This Section details the cost estimate procedures and requirements for closure and post-closure care, and for corrective action. Regarding cost estimates for corrective action, the Illinois EPA proposes delineating and requiring a “preliminary” cost estimate that would later be replaced by a cost estimate based on an Illinois EPA-approved corrective action plan.

Section 845.940: Revision of Cost Estimates

This Section provides the procedures for annually adjusting cost estimates for inflation, and this Section also requires revisions to cost estimates in certain instances of plan modifications and cost increases.

Section 845.950: Mechanisms for Financial Assurance

This Section generally describes the available financial assurance mechanisms and sets forth timeframes within which owners or operators must provide financial assurance. Further, this Section describes instances when owners or operators may use multiple mechanisms for a single CCR surface impoundment or when a single mechanism may be utilized for multiple CCR surface impoundments in Illinois.

Section 845.960: Trust Fund

This Section details the requirements applicable to the use of a Trust Fund for financial assurance pursuant to Subpart I.

Section 845.970: Surety Bond Guaranteeing Payment

This Section details the requirements applicable to the use of a Surety Bond Guaranteeing Payment for financial assurance pursuant to Subpart I.

Section 845.980: Surety Bond Guaranteeing Performance

This Section details the requirements applicable to the use of a Surety Bond Guaranteeing Performance for financial assurance pursuant to Subpart I.

Section 845.990: Letter of Credit

This Section details the requirements applicable to the use of a Letter of Credit for financial assurance pursuant to Subpart I.

V. TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

As mandated by P.A. 101-171, the proposed regulation must be as protective and comprehensive as Subpart D of 40 CFR 257.⁴ Since owners and operators of CCR surface impoundments are already subject to 40 CFR 257, many of the technical and economic requirements applicable to owners and operators in the proposed Part 845 are already required

⁴ 415 ILCS 5/22.59(g)(1).

under federal law. For example, both 40 CFR 257 and the proposed Part 845 require groundwater monitoring systems and periodic groundwater monitoring, closure and post-closure care plans, corrective action, if necessary, to achieve groundwater protection standards, design criteria for any newly constructed CCR surface impoundments and the maintenance of publicly available records. The proposed regulation requires the owner or operator of CCR surface impoundments to complete a thorough alternatives analysis for corrective action and closure, the technical feasibility and economical reasonableness of which, will be a facility-specific determination based on multiple factors, including constructability, long and short term effectiveness, reliability and protection of human health and the environment. Therefore, the Illinois EPA believes proposed Part 845 is technically feasible and economically reasonable.

Public Act 101-171 also mandated fees and financial assurance for all CCR surface impoundments regulated by the proposed regulations.⁵ Unlike P.A. 101-171, 40 CFR 257 is a self-implementing program. Therefore, documentation to demonstrate compliance are certified by a professional engineer and posted on a public website, relying on citizen lawsuits for enforcement. In contrast, the Illinois EPA, through the mandate of P.A. 101-171, proposes a permitting program administered by the Illinois EPA. As such, the documentation submitted to the Illinois EPA by the owners and operators of CCR surface impoundments is reviewed and approved by Illinois EPA staff during the operation, corrective action, and, if necessary, closure and post-closure care of every CCR surface impoundment in the state. The fees are set in P.A. 101-171, with higher initial fees for CCR surface impoundments that have not completed closure and lower fees for CCR surface impoundments that have completed closure.

In addition to the initial fee, annual fees are required by P.A. 101-171, again with CCR

⁵ 415 ILCS 5/22.59 (f); (g); (j)(1).

surface impoundments that have not completed closure paying a higher annual fee than those that have completed closure. CCR surface impoundments that close with the CCR left in place have a 30-year minimum post-closure care period, which may be longer if the groundwater protection standards that are protective of human health and the environment have not been achieved. However, CCR surface impoundments that close by removing CCR do not have a specified post-closure care period. Once the owner or operator of a CCR surface impoundment that has closed by removing CCR demonstrates that they have achieved the groundwater protection standards, which will assure protection of human health and the environment, annual fees cease, since all work required by the proposed rule will be completed. While the time required to achieve the groundwater protection standards will vary depending on hydrogeologic conditions at each facility, the potentially reduced post-closure care period when closure is by removal of CCR, offsets to some extent the potentially higher costs associated with closure by removal. Because the fee system is designed to support the Illinois EPA's administrative work for the review of documents and permitting associated with CCR surface impoundment operation, corrective action, and, if necessary, closure and post-closure care, the fees are reduced as work progresses and the potential higher costs associated with closing CCR surface impoundments may be offset by a shorter period over which fees are collected, the proposed regulations are economically reasonable.

The financial assurance requirements of P.A. 101-171 also create economic considerations in the proposed regulation that do not exist in 40 CFR 257. Each CCR surface impoundment must have and maintain financial assurance to cover the costs of corrective action, and, if necessary, closure and the post-closure care period. The proposed regulations allow the use of several different financial instruments, or combinations thereof, to provide financial assurance. Because CCR surface impoundments that close with the CCR left in place have a 30-year minimum post-

closure care period, financial assurance must necessarily extend at least 30 years past closure. The period for which financial assurance must be maintained is longer if the corrective action to meet groundwater protection standards is still ongoing at the end of the 30-year post-closure care period. However, CCR surface impoundments that close by removing CCR do not have a specified post-closure care period. Once the owner or operator of a CCR surface impoundment that has closed by removing CCR demonstrates that they have achieved the groundwater protection standards, the requirement for financial assurance ends. While the time required to achieve the groundwater protection standards will vary depending on hydrogeologic conditions at each facility, the potentially reduced post-closure care period when closure is by removal of CCR, offsets to some extent the costs associated with maintaining financial assurance. Financial assurance is required to guarantee that in the event of financial default by the owner or operator of a CCR surface impoundment, adequate funds will be available to complete corrective action, and, if necessary, closure and post-closure care, and the burden of those costs do not fall on the State, the local citizenry, or worse, the facilities set derelict for many years. Because financial assurance is designed to guarantee that corrective action, if necessary, closure and post-closure care will be completed in the event of financial default of an owner or operator and the term of financial assurance may be shorter when closure is by removal of CCR, the proposed regulations are economically reasonable.

VI. AFFECTED FACILITIES

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

NAME OF FACILITY	CCR SURFACE IMPOUNDMENTS
Ameren MO /UE	
Venice	2
Ameren Energy Generating	
Hutsonville	5
Meredosia	3
City Water Light and Power	
City Water Light and Power	2
Commercial Liability Partners, LLC	
Wood River Station	4
Grand Tower Energy Center, LLC	
Grand Tower	1
NRG	
Will County Station	4
Waukegan Station	3
Lincoln Stone Quarry	1
Joliet 29	3
Powerton	5
Prairie Power Inc	
Prairie Power	1
Southern Illinois Power Co-op	
Southern Illinois Power Co-op	9
Vistra	
Baldwin Energy Center	4
Coffeen Station	4
Duck Creek Station	5
Edwards Station	1
Havana Station	3
Hennepin Station	6
Joppa Station	2

Kincaid Generation	1
Newton Station	1
Vermilion Station	3

VII. PUBLIC OUTREACH

After the passage of Public Act 101-171, the Illinois EPA began creating a list of the email addresses of persons wishing to be kept apprised of developments in the Illinois EPA’s rulemaking process. The Illinois EPA informed all interested persons on the email list of public informational meetings, public commenting periods, stakeholder meetings, and the filing of this regulatory proposal with the Board.

Prior to proposing draft rules, the Illinois EPA hosted in-person listening sessions, including a webinar, across the State to receive public input. The locations were chosen for geographic diversity and to emphasize coal ash impoundments located in areas of environmental justice concern. These listening sessions included the following times and locations:

Peoria	September 10, 2019	Gateway Building 200 Northeast Water Street	2 pm to 4 pm & 6 pm to 8 pm
Granite City	September 11, 2019	Granite City Township Hall 2060A Delmar Avenue	2 pm to 4 pm & 6 pm to 8 pm
Danville	September 17, 2019	Bremer Auditorium 2000 E. Main Street	2 pm to 4 pm & 6 pm to 8 pm
Webinar	September 24, 2019	Web login	10 am
Mt. Vernon	September 26, 2019	Rolland Lewis Community Building 800 S 27th Street	2 pm to 4 pm & 6 pm to 8 pm
Springfield	October 1, 2019	Zion Missionary Baptist Church, 1601 E. Laurel Street	6 pm to 8 pm
Joliet	October 8, 2019	Joliet Jr. College Weitendorf Agriculture Center 17840 Laraway Road	2 pm to 4 pm & 6 pm to 8 pm
Waukegan	October 9, 2019	Whittier Elementary School 901 N. Lewis Avenue	2 pm to 4 pm & 6 pm to 8 pm

After the above-referenced listening sessions, the Illinois EPA, on December 11, 2019, released a draft of the proposed Part 845 regulations for Coal Combustion Residual (CCR) surface impoundments at power generating facilities. After releasing this public draft, the Illinois EPA hosted a stakeholder meeting on January 6, 2020, in Springfield, Illinois, and accepted written comments on these draft rules until January 13, 2020. The Illinois EPA considered the public comments received at the listening sessions, the stakeholder meeting, and the submissions of written comments when drafting the instant proposed Part 845.

Additionally, since on or about July 2019, Illinois EPA has worked cooperatively with USEPA to provide this proposal to the Board. *See* Attachment B. Illinois EPA discussed the public draft distributed on December 11, 2019, with USEPA and from these discussions, and upon further information and belief, Illinois EPA believes this rulemaking meets the requirements for partial program delegation as proposed.

VIII. SYNOPSIS OF TESTIMONY

The Illinois EPA anticipates presenting six witnesses during the Board's hearings on this proposal. The witnesses are Illinois EPA employees within the Division of Public Water Supplies, Division of Water Pollution Control and the Office of Community Relations. They are (1) Bill Buscher, manager of the Hydrogeology and Compliance Unit; (2) Lynn Dunaway, Environmental Protection Specialist IV; (3) Amy Zimmer, Environmental Protection Geologist III; (4) Darin LeCrone, manager of the Industrial Unit; (5) Lauren Martin, Environmental Protection Geologist I; (6) Chris Pressnall, Environmental Justice Coordinator; (7) Bob Mathis, Accountant Advanced; and (8) Melinda Shaw, Environmental Protection Geologist I.

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 since April of 1988. His primary responsibilities include application of the Illinois Environmental Protection Act and Board's rules which pertain to groundwater. Mr. Buscher may testify about, *inter alia*, operating and design criteria.

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, since February of 1988. In addition to implementation of programs under the Groundwater Protection Act, he has experience with groundwater standards compliance issues, including implementation of protective measures at the time of permitting and regulatory development. Mr. Dunaway may testify about, *inter alia*, design criteria, groundwater protection standards, groundwater monitoring systems, groundwater monitoring programs including statistical methods for their evaluation, corrective action and corrective action implementation.

Amy Zimmer has worked in the Groundwater Section of the Division of Public Water Supplies since 1998. Before joining the Illinois EPA, 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 may testify about, *inter alia*, hydrogeologic site characterization, closure, and post-closure care.

Darin LeCrone is the manager of the Industrial Unit, Permit Section, Division of Water

Pollution Control. Mr. LeCrone has worked in the Permit Section since 1992. Before joining the Illinois EPA, he graduated from Southern Illinois University Carbondale with a Bachelor of Science degree in Mechanical Engineering. Mr. LeCrone is a licensed professional engineer in Illinois. His job duties include managing a staff of engineers responsible for implementing the state construction and operating permit programs, the NPDES program, and other related permitting programs for a variety of non-municipal sources including industrial, agriculture, dredge and fill and coal and non-coal mining. Mr. LeCrone may testify about, *inter alia*, permitting CCR surface impoundments.

Lauren Martin graduated from Western Illinois University with a Bachelor of Science in Geology in 2002 and Illinois State University with a Master of Science in Hydrogeology in 2006. Ms. Martin was trained and utilized professionally her OSHA 10-hour Construction Safety Awareness training beginning in 2005 and OSHA 30-hour Construction Safety Training in 2015. Ms. Martin has maintained 40-hour OSHA HAZWOPER/8-hour Refresher and supervisor training beginning since 2005. Ms. Martin has also retained USACE Construction Quality Manager Training since 2015. Ms. Martin has worked in geotechnical engineering and general construction since 2001 and the environmental industry since 2005. At Jacobs Engineering (2018-2020) Ms. Martin held supervisory roles including within transportation and environmental industry projects. At CH2M (2005-2018), Ms. Martin held supervisory roles including Site Superintendent, Construction Quality Manager, Subject Matter Expert, Project Manager, and Task Lead for transportation, water infrastructure, nuclear siting and licensing and environmental projects. At CH2M Ms. Martin was the Site Superintendent, Construction Quality Manager and Site Safety and Health Officer for a coal remediation project, removing coal from underneath railroad tracks at a railyard in rural Illinois. At Nicor (2003-2005), Ms. Martin worked under a Research Grant

through Illinois State University and interned as a Reservoir Engineer. Ms. Martin is published in the World of Environmental Engineering for a portion of her master's thesis, Identification of Potential Vertical as Migration Pathways above Gas Storage Reservoirs (2015). At Whitney and Associates (2001-2003), Ms. Martin performed construction inspections including compaction of beneficially used fly ash and batch plant mixing of beneficially used fly ash. Ms. Martin started at the Illinois EPA as an Environmental Protection Geologist I in February of 2020. Ms. Martin may testify about, *inter alia*, operating criteria, the safety and health plan, emergency action plan and general construction, environmental and transportation site practices and implementation.

Chris Pressnall graduated from Southern Illinois University with a Bachelor of Arts in Zoology and the University of Illinois College of Law with a Juris Doctorate. He has worked for the Illinois EPA since 1998. He worked in the Illinois EPA Division of Legal Counsel until 2017. In 2017 he became the Environmental Justice Coordinator for the Illinois EPA. Mr. Pressnall is responsible for administering the Illinois EPA's Environmental Justice program and may testify about, *inter alia*, the environmental justice portions of the proposed rule.

Bob Mathis is an Accountant Advanced with the Illinois EPA. He has worked in Bureau of Land since 1989. His primary responsibilities include application of the Act and Board's rules which pertain to auditing financial assurance for hazardous waste, solid waste, used tire, UIC and compost facilities. He currently serves as lead accountant in the unit along with being the technical advisor to management for financial assurance issues. Mr. Mathis may present testimony and answer questions related to, *inter alia*, the financial assurance process.

Melinda Shaw graduated from Western Illinois University with a Bachelor of Science in Geology. Cumulatively, she has worked for the Illinois EPA for six years in various remediation programs. Ms. Shaw now works as an Environmental Protection Geologist I in the Groundwater

Section of the Bureau of Water. Ms. Shaw may present testimony about, *inter alia*, location restrictions, manifesting requirements, and recordkeeping.

IX. 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 list of the documents relied upon by the Illinois EPA in developing this proposal, excluding the documents incorporated by reference, is provided below.

List of Documents Relied Upon
Public Act 101-171, eff. 7-30-19; revised 10-22-19
35 Ill. Adm Code Sections 164, 166, 309, 620, 720, 810, 811, 840, and 3702.
20 CFR 1910 <i>et seq.</i> and 29 CFR 1926 <i>et seq.</i>
40 CFR 257 <i>et seq.</i> (2019)
80 Fed. Reg. 74, 21302-21501 (April 17, 2015) (to be codified at 40 C.F.R. pt. 257 and 261).
81 Fed. Reg. 151, 51802-51808 (August 5, 2016)
83 Fed. Reg. 51, 11584-11616 (March 15, 2018)
83 Fed. Reg. 146, 36435-36456 (July 30, 2018)
84 Fed. Reg. 157, 40353-40371 (August 14, 2019)
84 Fed. Reg. 231, 65941-65964 (December 2, 2019)

Util. Solid Waste Activities Group v. Env'tl. Prot. Agency, 901 F.3d 414 (D.C. Cir. 2018), judgment entered, 15-1219, 2018 WL 4158384 (D.C. Cir. Aug. 21, 2018)

The Illinois EPA did not perform any new studies, nor did the Illinois EPA 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 the Illinois EPA proposes to incorporate by reference. Section 102.202(d) requires the Illinois EPA to submit “[a]ny material to be incorporated by reference within the proposed rule pursuant to Section 5-75 of the IAPA [5 ILCS 100/5-75].” The Illinois EPA proposes incorporating the following documents by reference:

Documents Incorporated By Reference
“Cost Estimate Classification System—As Applied in Engineering, Procurement, and Construction for the Process Industries” TCM Framework: 7.3 – Cost Estimating and Budgeting. March 6, 2009, AACE International Recommended Practice No. 18R-97. (not filed)
“Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” USEPA Publication No. SW-846, as amended by Updates I, II, IIA, IIB, III, IIIA, and IIIB (Doc. No. 955-001-00000-1) (available online at https://www.epa.gov/hw-sw846/sw-846-compendium).

Under the Board’s procedural rules, the Illinois EPA may not file copyrighted material electronically through the Clerk’s Office On Line (“COOL”). 35 Ill. Adm. Code 101.302(h)(4). Instead, the Illinois EPA must either 1) file a paper original and the copyright owner’s authorization for the board to make 2 copies, or 2) a license or other document that allows the Board to access the document electronically and potentially print three copies. *Id.* The Illinois EPA elects to submit one paper original as submitted to Illinois EPA and a letter from the copyright holder that Board may make copies of the original.

C. Attachments

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

Letter	Attachments
A1	Copyright Waiver from AACE International (not filed on COOL)
A2	“Cost Estimate Classification System—As Applied in Engineering, Procurement, and Construction for the Process Industries” TCM Framework: 7.3 – Cost Estimating and Budgeting. March 6, 2009, AACE International Recommended Practice No. 18R-97. (not filed on COOL)
B	March 9, 2020, USEPA, Region 5 Letter
C	<i>Util. Solid Waste Activities Group v. Env'tl. Prot. Agency</i> , 901 F.3d 414 (D.C. Cir. 2018)
D	Public Act 101-171, eff. 7-30-19

X. CONCLUSION

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

SPECIAL NOTE: Undersigned would be remiss not to mention the significant contributions, and tireless efforts, made by Joanne Olson, former Deputy General Counsel for Illinois EPA, and Gabe Neibergall, Illinois EPA Division of Legal Counsel, in preparing this proposed regulation.

Respectfully submitted,

Dated: March 30, 2020

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

Rex L. Gradeless, #6303411
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544
Rex.Gradeless@Illinois.gov

Petitioner,

BY: /s/ Rex L. Gradeless
Rex L. Gradeless

THIS FILING IS SUBMITTED ELECTRONICALLY

EXHIBIT B

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
) No. R20-19
) (Rulemaking-Land)
Standards for the Disposal)
of Coal Combustion)
Residuals in Surface)
Impoundments: Proposed new)
35 Ill. Adm. Code 845)

REPORT OF THE PROCEEDINGS held in the
above entitled cause before Hearing Officer
Vanessa Horton, called by the Illinois Pollution
Control Board, taken by Steven Brickey, CSR, RMR,
for the State of Illinois, 1021 North Grand Avenue
East, Springfield, Illinois, on the 11th day of
August, 2020, commencing at the hour of 9:03 a.m.

1 amounts of CCR should be subject to regulation
2 under Part 845?

3 MS. ZEIVEL: Objection. The witness
4 already provided his answer. It's been asked and
5 answered.

6 HEARING OFFICER HORTON: Sustained.

7 MR. BONEBRAKE: I'd like to refer to
8 Exhibit 2 and if we go to the back of that exhibit
9 and these are IEPA's first response to questions.

10 Specifically, looking at a table
11 at the back that has -- excuse me -- 74 rows. It
12 appears to identify a number of different ponds
13 and I will give IEPA a chance to look at that
14 table. It's at Page's 181 and 182 of that
15 exhibit.

16 MS. ZEIVEL: We have the table if
17 you'd like to proceed with your question.

18 MR. BONEBRAKE: Can IEPA tell us
19 what information is contained on this table?

20 MR. BUSCHER: These are -- this
21 information is responsive to the Board's
22 questions. I don't recall the number that it was.
23 The first few, Exhibit 1 through 10, or so.
24 Something like that.

1 MR. BONEBRAKE: Does this table
2 purport to list surface impoundments that IEPA
3 views to be subject to 845 requirements?

4 MR. DUNAWAY: Lynn Dunaway. Yes, it
5 does.

6 MR. BONEBRAKE: Okay. So then since
7 there's -- it looks like there's 73 ponds
8 identified, is that correct?

9 MR. DUNAWAY: Lynn Dunaway. That's
10 correct.

11 MR. BONEBRAKE: And is it correct
12 that some of these ponds are subject to current
13 dispute about whether they are regulated CCR
14 surface impoundments?

15 MR. DUNAWAY: Lynn Dunaway. Yes,
16 some of these have been disputed.

17 MR. BONEBRAKE: And these disputes
18 involve legal arguments and factual arguments,
19 correct?

20 MR. DUNAWAY: Lynn Dunaway. Yes.

21 MR. BONEBRAKE: And does the list
22 with 73 ponds include some ponds that were not
23 designed to be direct recipients of CCR?

24 MR. DUNAWAY: Lynn Dunaway. Yes.

EXHIBIT C

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
) No. R20-19
) (Rulemaking-Land)
Standards for the Disposal)
of Coal Combustion)
Residuals in Surface)
Impoundments: Proposed new)
35 Ill. Adm. Code 845)

REPORT OF THE PROCEEDINGS held in the
above entitled cause before Hearing Officer
Vanessa Horton, called by the Illinois Pollution
Control Board, taken by Steven Brickey, CSR, RMR,
for the State of Illinois, 1021 North Grand Avenue
East, Springfield, Illinois, on the 13th day of
August, 2020, commencing at the hour of 8:02 a.m.

1 boy?

2 MS. GALE: B as in boy. Yes. Thank
3 you.

4 Actually, I'm looking at the top
5 right corner or the top right column and I will
6 read it "For new CCR landfills and new CCR surface
7 impoundments and all lateral expansions of CCR
8 units, a minimum of eight independent samples for
9 each background must be collected during the first
10 six months of sampling," is that the Agency's
11 citation for the 180 days?

12 MR. DUNAWAY: Lynn Dunaway. Yes,
13 that would be an appropriate section for new CCR
14 surface impoundments.

15 MS. GALE: Okay. And I guess that's
16 what you were citing to for the 180 days in your
17 answer to Question 69?

18 MR. DUNAWAY: Correct.

19 MS. GALE: But looking at that same
20 section just before it, it states "For existing
21 CCR landfills and existing CCR surface
22 impoundments, a minimum of eight independent
23 samples from each background and down gradient
24 well must be collected and analyzed for the

1 constituents listed in Appendix 3 and Appendix 4
2 to this part no later than October 17th, 2017,"
3 and this rule was passed on October 15th, 2015.

4 So the Agency would agree that
5 existing CCR surface impoundments received two
6 years to conduct the eight independent samples,
7 right?

8 MR. DUNAWAY: From the time that the
9 rule was passed, yes.

10 MS. GALE: So I guess my broad
11 question in answer to our Question 69(a) if the
12 Agency can explain to me how it thinks that 180
13 days for existing CCR surface impoundments is
14 consistent with Part 257?

15 MR. DUNAWAY: For a few CCR surface
16 impoundments which might also include those that
17 have never done any monitoring in Part 257, that
18 would be consistent with a new one. For existing
19 ones, the monitoring is already out there and Part
20 845 doesn't prohibit the use of existing data.

21 MS. GALE: Agree. But the Agency
22 also agrees that there are some units that are in
23 dispute, right, and may not have been considered
24 CCR surface impoundments under the Federal Rules?

1 MR. DUNAWAY: The owners or
2 operators may not have considered them CCR surface
3 impoundments.

4 MS. GALE: Right. So I guess my
5 question is your reference to data that may
6 already be there may not be there, right?

7 MR. DUNAWAY: For the disputed CCR
8 surface impoundments, the data may not be there.

9 MS. GALE: So 180 days for existing
10 CCR surface impoundments is not consistent with
11 Part 257, right?

12 MR. DUNAWAY: The consistency would
13 be -- if we had a new CCR surface impoundment, it
14 would have to conduct that monitoring within 180
15 days. Those that have not done any monitoring
16 would have to conduct the monitoring within 180
17 days the way 845 is written.

18 MS. GALE: And moving on to the same
19 question -- Question 69(b)(2). So it's on Page
20 25.

21 MR. DUNAWAY: Okay.

22 MS. GALE: I'm sorry. I should have
23 said (b)(1). The Agency states in its answer
24 "Independent samples can be collected even if they

EXHIBIT D

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

MIDWEST GENERATION, LLC)	
)	
Petitioner,)	
v.)	PCB
ILLINOIS ENVIRONMENTAL)	(Variance)
PROTECTION AGENCY)	
)	
Respondents.)	

