November 30, 2020

Andrew Wheeler
Administrator
US EPA
One Potomac Yard
2777 S. Crystal Drive
Arlington, Virginia 22202-3553

RE: Powerton Generating Station, Midwest Generation, LLC
Alternate Closure Demonstration, 40 CFR Part 257.103

Administrator Wheeler,

The purpose of this correspondence is to submit to the United States Environmental Protection Agency (USEPA) a Demonstration for a Site-Specific Alternative Deadline to Initiate Closure documentation for the Powerton Generating Station, located on 13082 E. Manito Road, Pekin, Illinois 61554. Powerton Generating Station (the Station) is owned and operated by Midwest Generation, LLC (MWG).

The station is subject to 40 CFR Part 257 Subpart D "The Federal CCR Rule", effective April 17, 2015 and subsequent amendments including ***Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities: A Holistic Approach to Closure Part A: Deadline to Initiate Closure, effective September 28, 2020***. The facility's Ash Surge Basin currently does not meet the liner design criteria as promulgated by 40 CFR Part 257.71 and by rule the station must cease placing the CCR and non-CCR wastestreams currently sent to the Ash Surge Basin and initiate closure as soon as technically feasible but no later than April 11, 2021, unless an alternative closure timeline is granted by the EPA in accordance with 40 CFR 257.103 based on a Site-Specific Demonstration for No Alternative Disposal Capacity.

MWG has concluded that no alternative disposal capacity is available and that it is technically infeasible to obtain alternative disposal capacity for these wastestreams on- or off-site by April 11, 2021. Accordingly, pursuant to 40 CFR 257.103(f)(1)(iv)(A), MWG has prepared the following demonstration and workplan detailing its proposed development of alternative disposal capacity and a timeline to replace the Ash Surge Basin.

We look forward to working with the USEPA on this request and proceeding with our project to establish alternative capacity. Please contact me at (302)-540-0327 or david.bacher@nrgenergy.com to address any questions or concerns regarding this submittal.

Sincerely,

David Bacher
Senior Regional Manager
Environmental Business, NRG Energy, Inc.
29416 Power Plant Road
Dagsboro, Delaware 19939

CC: Kirsten Hillyer (US EPA), Frank Behan (USEPA), Richard Huggins (USEPA)
W. Stone (NRG), S. Shealey (MWG), W. Shander (MWG)

MWG

Midwest Generation, LLC
Powerton Generating Station

Demonstration for a Site-Specific Alternative Deadline to Initiate Closure

Report SL-015574

Revision 0

November 30, 2020

Issue Purpose: Use

Project No.: 12661-097

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Sargent & Lundy

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EXECUTIVE SUMMARY

The Ash Surge Basin and Bypass Basin at the Powerton Generating Station ("Powerton" or the "Station") in Pekin, Illinois do not meet the liner design criteria promulgated by 40 CFR Part 257 Subpart D ("the EPA CCR Rule"). Therefore, Powerton must cease placing the CCR and non-CCR wastestreams sent to the Ash Surge and Bypass Basins as soon as technically feasible but no later than April 11, 2021, unless an alternative deadline is granted by the EPA in accordance with 40 CFR 257.103. Because the Station does not need to have both of its CCR surface impoundments in service to generate power – and pursuant to the revised EPA CCR Rule – Powerton will not send CCR or non-CCR wastestreams to the Bypass Basin after April 11, 2021 and does not plan on sending any wastestreams to that basin in the interim. However, after evaluating several on- and off-site alternative disposal solutions for the wastestreams currently sent to the Ash Surge Basin – both permanent and temporary – Midwest Generation, LLC (MWG), the operator of the Station, has concluded that no alternative disposal capacity is available for these wastestreams, and that it is technically infeasible to obtain alternative disposal capacity for these wastestreams on- or off-site by April 11, 2021. Accordingly, pursuant to 40 CFR 257.103(f)(1)(iv)(A), MWG has prepared the following workplan detailing its proposed development of alternative disposal capacity to replace the Ash Surge Basin.

Powerton currently sends the following CCR and non-CCR wastestreams to the Ash Surge Basin: Unit 5 and 6 dewatering bin effluent (CCR), overflow from the Unit 5 and 6 slag tanks (non-CCR), overflow from the Station's East Yard Runoff Basin (non-CCR), effluent from the Station's Makeup Treatment Plant (non-CCR), and effluent from the Station's Metal Cleaning Waste Treatment System (non-CCR). After evaluating several options for providing alternative disposal capacity to the Ash Surge Basin for these wastestreams, MWG elected to install a multiple technology system that will be developed in two phases. The first phase will bring Powerton into compliance with the EPA CCR Rule and will set up the second phase which will bring the Station into compliance with the EPA's recently-revised effluent limitation guidelines for steam electric power generating stations ("ELG Rule"). When completed, the multiple technology solution selected to replace the Ash Surge Basin will feature four elements: refurbished dewatering bins, a new concrete ash-settling tank, a new Recycle Cooling Water Basin, and a new Low-Volume Waste Basin.