AFFIDAVIT OF BRADLEY CASTLE

I, Bradley Castle, being first duly sworn on oath, depose and state as follows:

1. I am over the age of 18 years and am a resident of Illinois.
2. The information in this Affidavit is based on my personal knowledge or belief in my capacity as Operations Manager and the Will County Electric Generating Station (“Will County Station” or “Station”), and I would testify to such matters if called as a witness.
3. The Will County Station is a power plant located in Romeoville, Illinois.
4. The Will County Station was built in 1955 with two coal-burning units, with third and fourth units added in 1957 and 1963, respectively.
5. MWG began operating the Will County Station in 1999.
6. Approximately 45 people are currently employed at the Will County Station.
7. Ponds 1 North (“1N”) and 1 South (“1S”) were constructed in 1977 with 36 inch Poz-o-pac liners.
8. When Units 1 and 2 were operating, the bulk of the bottom ash from Units 1 and 2 collected on a retention pad, and Ponds 1N and 1S collected the bottom ash fines from the retention pad.
9. In 2010, MWG shut down Units 1 and 2 at Will County Station and Ponds 1N and 1S were removed from service in 2010.

10. In 2013, MWG implemented a dewatering system in Ponds 1N and 1S that is designed to maintain a depth of approximately less than one foot of water in the ponds.

11. Ponds 1N and 1S do not collect ash or process water, and both ponds do not accumulate liquids.

12. Upon information and belief, Ponds 1N and 1S still have the same Poz-o-pac liner thickness as when originally installed.

13. The stormwater that falls within Ponds 1N and 1S drains from the ponds to the Station's wastewater treatment plant.

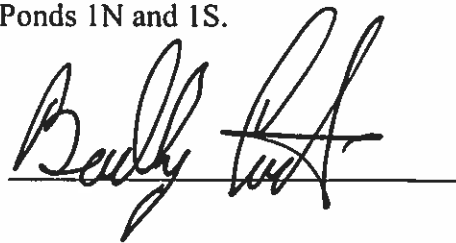
14. Following treatment in the wastewater treatment plant, the Station's wastewater is either recycled back to the Station or discharged via one of the Station's NPDES permitted outfalls.

15. Ponds 1N and 1S at Will County Station are not regulated as CCR Units under the federal 2015 rule "Disposal of Coal Combustion Residuals from Electric Utilities" 80 Fed. Reg. 21,301 (April 17, 2015), as amended and codified at 40 CFR Part 257.

16. Ponds 1N and 1S are not located in areas of environmental justice concern.

17. There are no potable wells downgradient of Ponds 1N and 1S.

FURTHER AFFIANT SAYETH NOT.



Subscribed and Sworn to before me
On 6 MAY, 2021.

Michael R. Grubb
Notary Public

My Commission Expires: 8-15-2023

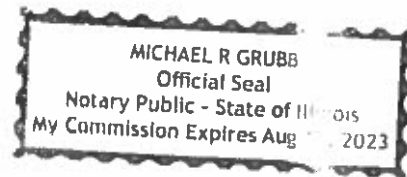


EXHIBIT E



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217)782-3397

PAT QUINN, GOVERNOR

JOHN J. KIM, INTERIM DIRECTOR

217-785-0561

October 24, 2012

CERTIFIED MAIL # 7011 1150 0001 0859 0096
RETURN RECEIPT REQUESTED

John Kennedy
Senior Vice President, Generation
235 Remington, Suite A
Bolingbrook, IL 60440

**Re: Compliance Commitment Acceptance
Violation Notice: W-2012-00058
Midwest Generation, LLC, Will County Generating Station; ID Number: 6283**

Dear Mr. Kennedy:

The Illinois Environmental Protection Agency ("Illinois EPA") has approved the Compliance Commitment Agreement ("CCA") for Midwest Generation, LLC, Will County Generating Station. Please find enclosed an executed copy of the CCA for your records.

Failure to fully comply with the CCA may, at the sole discretion of the Illinois EPA, result in referral of this matter to the Office of the Attorney General, the State's Attorney or the United States Environmental Protection Agency.

The CCA does not constitute a waiver or modification of the terms and conditions of any license or permit issued by the Illinois EPA or any other unit or department of local, state or federal government or of any local, state or federal statute or regulatory requirement.

Questions regarding this matter should be directed to Andrea Rhodes at 217/785-0561. Written communications should be directed to the Illinois Environmental Protection Agency, Bureau of Water, CAS #19, P.O. Box 19276, Springfield, IL 62794-9276, and all communications shall include reference to your Violation Notice Number W-2012-00058.

Sincerely,

Michael Crumly
Manager, Compliance Assurance Section
Division of Public Water Supplies
Bureau of Water

Attachments

cc: Basil G. Constantelos
Maria Race
Susan M. Franzetti

RECEIVED
OCT 29 2012

BOW ID: W1978100011 CASE ID: 2012-006
4302 N. Main St., Rockford, IL 61103 (815)987-7760
595 S. State, Elgin, IL 60123 (847)608-3131
2125 S. First St., Champaign, IL 61820 (217)278-5800
2009 Mall St., Collinsville, IL 62234 (618)346-5120

9511 Harrison St., Des Plaines, IL 60016 (847)294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309)693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200
100 W. Randolph, Suite 11-300, Chicago, IL 60601 (312)814-6026

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:)
)
MIDWEST GENERATION, LLC,)
WILL COUNTY GENERATING STATION))
ROMEOVILLE, WILL COUNTY, IL)
ID NUMBER: 6283)
)
)
)
)
)
)

RECEIVED

OCT 17 2012

IEPA/CAS

ILLINOIS EPA VN W-2012-00058
BUREAU OF WATER

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

1. This Compliance Commitment Agreement ("CCA") is entered into voluntarily by the Illinois Environmental Protection Agency ("Illinois EPA") and Midwest Generation, LLC, Will County Generating Station ("Respondent") (collectively, the "Parties") under the authority vested in the Illinois EPA pursuant to Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i).

II. Allegation of Violations

2. Respondent owns and operates Will County Generating Station in Romeoville, Will County, Illinois ("Will County Station").
3. Pursuant to Violation Notice ("VN") W-2012-00058 issued on June 11, 2012, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:
 - a) Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, and MW-10.
Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

III. Compliance Activities

4. On September 4, 2012, and September 27, 2012, the Illinois EPA received Respondent's response and supplemental e-mail response to VN W-2012-00058, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.
5. Respondent agrees to undertake and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in VN W-2012-00058:
 - a) The ash ponds at Will County Station shall not be used as permanent disposal sites and shall continue to function as treatment ponds to precipitate ash. Ash shall continue to be removed from the ponds on a periodic basis.
 - b) The ash treatment ponds shall be maintained and operated in a manner which protects the integrity of the existing liners. During the removal of ash from the ponds, appropriate procedures shall be followed to protect the integrity of the existing liners, including operating the ash removal equipment in a manner which minimizes the risk of any damage to the liner.
 - c) During the ash removal process, visual inspections of the ponds shall be conducted to identify any signs of a breach in the integrity of the pond liners. In the event that a breach of the pond liners is detected, Midwest Generation shall promptly notify the Illinois EPA and shall implement a corrective action plan for repair or replacement as necessary, of the liner. Upon the Illinois EPA's approval, and the issuance of any necessary construction permit, Midwest Generation will implement the corrective action plan.
 - d) Midwest Generation shall continue quarterly monitoring of the existing ten groundwater monitoring wells for constituents in 35 Ill. Adm. Code 620.410(a) and (d), with the exception of radium 226 and 228, and report its findings to the Illinois EPA within 30 days of the end of each quarter. In addition, Midwest Generation shall record and report groundwater elevation and submit a potentiometric surface map with the above quarterly groundwater monitoring report.
 - e) Ponds 1 North (1N) and 1 South (1S) shall be removed from service at Will County Station. All process water shall be diverted from ponds 1N and 1S to existing ponds 2 South (2S) and 3 South (3S). A dewatering system shall be developed and implemented which will not allow water to exceed a depth of one foot above the bottom of Ponds 1N and 1S.
 - f) Within 90 days of the effective date of the CCA, Midwest Generation shall submit an application for a construction permit to re-line pond 2S at Will County Station with a 60 mil thickness high density polyethylene ("HDPE") liner or an Illinois EPA approved equivalent material.

- g) Midwest Generation shall submit an application to establish a Groundwater Management Zone (GMZ) pursuant to 35 Ill. Adm. Code Part 620.250 within 90 days of the effective date of the CCA.
- h) Midwest Generation shall enter into an Environmental Land Use Control (ELUC) to cover the area of the Will County Station property which is contained within the GMZ, except for that portion of the GMZ area which is owned by ComEd. Midwest Generation shall submit a proposed draft ELUC to the Illinois EPA for review and comment within 90 days of the effective date of the CCA.
- i) Midwest Generation shall establish a GMZ pursuant to 35 Ill. Adm. Code Part 620.250 and submit a final proposed ELUC, incorporating the completed delineation of the GMZ boundaries, within one year of the effective date of the CCA.
- j) Once ponds 1N and 1S have been taken out of service, a dewatering system has been implemented, pond 2S has been relined with a HDPE liner, and a GMZ and ELUC have been established, Midwest Generation shall submit a certification (or a statement) of compliance. Midwest Generation may submit either the attached "Illinois EPA Compliance Statement" or another similar writing to satisfy the statement of compliance within one year of the effective date of the CCA.

IV. Terms and Conditions

- 6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in VN W-2012-00058.
- 7. This CCA is solely intended to address the violations alleged in Illinois EPA VN W-2012-00058. The Illinois EPA reserves and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations [and Permit, if applicable].

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of \$2,000 for violation of any of the terms or conditions of this CCA.
9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Will County Station in Romeoville, Will County, Illinois.
10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.
11. This CCA shall only become effective:
 - a) If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA, Bureau of Water, Andrea Rhodes, MC #19, 1021 North Grand Ave East, Springfield, IL 62702. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and
 - b) Upon execution by all Parties.
12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

AGREED:

FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY:



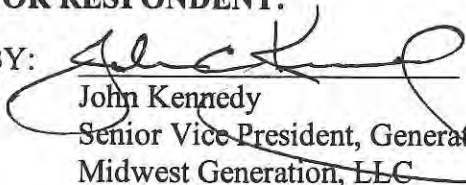
Michael Crumly
Manager, Compliance Assurance Section
Division of Public Water Supplies
Bureau of Water

DATE:

12/24/12

FOR RESPONDENT:

BY:



John Kennedy
Senior Vice President, Generation
Midwest Generation, LLC

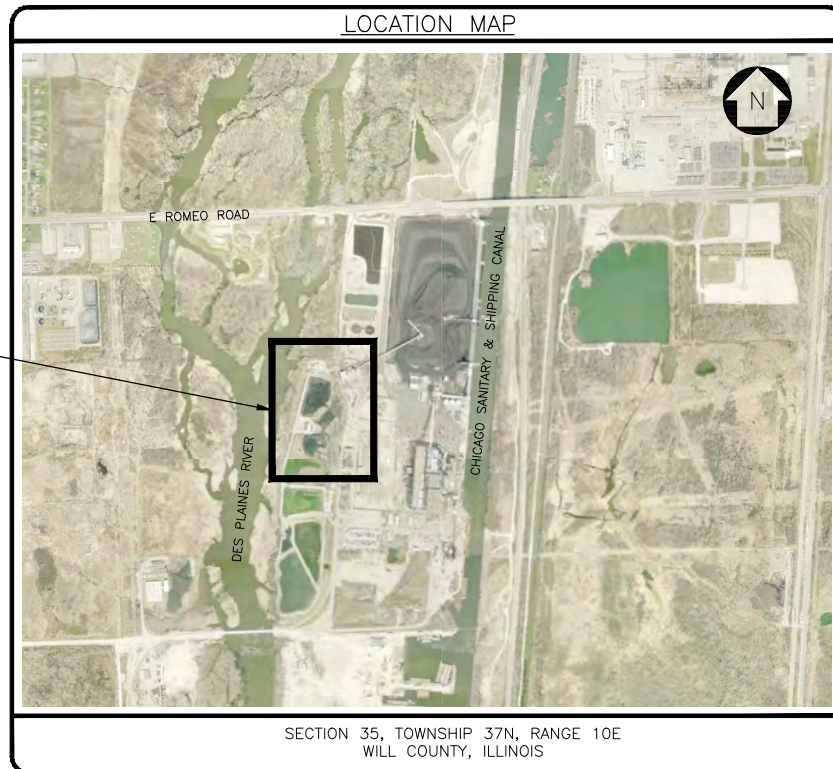
DATE:

Oct 15, 2012

EXHIBIT F

MIDWEST GENERATION WILL COUNTY STATION ASH PONDS 1N & 1S MODIFICATIONS ROMEDEVILLE, ILLINOIS

LEGEND		
	EXISTING	PROPOSED
STORM SEWER	- - - - -	- - - - -
STORM FORCEMAIN	- >> - >> -	- >> - >> -
OVERHEAD ELECTRICAL	- - - oe - - -	- - - oe - - -
UNDERGROUND ELECTRIC	- ue - ue -	- ue - ue -
STORM STRUCTURE	⊙	⊙
ELECTRICAL MANHOLE	⊙	⊙
FENCE	- x - x - x -	- x - x - x -
POWER POLE	⊙	⊙
BOLLARD	⊙	⊙
SEDIMENT BARRIER	- □ - □ -	- □ - □ -
DRAINAGE DIRECTION ARROW	~ ~ ~ ~ ~	~ ~ ~ ~ ~
RIP RAP		▒



INDEX OF DRAWINGS	
SHEET No.	TITLE
CIVIL:	
C-1	COVER SHEET
C-2	EXISTING CONDITIONS PLAN
C-3	MODIFICATION PLAN
C-4	SITWORK DETAILS
C-5	SITWORK SPECIFICATIONS
STRUCTURAL:	
S-1	STRUCTURAL DETAILS

NOTIFICATIONS

CONTRACTOR SHALL CONTACT THE FOLLOWING ORGANIZATIONS BEFORE STARTING ANY CONSTRUCTION ACTIVITIES TO OBTAIN UTILITY INFORMATION AND HAVE EXISTING UTILITIES LOCATED IN THE FIELD. CONSTRUCTION ACTIVITIES WITHIN ANY GIVEN AREA MAY NOT PROCEED UNTIL THAT AREA HAS BEEN CHECKED AND MARKED FOR UTILITIES BY ALL APPROPRIATE ORGANIZATIONS.

- * JULIE (800) 892-0123
ELECTRIC, GAS, TELEPHONE & CABLE TV
- * MIDWEST GENERATION (312) 491-7576

CONTRACTOR SHALL CONTACT THE ABOVE ORGANIZATIONS AT LEAST TWO (2) WORKING DAYS BEFORE STARTING ANY CONSTRUCTION ACTIVITIES TO ARRANGE FOR CONSTRUCTION INSPECTIONS. CONTRACTOR SHALL ALSO MAKE ARRANGEMENTS AND PROVIDE NOTIFICATIONS FOR INSPECTIONS DURING THE COURSE OF CONSTRUCTION AS REQUIRED BY THESE ORGANIZATIONS:

- * MIDWEST GENERATION (312) 491-7576

PREPARED BY: PATRICK ENGINEERING INC.

<p>Engineer: Gary F. Goodheart Civil Drawings: C-1 TO C-5 License No. <u>062.055909</u> License Expires <u>11/30/2013</u></p> <p style="text-align: center;">_____ Engineer</p> <p style="text-align: center;">_____ Date</p>	<p>Engineer: Atalay Yargicoglu Structural Drawing: S-1 License No. <u>081.005358</u> License Expires <u>11/30/2014</u></p> <p style="text-align: center;">_____ Engineer</p> <p style="text-align: center;">_____ Date</p>
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CALL J.U.L.I.E. AT LEAST TWO DAYS BEFORE BEGINNING EXCAVATION ACTIVITIES
1-800-892-0123

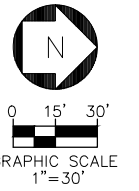
FOR CONSTRUCTION

REV	DATE	REVISION	BY	CHK	ENG/APPD
2	03-04-13	FOR CONSTRUCTION	DAK	JIP	
1	02-21-13	FINAL - FOR CLIENT REVIEW	DAK	JIP	

**WILL COUNTY STATION
ASH PONDS 1N & 1S MODIFICATIONS
COVER SHEET**

SCALE	NOT TO SCALE	DC
DATE	1/23/13	SC
MIDWEST GENERATION		C-1
An EDISON INTERNATIONAL Company		
DWG TYPE	21253.090-C1.DWG	EJB-12/12/12

7-C



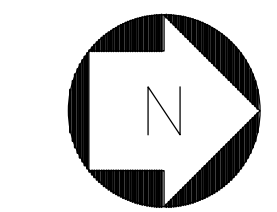
- NOTES:**
- EXISTING AERIAL BACKGROUND IS FROM WILL COUNTY GIS DEPARTMENT AND IS NOT NECESSARILY CURRENT. NO TERRESTRIAL SURVEY HAS BEEN PERFORMED.
 - LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND INFRASTRUCTURE ARE FROM MWG DRAWING NO. 869D1-C68, REVISION 3, AND HAVE NOT BEEN FIELD VERIFIED.
 - POND 1N IS CURRENTLY IN SERVICE. POND 1S IS OUT OF SERVICE AND WILL NOT BE RETURNING TO ACTIVE SERVICE.
 - OTHER OVERHEAD AND UNDERGROUND UTILITIES MAY EXIST. CONTRACTOR SHALL CONTACT MIDWEST GENERATION AND JULIE TO DETERMINE UTILITY INFORMATION PRIOR TO STARTING WORK.

FOR CONSTRUCTION

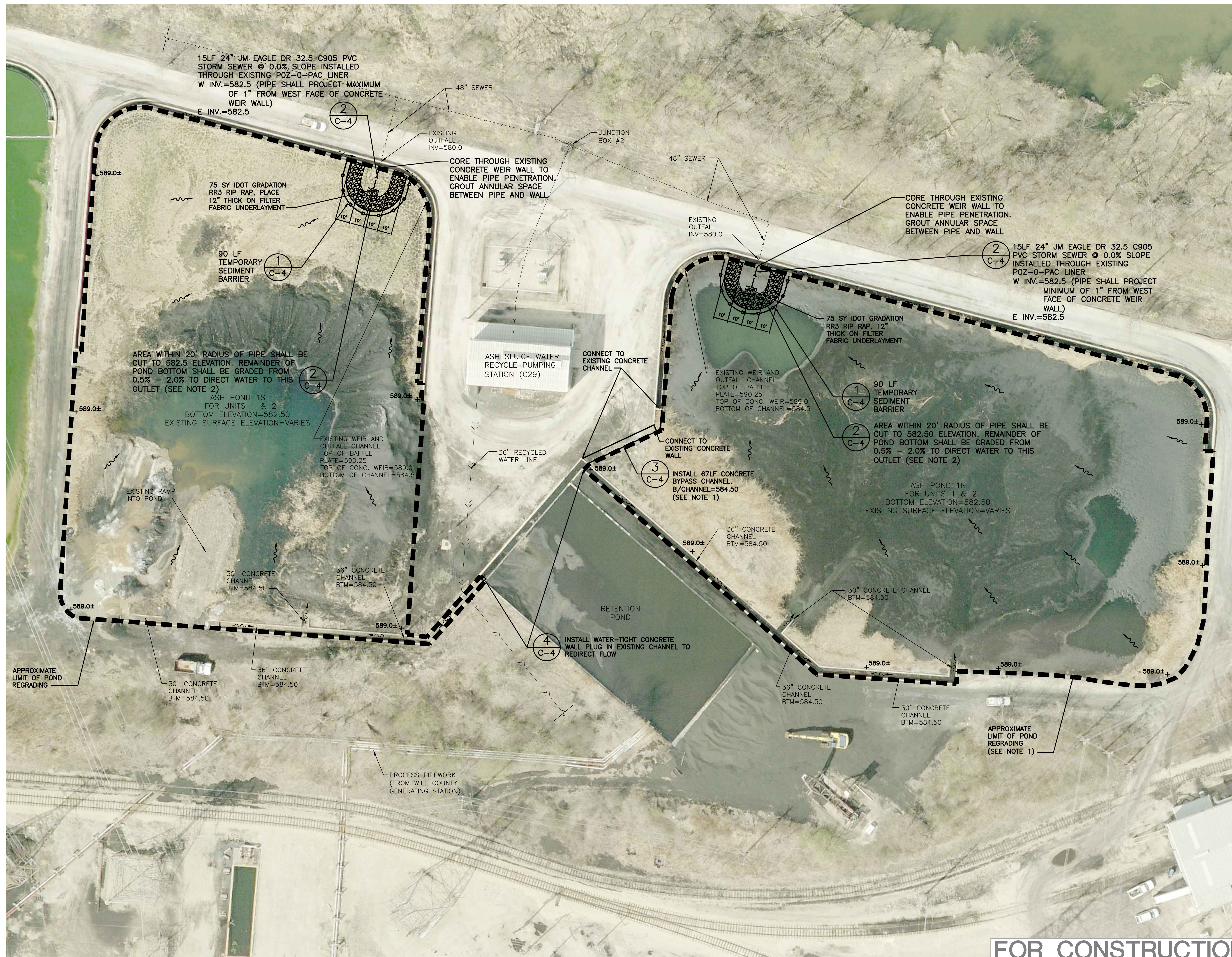
2	03-04-13	FOR CONSTRUCTION	DAK	JIP
1	02-21-13	FINAL - FOR CLIENT REVIEW	DAK	JIP
REV	DATE	REVISION	BY	CHK/ENG/APPD

WILL COUNTY STATION
ASH PONDS 1N & 1S MODIFICATIONS
EXISTING CONDITIONS PLAN

<p>MIDWEST GENERATION An EDISON INTERNATIONAL Company</p>	SCALE	NOT TO SCALE	DC
	DATE	1/18/13	SC
C-2			
DWG TYPE	21253.090-C2.DWG	EJIB	



0 15' 30'
GRAPHIC SCALE
1"=30'



NOTES:

1. CONTRACTOR SHALL INSTALL CONCRETE PLUGS AND BYPASS CHANNEL PRIOR TO PERFORMING ASH POND 1N MODIFICATIONS TO REMOVE ASH POND 1N FROM SERVICE.
2. EXISTING SURFACE VEGETATION WITHIN POND AREA SHALL BE REMOVED DOWN TO 1" OF THE GROUND SURFACE PRIOR TO GRADING ACTIVITIES. REMOVED VEGETATION SHALL BE PROPERLY DISPOSED OF.

2	03-04-13	FOR CONSTRUCTION	DAK JP
1	02-21-13	FINAL - FOR CLIENT REVIEW	DAK JP
REV	DATE	REVISION	BY (CKD) ENG (APPD)

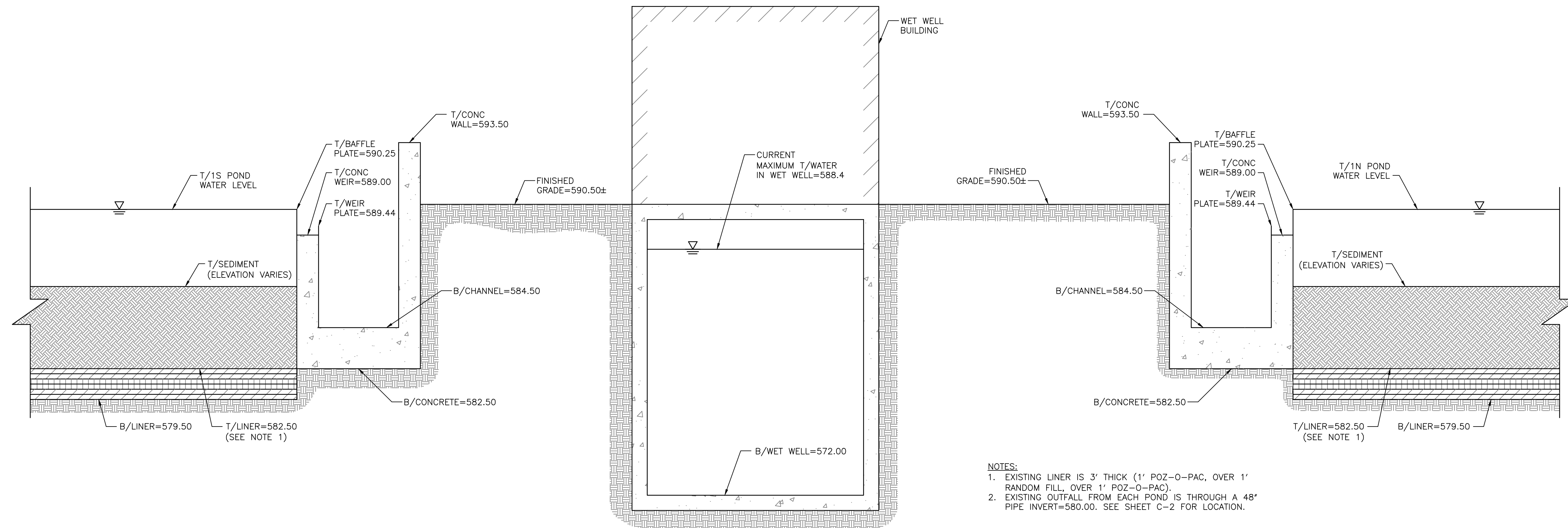
**WILL COUNTY STATION
ASH PONDS 1N & 1S MODIFICATIONS
MODIFICATION PLAN**

<p>MIDWEST GENERATION An EDISON INTERNATIONAL Company</p>	SCALE	NOT TO SCALE	DC
	DATE	1/18/13	SC
		C-3	

FOR CONSTRUCTION

4-0

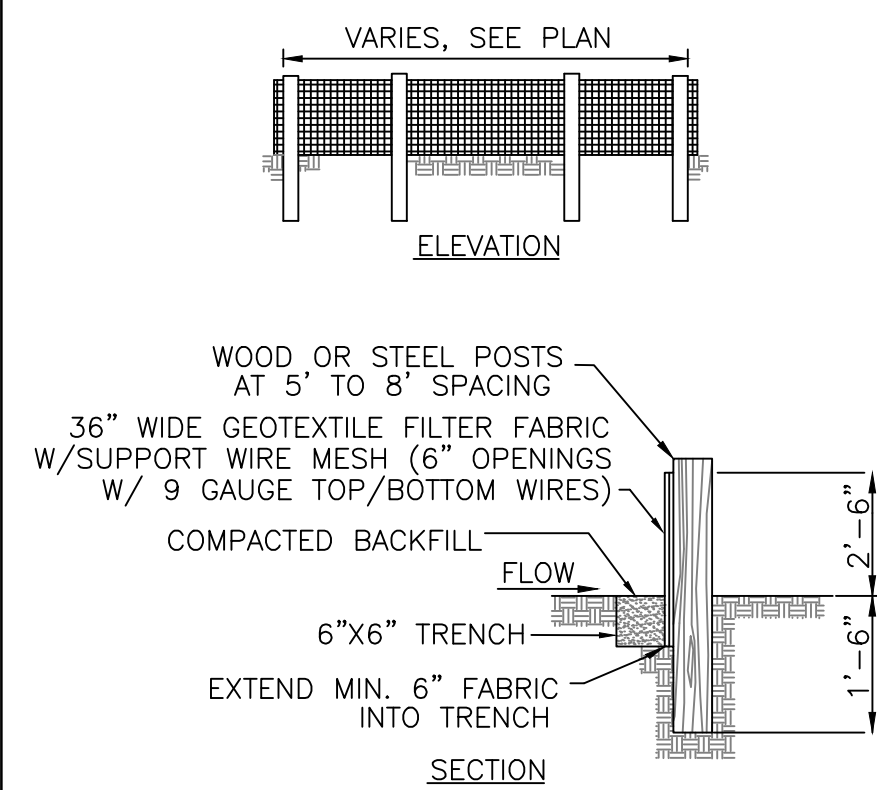
EXISTING CONDITIONS CROSS-SECTION A-A
NOT TO SCALE



- NOTES:**
- EXISTING LINER IS 3' THICK (1' POZ-O-PAC, OVER 1' RANDOM FILL, OVER 1' POZ-O-PAC).
 - EXISTING OUTFALL FROM EACH POND IS THROUGH A 48" PIPE INVERT=580.00. SEE SHEET C-2 FOR LOCATION.

TEMPORARY SEDIMENT BARRIER

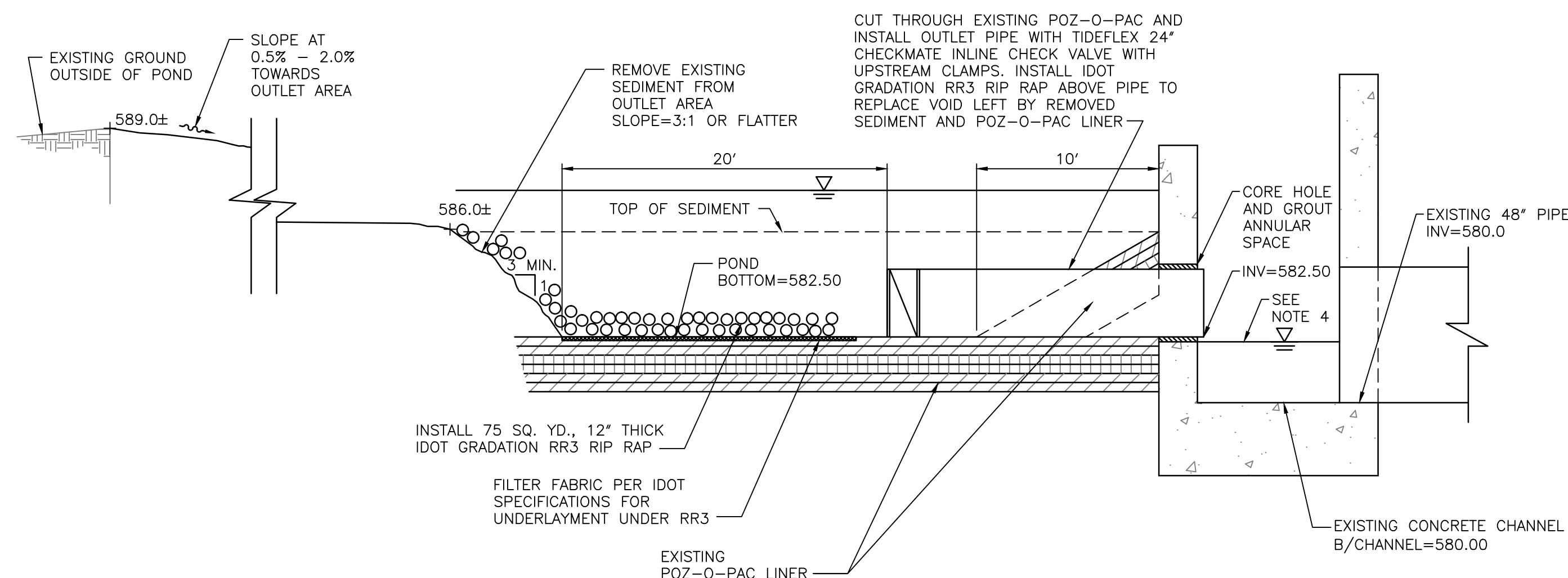
FILTER FABRIC FENCE
OVERLAND FLOW APPLICATION



- SUPPORT WIRE MESH MAY BE OMITTED IF A MAXIMUM POST SPACING OF 5 FEET IS PROVIDED.
- SEDIMENT TRAPPED BY THE FENCE SHALL BE REMOVED (AND PROPERLY DISPOSED OF) WHENEVER SIGNIFICANT ACCUMULATION OCCURS.
- BARRIERS SHALL BE MAINTAINED IN PLACE UNTIL THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED AND UNTIL THE ENGINEER AUTHORIZES REMOVAL.

1
C-4

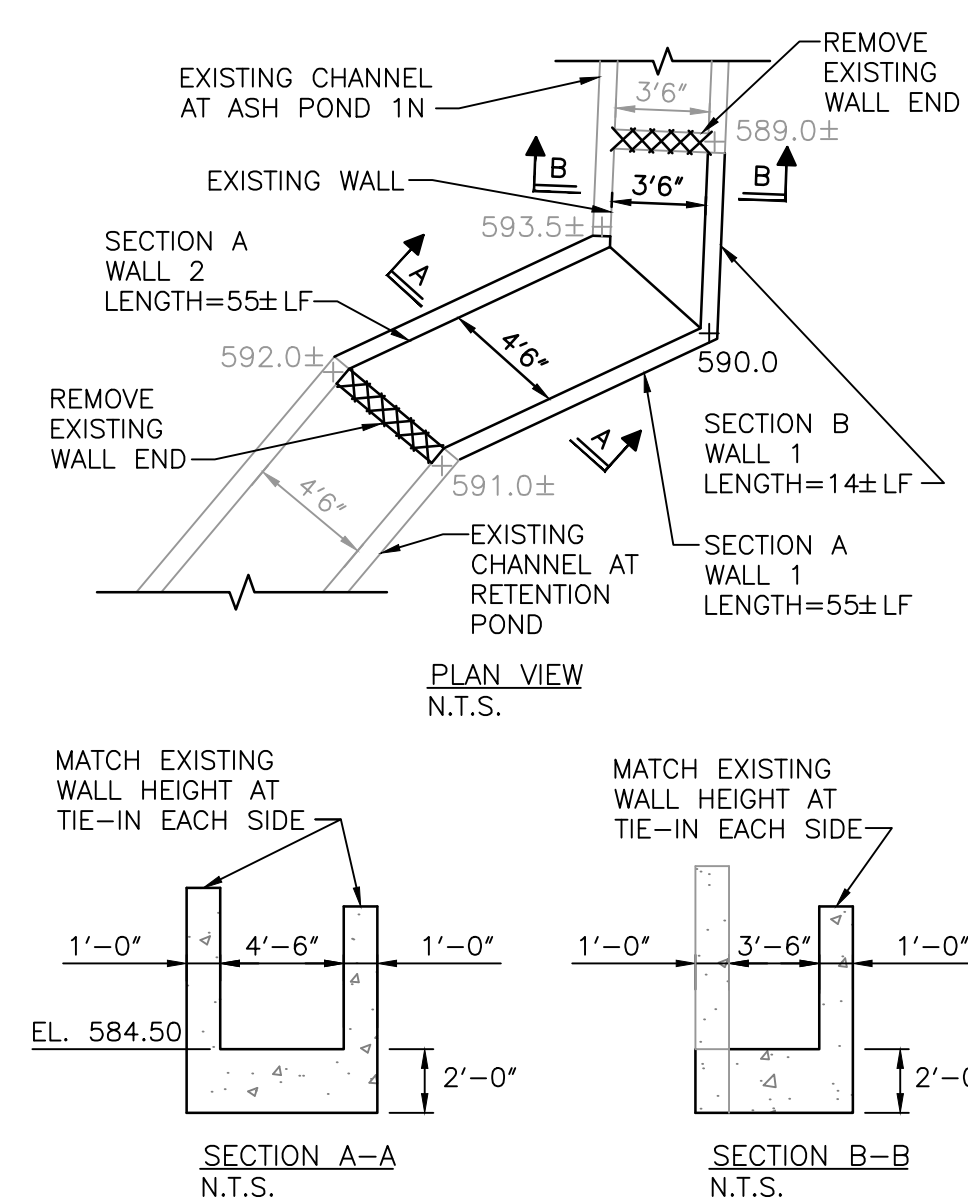
**PONDS 1N AND 1S
OUTLET RECONFIGURATION**



- NOTES:**
- OUTLET PIPE STONE BEDDING, HAUNCHING, AND BACKFILL UP TO THE TOP OF THE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATIONS 3.A(3) AND 3.A(4).
 - PLACE RIP RAP UNDERLAIN BY FILTER FABRIC UPON EXISTING POZ-O-PAC LINER AND UPON 3:1 SIDE SLOPES. ALLOW 24" SPACE IN FRONT OF PIPE. USE REMOVED PIECES OF POZ-O-PAC LINER AS RIP RAP ON 3:1 SIDE SLOPE.
 - WASTEWATER TREATMENT PLANT OPERATIONS SHALL BE MODIFIED SO THAT MAXIMUM TOP OF WATER ELEVATION IN WET WELL WILL BE AT OR BELOW THE INVERT (582.50) OF THE PROPOSED OUTLET PIPE.

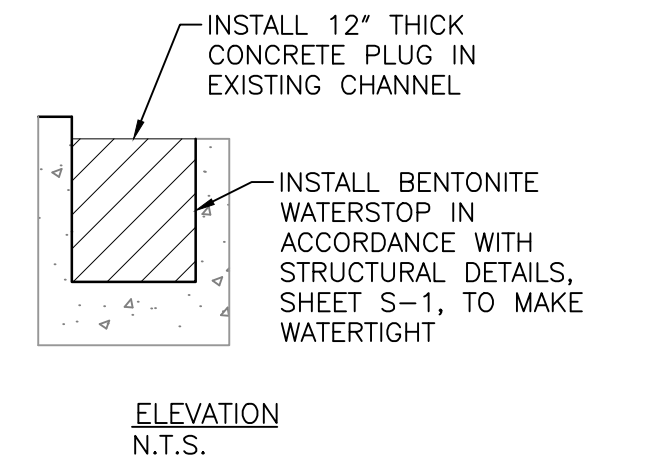
2
C-4

CONCRETE BYPASS CHANNEL



3
C-4

CONCRETE WALL PLUG



- NOTES:**
- SEE STRUCTURAL DETAIL SHEET S-1, SECTION C-C, TIE-IN JOINT DETAIL, AND NOTES FOR WALL PLUG DESIGN DETAILS.

4
C-4

2	03-04-13	FOR CONSTRUCTION	DAK JP
1	02-21-13	FINAL - FOR CLIENT REVIEW	DAK JP
REV	DATE	REVISION	BY CKD/ENG/APP

WILL COUNTY STATION
ASH PONDS 1N & 1S MODIFICATIONS
SITWORK DETAILS

FOR CONSTRUCTION



SCALE	NOT TO SCALE	DC
DATE	1/18/13	SC
C-4		

PROJECT SPECIFICATIONS

1. GENERAL REQUIREMENTS

A. REFERENCE SPECIFICATIONS

(1) SITE DEVELOPMENT ACTIVITIES AND IMPROVEMENTS, INCLUDING EARTHWORK, STORM DRAINAGE, AND EROSION/SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE REFERENCE SPECIFICATIONS INDICATED IN THE VARIOUS SUBJECT SECTIONS OF THESE PROJECT SPECIFICATIONS; EXCEPT THAT IN THE EVENT OF CONFLICT BETWEEN THE REFERENCE SPECIFICATIONS AND THESE PROJECT SPECIFICATIONS, THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS SHALL GOVERN.

B. GOVERNING REGULATIONS

(1) ALL PROJECT ACTIVITIES AND IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE GOVERNING AGENCY REGULATIONS. IN THE EVENT OF CONFLICT WITH THE INDICATED REFERENCE SPECIFICATIONS OR THE FOLLOWING PROJECT SPECIFICATIONS, THE REGULATIONS OF THE GOVERNING AGENCY SHALL GOVERN.

C. EXISTING UTILITIES

(1) CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL AGENCIES, UTILITY COMPANIES AND PIPELINE COMPANIES KNOWN OR SUSPECTED TO HAVE BURIED CABLE, DUCT, PIPES, ETC., WHICH MAY CONFLICT WITH THE PROJECT IMPROVEMENTS TO DETERMINE THE LOCATION AND DEPTH OF THE EXISTING UTILITIES.
 (2) IF NECESSARY, THE LOCATION AND DEPTH OF THE PROPOSED IMPROVEMENTS SHALL BE ADJUSTED BY THE ENGINEER AFTER THE EXISTING CONDITIONS HAVE BEEN DETERMINED BY FIELD INVESTIGATIONS.
 (3) IF CONFLICTS OCCUR AND RELOCATION OF THE NEW FACILITIES IS NOT FEASIBLE, THE CONTRACTOR SHALL WORK WITH THE ENGINEER TO MAKE ARRANGEMENTS WITH THE UTILITY COMPANIES TO HAVE THE AFFECTED UTILITIES PROTECTED OR RELOCATED.

D. MATERIAL DISPOSAL

(1) THE FOLLOWING SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND DISPOSED OF IN A LEGAL MANNER.
 (a) ALL SURPLUS EXCAVATED MATERIALS; SEE SPECIFICATION 2.A.(2) REGARDING INTENTION TO KEEP EXCAVATED EARTH MATERIAL ON-SITE.
 (b) ITEMS SUCH AS ASPHALT AND CONCRETE PAVEMENT MATERIALS, CULVERT AND SEWER PIPE, UTILITY AND DRAINAGE STRUCTURES, RETAINING WALLS (CONCRETE, STONE AND TIMBER), TREES, SHRUBS AND MISCELLANEOUS LANDSCAPE FEATURES REMOVED DURING THE INSTALLATION OF THE PROJECT IMPROVEMENTS.

2. EARTHWORK OPERATIONS

A. GENERAL

(1) EXCEPT WHERE MODIFIED BY THE FOLLOWING PROJECT PROVISIONS, ALL EARTHWORK OPERATION AND COMPACTION REQUIREMENTS SHALL BE IN CONFORMANCE WITH THE MATERIAL, INSTALLATION AND TESTING REQUIREMENTS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S (IDOT) STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2012 INCLUDING ALL APPLICABLE CURRENT SUPPLEMENTAL SPECIFICATIONS.
 (2) EARTHWORK SHALL INCLUDE SITE CLEARING, TOPSOIL AND ROOTMAT STRIPPING, EARTH, ASH, AND FILL MATERIAL EXCAVATION, CONSTRUCTION OF EMBANKMENTS AND SLOPES, REMOVAL AND DISPOSAL OF SURPLUS AND UNSUITABLE MATERIALS, AND FINAL SHAPING AND TRIMMING TO THE LINES AND GRADES INDICATED ON THE PLANS. HOWEVER, IT IS THE INTENTION OF THE PROJECT TO ONLY REMOVE EARTH MATERIAL AS ABSOLUTELY NECESSARY TO ACCOMPLISH PROJECT OBJECTIVES. WHERE POSSIBLE, EXCAVATED EARTH MATERIAL SHALL BE KEPT IN THE POND AND SIMPLY MOVED AND REGRADED TO ACHIEVE THE DESIRED DRAINAGE PATTERNS INDICATED ON SHEET C-3.

B. SITE CLEARING

(1) ALL CONSTRUCTION SITE FEATURES AND ITEMS SUCH AS STRUCTURES, FOUNDATIONS, RUBBISH/DEBRIS, AND SURFACE VEGETATION SHALL BE REMOVED WHERE NECESSARY AND AS INDICATED ON THE PLANS FOR THE CONSTRUCTION OF THE PROJECT IMPROVEMENTS.

C. EXCAVATION

(1) EXISTING EARTH, ASH, AND FILL MATERIALS WITHIN THE PROJECT CONSTRUCTION LIMITS SHALL BE EXCAVATED AS NECESSARY TO ESTABLISH THE ELEVATIONS, CONTOURS AND DRAINAGE PATTERNS INDICATED ON THE PLANS.
 (2) EXCAVATIONS SHALL BE MAINTAINED IN A WELL-DRAINED CONDITION AT ALL TIMES. TEMPORARY DRAINAGE (DEWATERING) FACILITIES SHALL BE PROVIDED WHERE SURFACE RUNOFF IS NOT POSSIBLE OR EFFECTIVE. SUCH FACILITIES SHALL BE OPERATED DURING THE ENTIRE COURSE OF EARTHWORK OPERATIONS. DEWATERING FACILITIES SHALL INCLUDE EROSION AND SEDIMENT CONTROL MEASURES, AS INDICATED ELSEWHERE IN THESE SPECIFICATIONS.

D. COMPACTION

(1) FILL MATERIAL SHALL BE PLACED IN LAYERS (LIFTS) AND PROPERLY COMPACTED. LIFT THICKNESS SHALL NOT EXCEED 8 INCHES (LOOSE CONDITION). MOISTURE CONTENT OF FILL MATERIAL SHALL BE WITHIN -1 TO +3 PERCENTAGE POINTS OF ITS OPTIMUM VALUE.
 (2) UNPAVED AREAS: COMPACT TOP 6 INCHES OF SUBGRADE AND EACH SUCCESSIVE LAYER (NOT EXCEEDING 12-INCH THICKNESS OF LOOSE MEASURE) OF BACKFILL OR FILL MATERIAL TO A MINIMUM OF 75% RELATIVE DENSITY FOR FREE-DRAINING COHESIONLESS SOILS (ASTM D4253 & D4254) AND 85% MAXIMUM DENSITY FOR COHESIVE SOIL MATERIAL, AS DETERMINED BY THE MODIFIED PROCTOR METHOD (ASTM D1557).

E. RESTORATION

(1) AREAS NOT OTHERWISE SUBJECT TO DISTURBANCE THAT ARE DAMAGED BY MOVEMENT OR STORAGE OF CONSTRUCTION VEHICLES, EQUIPMENT OR MATERIALS OR DISCHARGE OF WATER FROM THE CONSTRUCTION SITE SHALL BE RESTORED TO ORIGINAL CONDITIONS.
 (2) EARTH/ASH MATERIAL IN POND SHALL NOT BE VEGETATED FOLLOWING COMPLETION OF EARTHWORK OPERATIONS. THE FINISHED SURFACE SHALL REMAIN EXPOSED. PERMANENT EROSION & SEDIMENT CONTROL MEASURES INCLUDE GRADUAL SLOPING OF THE MATERIAL IN THE POND AS WELL AS RIP RAP IN THE LOCATIONS INDICATED ON THE PLANS. IF THESE MEASURES DO NOT PROVE TO BE EFFECTIVE, IT WILL BE ADDRESSED AS A SEPARATE PROJECT AT THE OWNER'S DISCRETION.

3. STORM DRAINAGE SYSTEM

A. GENERAL

(1) REFERENCE SPECIFICATIONS
 (a) ALL STORM DRAINAGE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MATERIAL, INSTALLATION AND TESTING REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS' 6TH EDITION (JULY, 2009); EXCEPT WHERE SAID REQUIREMENTS ARE MODIFIED BY THESE PROJECT SPECIFICATIONS.
 (b) REFERENCES TO "IDOT" REQUIREMENTS OR STANDARDS SHALL MEAN IN CONFORMANCE TO THE MATERIAL, INSTALLATION AND TESTING REQUIREMENTS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," ADOPTED JANUARY 1, 2012 INCLUDING ALL APPLICABLE CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

(2) UNSUITABLE SOIL CONDITIONS

(a) WHEN UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED UNDER PIPES OR STRUCTURES BELOW THE DEPTH OF THE STANDARD BEDDING, THE CONTRACTOR SHALL REMOVE UNSUITABLE MATERIALS AND REPLACE WITH 4" OF CA-1 GRANULAR MATERIAL.
 (3) PIPE BEDDING, HAUNCH SUPPORT & INITIAL BACKFILL
 (a) SEWER PIPES SHALL BE PLACED ON A 4-INCH LAYER OF COMPACTED GRANULAR BEDDING MATERIAL. THIS GRANULAR MATERIAL SHALL ALSO BE PLACED ON EACH SIDE OF THE PIPE (HAUNCH SUPPORT) FROM THE TOP OF BEDDING UP TO THE TOP OF THE PIPE. GRANULAR BEDDING AND HAUNCH MATERIAL SHALL CONSIST OF GRADED CRUSHED STONE 1/4 INCH TO 3/4 INCH IN SIZE (IDOT EQUIVALENT CA-11), UNLESS OTHERWISE SPECIFIED.
 (4) GRANULAR BACKFILL
 (a) IDOT GRADATION RR-3 RIP RAP SHALL BE USED TO BACKFILL ABOVE PIPE AS INDICATED ON DETAIL 2, SHEET C-4. RIP RAP SHALL BE HAND-PLACED TO AVOID DAMAGING THE PIPE BELOW.

B. CONSTRUCTION

(1) PIPE MATERIALS

(a) STORM SEWERS SHALL BE CONSTRUCTED OF THE FOLLOWING MATERIALS AND SHALL MEET THE INDICATED SPECIFICATION.
 (i) POLYVINYL CHLORIDE (PVC) PRESSURE PIPE (AWWA-C905, DR 33.5 OR LESS).
 (b) STORM SEWER SHALL BE LAID AS ONE CONTINUOUS PIPE SEGMENT, 15- FEET IN LENGTH, AS INDICATED ON THE PLANS. JOINTS ARE NOT ALLOWED.
 (2) WALL PENETRATIONS
 (a) WALL PENETRATIONS SHALL BE MADE BY CORE DRILLING THE WALL AND SEALING THE WALL OPENING AROUND THE PIPE WITH HYDRAULIC GROUT. WATERTIGHT (ASTM-C923) RESILIENT RUBBER GASKET CONNECTORS ARE ACCEPTABLE AS AN ALTERNATIVE TO HYDRAULIC GROUT.

4. EROSION/SEDIMENT CONTROL

A. GENERAL

(1) EROSION/SEDIMENTATION CONTROL MEASURES, AS INDICATED ON THE PROJECT DRAWINGS (PLANS) AND AS REQUIRED ELSEWHERE IN THESE SPECIFICATIONS SHALL BE EMPLOYED DURING THE COURSE OF CONSTRUCTION OPERATIONS UNTIL EARTH MOVING ACTIVITIES HAVE BEEN COMPLETED AND ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE.


B. TEMPORARY SEDIMENT BARRIERS

(1) SILT FENCE SEDIMENT BARRIER SHALL BE PLACED AS INDICATED ON THE PLANS.
 (2) ALL SEDIMENT BARRIERS SHALL BE REPLACED OR CLEANED AS NECESSARY DURING CONSTRUCTION WHEN THEY BECOME CLOGGED OR INEFFECTIVE.