MWG will begin the development of this multiple technology solution by refurbishing Powerton's existing dewatering bins, which are currently discharging effluent with relatively large ash particles remaining in suspension to the Ash Surge Basin. By refurbishing the dewatering bins, fewer and smaller ash particles will remain suspended in the effluent. In lieu of the Ash Surge Basin, MWG plans to manage this effluent with a new concrete ash-settling tank, which will feature two primary settling cells in parallel trains with a common surge cell. Treated wastewater in the surge cell will overflow into the new Recycle Cooling Water Basin, which will be constructed in the footprint of the Station's Bypass Basin, which was recently taken out of service for routine cleaning. The Recycle Cooling Water Basin will be installed by first clean-closing the Bypass Basin and then installing a geomembrane liner over the basin's storage area. Once the new concrete

ash-settling tank and Recycle Cooling Water Basin are both operational, Powerton will divert all wastestreams from the Ash Surge Basin to these new facilities, marking the establishment of alternative disposal capacity. Finally, MWG will clean close and repurpose the Ash Surge Basin as the Station's Low-Volume Waste Basin. This will separate the CCR and non-CCR wastestreams currently being commingled in the Ash Surge Basin and will allow Powerton to strictly limit future discharges of bottom ash transport water in accordance with the EPA's recently-revised ELG Rule once a recirculation system is installed for the Station's bottom ash-handling system during the second phase of the project.

This proposed multiple technology solution to replace the Ash Surge Basin will be installed in accordance with the EPA CCR Rule and with the Illinois EPA's forthcoming regulations and permit program for CCR surface impoundments ("Final Illinois CCR Rule"), which is expected to be adopted by the Illinois Pollution Control Board into the Illinois Administrative Code in late March 2021. Pursuant to the Illinois Public Act authorizing the Illinois EPA to prepare and the Illinois Pollution Control Board to adopt the Final Illinois CCR Rule, MWG cannot "close any CCR surface impoundment without a permit granted by the [Illinois EPA]." Accordingly, both the design of and timeframes for the first phase of this proposed project is highly dependent on the future regulations and permitting requirements established by the Final Illinois CCR Rule.

Based on the anticipated timeframes for engineering/designing, permitting, constructing, and commissioning the refurbished dewatering bins, the new concrete ash-settling tank, and the new Recycle Water Cooling Basin, MWG is requesting the EPA allow the Ash Surge Basin to continue receiving the noted CCR and non-CCR wastestreams until August 11, 2023. Further details on the Ash Surge Basin, the wastestreams managed therein, the forthcoming Final Illinois CCR Rule, and MWG's development of alternative disposal capacity for the wastestreams currently being sent to the Ash Surge Basin are provided throughout this workplan. Finally, MWG's demonstration of Powerton's compliance with the EPA CCR Rule is also provided herein.

1.0 DEVELOPMENT OF ALTERNATIVE CAPACITY

This section presents the option selected by Midwest Generation, LLC (MWG) to provide alternative disposal capacity for the coal combustion residual (CCR) and non-CCR wastestreams currently sent to the Ash Surge and Bypass Basins at the Powerton Generating Station. This section also provides background information on the Powerton Generating Station, the routine operations of the Ash Surge and Bypass Basins and the wastestreams managed within the two CCR surface impoundments, and the adverse impact to plant operations if both the Ash Surge and Bypass Basins were both shut down by April 11, 2021. This section also describes the processes MWG undertook to select the alternative disposal capacity that is being proposed in this workplan and provides a narrative description of the alternative disposal capacity design. Finally, an explanation and justification for the time being requested to operate the Ash Surge Basin beyond April 11, 2021 is provided in this section.

1.1 BACKGROUND INFORMATION

1.1.1 POWERTON GENERATING STATION

MWG operates the Powerton Generating Station ("Powerton" or the "Station"), which is a coal-fired steam electric power generating station located in Pekin, Illinois and is adjacent to and south of the Illinois River. The Station's address is 13082 East Manito Rd, Pekin, IL 61554. The Station consists of two operating units, Units 5 and 6, which are cyclone boilers with an approximate nameplate capacity of 1,785 megawatts (MW). Drawing POW-CSK-001 in Appendix A shows the location of the plant and a general layout of the station facilities pertinent to this demonstration.

1.1.2 ASH SURGE BASIN & BYPASS BASIN

Powerton has two active CCR surface impoundments regulated by the EPA's CCR Rule (40 CFR Part 257 Subpart D, Ref. 1): the Ash Surge Basin and the Bypass Basin. As shown on drawing POW-CSK-001, these ponds are adjacent to each other and are located north of the Station's ash dewatering bins. Characteristics for both basins are listed in Table 1.