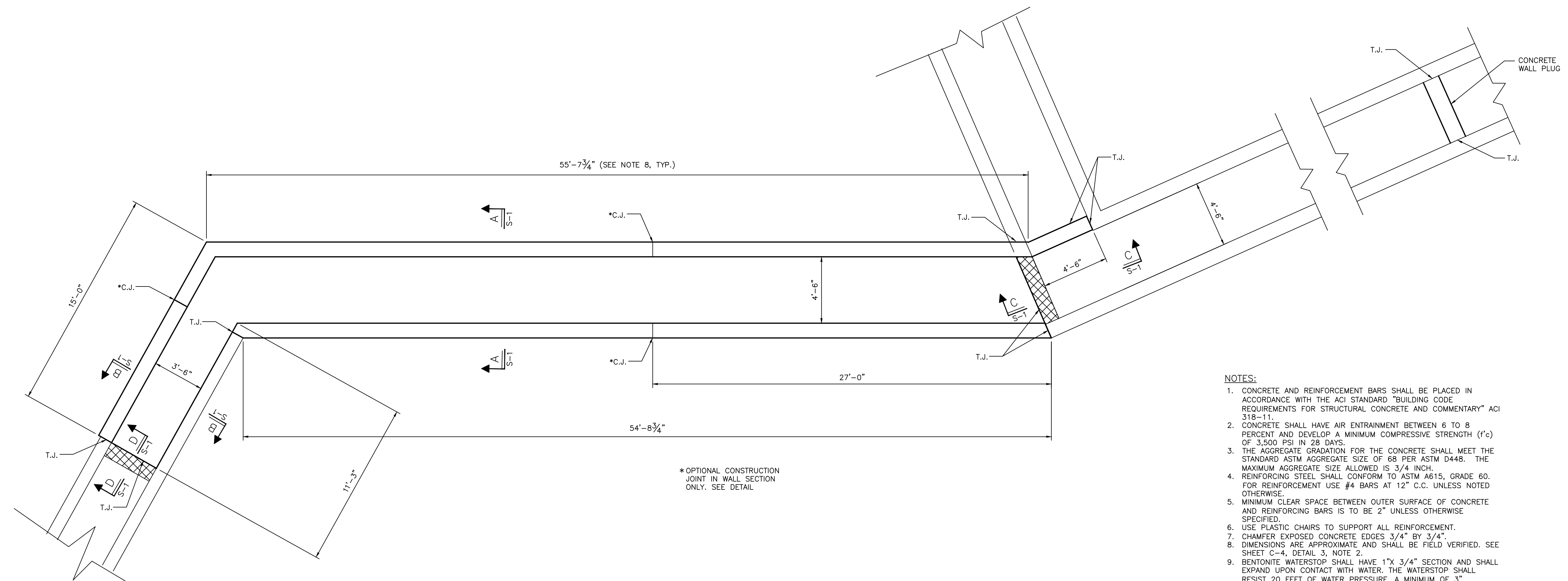
REV	DATE	REVISION	BY	CHKD	ENG	APPD
2	03-04-13	FOR CONSTRUCTION	DAK	JP		
1	02-21-13	FINAL - FOR CLIENT REVIEW	DAK	JP		

WILL COUNTY STATION
 ASH PONDS 1N & 1S MODIFICATIONS
 SITEWORK SPECIFICATIONS

FOR CONSTRUCTION

 MIDWEST GENERATION An EDISON INTERNATIONAL Company	SCALE	NOT TO SCALE	DC
	DATE	1/18/13	SC

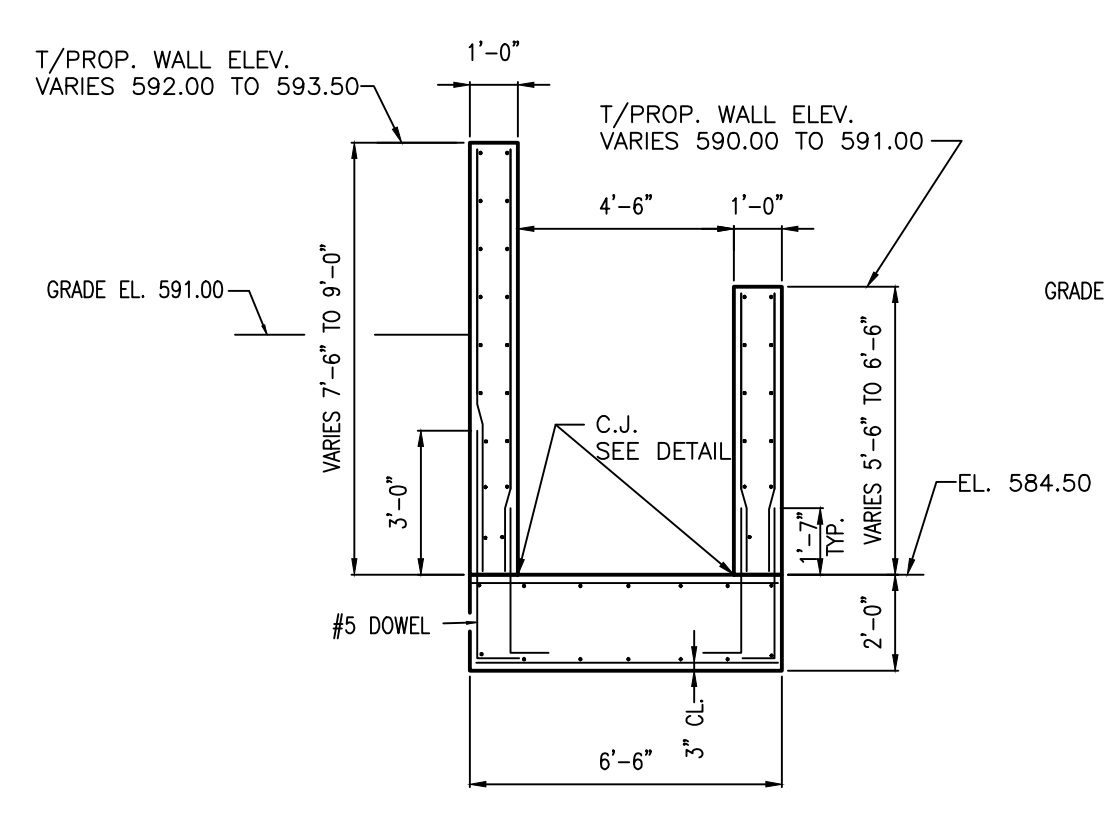
C-4



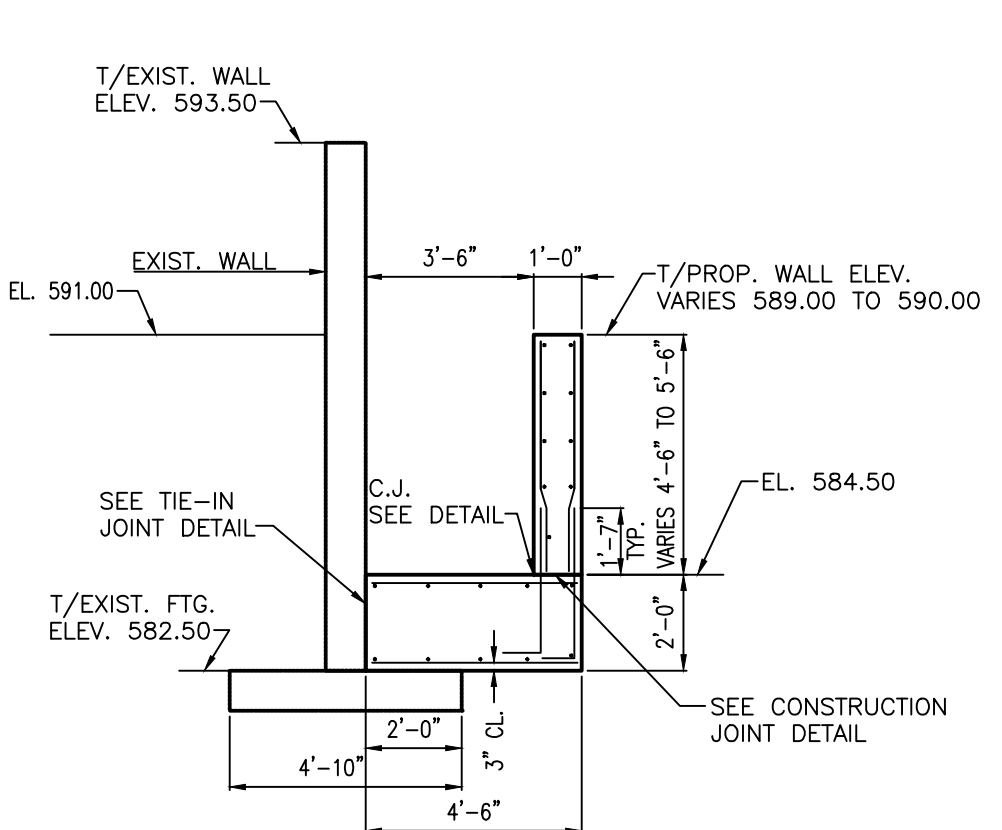
CONCRETE BY-PASS CHANNEL PLAN

- NOTES:**
1. CONCRETE AND REINFORCEMENT BARS SHALL BE PLACED IN ACCORDANCE WITH THE ACI STANDARD "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY" ACI 318-11.
 2. CONCRETE SHALL HAVE AIR ENTRAINMENT BETWEEN 6 TO 8 PERCENT AND DEVELOP A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3,500 PSI IN 28 DAYS.
 3. THE AGGREGATE GRADATION FOR THE CONCRETE SHALL MEET THE STANDARD ASTM AGGREGATE SIZE OF 68 PER ASTM D448. THE MAXIMUM AGGREGATE SIZE ALLOWED IS 3/4 INCH.
 4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. FOR REINFORCEMENT USE #4 BARS AT 12" C.C. UNLESS NOTED OTHERWISE.
 5. MINIMUM CLEAR SPACE BETWEEN OUTER SURFACE OF CONCRETE AND REINFORCING BARS IS TO BE 2" UNLESS OTHERWISE SPECIFIED.
 6. USE PLASTIC CHAIRS TO SUPPORT ALL REINFORCEMENT.
 7. CHAMFER EXPOSED CONCRETE EDGES 3/4" BY 3/4".
 8. DIMENSIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. SEE SHEET C-4, DETAIL 3, NOTE 2.
 9. BENTONITE WATERSTOP SHALL HAVE 1" X 3/4" SECTION AND SHALL EXPAND UPON CONTACT WITH WATER. THE WATERSTOP SHALL RESIST 20 FEET OF WATER PRESSURE. A MINIMUM OF 3" CONCRETE COVER SHALL BE PROVIDED TO SEPARATE WATERSTOP FROM THE SURFACE OF THE CONCRETE.

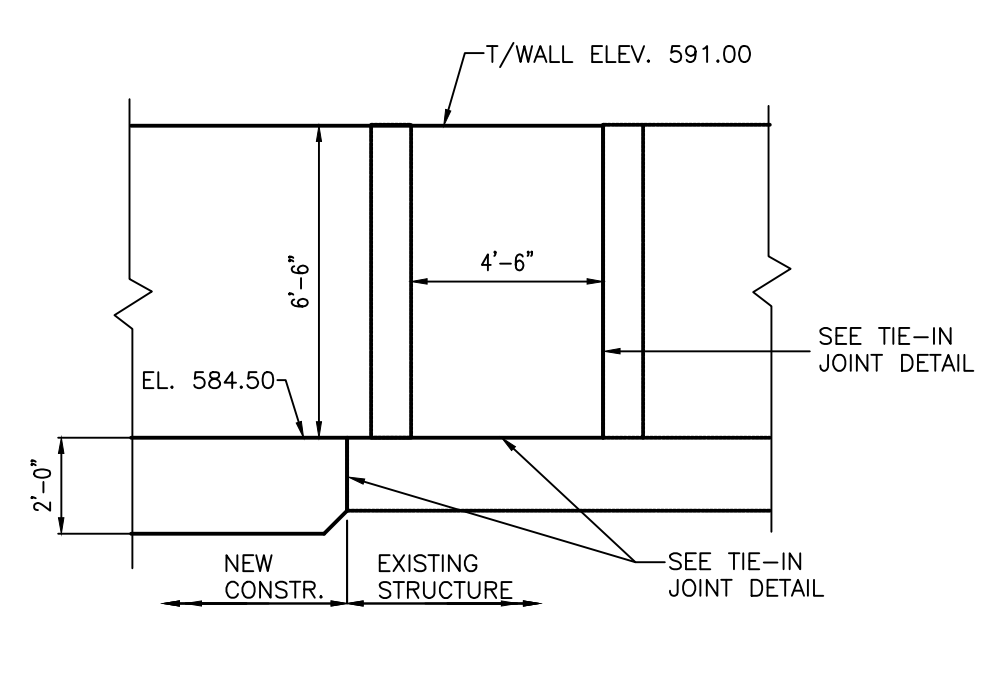
- LEGEND**
- C.C. : DENOTES CENTER TO CENTER
 - TYP. : DENOTES TYPICAL
 - MAX. : DENOTES MAXIMUM
 - C.J. : CONSTRUCTION JOINT
 - T.J. : TIE-IN JOINT



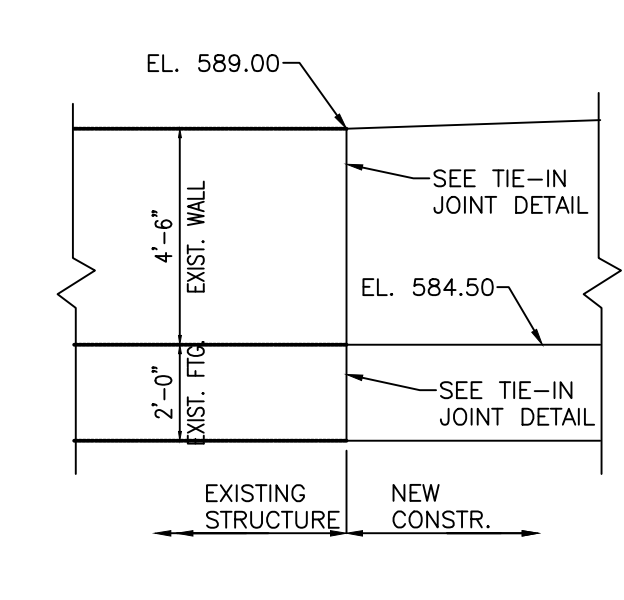
SECTION A-A



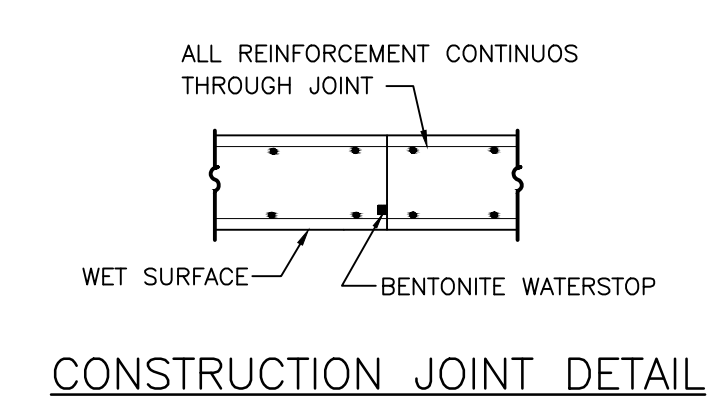
SECTION B-B



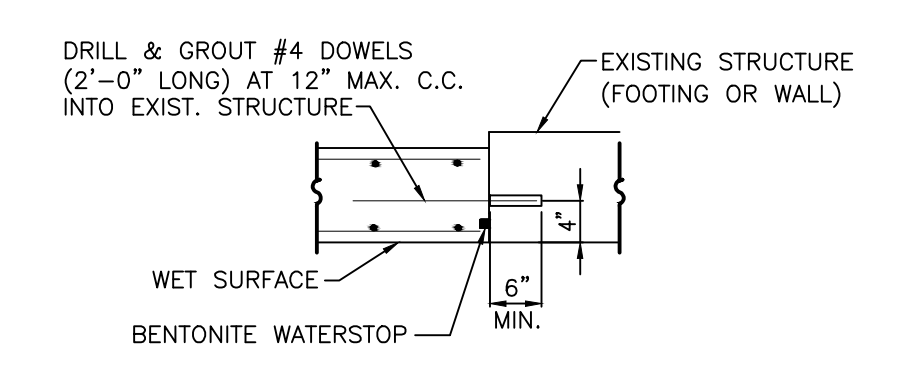
SECTION C-C
(SHOWING TIE-IN DETAILS. FOR WALL REINFORCEMENT SEE SECTION A-A)



SECTION D-D
(SHOWING TIE-IN DETAILS. FOR WALL REINFORCEMENT SEE SECTION B-B)



CONSTRUCTION JOINT DETAIL



TIE-IN JOINT DETAIL

REV	DATE	REVISION	BY	CHKD	ENG	APPD
1	03-04-13	FOR CONSTRUCTION	DAK	JP		
WILL COUNTY STATION ASH PONDS 1N & 1S MODIFICATIONS STRUCTURAL DETAILS						
SCALE NOT TO SCALE		DATE 3/01/13		DC SC		
FOR CONSTRUCTION						
MIDWEST GENERATION An EDISON INTERNATIONAL Company						
S-1						

EXHIBIT G



**MIDWEST
GENERATION EME, LLC**

An **EDISON INTERNATIONAL** Company

Basil G. Constantelos
Managing Director
Environmental Services

July 15, 2009

Mr. Allan Keller
Manager, Permits Section, Bureau of Water
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, IL 62794-9276

**Re: April 10, 2009 IEPA Letters: Ash Impoundment Groundwater Protection
Development of Groundwater Monitoring Plan
MWG Will County, Powerton and Joliet 29 Stations**

**May 15, 2009 IEPA Letters: Ash Impoundment Groundwater Protection
Hydrogeologic Assessment Plan
MWG Crawford and Waukegan Stations**

Dear Mr. Keller:

This is Midwest Generation, LLC (MWG)'s further response to the Agency's April 10, 2009, letters regarding the hydrogeologic evaluation of ash impoundments at each of the following MWG electric generating stations: Will County, Powerton, Joliet 29, Crawford and Waukegan (collectively, the "MWG Stations"). In our prior May 4, 2009, letter to the Agency regarding the Will County, Powerton and Joliet Stations, we told you that we had begun the work necessary to respond to the Agency's requests but needed additional time to complete our review and to respond. We appreciate the Agency's extension of time to July 15, 2009, to submit this response. As you know, in the interim, the Agency also sent MWG two May 15, 2009, letters requesting a similar evaluation be performed for the Crawford and Waukegan Stations. This response also timely addresses the Agency's May 15, 2009, request regarding those two stations.

While MWG has performed the work necessary to evaluate the ash impoundments at the MWG Stations, MWG still questions the Agency's legal authority to make these requests. The Agency's April 10, 2009, letters state that these requests were issued pursuant to Sections 4 and 12 of the Illinois Environmental Protection Act (the "Act"). The Agency's May 15, 2009, letters instead claim that the absence of a groundwater monitoring program at the stations means that compliance with 35 Ill. Adm. Code Part 620 has not been demonstrated. MWG respectfully submits that neither of the Agency's alternative legal grounds for issuing these requests gives it the authority to do so. Sections 4 and 12 of the Act do not contain any language authorizing the Agency to require the submission of the requested hydrogeologic assessment plans. Section 4 speaks solely of the Agency's investigatory authority, not any authority to require others to conduct investigations. Section 12 of the Act requires proof that either water pollution or a water pollution hazard has been "created." There are no data or other facts to support any allegation, let alone a finding, that either water pollution or water pollution hazards under Section 12 of the Act have been created at any of the MWG stations. Therefore, there is no legal basis under the Act to authorize the Agency's demand for any investigative or corrective action.

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One Financial Place
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Chicago, IL 60605
Tel: 312 585 6029
Fax 312 788 5529
Email: b.constantelos@mwgen.com

Mr. Allan Keller
July 15, 2009
Page 2

Similarly, the Part 620 groundwater regulations also do not contain any requirement that obligates MWG to prove compliance with the groundwater standards when there are no facts indicating or supporting an allegation of noncompliance. If this were a correct interpretation of the Part 620 regulations, which it is not, then every facility in the state which conducts on-site waste treatment operations would be required to conduct the hydrogeological assessment the Agency is demanding of MWG in order to affirmatively "demonstrate" to the Agency's satisfaction that it is maintaining compliance with the Part 620 groundwater regulations. To our knowledge, the Agency has not previously so broadly interpreted the Part 620 regulations. Moreover, we found no Illinois Pollution Control Board opinions so interpreting the Part 620 regulations.

As we have previously stated, the subject ash ponds at the MWG Stations are not disposal sites and the ash is routinely removed from the ash ponds. Rather, pursuant to the terms of the Stations' NPDES Permits, they are part of flow-through wastewater treatment processes at each of the stations. MWG's operation of the ash ponds has been carried out in accordance with the terms and conditions of the NPDES Permits. Under Section 12(f) of the Act, compliance with the terms and conditions of any permit issued under Section 39(b) of this Act is deemed compliance with this subsection. Further, the terms and conditions of the NPDES permit do not authorize the Agency to require the work addressed in its letters.

MWG is aware that the Agency has sent similar letters to other electric generating stations. In this regard, it appears that the Agency was not fully informed of relevant facts and circumstances that would distinguish the MWG stations and show the Agency that its request is not warranted or necessary. There are a number of site-specific facts that demonstrate there is no basis to conclude that the MWG ash ponds are causing violations of the Part 620 groundwater standards, including that each of the MWG ash ponds is lined and is regularly inspected by Midwest Gen to confirm that the integrity of the liners is maintained.

However, because MWG does wish to cooperate with the Agency by demonstrating that there is no reasonable basis for requiring groundwater monitoring at the MWG stations, we have proceeded to conduct a hydrogeologic assessment of each of the stations' ash ponds. The results of that assessment are reported in the enclosed report entitled "*Hydrogeological Assessment for Midwest Generation Stations: Will County, Waukegan, Joliet 29, Crawford and Powerton.*" We believe this evaluation should satisfy the Agency's concerns and needs regarding the MWG stations. We are, of course, willing to discuss and explain further any of the information contained in the enclosed report as well as answering any Agency questions concerning the enclosed report. Please contact the undersigned if you have any questions or wish to discuss the enclosed report.

Sincerely,



Basil G. Constantelos
Managing Director
Environmental Services

cc: Bill Buscher, Illinois EPA, Bureau of Water, Hydrogeologic and Assessment Unit
Darin LeCrone, Illinois EPA, Bureau of Water, Industrial Unit

**HYDROGEOLOGICAL ASSESSMENT OF MIDWEST GENERATION
ELECTRIC GENERATING STATIONS:**

**Will County Station, Waukegan Station, Joliet 29 Station, Crawford Station,
Powerton Station**

July 14, 2009

I. Executive Summary

Midwest Generation (MWG) has reviewed existing data and newly developed data in order to perform a hydrogeologic assessment in response to the Illinois Environmental Protection Agency's (the "IEPA" or "Agency") April 10, 2009 and May 15, 2009 requests regarding the following MWG electric generating stations: Will County Station, Waukegan Station, Joliet 29 Station, Crawford Station and Powerton Station. The assessment included a review and evaluation of each of the subject wastewater treatment systems (collectively referred to as "ash ponds"), an evaluation of the hydrogeology in the vicinity of the ash ponds, a potable water well survey within a 2500 feet radius of the respective stations' ash ponds and an assessment of the potential, if any, for impacts to existing water wells identified in the survey. The results of the assessment are that there is no basis for finding either (i) that MWG's operation of the ash ponds is causing migration of contaminants from the ash ponds in violation of the 35 Ill. Adm. Code Part 620 regulations; or (ii) that there is any risk of impairing potable water sources or other endangerment to human health.

II. Station Ash Ponds and Hydrogeologic Assessment

As part of the assessment, each of the ash ponds at the MWGen stations were reviewed and evaluated. This section provides a description of each of the ash impoundments in use at the respective MWG stations, including their location and relevant construction details. For each of the stations, an assessment of the hydrogeology of the subsurface area in the vicinity of the ash ponds also was conducted. The results of the hydrogeological assessment for each station are also reported in this section.

A. Will County Station:

North Ash Pond
South Ash Pond 1
South Ash Pond 2
South Ash Pond 3

The four Will County Generating Station ash ponds are all located in the western half of Section 2, Township 36 North, Range 10 East, in the Village of Romeoville, Will County, Illinois. These ponds are currently lined with 36 inches of "Poz-o-Pac" pavement originally constructed in 6-inch lifts in the late 1970s. "Poz-o-pac" is a fly ash aggregate liner similar to concrete. The potential for a release from the ash ponds is low

because these ponds are lined with Poz-o-pac liners. (The ponds also are scheduled to be relined in 2009 with high-density polyethylene geomembranes under Water Pollution Control Construction Permit #2008-EB-1166.)

Geology beneath the Will County ash ponds includes Silurian Dolomite from near the ground surface to a depth of approximately 55 feet, with shale (approximately 55-100 feet below ground surface) and limestone (approximately 100-145 feet below ground surface) underlying the dolomite. The ponds are situated between the Des Plaines River and the Chicago Sanitary and Ship Canal, and the probable direction of groundwater flow is to these surface waters.

B. Waukegan Station:

East Ash Pond
West Ash Pond

The two Waukegan Station ash ponds are located in the center of Section 15, Township 45 North, Range 12 East, in the City of Waukegan, Lake County, Illinois. These ponds are lined with high-density polyethylene (HDPE) geomembrane. Historically, these ponds have contained an impermeable liner. The potential for a release from the Waukegan ash ponds is low because these ponds are lined with HDPE liners.

The geology beneath the Waukegan ash ponds consists of fill to approximately 20 feet below ground surface, underlain by approximately 100 feet of lake-deposited sand. The area surrounding the ash ponds was reclaimed from Lake Michigan in the early twentieth century. The probable direction of groundwater flow is east towards Lake Michigan.

C. Joliet 29 Station:

Ash Pond 1
Ash Pond 2
Ash Pond 3

The three Joliet 29 ash ponds are located in the southeast $\frac{1}{4}$ of Section 19 and the southwest $\frac{1}{4}$ of Section 20, Township 35 North, Range 10 East, in the Village of Rockdale, Will County, Illinois, and include Ash Ponds 1, 2, and 3. Ash Ponds 1 and 2 are lined with high-density polyethylene (HDPE) geomembrane installed last year (2008) under Water Pollution Control Construction Permit #2007-EB-4091. Prior to 2008, they were lined with 12 inches of Poz-o-Pac pavement originally constructed in 6-inch lifts in the late 1970s. Ash Pond 3 is lined with 12 inches of Poz-o-Pac pavement originally constructed in 6-inch lifts. The potential for a release from the ash ponds is low because these ponds are lined with HDPE liners.

The geology beneath the Joliet 29 ash ponds includes approximately 5-30 feet of fine sandy loam, underlain by Silurian Dolomite to approximately 176 feet below ground surface, and Maquoketa shale from approximately 176 to 241 feet below ground surface. The shale is an effective confining unit separating the Silurian dolomite from deeper aquifers. Shallow groundwater likely flows south to the Des Plaines River.

D. Crawford Station:

One Equalization Basin

The Crawford Station equalization basin is located in the NW ¼ of Section 35, Township 39 North, Range 13 East, in the Town of Cicero, Cook County, Illinois. The basin is lined with concrete.

The geology beneath the Crawford ash pond includes silt and clay associated with Cahokia Alluvium and the Wedron Formation to a depth of approximately 20 feet below ground surface, underlain by Silurian Dolomite. Silt and clay, particularly those associated with the Wedron Formation, typically have low hydraulic conductivity. The likely groundwater flow direction is south to the Chicago Sanitary and Ship Canal.

The potential for groundwater migration from the Crawford ash pond is low due to the both the existence of the concrete liner and the low hydraulic conductivity of the underlying silt and clay.

E. Powerton Station

**Ash Surge Basin
Secondary Ash Settling Basin
Bypass Basin**

The three Powerton ash ponds are located in Section 9, Township 24 North, Range 5 West, near the City of Pekin, Tazewell County, Illinois. The Ash Surge Basin, Emergency Overflow Basin, and the Bypass basin are lined with 12 inches of Poz-o-Pac pavement constructed in 6-inch lifts at the bottom of the basin, and Hypalon geomembrane liner on the side slopes. The potential for groundwater migration from the the ash ponds is low due to the both the existence of the Poz-o-Pac/Hypalon geomembrane liner

The geology beneath the Powerton ash ponds includes sands and gravels of the Henry Formation to approximately 90 feet below ground surface. Groundwater flow is likely north towards the Illinois River.

III. Potable Water Survey and Assessment

A survey of all potable water sources within a 2500 feet radius of the respective stations' ash ponds was performed. The following databases and sources of information were utilized in order to determine community water source and water well locations and construction in the vicinity of the ash pond wastewater treatment systems:

- Illinois State Geological Survey (ISGS) -Water Well Database Query;
- Illinois State Water Survey (ISWS) Private Well Database and water well construction report request; and
- Illinois Division of Public Water Supply web-based Geographic System (GIS) files;

The survey results for each of the stations are set forth below.

A. Will County Station

The only identified potable wells, with associated structures, are located between the Des Plaines River and the Chicago Sanitary and Ship Canal. These wells are more than 1,500 feet deep (see wells 8 and 9 on attached Will County figure.) Based on this geologic profile, these wells are drawing groundwater from a deep aquifer below the Maquoketa confining unit. They do not draw groundwater from the shallow dolomite underlying the station's ash ponds.

Because there are no shallow potable wells between the ash ponds and the surface water bodies to which shallow groundwater discharges, there are no groundwater receptors between the ash ponds and the groundwater discharge point. As a result, there is no reasonable basis to expect that a release from this facility will pose any risk to human health.

B. Waukegan Station

There are eight potable/industrial use wells within 2500 feet of Waukegan's ash ponds (see attached Waukegan figure.) However, the ash ponds are located in close proximity to Lake Michigan and groundwater is believed to flow toward the lake. Further, there are no potable wells used for drinking water supplies to the east or south of the ash pond. Therefore, there is no reasonable basis to expect that a release from the ash ponds will pose any risk to human health.

C. Joliet 29

Seventeen potable/industrial use wells are within a 2500 foot radius of the Joliet 29 Station's ash ponds (see attached Joliet figure.) However, most of these wells are screened at the deeper area aquifers. Only 2 of the wells (Numbers 19 and 4 on figure)

are downgradient from the ash impoundment. Both of these wells are drilled at 1525 feet below ground surface and screened below the Maquoketa shale. These wells both belong to MWG and have had a successful compliance record during sampling in accordance with the drinking water regulations.

The absence of shallow potable wells between the ash ponds and the Des Plaines River, where shallow groundwater will discharge, means that there are no groundwater receptors between the ash ponds and the groundwater discharge point. As a result, there is no reasonable basis to expect that a release from this facility will pose any risk to human health.

D. Crawford

No potable wells were identified within a 2,500-foot radius of the station's ash pond (see attached Crawford figure.) The surrounding communities of Cicero and Chicago are served by municipal water distribution systems. Given the low hydraulic conductivity of the silt and clay, likely direction of groundwater flow toward the Chicago Sanitary and Ship Canal, and lack of potable wells near the ash pond, as well as the concrete-lining of the pond, there is no reasonable basis to expect that a release from this facility will pose any risk to human health.

E. Powerton

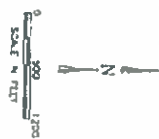
The well survey identified six wells within a 2,500-foot radius of the ash ponds, each of which is screened below 50 feet (see attached Powerton figure.) None of these wells are located downgradient from the ash ponds. Two of these wells supply Powerton Station with water. They are regularly sampled and analyzed for potable water constituents. The sampling results consistently have been in compliance with potable water regulations.

III. Conclusion

The hydrogeologic assessment of the ash pond wastewater treatment systems at each of the five MWG station evaluated each of the ash ponds in use at the stations. All of the ash ponds are lined with impermeable materials, including concrete, HDPE and Poz-o-Pac materials, to prevent the release of wastewater to the environment. For certain of the stations, the geology of the underlying soils is characterized by low hydraulic conductivity of the underlying media which would prevent the migration of wastewater even in the event of a release. Further, all of the ash ponds are located in close proximity to surface waters and the probable direction of groundwater flow is towards the surface waters and not in the direction of potable water wells.

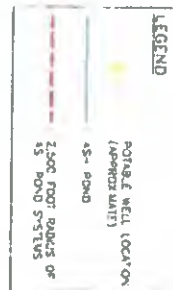
Existing water wells, if any, were identified as part of the potable water well survey conducted for the area within a 2500 feet radius of the respective stations' ash ponds. An assessment of the potential, if any, for impacts to existing water wells was performed for each of the stations. For each of the MWG stations, the assessment findings are that there

is no reasonable basis on which to conclude (i) that MWG's operation of the ash ponds is causing migration of contaminants from the ash ponds in violation of the 35 Ill. Adm. Code Part 620 regulations; or (ii) that there is any risk of impairing potable water sources or other endangerment to human health.



SOURCE: Aerial photography from
Illinois Natural Resource Survey
DATA: GIS-based map from Illinois State
Department of Natural Resources
ILLINOIS STATE DEPARTMENT OF
NATURAL RESOURCES, AND
ILLINOIS STATE WATER SURVEY

NOTE: WELL TO SURVEY TAPE FOR SPACING
WELL IDENTIFICATION



POTABLE WATER WELLS

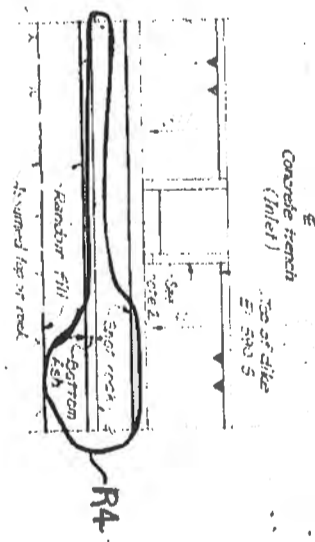
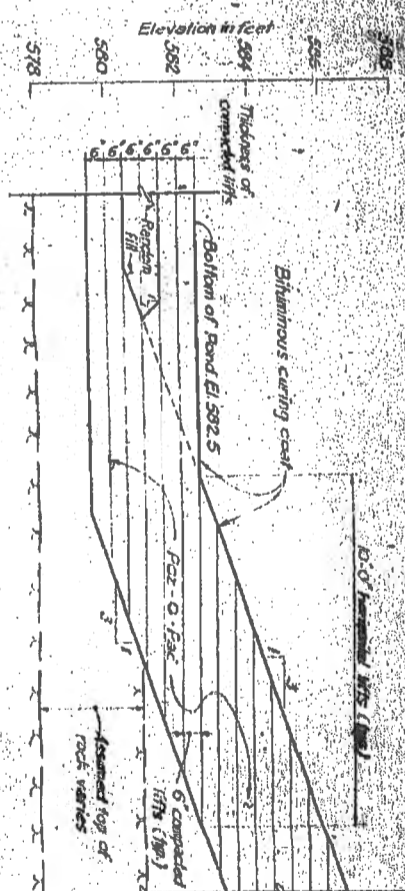
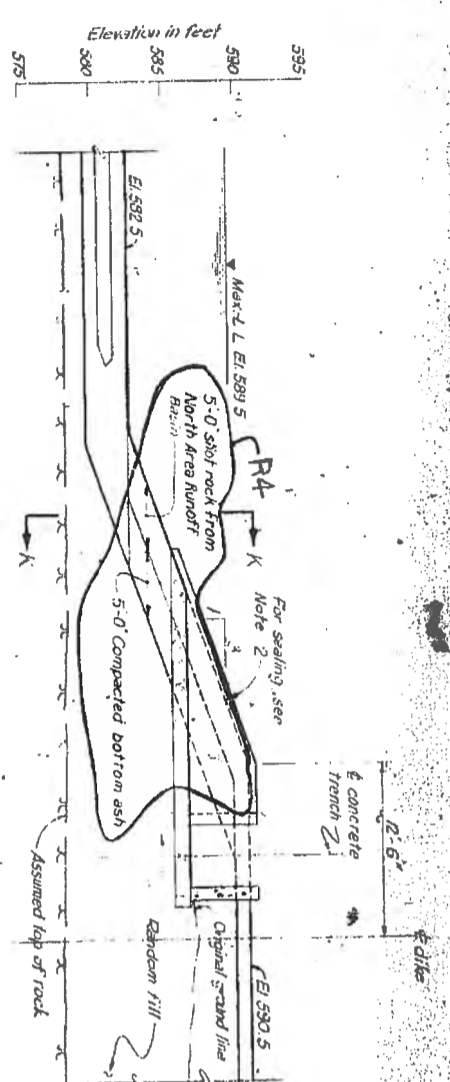
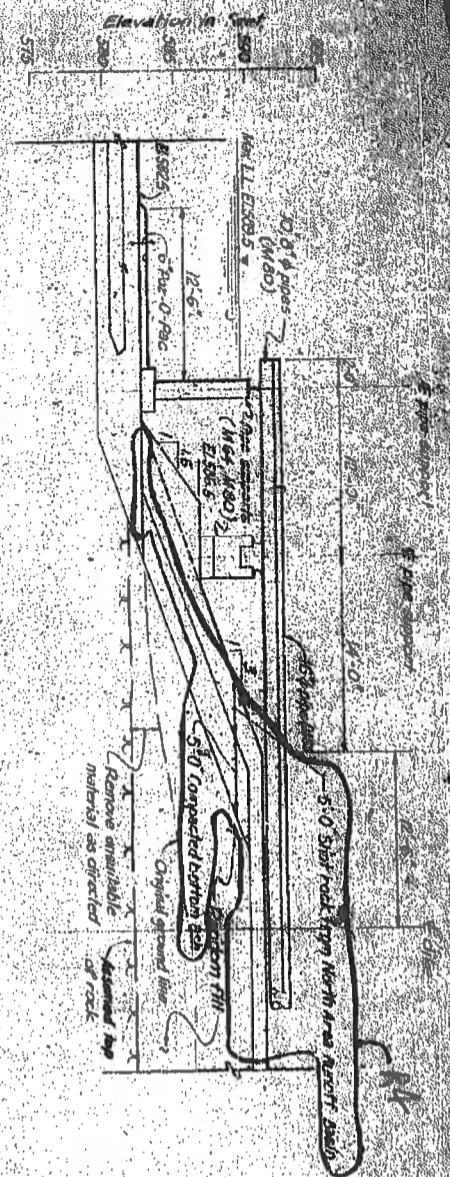
WILL COUNTY GENERATING STATION
MIDWEST GENERATION
ROMEORVILLE, WILL COUNTY, ILLINOIS

DRAWN BY	RNW	DATE	05/11/09
CHECKED BY	HMS	DATE	07/27/09
APPROVED BY	HMS	DATE	07/07/09
DRAWING NO	1782-5-101		
REFERENCE			



 NATURAL RESOURCE TECHNOLOGY
 PROJECT NO 182733
 FIGURE NO 1

EXHIBIT H



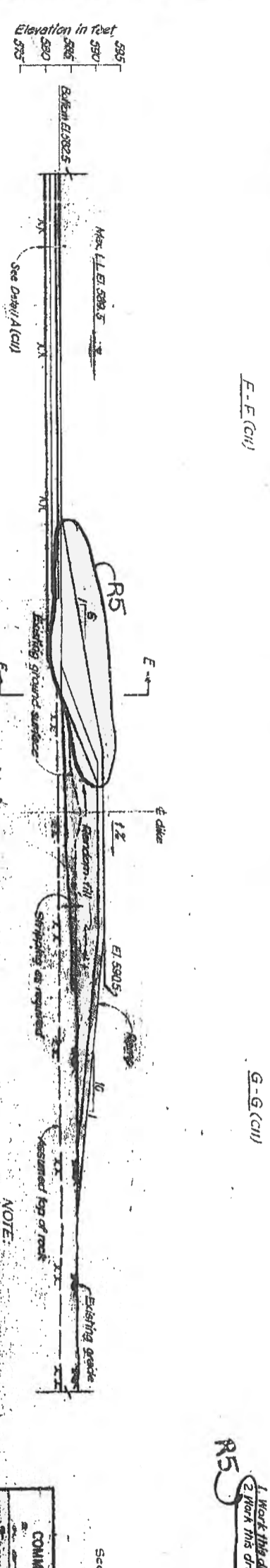
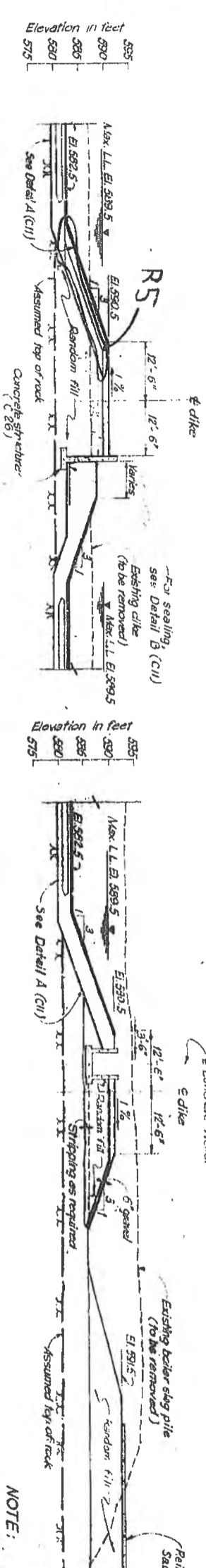
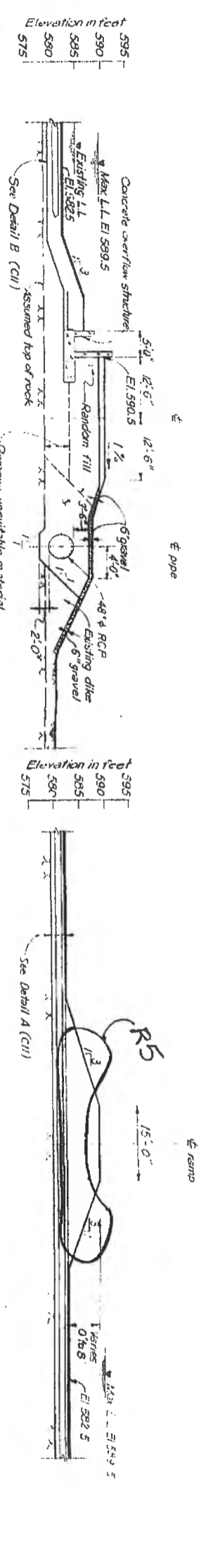
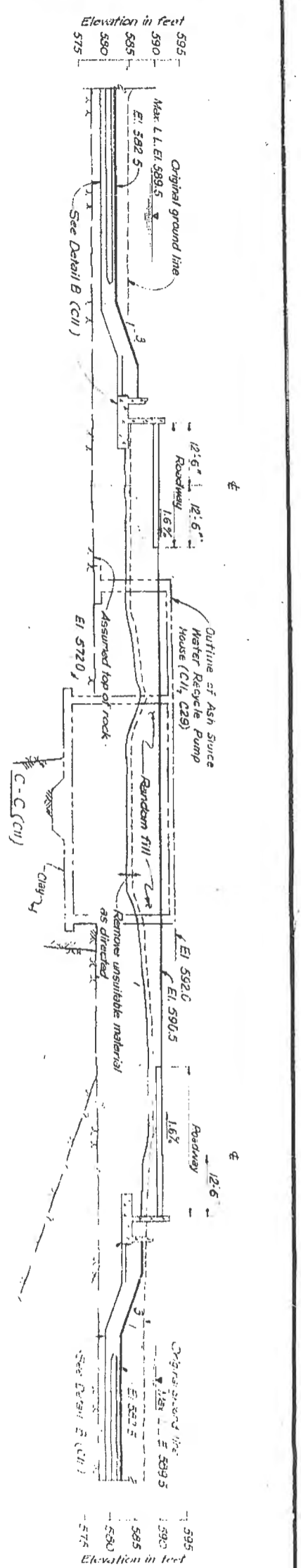
- NOTES:
1. Work this drawing with C1 thru C6, C11
 2. Apply joint sealant as directed by the manufacturer, or concrete/Poz-O-Pac, as directed.

DESIGN	DATE	REVIEWED
W/J	11/11/11	W/J
CHKD	11/11/11	W/J
APP'D	11/11/11	W/J
DATE	11/11/11	W/J

PROJECT	NO.	DATE
ASH POND SECTION	13-1	11/11/11

COMMONWEALTH OF ILLINOIS
CHICAGO, ILLINOIS
WILL COUNTY STATION

ASH POND SECTION



TYPE	DATE	REVISION
REVISED		
AS BUILT		
CONSTRUCTION		
DESIGN		
CHECK		
DATE		
SUBMIT		
BY		
CHECKED		
DATE		

NOTE:
 The construction of the concrete overflow structure is shown in the plan view.
 Random fill to be removed.

NOTE:
 1. Work this drawing with C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9, C-10, C-11, C-12, C-13, C-14, C-15, C-16, C-17, C-18, C-19, C-20, C-21, C-22, C-23, C-24, C-25, C-26, C-27, C-28, C-29, C-30, C-31, C-32, C-33, C-34, C-35, C-36, C-37, C-38, C-39, C-40, C-41, C-42, C-43, C-44, C-45, C-46, C-47, C-48, C-49, C-50, C-51, C-52, C-53, C-54, C-55, C-56, C-57, C-58, C-59, C-60, C-61, C-62, C-63, C-64, C-65, C-66, C-67, C-68, C-69, C-70, C-71, C-72, C-73, C-74, C-75, C-76, C-77, C-78, C-79, C-80, C-81, C-82, C-83, C-84, C-85, C-86, C-87, C-88, C-89, C-90, C-91, C-92, C-93, C-94, C-95, C-96, C-97, C-98, C-99, C-100.

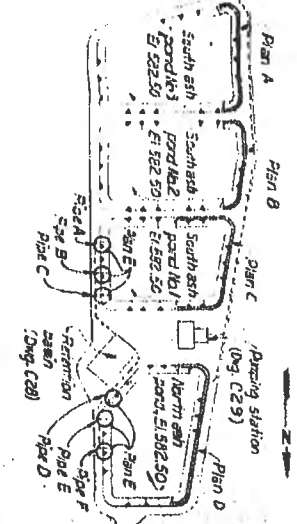
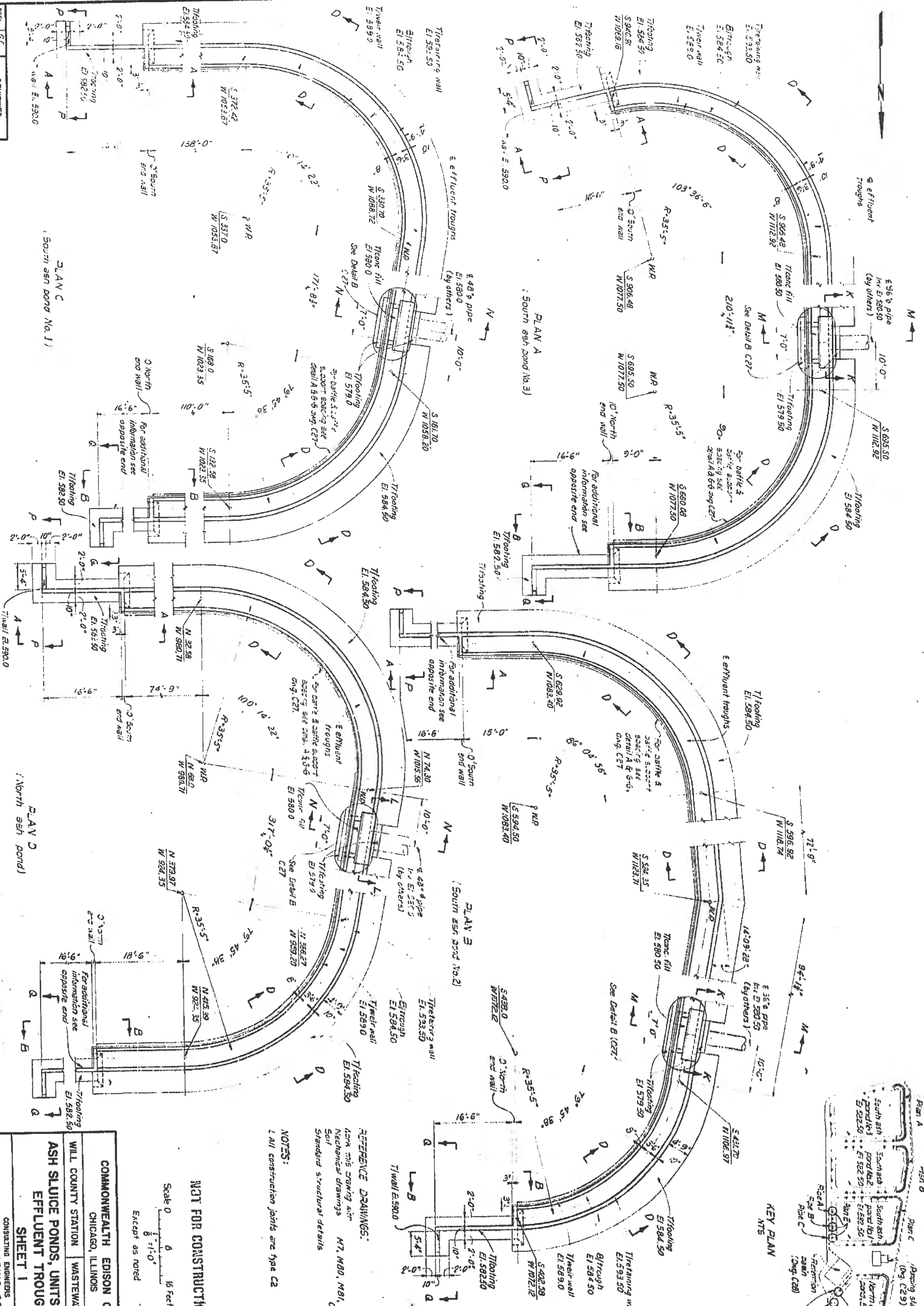
ASH POND SECTIONS

Scale 0" = 20 Feet

COMMONWEALTH EDISON COMPANY
 CHICAGO, ILLINOIS

WILL COUNTY STATION, WASHINGTON TREATMENT PLANT

201603



REFERENCE DRAWINGS:
 C27
 C28
 C29
 C30
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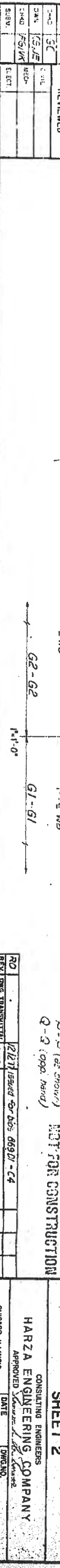
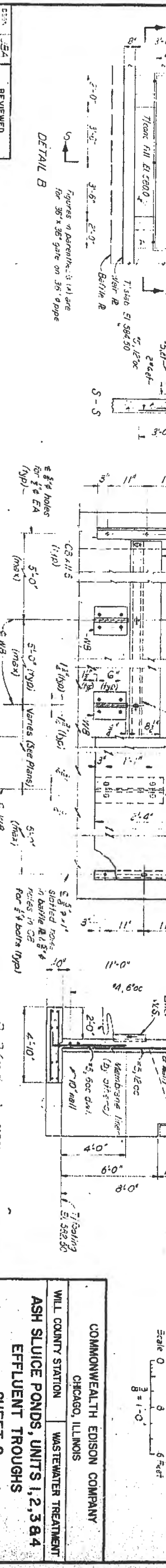
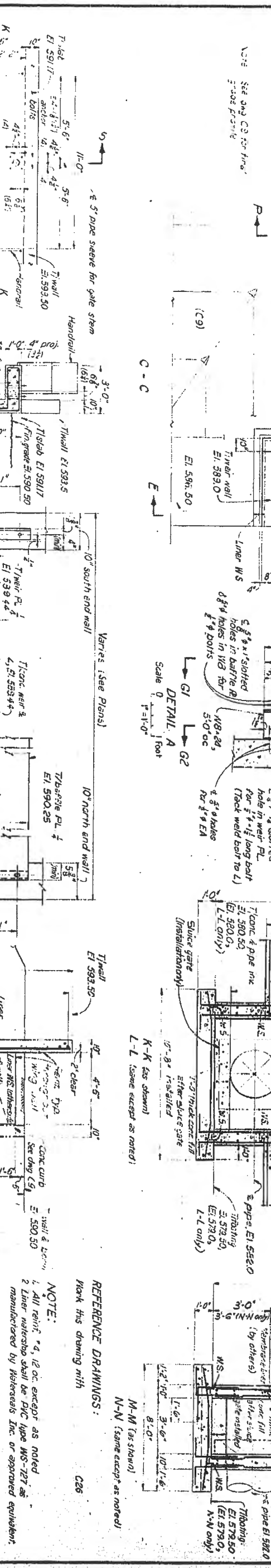
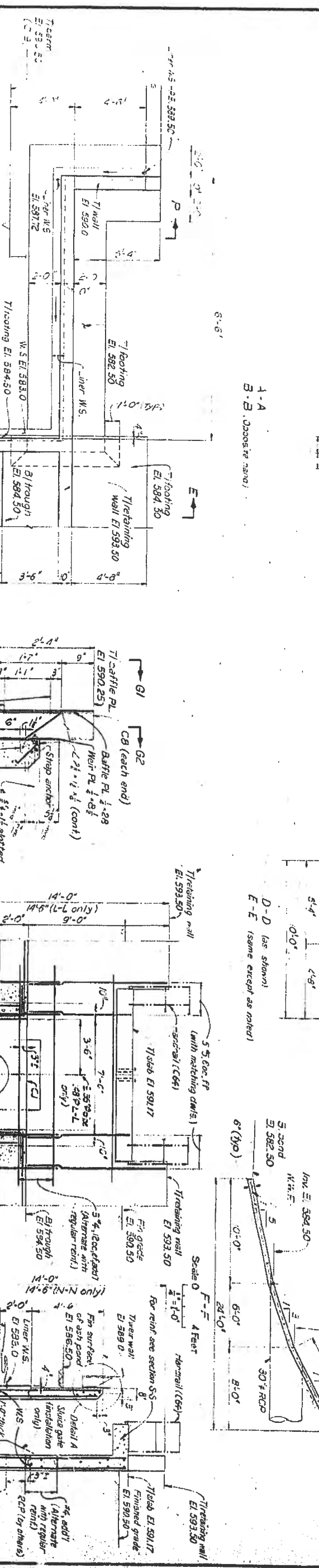
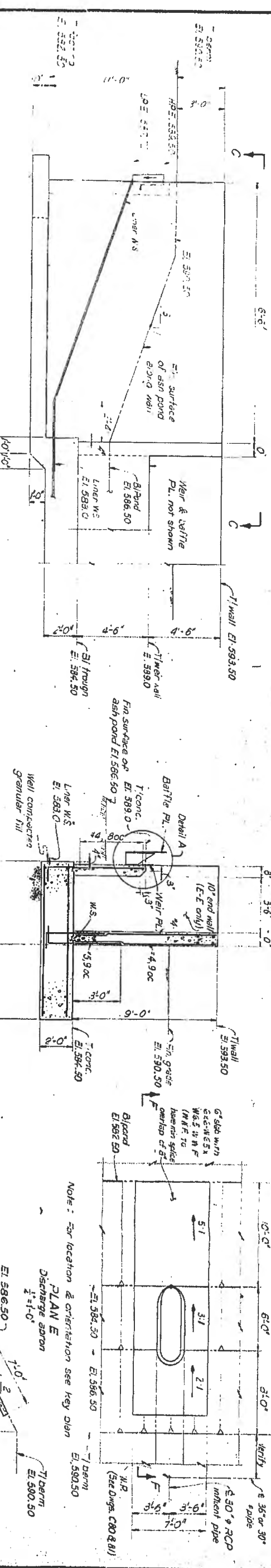
NOTES:
 1. All construction joints are type C2

NOT FOR CONSTRUCTION
 Scale 0 8 16 Feet
 Except as noted

DESIGN	GC	REVIEWED
CHKD	JBA	C.NL
CHKD	JBA	MECH
CHKD	JBA	ELECT.

RD	001	TRANSMITTAL	DATE	2/27/19	ISSUED FOR	2020-03-05	BY	CHD
NO.	001	LETTER NO.			NATURE OF REVISION			

COMMONWEALTH EDISON COMPANY
 CHICAGO, ILLINOIS
WILL COUNTY STATION WASTEWATER TREATMENT
ASH SLUICE PONDS, UNITS 1, 2, 3 & 4
EFFLUENT TROUGHS
SHEET 1
 CONSULTING ENGINEERS
HARZA ENGINEERING COMPANY
 CHICAGO, ILLINOIS
 APPROVED DATE NOV. 1977
 DRAWING NO. 869D1-C26
 JAN. 13, 1978



Note: For location & orientation see key plan
Discharge apron

REFERENCE DRAWINGS:
K-K (as shown)
L-L (as shown)

NOTE:
1. All reinf. ϕ 1/2\"/>

COMMONWEALTH EDISON COMPANY
CHICAGO, ILLINOIS
WILL COUNTY STATION
WASTEWATER TREATMENT
ASH SLUDGE PONDS, UNITS 1, 2, 3 & 4
EFFLUENT TROUGHS
SHEET 2

CONSULTING ENGINEERS
HARZA ENGINEERING COMPANY
CHICAGO, ILLINOIS
APPROVED
DATE NOV 1977
DWG NO. 86901-C27

DESIGN	BY	REVIEWED
DRAWN	BY	
CHECKED	BY	
SCALE		
DATE		

REV	DWG	TRANSMITTAL	DATE	BY
2	12/27	Issued for DWS 089D-C4		
1		REVISION		
		NATURE OF REVISION		

EXHIBIT I

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

MIDWEST GENERATION, LLC)	
)	
Petitioner,)	
v.)	PCB
ILLINOIS ENVIRONMENTAL)	(Variance - Land)
PROTECTION AGENCY)	
)	
Respondent.)	

AFFIDAVIT OF RICHARD GNAT

I, Richard Gnat, being first duly sworn on oath, depose and state as follows:

1. I am over the age of 18 years and am a resident of Wisconsin.
2. The information in this Affidavit is based on my personal knowledge or belief in my capacity as a Professional Geologist with the State of Illinois and Principal of the environmental consulting firm KPRG and Associates, Inc. (KPRG), of which I am also part owner. KPRG has served as an environmental consultant to Midwest Generation, LLC since 2005 regarding the remediation and/or management of various coal combustion residual (CCR) and coal combustion by-product (CCB) issues, including at Will County Station, and I would testify to such matters if called as a witness.
3. There were originally six groundwater monitoring wells in the vicinity of Will County Stations Ponds 1N and 1 S. There were two upgradient wells from each pond but only one monitoring well downgradient of each pond.
4. The Will County Station Ponds 1N and 1S did not have an existing monitoring well system for Ponds 1N and 1S that was compliant under 35 Ill. Adm. Code 845.630 until April 2021.
5. In order to comply with the Section 845.630(c), three new monitoring wells needed to be installed downgradient of the Ponds 1N and 1S.

6. Installation of the wells required first clearing/grubbing the site and moving a fence on the property to make room for the drilling equipment to access the area, and after the new wells were installed, they needed to be developed and surveyed by a licensed surveyor and dedicated well pumps needed to be ordered based on the geometry of the final well construction.

7. I estimated that the well installation would be completed in May 2021, however, installation and development of the three new monitoring wells was completed on April 28, 2021 and the dedicated pumps were installed on May 3, 2021.

8. The first of eight independent samples necessary to comply with the requirements in 35 Ill. Adm Code Section 845.650(b)(1)(A) were collected from the background and downgradient monitoring wells for Ponds 1N and 1S on May 3-4, 2021.

9. I have assisted in the preparation and review of the schedule to meet current regulation deadlines for compliance with the groundwater monitoring requirements that were prepared for and submitted with this variance petition as Ex L, and the schedule is true and accurate to the best of my knowledge.

10. Compliance with the schedule to meet current regulation deadlines will not collect quality background data because it does not allow for collection of data that represents the seasonal variations or independent data.

11. Based on the date that the first groundwater sample was collected from the Ponds 1N and 1S background and downgradient monitoring wells, it is not possible to obtain eight independent and seasonally variable representative groundwater samples by October 18, 2021.

12. Based on the date that the first groundwater sample was collected from the Pond 1N and 1S background and downgradient monitoring wells, collecting eight independent and seasonally variable samples is only possible if samples are taken at least one month apart.

13. The estimate includes sufficient time to complete the necessary statistical analysis based on all monitoring results and develop site specific applications of groundwater protection standards for subsequent data comparisons and evaluations.

14. It typically takes 14 to 21 days to receive laboratory analytical results, depending upon the type of analytical work being performed, although receipt of the radium data which is required to be sampled under the 35 Ill. Adm. Code §845.600 generally takes on the order of 30 days or more.

15. I assisted in the preparation and review of the Schedule to allow for Monthly Sampling and Statistical Data Evaluation/Incorporation into Permit that was prepared for and submitted with this variance petition as an exhibit, and the schedule is true and accurate to the best of my knowledge.

16. As part of the review of the estimated timeline to submit the operating permit application, I oversaw the review and estimated deadlines to collect the 22 technical documents required to be submitted as part of the initial operating permit application, required by Section 845.230 of the Illinois CCR rule which is submitted with this variance petition as an exhibit.

17. Based on the estimated time necessary to complete each of the 22 technical aspects of the operating permit application, including the groundwater data, and based on the resources available and level effort required to complete each task, a complete operating permit application cannot be submitted by the October 30, 2021 deadline required by the Illinois CCR Rule.

18. I have assisted in the preparation and review of the estimated timeline for compliance with the operating permit application deadline that were prepared for and submitted with this variance petition as an exhibit, and they are true and accurate to the best of my knowledge.

19. The cost to comply with the regulatory deadlines are the same, the only difference is in quality and thoroughness of the information.

20. The cost of executing the proposed compliance plan including the costs for the new well installations, clearing and grubbing, and fence modifications, the eight rounds of groundwater sampling, and the statistical data evaluations is estimated at approximately \$104,000.

21. The estimated total cost of the preparation of the operating permit application is estimated to be approximately \$50,000, and the cost of preparing a construction permit approximately \$150,000.

Under penalties as provided by law pursuant to Section 1-109 of the Code of Civil Procedure, the undersigned certifies that the statements set forth in this instrument are true and correct, except as to matters therein stated to be on information and belief and as to such matters the undersigned certifies as aforesaid that he verily believes the same to be true.

FURTHER AFFIANT SAYETH NOT.

Richard R. Gant

Subscribed and Sworn to before me

On May 6th, 2021.

Judith A. McCaigue
Notary Public

My Commission Expires: 4-7-2025

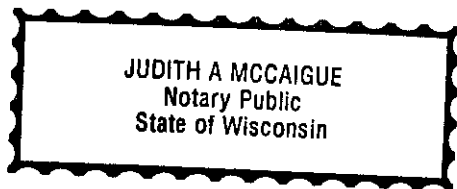
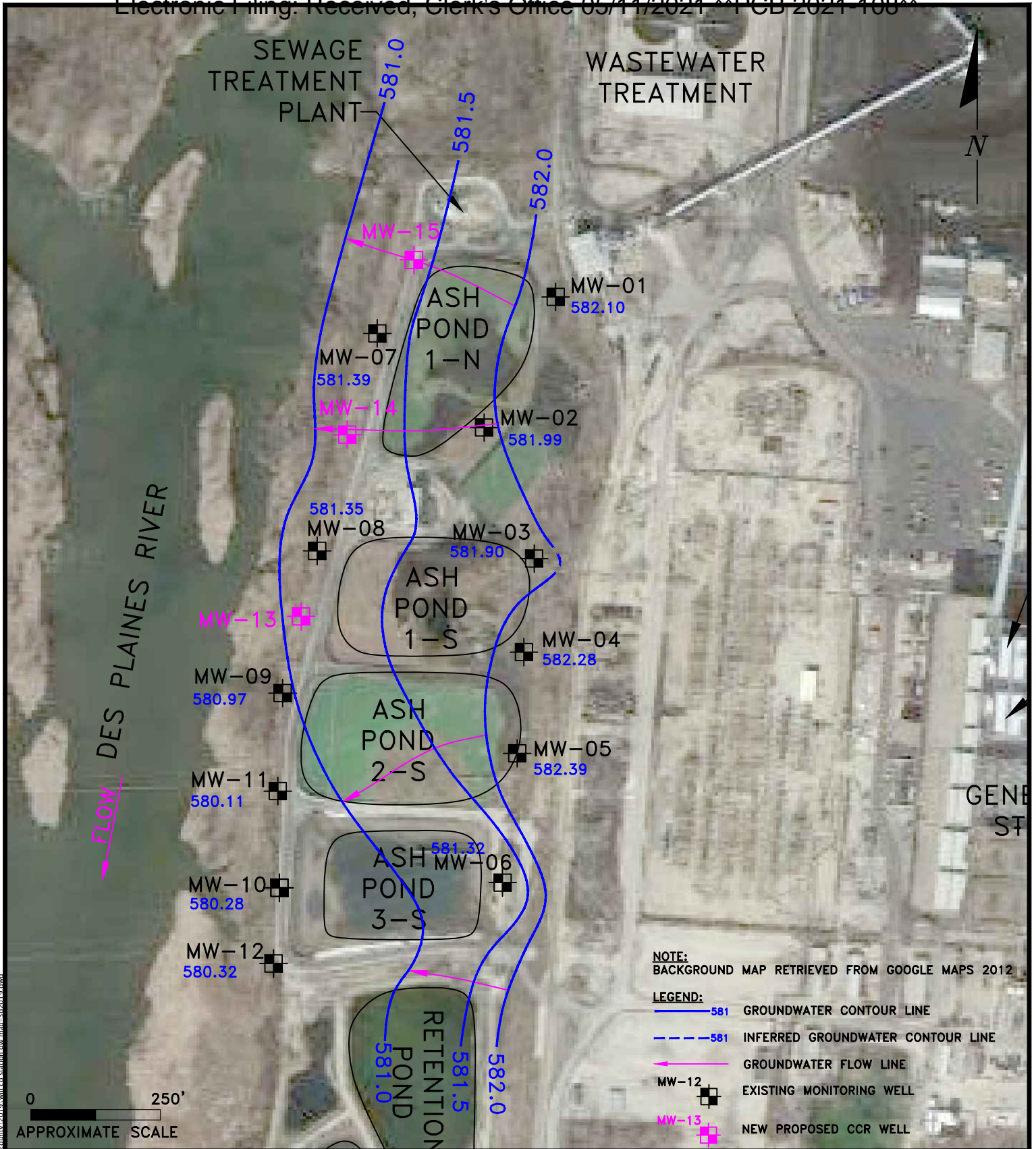


EXHIBIT J



ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

PROPOSED NEW CCR WELL LOCATIONS

WILL COUNTY STATION
ROMEOWILLE, ILLINOIS

Scale: 1" = 250'

Date: March 12, 2021

KPRG Project No. 19520.3

FIGURE 1

EXHIBIT K

Will County Station – Operating Permit Preparation

<u>Item</u>	<u>Estimated Cost</u>
KPRG Professional Labor	\$44,045
Internal Expenses	\$ 1,985
External Expenses	\$ 830
Signage Contractor	<u>\$ 2,875</u>
Sub-Total	\$49,735

3 New Well Installations (Includes Clearing/Grubbing and Fence Modifications)

<u>Item</u>	<u>Estimated Cost</u>
KPRG Professional Labor	\$ 7,140
Internal Expenses	\$ 339
External Expenses	\$ 1,835
Dedicated Bladder Pumps (3)	\$ 3,220
Drilling Contractor	\$14,030
Allied Landscaping (Clearing)	\$ 2,070
Fencing Contractor	\$ 22,488
Surveyor	<u>\$ 2,490</u>
Sub-Total	\$53,612

8 Rounds CCR Groundwater Sampling for 9 Wells

<u>Item</u>	<u>Estimated Cost/1 Round</u>
KPRG Professional Labor	\$ 2,850
Internal Expenses	\$ 135
External Expenses	<u>\$ 1,585</u>
Per Round	\$ 4,570
Sub-Total 8 Rounds	\$36,560

Statistical Data Evaluations and Reporting

<u>Item</u>	<u>Estimated Cost</u>
KPRG Professional Labor	\$13,405
Internal Expenses	<u>\$ 636</u>
Sub-Total	\$14,041

TOTAL CHANGE ORDER REQUEST

<u>Item</u>	<u>Estimated Cost</u>
Operating Permit Preparation	\$49,735
New Well Installations	\$53,612
8 Rounds GW Sampling	\$36,560
Statistical Evaluations/Reporting	<u>\$14,041</u>
TOTAL	\$153,948

EXHIBIT L

EXHIBIT M

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
STANDARDS FOR THE DISPOSAL OF)
COAL COMBUSTION RESIDUALS IN) R20-019
SURFACE IMPOUNDMENTS:) (Rulemaking - Water)
PROPOSED NEW TO 35 Ill. Adm. Code Parts 845)

**PRE-FILED TESTIMONY OF RICHARD GNAT
ON BEHALF OF MIDWEST GENERATION, LLC**

My name is Richard Gnat. I am a Principal of the environmental consulting firm KPRG and Associates, Inc. (KPRG), of which I am also part owner. I have been employed by KPRG since January 2002. Prior to KPRG, I worked with several other environmental consulting firms and have been working in this industry since 1984. I have a Bachelor of Science (B.S.) degree in Earth Science from Northeastern Illinois University, a Master of Science (M.S.) degree in Geosciences from the University of Illinois at Chicago and had subsequent additional course work in hydrogeology from Eastern Michigan University. My primary expertise is with subsurface soil and groundwater investigations and subsequent remediation. I am a registered Professional Geologist (P.G.) with the State of Illinois. My curriculum vitae is attached as Attachment 1.

Since 2005, KPRG has assisted Midwest Generation, LLC (Midwest Generation) with the investigation, remediation and/or management of various coal combustion residual (CCR) and coal combustion by-product (CCB) issues. I have been retained by Midwest Generation to provide this testimony with regard to the Illinois Environmental Protection Agency (Illinois EPA) proposed Part 845 Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments (Draft Rule) dated March 30, 2020.

Altogether, I believe the Illinois EPA has done a good and thorough job in preparing the Draft Rule and believe the Draft Rule effectively regulates CCR surface impoundments. My comments are limited to provisions of the Draft Rule relating to groundwater monitoring and assessment of corrective measures requirements in Sections 845.600 through 845.660. I also concur with the Agency's interpretation of the term "free liquids" as used in the Draft Rule and am providing further support for its interpretation.

I. Subpart F: Groundwater Monitoring and Corrective Action – Sections 845.600 through 845.660

Generally, I agree with Illinois EPA's overall approach in the groundwater monitoring program to statistically evaluate and assess the groundwater data generated at power generating stations (Stations), including those Stations with multiple CCR impoundments in close proximity to each other. I also agree with the Illinois EPA that the intent of the proposed groundwater monitoring program within Subpart F of the Draft Rule is to develop a monitoring approach to evaluate the groundwater that is passing the boundary of a regulated CCR surface impoundment. Accordingly, the Illinois EPA correctly defines a "landfill containing CCR" as a "CCR landfill" defined in the Federal Coal Combustion Residual Rule (Federal CCR Rule) in 40 CFR 257.53.

However, the groundwater monitoring program should be modified to both add clarity and time to collect representative data that reflects the unique circumstances at each Station. In various sections of the Draft Rule, the language is unclear concerning when a timeline starts, or the information required for submission of documents. Additionally, the Draft Rule provides only a "one-size fits all" approach to groundwater monitoring that does not take into account the site-specific characteristics of the CCR stored in the impoundment. The final rule should allow regulated entities to make a demonstration on a case-by-case basis for a targeted, site-specific groundwater monitoring program.

The Draft Rule's groundwater monitoring program has serious flaws that will not ensure development of accurate and representative data. Limiting the initial groundwater quality background groundwater sampling to 180 days for existing CCR surface impoundments will not result in the most representative groundwater data to establish the accurate background groundwater before the groundwater passes the boundary of the CCR surface impoundment. Instead, the Rule should have the same two-year timeline for establishing background groundwater as does the Federal Rule.

Also, the Draft Rule eliminates the initial detection monitoring tier of the Federal CCR Rule two-tiered approach outlined in 40 CFR 257.90 through 257.95, resulting in only a one-tier approach with groundwater protection standards (GWPSs) for all parameters. Eliminating the initial detection monitoring tier significantly reduced the timeframe from the initial detection of a "statistically significant increase" (SSI) to the start of an assessment of corrective measures from about 360 days, as allowed under the Federal CCR Rule, to just 90 days. Because deadlines relating to potential corrective measures in the Draft Rule are so tight, revising the Draft Rule to allow some additional time to complete further detection monitoring investigations and, where applicable, to potentially conduct a technically sound Alternate Source Demonstration (ASD), can be afforded while still maintaining consistency with but more stringent requirements than provided in the Federal CCR Rule. Allowing some additional time to complete these investigations will still result in a substantial reduction of the timeframe for initiation of potential corrective measures while providing a more robust and accurate basis on which to determine what corrective measures may need to be implemented. It is not prudent to "rush to judgment" on potential corrective measures when the end result may be that the measures selected are not appropriate or effective.

A. Section 845.610 – General Requirements

Overall, I agree with the Illinois EPA's proposed approach to the development of a groundwater monitoring program. However, the requirement in Section 845.610(b)(3)(D) to submit all groundwater monitoring data and any analysis performed within 60 days after "completion of sampling" may create confusion as to the required date for submission of the data to the Agency. The phrase "completion of sampling" is unclear. It is susceptible to various interpretations. It may be interpreted to mean the date the sample of groundwater is collected or alternatively, the date the laboratory analysis of the sample is received. If "completion of sampling" means the date of sample collection, then the 60-day clock for analysis of the data starts running even before any actual "sampling data" to be analyzed has been received from the laboratory. Such an interpretation would afford a very limited time to review and analyze the data upon receipt as it can typically take 14 to 21 days to receive the laboratory analytical results, depending upon the type of analytical work being performed (receipt of radium data generally takes on the order of 30 days or more). A 60-day deadline for both obtaining the sampling data and performing an analysis of that data is simply too short.

In response to MWG's questions, the Agency stated that "Part 845 requires, consistent with Part 257, that the assessment of corrective measures begin within 90 days of an exceedance of a GWPS." (Ex. 3, p. 22, Answer to Question 60.a). I am assuming the Agency means Section 257.95 of the Federal Rule, which is the section regarding Assessment Monitoring that triggers corrective action depending on the results. Section 257.95 uses language such as "after obtaining the results from the initial and subsequent sampling events..." and "within 90 days of finding that any of the constituents..." 40 CFR 257.95(d)(1), (f)(3). This language makes it clear that the trigger for a data and analytical submission deadline is the receipt of the sample results, not the completion of sample collection. I believe based upon the Agency's Answer to MWG Question 60.a, in addition

to its Answer to MWG Question 71.e., that the Agency intended the phrase “completion of sampling” to mean “upon receipt of all analytical results”. The language of the Draft Rule should be clarified so that the activity (*i.e.*, the receipt of all sample analytical results) which triggers the start of the 60-day submission deadline is clear.

B. Section 845.620 Hydrogeologic Site Characterization

The requirements in Section 845.620 provide the basis for a good hydrogeologic assessment. However, there are several clarifications I suggest making to ensure a clearer understanding of what needs to be included in the assessment. Specifically, Subsections (b)(3) and (4) state that “nearby” surface bodies, drinking water intakes, and pumping wells must be identified. The term “nearby” is vague. Instead, the rule should include a definite distance or actual radius from the CCR surface impoundment. For example, Section 1600.210 of the Board rules defines a search radius for Community Water Systems (CWS) of 2,500 feet. Subsections 845.620(b)(3) and (4) should include a similar distance.

Also, it is unclear in Section 845.620(b)(13) whether the requirement to determine the vertical and horizontal extent of the geologic layers to a minimum depth of 100 feet can be fulfilled using available data and information without necessarily drilling to 100 feet as part of the study. Illinois EPA’s answer in Exhibit 3 suggests that the Agency may accept information from other site specific or regional data sources. (Ex. 3, p. 23, Answer to Question no. 64). To avoid confusion, Section 845.620(b)(13) should specifically state that the vertical and horizontal extent of the geologic layers may be determined by using other available site-specific and local stratigraphy information.

Similarly, the requirement to describe the chemical and physical properties of the geologic layers to a minimum depth of 100 feet in Section 845.620(b)(15) may be interpreted very broadly

to include detailed mineralogical and whole rock chemistry analyses for each geologic layer to a minimum depth of 100 feet. It also can be interpreted more narrowly to require analysis of each geologic layer for those parameters specified in Section 845.600. But either of these types of detailed, geologic chemistry information are generally not required or necessary for the development of groundwater monitoring systems. Illinois EPA seems to agree with this and intended that Section 845.620 instead should require a more general description of the chemical and physical properties of the geologic layers based on available site-specific boring log observations and any available or applicable literature information on the mineralogical makeup of the geologic layers. While additional specific chemistry information may need to be developed in future evaluations to support potential numerical modeling of contaminant transport and chemical reactions between impacted groundwater and the aquifer matrix, that would be a very specific situational requirement that would warrant the development of more extensive chemical and physical properties of the geologic layers at that time. To avoid confusion, the language of Section 845.620(b)(15) should be clarified to more specifically describe the type of data that must be included as part of the site characterization.

C. Section 845.630 Groundwater Monitoring Systems

Section 845.630(a)(1) and (2) starts the discussion of requirements for development of proper background for the monitoring system. Both sections correctly state that background must “accurately represent the quality of background groundwater that has not been affected by leakage from a landfill containing CCR or CCR surface impoundment” and “accurately represent the quality of groundwater passing the waste boundary of the CCR surface impoundment.” Accordingly, I agree with the Agency that a “landfill containing CCR” has the same meaning as

CCR landfill in Part 257 of the Federal Rule. (Ex. 2, pp. 35-36, Agency Answer to Question 22.a.; Ex. 3, pp. 23-24, Agency Answer to Question 66).

The Agency's approach is correct because it is critical to consider the actual groundwater quality immediately prior to its passing beneath the impoundment and to incorporate this background data/information into the statistical evaluations and interpretations of the data. Understanding the background groundwater quality prior to passing beneath a specific regulated unit boundary is important in developing an effective groundwater monitoring program for the regulated unit. Without this information, a source of groundwater impacts other than the regulated impoundment may be misunderstood or overlooked resulting in an incorrect conclusion on whether the subject regulated unit is actually the source. This situation may occur where there is another impoundment or other potential source that has impacted the groundwater upgradient of the subject impoundment that then passes beneath the subject impoundment. Without a monitoring program that can adequately distinguish between upgradient impoundment or non-impoundment sources and the subject impoundment caused impacts to groundwater, needless time and effort may be spent in evaluating and addressing an impoundment which is not the cause of the groundwater conditions that need to be addressed.

Moreover, while the purpose of the Draft Rule is to specifically regulate CCR surface impoundments, that does not mean that the other areas and the underlying groundwater of a Station are unregulated. The Stations have always been subject to the general groundwater rules in Part 620. In fact, Section 620.420 specifically addresses historic fill, including slag and ash. During the Part 620 rulemaking, the Illinois EPA explained that it drafted Section 620.420 to apply to sites that applied fill material before the effective date. *See* Excerpt of Illinois EPA Statement of Reasons, *In the Matter of: Groundwater Quality Standards (35 IAC 620)*, PCB R89-14(B), May

15, 1991, attached as Attachment 2. Similarly, Richard P. Cobb stated in his Part 620 rulemaking pre-filed testimony that as part of its evaluation, Illinois EPA acknowledged that extensive areas in Illinois were filled with slag or other fill. *See* Excerpt of R. Cobb Pre-filed Testimony, *In the Matter of: Groundwater Quality Standards (35 IAC 620)*, PCB R89-14(B), May 15, 1991 attached as Attachment 3. Additionally, Illinois EPA specifically stated in this CCR rulemaking that other potential CCR sources at a Station are subject to Section 12 of the Environmental Protection Act and Part 620 of the Board Rules. Ex. 3, p. 50, Agency Answer to Question 57. Illinois EPA also stated that the other areas at a Station do not evade any regulation by not being included in Part 845. Ex. 3, p. 50, Agency Answer to Question 58. There are also other regulatory remediation programs within the IPCB regulations under which any groundwater impacts associated with historic operational issues can and should be properly addressed. (e.g., the Site Remediation Program in 35 Ill. Admin. Code Parts 740 and 742).

D. Section 845.640 Groundwater Sampling and Analysis Requirements

The groundwater sampling and analysis requirements in the Draft Rule generally follow best practices to ensure consistent collection of accurate data. However, Section 845.640 states that all units at all Stations must analyze groundwater on a quarterly basis through post-closure care, and possibly longer, for *all* parameters listed in Section 845.600. This “one-size-fits-all approach” does not reflect the unique or special circumstances at each Station. For example, often the CCR stored in a CCR surface impoundment does not contain or release all of the parameters listed in Section 845.600. In fact, Section 845.220(a)(2)(A) of the Draft Rule requires analysis/characterization of the CCR as part of the construction permit requirements. During the Illinois Pollution Control Board (IPCB) hearings held on August 11 through 13, 2020, when the Agency was asked why such detailed information was necessary, it responded that this site-specific information and detail

may be useful in the design and operation of the unit.¹ I believe that this type CCR characterization information would also be useful in developing a more targeted, site specific groundwater monitoring program. If it can be shown that the ash placed within a specific impoundment does not contain or leach a specific compound on the list of parameters provided in Section 845.600, then there is no reason to monitor for that parameter on a quarterly basis for 30-plus years.

Developing a site-specific monitoring program is consistent with other existing Illinois regulations that apply to groundwater assessments, such as in the Illinois landfill regulations under Section 811.319 of the Board regulations. It is also an accepted approach for Resource Conservation and Recovery Act (RCRA) units as discussed in the U.S.EPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance, EPA 530-R-09-007 (March 2009). Some portions of that guidance which note using waste specific characteristics in sampling program development are included in Attachment 4. The link to the full guidance document, which is over 800 pages, is <https://archive.epa.gov/epawaste/hazard/web/html/index-12.html>. Additionally, if the owner/operator would choose to develop such a site-specific approach to monitoring program development, the Rule should also require that the waste characterization be re-evaluated whenever there is a change in either the coal supply source or the combustion process equipment.

Accordingly, this section should also include a provision to allow an owner/operator the option to complete a representative waste characterization of the ash being placed into the regulated unit. The representative waste characterization would be required to include, at a minimum, sampling and analysis for all the parameters listed in Section 845.600. If the waste characterization sampling shows that some of the listed parameters are not associated with the ash being placed into the unit,

¹ *In the matter of Coal Combustion Residuals in Surface Impoundments: Proposed new 35 Ill. Adm. Code 845, PCB R20-19, August 11, 2020 Transcript, p. 155.*

then the monitoring program list of parameters can be narrowed to the relevant parameters of actual consequence.

Section 845.650 Groundwater Monitoring Program

As proposed, the groundwater monitoring program will likely not generate data that accurately reflects the constituents and their background concentrations in the groundwater before it passes the waste boundary of existing CCR surface impoundments because of the limited time to collect the background data set. Moreover, the Agency's decision to reduce the time to trigger an assessment of corrective measures from 360 days to 90 days is too stringent and is not founded in technically or scientifically sound basis.

a. 180 Days to Establish Background Groundwater Quality Will Not Provide Representative Data

Section 845.650(b)(1)(A) requires a minimum of eight independent samples from each background and downgradient monitoring well to be collected and analyzed for all constituents at all existing CCR surface impoundments within 180 days of the effective date of the Rule. The purpose of the initial sampling is to develop data to establish the background concentrations of the groundwater before it passes the waste boundary of the CCR surface impoundment. Under the Federal Rule, the timeline to conduct the initial groundwater monitoring for existing CCR surface impoundments was two years – from October 15, 2015 to October 17, 2017. 40 CFR 257.94(b). The Illinois EPA's proposal to require eight rounds of sampling for existing impoundments in only 180 days is not consistent with the Federal CCR Rule, may not develop data representative of true background given it covers a period of only 180 days, and may provide inaccurate and misleading monitoring results comparisons from the start of the groundwater monitoring program.²

² While certain of the CCR surface impoundments in Illinois have already conducted groundwater monitoring pursuant to the Federal CCR program that may be used to establish the background data, the Illinois EPA has

The development of background groundwater quality should include understanding potential seasonal changes in constituent concentrations, particularly in Illinois where seasonal temperatures and precipitation fluctuate significantly. To understand potential seasonal changes, at least one full year of monitoring that covers all four seasons should be required. In some cases, even a year's worth of monitoring may still not provide the data needed to understand seasonal fluctuations, but it is certainly better than conducting the sampling over only a 180-day period. Limiting the timeframe to 180-days completely eliminates addressing seasonal or temporal fluctuations within the statistical program for analysis of the monitoring results. In other State of Illinois programs, such as the Standards for New Solid Waste Landfills in Part 811 of the Board Rules, Illinois EPA requires a minimum of four consecutive quarters of groundwater sampling to account for seasonal fluctuations. 35 IAC 811.320. This Rule should do the same.

Also, limiting the initial sampling to 180 days will likely not result in truly representative data. In order to obtain eight rounds of sampling within 180 days, the wells need to be sampled at least every 22.5 days or less. Standard analytical turnaround for most parameters is two to three weeks and longer for radium as previously discussed. To finish the monitoring within the 180-day period, the next round of samples must be collected before receiving and evaluating the previous round of analyses. Even more importantly, some impoundment sites within Illinois may be located in clayey, silty clay or silty aquifer matrix materials (*i.e.*, generally lower permeability) which impede groundwater flow velocities. For such sites, the required short timeframe between sampling events will likely result in sampling the same water, similar to a confirmation sampling event, as opposed to providing sampling results on potential water quality variability over time, which is one of the objectives of background development. The resulting data, although from independent sampling

identified additional areas that are not a part of the Federal CCR program that may become existing CCR surface impoundments.

events, may be highly autocorrelated requiring some data manipulations/corrections to account for this shortcoming. See Excerpts from Unified Guidance provided Attachment 4. Autocorrelation is a similarity between measurements as a function of the time elapsed between those measurements. In other words, collecting this much data in such a relatively short time period may not provide a representative database on which to characterize the potential natural variability of groundwater quality conditions. The more potential database manipulations that are required to address this deficiency, the more uncertainty and hence, unreliability is introduced into the subsequent evaluations.

The Draft Rule should be modified to allow an owner/operator to conduct a longer background collection timeframe for existing surface impoundments consistent with the Federal CCR Rule. At a minimum, the Rule should allow at least one full year for the development of proper background data and that the background calculations based on the one-year of sampling data should be revisited after the second full year of quarterly sampling. This approach also would be consistent with groundwater monitoring requirements for Standards for New Solid Waste Landfills in Section 811.320(d) of the Board Rules.

b. The Timeline From Detection to Initiation of Assessment of Corrective Measures is Not Reasonable

Section 845.650(d)'s proposed requirement for a response if there is an exceedance of a standard for any of the parameters in Section 845.600 at any time following an "immediate resample" is not a technically sound strategy. The Illinois EPA shifted the groundwater monitoring program from the Federal CCR Rule two-tiered approach in 40 CFR 257.90 through 257.95 to a one-tier approach with groundwater protection standards (GWPSs) for all parameters. By switching to a one-tier approach, the Draft Rule is inconsistent with the Federal Rule. Specifically, the main differences are as follows:

- The Federal CCR Rule groundwater monitoring program has a “detection monitoring” tier and an “assessment monitoring” tier.
 - Detection monitoring is conducted semi-annually and includes seven screening parameters (Appendix III). If a monitoring event detects a statistically significant increase (SSI) over established background in one or more of the seven parameters, which is subsequently confirmed by a resampling, then a notification is made within the operating record documenting the SSI and either a successful Alternate Source Demonstration (ASD) is completed or the unit is transitioned into assessment monitoring. This process is allowed 90-days to complete from the time of detection of the SSI. 40 CFR 257.94.
 - Once triggered, assessment monitoring is to commence within 90 days (180 days cumulative from initial detection monitoring SSI documentation). 40 CFR 257.95. Assessment monitoring includes an initial round of groundwater sampling for 15 additional specific parameters (Appendix IV) that have an established Federal maximum contaminant limit (MCL) or, if an MCL is not available, risk-based comparison criteria as provided in Section 257.95, in addition to the seven Appendix III parameters. Once this data is available, within 90 days (270 days cumulative from initial detection monitoring SSI) a second round of assessment monitoring is completed analyzing only for those Appendix IV parameters detected in the first round of sampling plus the standard Appendix III parameters. Upon receipt of the second round of sampling data, GWPSs for the Appendix IV parameters are established and if there is a GWPS exceedance of an Appendix IV parameter, a notification is placed in the operating record and either a successful ASD is completed or work is to commence an assessment of corrective measures. This process allows for 90 days to complete that ASD and/or start on the assessment of corrective measures (360 days cumulative from initial detection monitoring SSI documentation).
- The Illinois EPA Draft Rule eliminates the detection monitoring tier and requires establishment of GWPSs for all parameters within the Federal CCR Rule Appendix III and IV based on Illinois Part 620 Class I groundwater standards as compared to statistical background (the higher of the two values becomes the GWPS for that parameter similar to the development of Appendix IV GWPSs under the Federal CCR Rule). Groundwater monitoring is then required on a quarterly basis (as opposed to semi-annual) and if a parameter is detected at a concentration above the GWPS for that parameter, a potential SSI is documented requiring a confirmatory resampling and, if appropriate, an ASD. If the resampling confirms the GWPS exceedance(s) and the ASD is not successful, an assessment of corrective measures must be initiated within 90-days of the initial GWPS exceedance(s). This 90-days includes up to 60 days for the operator to complete the ASD and 30 days for Illinois EPA to review the document.

In essence, the Draft Rule establishes a more rigid and unnecessarily shorter in that quarterly monitoring is required (as opposed to semi-annual), the detection monitoring tier was completely

eliminated and instead the program starts the monitoring with established GWPSs for all Federal CCR Rule Appendix III and IV parameters (the Federal CCR Rule only has GWPSs established for Appendix IV parameters), and the timeframe from the initial detection of an SSI to the start of an assessment of corrective measures is reduced from up to 360 days to no more than 90 days. This approach is also inconsistent with the Board Rules for new landfills. *See* 35 IAC 811.319. The groundwater monitoring program for new landfills in Section 811.319 of the Board Rules has a two-tier approach, like the Federal CCR Rule. In Section 811.319(a) and (b), a new landfill must conduct detection monitoring and, if required, the operator must begin an assessment monitoring program to confirm that the landfill is the source of the impacts. 35 IAC 811.319(a), (b). Although I understand the driving force behind establishment of the GWPSs up front based on Illinois specific Part 620 Class I groundwater standards, and the desire to streamline the program to initiate potential corrective measures in a more expeditious manner, this should not be done on an unreasonably short schedule that sacrifices the timeframes required for an owner/operator to complete technically sound evaluations.

Moreover, the Draft Rule's requirement that one data point of one constituent, even with an immediate resample, requires an immediate assessment of corrective measures is meaningless and does not indicate a release has occurred from a CCR surface impoundment. In responses to comments regarding this issue, Illinois EPA stated that a confirmatory resample is also being collected which would provide two data points upon which that determination is being made. (Ex. 3, pp. 20-21, Answer to Question 55). That confirmatory resampling generally occurs very shortly after the initial data is received with the primary intent being to ensure that the detection is not an analytical or sampling aberration. The resampling does not provide any indication whether the exceedance may be a short-term, unrelated transient anomaly or whether the exceedance is truly

reflective of a potential actual release from the subject impoundment. This concern is especially true for parameters that are usually “not detected”. Under the Unified Guidance these instances should employ the Double Quantification Rule. *See* Attachment 4. Under the Double Quantification Rule “a confirmed exceedance is registered if any well-constituent pair in the 100% non-detect group exhibits quantified measurements (*i.e.*, at or above the reporting limit (RL)) in two consecutive sample and resample events.” This alone would be two quarters of data, but the current Draft Rule 90-day timeframe for initiating an assessment of corrective action allows for only one quarter of data thereby potentially inappropriately and unnecessarily triggering this response action.

Under the Federal CCR Rule and the Illinois landfill regulations, the two-tiered approach to monitoring allows for several additional quarterly rounds of groundwater sampling, which ensures sufficient data is available to make a determination regarding appropriate corrective action measures before triggering the initiation of an evaluation of corrective measures. With the shift in monitoring program philosophy to a single-tiered approach this whole decision process has been reduced to 90 days, which is based on a single quarter of sampling (*i.e.*, basically a single confirmed data point). Instead, similar to the Federal Rule and the Illinois landfill regulations, this Rule should require a targeted follow-up sampling of the well(s) displaying a potential exceedance for at least an additional quarter to document that the elevated detection was not an unrelated short-term occurrence prior to potentially triggering an assessment of corrective measures.

c. The Rule Should Allow For Modifications Based Upon Site-Specific Conditions

Also, similar to my comments on Section 845.640, Section 845.650 should allow for modifications of the groundwater monitoring program so that it reflects the site-specific groundwater at each Station. Specifically, Section 845.650(b)(1) identifies that the monitoring

frequency for all constituents with a groundwater protection standard in Section 845.600 and Calcium shall be tested on at least a quarterly basis during the active life of the unit and the post-closure care period or that period specified if closure is completed by removal. Based on my experience, there may be compounds on the all-inclusive list that are never detected for a specific unit. If an owner/operator of a CCR surface impoundment is not allowed to develop a tailored monitoring list based on a characterization of the ash being placed into the unit as suggested above, this Section should allow an owner/operator to reduce the monitoring list if a compound is not detected after a set period of time (*e.g.*, 3 or 5 years). Otherwise, data is being generated at a substantial cost over time that is not useful in any way. This type of provision would be consistent with the monitoring requirements for existing landfill operational permits issued by Illinois EPA.

Further, I agree with the Agency's suggestion for alternative chemical and monthly elevation schedules. (Ex. 3, p. 48, Answer to Question 51). Relative to groundwater flow determination, in my experience, after the first few years of monitoring generally stable conditions are documented and the groundwater flow system beneath the regulated unit is sufficiently understood by the Professional Engineer to evaluate and assess the ongoing effectiveness of the monitoring system. Once the flow system is sufficiently understood, measuring water elevations on a monthly schedule only provides duplicative and unnecessary data. The Final Rule should also allow, if appropriate, the operator shift to a semi-annual monitoring frequency which would also be consistent with Section 811.319 of the Illinois landfill regulations. Coal ash impoundment monitoring need not be more stringent than a landfill, particularly because ash removed from an impoundment can be disposed of in a landfill that is regulated under Part 811. It is an arbitrary distinction to require more frequent monitoring of a CCR impoundment once stable conditions are documented than is required of a landfill in which CCR may be disposed.

d. Additional Time is Required to Prepare an Adequate Alternate Source Demonstration under Section 845.650(d)

I agree with the Illinois EPA's proposal to allow an Alternate Source Demonstration (ASD) (Section 845.650(d)(4)), however, the timeframe of 60 days from the detected exceedance to complete an ASD is too short for many reasons. First, the Draft Rule appears to require that the ASD is due 60 days from the date of the "initial sampling." Because Section 845.650(d) allows for a resample, the due date for the ASD should be based on the "date of receipt of the results of the confirmation sampling" and not the initial sampling date. Second, the 60-day timeframe is not sufficient to develop and complete a technically sound and meaningful ASD. For example, an ASD may need to look at various leaching characteristics/chemistry of the ash material within the impoundment to compare against the groundwater data. This information provides an understanding of what components of the ash chemistry may in fact be leaching out of the ash and potentially mobilize into the groundwater system. Some commonly accepted and used tests include Toxicity Characteristic Leaching Procedure (TCLP), Synthetic Precipitation Leaching Procedure (SPLP), and various Leaching Environmental Assessment Framework (LEAF) methods (EPA Methods 1313, 1314, 1315 and 1316; see Attachment 5). The LEAF methods provide for more definitive and insightful data for the purposes of an ASD for a CCR impoundment. LEAF is a leaching evaluation system, which includes four different leaching methods and scenario assessment approaches designed to work individually or integrated to provide a description of the release of inorganic constituents of potential concern for a wide range of solid materials. The LEAF methods have been designed to consider the effect of key environmental conditions and waste properties on leachate chemistry. LEAF sampling and testing are intended to provide a more robust dataset that can be used to evaluate CCR over a wider range of pH and site-specific conditions than TCLP or SPLP testing. The established LEAF analytical methods and procedures analytical

turnarounds are from 28 days (EPA Methods 1313 and 1316), to 42 days (EPA Method 1314) and as long as 84 days (EPA Method 1315, See attachment 5). The various LEAF test methods provide data on leaching of constituents as a function of pH, liquid-solid ratios and/or information on mass transfer rates. Such information can provide valuable insight into the site-specific ash leachate conditions and characteristics. The above noted analytical timeframes do not include the time required for developing, scheduling and implementing a representative impoundment sampling plan or the backend data evaluation time which may require analytical modeling and/or other quantitative data assessment.

Accordingly, to allow for development of a scientifically and technically valid ASD, the deadline to submit an ASD should be longer than 60 days. For example, the Federal CCR Rule provides for 90 days to complete an ASD, and even that time allotment is tight. I would suggest that the ASD timeframe be 90 days, consistent with the Federal Rule, but an owner/operator should also be allowed to obtain an extension if a sufficiently justified technical and factual basis can be made for the extension.

E. Section 845.660 Assessment of Corrective Measures

Overall, the Draft Rule's provisions for the assessment of corrective measures will accurately develop the proper corrective measures to respond to confirmed releases. However, as described above, an assessment of corrective measures should not be triggered by any exceedance of a GWPS based on a single quarterly round of sampling. Section 845.660(a)(1) should be drafted to be consistent with my recommendation to facilitate at least an additional quarterly sampling to better understand the nature of the potential exceedance (see discussion under Section 845.650).

II. “Free Liquids” are Liquids That Easily Separate From the CCR Solids and Not Groundwater

The Illinois EPA is correct that “free liquids” are “the easily removed liquids that separate from the CCR solids under ambient temperature and pressure. This does not mean all groundwater flow into and out of the impoundment has been eliminated.” (Ex. 2, p. 65, Answer to Question 24). In the case of CCR surface impoundments, the “free liquids” are the transport water used to move the CCR into the surface impoundment. Once this transport water reaches the impoundment, the ash settles and the water is decanted, however, at least some portion of the separated free liquid may remain in the impoundment over an extended period of time based on operational design such as using it as a protective measure to reduce the potential for dust emissions from the impoundment.

When the time comes for closure, if the closure plan provides for closure in place, then the “free liquids” must be removed to facilitate access to the ash to properly regrade and compact the material to allow for construction of the designed cover system. If closure is to be completed by removal, then the “free liquids” need to be removed from the ash to allow for proper landfill disposal. In both cases the removal of “free liquids” can be accomplished by separating or decanting the liquid portion of the CCR material and removing these “free liquids” from the impoundment. Accordingly, the Illinois EPA is correct. The free liquids required to be removed are those that are associated with the placement of the waste (in this case ash) and that separate from the solids under ambient temperature and pressure conditions. The term “free liquids” does not, and should not, include groundwater potentially in contact with the ash.

The Agency’s conclusion and my concurring opinion are supported by several recognized sources. First, in a recent proposed modification to the Federal CCR Rule, 85 F.R. 12456-12478 (March 3, 2020), the U.S. EPA indicated that it interprets “free liquids” in this same way. The

U.S.EPA stated that “free liquids must be eliminated by removing liquid wastes ...” *Id.* (emphasis added). It did not refer in any way to groundwater that comes into contact with the ash in a surface impoundment to describe what it means by the term “free liquids.” It solely referenced “liquid wastes.”

That “free liquids” is defined as liquid waste, is further supported by federal, state and local standards and guidance for other regulatory programs. As demonstrated below, the definition and concept of “free liquids” as only liquid waste has been consistent over time and across regulatory programs. In each guidance and standard set forth below, “free liquids” is always used to refer to a characteristic of the waste stream itself which needs to be considered and addressed, and not any groundwater that may come in contact with the waste.

- 1) EPA 40 CFR Part 265 [SW-FRL 1999-31 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities AGENCY: Environmental Protection Agency. ACTION: Proposed amendments to rule, 1982 <https://www.epa.gov/sites/production/files/2016-03/documents/47fr8307.pdf>

“The Agency has not found compelling merit in the criticisms about the necessity of restricting the introduction of free liquids or liquid wastes into landfills. EPA strongly believes that introduction of containerized free liquids in landfills should be minimized to the extent possible, if not prohibited, for the reasons set forth in the preamble to the May 19, 1980 promulgation of the Part 265 standards.”

- 2) Illinois Emergency Management Agency, Division of Nuclear Safety, 2011 <http://public.iema.state.il.us/Applications/WaterTreatment/Documents/Guidance.pdf>

“Testing for free liquids Generators must ensure that the treatment residuals they are disposing of meet IEPA disposal requirements. Systems must perform the Paint Filter Liquids Test (or PFLT; EPA SW 846 Method 9095) to determine if the waste contains any “free liquids” because solid waste landfills cannot accept waste that contains free liquids. If free liquids are present, the system will need to employ an intermediate processing method and determine an appropriate method of disposal for the liquid residuals generated by dewatering.”

- 3) TITLE 35: ENVIRONMENTAL PROTECTION SUBTITLE G: WASTE DISPOSAL CHAPTER I: POLLUTION CONTROL BOARD SUBCHAPTER c: HAZARDOUS WASTE OPERATING REQUIREMENTS PART 720 HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL SECTION 720.110 DEFINITIONS <http://www.ilga.gov/commission/jcar/admincode/035/035007200B01100R.html>

"Free liquids" means liquids that readily separate from the solid portion of a waste under ambient temperature and pressure. [This is the same definition used in the Draft Rule].

"No free liquids", as used in 35 Ill. Adm. Code 721.104(a)(26) and (b)(18), means that solvent-contaminated wipes may not contain free liquids, as determined by Method 9095B (Paint Filter Liquids Test), included in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", incorporated by reference in Section 720.111, and that there is no free liquid in the container holding the wipes. No free liquids may also be determined using another standard or test method that the Agency has determined by permit condition is equivalent to Method 9095B."

- 4) RULES AND REGULATIONS FOR LANDFILLS, LIQUID WASTE HANDLING FACILITIES AND TRANSFER STATIONS OPERATED WITHIN THE CITY OF CHICAGO, 1998

"Liquid Waste" means any waste which maintains the physical state of continuous volume relatively independent of pressure and which takes the shape of its container at ambient temperature; or is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

- 5) CHICAGO DEPARTMENT OF PUBLIC HEALTH: LIQUID WASTE FEE, 2020
https://www.chicago.gov/city/en/depts/cdph/provdrs/healthy_communities/svcs/pay_liquid_wastefee.html

"Liquid waste is special waste as defined by the Illinois Environmental Protection Agency which includes hazardous waste, industrial process waste, pollution control waste, and potentially infectious medical waste that has free liquids."

- 6) EPA: DEFINITION OF "LIQUID WASTE", 1981

"A liquid waste is any material that will pass through a 0.45 micron filter at a pressure differential of 75 psi. If the material to be evaluated consists of two or more phases, then the phases should be separated by centrifugation or other means prior to evaluating whether any of the phases meet the above definition. Free liquids as defined in 260.10 (a)(25) are defined as any liquid which passes through the Paint Filter Test (method 9095)."

- 7) IEPA>Topics>Waste Management>Waste Disposal>Special Waste DO I HAVE A SPECIAL WASTE?

"What is a Liquid Waste? Liquid waste is any waste material that is determined to contain "free liquids." Used cutting oil is a typical liquid waste. For sludges or other wastes that you cannot easily determine is liquid, you can use the paint filter test. The test requires pouring the waste through a specific filter to determine if the waste contains "free liquids."

- 8) TITLE 35: ENVIRONMENTAL PROTECTION SUBTITLE F: PUBLIC WATER SUPPLIES CHAPTER I: POLLUTION CONTROL BOARD PART 615 EXISTING ACTIVITIES IN A SETBACK ZONE OR REGULATED RECHARGE AREA SECTION 615.102 DEFINITIONS

"Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure. To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication No. SW-846), incorporated by reference at Section 615-103."

Section 845.750(b)(1) states that free liquids must be eliminated by removing liquid wastes or solidifying the remaining liquid wastes and waste residues. The "free liquids" are specific to the waste itself: the CCR and the transport water used to move the CCR into the CCR surface impoundment. It is my opinion that any potential groundwater in contact with CCR within unlined impoundment is not part of the initially placed waste stream.

Moreover, potentially impacted groundwater is correctly addressed on a site-specific basis under Draft Rule Section 845.710 coupled with Section 845.750(a)(1). Under 845.710, applicable closure alternatives are identified and evaluated based on a number of technical considerations including both short- and long-term effectiveness. The closure options to be evaluated must include complete removal as one of the alternatives. Under Section 845.750(a)(1), if the impoundment is to be closed in-place, the owner/operator must control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate or contaminated run-off to the ground or surface water or to the atmosphere. In addition, under 845.780(b)(3) Post-Closure Care groundwater monitoring is required in accordance with Subpart F until all GWPs are met, or at least 30-years if closure in-place is the selected alternative. That groundwater monitoring will determine whether additional corrective action measures must be considered and implemented or whether the selected closure alternative is performing as designed.

Thank you for your time and consideration in this matter.

Richard R Gnat

8/27/20

Richard Gnat, P.G.

Date

ATTACHMENT 4

**Excerpts from U.S. EPA Statistical Analysis of Groundwater
Monitoring Data at RCRA Facilities – Unified Guidance March
2009 (EPA-530-R-09-007)**



STATISTICAL ANALYSIS OF
GROUNDWATER MONITORING DATA AT
RCRA FACILITIES

UNIFIED GUIDANCE

OFFICE OF RESOURCE CONSERVATION AND RECOVERY
PROGRAM IMPLEMENTATION AND INFORMATION DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 2009

The difficulties in identifying a valid statistical framework for groundwater monitoring highlight a fundamental assumption governing almost every statistical procedure and test. It is the presumption that sample data from a given population should be *independent* and *identically distributed*, commonly abbreviated as *i.i.d.* All of the mathematics and statistical formulas contained in this guidance are built on this basic assumption. If it is not satisfied, statistical conclusions and test results may be invalid or in error. The associated statistical uncertainty may be different than expected from a given test procedure.

Random sampling of a single, fixed, stationary population will guarantee independent, identically-distributed sample data. Routine groundwater sampling typically does not. Consequently, the Unified Guidance discusses both below and in later chapters what assumptions about the sample data must be routinely or periodically checked. Many but not all of these assumptions are a simple consequence of the *i.i.d.* presumption. The guidance also discusses how sampling ought to be conducted and designed to get as close as possible to the *i.i.d.* goal.

3.2 COMMON STATISTICAL ASSUMPTIONS

Every statistical test or procedure makes certain assumptions about the data used to compute the method. As noted above, many of these assumptions flow as a natural consequence of the presumption of *independent, identically-distributed* data (*i.i.d.*). The most common assumptions are briefly described below:

3.2.1 STATISTICAL INDEPENDENCE

A major advantage of truly random sampling of a population is that the measurements will be *statistically independent*. This means that observing or knowing the value of one measurement does not alter or influence the probability of observing any other measurement in the population. After one value is selected, the next value is sampled again at random without regard to the previous measurement, and so on. By contrast, groundwater samples are not chosen at random times or at random locations. The locations are fixed and typically few in number. The intervals between sampling events are fixed and fairly regular. While samples of independent data exhibit no *pairwise correlation* (*i.e.*, no statistical association of similarity or dissimilarity between pairs of sampled measurements), *non-independent* or *dependent* data *do* exhibit pairwise correlation and often other, more complex forms of correlation. Aliquot split sample pairs are generally not independent because of the *positive correlation* induced by the splitting of the same physical groundwater sample. Split measurements tend to be highly similar, much more so than the random pairings of data from distinct sampling events.

In a similar vein, measurements collected close together in time from the same well tend to be more highly correlated than pairs collected at longer intervals. This is especially true when the groundwater is so slow-moving that the same general volume of groundwater is being sampled on closely-spaced consecutive sampling events. Dependence may also be exhibited spatially across a well field. Wells located more closely in space and screened in the same hydrostratigraphic zone may show greater similarity in concentration patterns than wells that are farther apart. For both of these temporal or time-related and spatial dependencies, the observed correlations are a result not only of the non-random nature of the sampling but also the fact that many groundwater populations are not uniform throughout the subsurface. The aquifer may instead exhibit pockets or sub-zones of higher or lower concentration, perhaps due to location-specific differences in natural geochemistry or the dynamics of contaminant plume behavior over time.

chosen, and the frequency of background versus compliance well testing. The number of compliance wells and annual frequency of testing also affect overall costs, but are generally site-specific considerations. By limiting the number of constituents and ensuring adequate background sample sizes, it is possible to select certain statistical tests which help minimize future compliance (and total) sample requirements.

Selection of an appropriate number of detection monitoring constituents should be dictated by the knowledge of waste or waste leachate composition and the corresponding groundwater concentrations. When historical background data are available, constituent choices may be influenced by their statistical characteristics. A few representative constituents or analytes may serve to accurately assess the potential for a release. These constituents should stem from the regulated wastes, be sufficiently mobile, stable and occur at high enough concentrations to be readily detected in the groundwater. Depending on the waste composition, some non-hazardous organic or inorganic indicator analytes may serve the same purpose. The guidance suggests that between 10-15 formal detection monitoring constituents should be adequate for most site conditions. Other constituents can still be reported but not directly incorporated into formal detection monitoring, especially when large simultaneously analyzed suites like ICP-trace elements, volatile or semi-volatile organics data are run. The focus of adequate background and future compliance test sample sizes can then be limited to the selected monitoring constituents.

The RCRA regulations do not consistently specify how many observations must be collected in background. Under the Part 265 Interim Status regulations, four quarterly background measurements are required during the first year of monitoring. Recent modifications to Part 264 for Subtitle C facilities require a sequence of at least four observations to be collected in background during an interval approved by the Regional Administrator. On the other hand, at least four measurements must be collected from each background well during the first semi-annual period along with at least one additional observation during each subsequent period, for Subtitle D facilities under Part 258. Although these are minimum requirements in the regulations, are they adequate sample sizes for background definition and use?

Four observations from a population are rarely enough to adequately characterize its statistical features; statisticians generally consider sample sizes of $n \leq 4$ to be insufficient for good statistical analysis. A decent population survey, for example, requires several hundred and often a few to several thousand participants to generate accurate results. Clinical trials of medical treatments are usually conducted on dozens to hundreds of patients. In groundwater tests, such large sample sizes are a rare luxury. However, it is feasible to obtain small sample sets of up to $n = 20$ for individual background wells, and potentially larger sample sizes if the data characteristics allow for pooling of multiple well data.

The Unified Guidance recommends that a minimum of at least 8 to 10 independent background observations be collected before running most statistical tests. Although still a small sample size by statistical standards, these levels allow for minimally acceptable estimates of variability and evaluation of trend and goodness-of fit. However, this recommendation should be considered a temporary minimum until additional background sampling can be conducted and the background sample size enlarged (see further discussions below).

Small sample sizes in background can be particularly troublesome, especially in controlling statistical test false positive and negative rates. False negative rates in detection monitoring, *i.e.*, the

statistical error of failing to identify a real concentration increase above background, are in part a function of sample size. For a fixed false positive test rate, a smaller sample size results in a higher false negative rate. This means a decreased probability (*i.e.*, *statistical power*) that real increases above background will be detected. With certain parametric tests, control of the false positive rate using very small sample sets comes at the price of extremely low power. Power may be adequate using a non-parametric test, but control of the false positive can be lost. In both cases, increased background sample sizes result in better achievable false positive and false negative errors.

The overall recommendation of the guidance is to establish background sample sizes as large as feasible. The final tradeoff comes in the selection of the type of detection tests to be used. Prediction limit, control chart, and tolerance limit tests can utilize very small future sample sizes per compliance well (in some cases a single initial sample), but require larger background sample sizes to have sufficient power. Since background samples generally are obtained from historical data sets (plus future increments as needed), total annual sample sizes (and costs) can be somewhat minimized in the future.

5.2.2 BASIC ASSUMPTIONS ABOUT BACKGROUND

Any background sample should satisfy the key statistical assumptions described in **Chapter 3**. These include statistical independence of the background measurements, temporal and spatial stationarity, lack of statistical outliers, and correct distribution assumptions of the background sample when a parametric statistical approach is selected. How independence and autocorrelation impact the establishment of background is presented below, with additional discussions on outliers, spatial variability and trends in the following sections. Stationarity assumptions are considered both in the context of temporal and spatial variation.

Both the Part 264 and 258 groundwater regulations require statistically independent measurements (**Chapter 2**). Statistical *independence* is indicated by random data sets. But randomness is only demonstrated by the presence of mean and variance *stationarity* and the lack of evidence for effects such as *autocorrelation, trends, spatial and temporal variation*. These tests (described in **Part II** of this guidance) generally require at least 8 to 10 separate background measurements.

Depending on site groundwater velocity, too-frequent sampling at any given background well can result in highly *autocorrelated*, non-independent data. Current or proposed sampling frequencies can be tested for autocorrelation or other statistical dependence using the diagnostic procedures in **Chapter 14**. Practically speaking, the best way to ensure some degree of statistical independence is to allow as much time as possible to elapse between sampling events. But a balance must be drawn between collecting as many measurements as possible from a given well over a specified time period, and ensuring that the sample measurements are statistically independent. If significant dependence is identified in already collected background, the interval between sampling events may need to be lengthened to minimize further autocorrelation. With fewer sampling events per evaluation period, it is also possible that a change in statistical method may be needed, say from analysis of variance [ANOVA], which requires at least 4 new background measurements per evaluation, to prediction limits or control charts, which may require new background only periodically (*e.g.*, during a biennial update).

by eliminating historically non-detected constituents in background from the formal list of detection monitoring constituents (discussed further in the following section). These constituents are still analyzed and informally tested, but do not count against the SWFPR.

Results of waste and leachate testing and possibly soil gas analysis should serve as the initial basis for designating constituents that are reliable leak detection indicators. Such specific constituents actually present in, or derivable from, waste or soil gas samples, should be further evaluated to determine which can be analytically detected a reasonable proportion of the time. This evaluation should include considerations of how soluble and mobile a constituent may be in the underlying aquifer. Additionally, waste or leachate concentrations should be high enough relative to the groundwater levels to allow for adequate detection. By limiting monitoring and statistical tests to fewer parameters with reasonable detection frequencies and that are significant components of the facility's waste, unnecessary statistical tests can be avoided while focusing on the reliable identification of truly contaminated groundwater.

Initial leachate testing should not serve as the sole basis for designating monitoring parameters. At many active hazardous waste facilities and solid waste landfills, the composition of the waste may change over time. Contaminants that initially were all non-detect may not remain so. Because of this possibility, the Unified Guidance recommends that the list of monitoring parameters subject to formal statistical evaluation be periodically reviewed, for example, every three to five years. Additional leachate compositional analysis and testing may be necessary, along with the measurement of constituents not on the monitoring list but of potential health or environmental concern. If previously undetected parameters are discovered in this evaluation, the permit authority should consider revising the monitoring list to reflect those analytes that will best identify potentially contaminated groundwater in the future.

Further reductions are possible in the number of constituents used for formal detection monitoring tests, even among constituents periodically or always detected. EPA's experience at hazardous waste sites and landfills across the country has shown that VOCs and SVOCs detected in a release generally occur in clusters; it is less common to detect only a single constituent at a given location. Statistically, this implies that groups of detected VOCs or SVOCs are likely to be correlated. In effect, the correlated constituents are measuring a release in similar fashion and not providing fully independent measures. At petroleum refinery sites, benzene, toluene, ethylbenzene and xylenes measured in a VOC scan are likely to be detected together. Similarly at sites having releases of 1,1,1-trichloroethane, perhaps 10-12 intermediate chlorinated hydrocarbon degradation compounds can form in the aquifer over time. Finally, among water quality indicators like common ions and TDS, there is a great deal of geochemical inter-relatedness. Again, two or three indicators from each of these analyte groups may suffice as detection monitoring constituents.

The overall goal should be to select only the most reliable monitoring constituents for detection monitoring test purposes. Perhaps 10-15 constituents may be a reasonable target, depending on site-specific needs. Those analytes not selected should still continue to be collected and evaluated. In addition to using the informal test to identify previously undetected constituents described in the next section, information on the remaining constituents (e.g., VOCs, SVOCs and trace elements) can still be important in assessing groundwater conditions, including additional confirmation of a detected release.

DOUBLE QUANTIFICATION RULE

From the previous discussion, a full set of site historical monitoring parameters can be split into three distinct groups: a) those reliable indicators and hazardous constituents selected for formal detection monitoring testing and contributing to the SWFPR; b) other analytes which may be occasionally or even frequently detected and will be monitored for general groundwater quality information but not tested; and c) those meeting the "never-detected" criteria. The last group may still be of considerable interest for eventual formal testing, should site or waste management conditions change and new compounds be detected. All background measurements in the "never-detected" group should be non-detects, whether the full historical set or a subgroup considered most representative (e.g., recently collected background measurements using an improved analytical method.⁵). The following rule is suggested to provide a means of evaluating "never-detected" constituents.

The Double Quantification rule implies that statistical tests should be designed for each of the constituents in the first group. Calculations involving the SWFPR should cover these constituents, but *not* include constituents in second and the third '100% non-detect' categories. Any constituent in this third group should be evaluated by the following simple, quasi-statistical rule⁶:

A confirmed exceedance is registered if any well-constituent pair in the '100% non-detect' group exhibits quantified measurements (i.e., at or above the reporting limit [RL]) in two consecutive sample and resample events.

It is assumed when estimating an SWFPR using the Bonferroni-type adjustment, that each well-constituent test is at *equal risk* for a *specific, definable* false positive error. As a justification for this Double Quantification rule, analytical procedures involved in identifying a reported non-detect value suggest that the error risk is probably much *lower* for most chemicals analyzed as "never-detected." Reporting limits are set high enough so that if a chemical is *not present at all* in the sample, a detected amount will rarely be recorded on the lab sheet. This is particularly the case since method detection limits [MDLs] are often intended as 99% upper prediction limits on the measured signal of an uncontaminated laboratory sample. These limits are then commonly multiplied by a factor of 3 to 10 to determine the RL.

Consequently, a series of measurements for VOCs or SVOCs on samples of uncontaminated groundwater will tend to be listed as a string of non-detects with possibly a very occasional low-level detection. Because the observed measurement levels (*i.e.*, instrument signal levels) are usually known only to the chemist, an approximate prediction limit for the chemical basically has to be set at the RL. However, the true measurement distribution is likely to be clustered much more closely around zero than the RL (**Figure 6-1**), meaning that the false positive rate associated with setting the RL as the prediction

⁵ Note: Early historical data for some constituents (e.g., certain filtered trace elements) may have indicated occasional and perhaps unusual detected values using older analytical techniques or elevated reporting limits. If more recent sampling exhibits no detections at lower reporting limits for a number of events, the background review discussed in **Chapter 5** may have determined that the newer, more reliable recent data should be used as background. These analytes could also be included in the '100% non-detect' group.

⁶ The term "quasi-statistical" indicates that although the form is a statistical prediction limit test, only an approximate false positive error rate is implied for the reporting limit critical value. The test form follows 1-of-2 or 1-of-3 non-parametric prediction limit tests using the maximum value from a background data set (**Chapter 19**).

6.3 HOW KEY ASSUMPTIONS IMPACT STATISTICAL DESIGN

6.3.1 STATISTICAL INDEPENDENCE

IMPORTANCE OF INDEPENDENT, RANDOM MEASUREMENTS

Whether a facility is in detection monitoring, compliance/assessment, or corrective action, having an appropriate and valid sampling program is critical. All statistical procedures *infer* information about the underlying population from the observed sample measurements. Since these populations are only sampled a few times a year, observations should be carefully chosen to provide accurate information about the underlying population.

As discussed in **Chapter 3**, the mathematical theory behind standard statistical tests assumes that samples were *randomly* obtained from the underlying population. This is necessary to insure that the measurements are *independent* and *identically distributed* [i.i.d.]. Random sampling means that each possible concentration value in the population has an equal or known chance of being selected any time a measurement is taken. Only random sampling guarantees with sufficiently high probability that a set of measurements is adequately representative of the underlying population. It also ensures that human judgment will not bias the sample results, whether by intention or accident.

A number of factors make classical random sampling of groundwater virtually impossible. A typical small number of wells represent only a very small portion of an entire well-field. Wells are screened at specific depths and combine potentially different horizontal and vertical flow regimes. Only a minute portion of flow that passes a well is actually sampled. Sampling normally occurs at fixed schedules, not randomly.

Since a typical aquifer cannot be sampled at random, certain assumptions are made concerning the data from the available wells. It is first assumed that the selected well locations will generate concentration data similar to a randomly distributed set of wells. Secondly, it is assumed that groundwater flowing through the well screen(s) has a concentration distribution identical to the aquifer as a whole. This second assumption is unlikely to be valid unless groundwater is flowing through the aquifer at a pace fast enough and in such a way as to allow adequate mixing of the distinct water volumes over a relatively short (*e.g.*, every few months or so) period of time, so that groundwater concentrations seen at an existing well could also have been observed at other possible well locations.

Adequate sampling of aquifer concentration distributions cannot be accomplished unless enough time elapses between sampling events to allow different portions of the aquifer to pass through the well screen. Most closely-spaced sampling events will tend to exhibit a statistical dependence (*autocorrelation*). This means that pairs of consecutive measurements taken in a series will be positively correlated, exhibiting a stronger similarity in concentration levels than expected from pairs collected at random times. This would be particularly true for overall water quality indicators which are continuous throughout an aquifer and only vary slowly with time.

Another form of statistical dependence is *spatial correlation*. Groundwater concentrations of certain constituents exhibit natural spatial variability, *i.e.*, a distribution that varies depending on the location of the sampling coordinates. Spatially variable constituents exhibit mean and occasionally

EXHIBIT N

		Date and Time in Days From Authorization to Proceed																															
		2021																															
Task No.	Task	Dates																															
		October																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1	History of Construction																																
2	CCR Chemical Constituents Analysis																																
3	All Waste Streams Chemical Analysis																																
4	Location Standards Demonstrations																																
5	Permanent Markers Procurement, Installation, & Evidence																																
6	Slope Protection/Incised Documentation																																
7	Emergency Action Plan																																
8	Fugitive Dust Control Plan																																
9	Groundwater Monitoring Information																																
10	Closure Design																																
11	Preliminary Written Closure Plan																																
12	Initial Written Post-Closure Plan																																
13	Liner Certification																																
14	History of GWPS Known Exceedances																																
15	Financial Assurance Certification																																
16	Hazard Potential Classification																																
17	Structural Stability Assessment																																
18	Safety Factor Assessment																																
19	Inflow Design Flood Control System Plan																																
20	Health and Safety Plan																																
21	Closure Priority Categorization																																
22	Complete and Submit Permit Application																																

Notes:
■ Time required to execute individual tasks
■ Weekend Days

EXHIBIT O

■ Time required to execute individual tasks

EXHIBIT P