Table 1 – Ash Surge Basin & Bypass Basin Characteristics

Basin	Crest Elevation (ft)	Floor Elevation (ft)	Storage Area (acres)	Storage Capacity (cu. yd.)
Ash Surge Basin	467	452	8.4	162,000
Bypass Basin	467	457	0.83	9,000

Note: Listed elevations are referenced to the National Geodetic Vertical Datum of 1929.

1.1.2.1 BASIN OPERATIONS

The primary purpose of the Ash Surge and Bypass Basins is to treat the effluent from Powerton's dewatering bins prior to being discharged to the Illinois River in accordance with the Station's National Pollutant Discharge Elimination System (NPDES) permit (NPDES Permit No. IL0002232). Both Units 5 and 6 are equipped with an ash-handling system that sluices bottom ash and economizer ash to a set of two dewatering bins (one dedicated pair per unit) which promote sedimentation of the suspended ash particles in the sluice water. Effluent from each pair of dewatering bins overflows into a common concrete trench that directs the effluent into either the Ash Surge Basin or the Bypass Basin depending on which one is in service.

Only one basin operates at any given time, with the larger Ash Surge Basin functioning as the Station's primary ash-settling basin, which treats wastewater via sedimentation. Effluent from the dewatering bins enters the Ash Surge Basin through a distribution trough at the southern-most end of the basin. Upon entering the pond, the ash particles still suspended in the ash transport water settle to the pond floor as the wastewater migrates towards the basin outlet structure at the opposite end (*i.e.*, northern-most end of the basin). Treated water is then discharged through a reinforced concrete pipe into a sump underneath the pump station located north of the Ash Surge Basin. Water is then pumped to the Service Water Basin located northwest of the Ash Surge Basin and is then ultimately discharged to the Illinois River through NPDES-permitted Outfall 001. This process is illustrated on drawing POW-CSK-PFD-001, which is a process flow diagram (PFD) that shows how Powerton currently manages the wastestreams produced by its coal-fired steam electric generating process.

When the Ash Surge Basin is being cleaned to recover the ash particles stored therein, overflow from the dewatering bins is diverted to the smaller Bypass Basin. Like the Ash Surge Basin, the Bypass Basin is used to promote settling of the ash particles that remain in suspension in the dewatering bin effluent. Treated water from the Bypass Basin flows over a weir wall at the basin's southeastern corner into a reinforced concrete pipe that then conveys the water to the aforementioned pump station sump. After the Ash Surge Basin has been cleaned, the dewatering bin effluent is then redirected to the larger basin.

Both ash ponds are cleaned by first drawing down the water level in the subject pond. Powerton's existing "Ash Management Contractor" will then mobilize to the site and begin dewatering and then dredging/excavating the dry-to-moist ash out of the pond. The dredged/excavated ash is ultimately transported offsite to a beneficial-use or permitted-disposal facility.

1.1.2.2 BASIN INFLOWS

Per Powerton's NPDES permit (NPDES Permit No. IL0002232), bottom and economizer ash are sluiced to the Ash Surge or Bypass Basin (whichever is active) at an average rate of 10.9 million gallons per day (MGD). In addition to CCR wastestreams, several non-CCR, low-volume wastestreams are sent to these basins for treating the streams' concentrations of suspended solids prior to being discharged to the Illinois River. As illustrated on drawing POW-CSK-PFD-001, these wastestreams are:

- Overflow from the Unit 5 and 6 slag tanks,
- Overflow from the Station's East Yard Runoff Basin,
- Effluent from the Station's Makeup Treatment Plant, and
- Effluent from the Metal Cleaning Waste Treatment System.

Table 2 summarizes the Powerton wastestreams currently managed by the Ash Surge and Bypass Basins pursuant to the plant's NPDES permit. Of the five flows (CCR and non-CCR) listed in the table, three are continuously produced during power-generating operations (*i.e.*, "typical" flows): the effluent from the Unit 5 and 6 dewatering bins, the overflow water from the Unit 5 and 6 slag tanks, and the effluent from the Station's Makeup Treatment Plant. Based on the flow rates listed in the table, these wastestreams collectively account for 17.5 MGD of wastewater placed into the Ash Surge Basin.

In addition to the three aforementioned typical inflows, the Ash Surge Basin receives two intermittent wastestreams: overflow from the East Yard Runoff Basin and effluent from the Metal Cleaning Treatment System. The East Yard Runoff Basin collects stormwater run-off from various Powerton facilities on the east side of the Station's property (*i.e.*, "contact" stormwater). To prevent overtopping of the basin during significant storm events, water in the East Yard Runoff Basin will overflow into the Ash Surge Basin or Bypass Basin depending on which basin is in service at the time of the storm event. This intermittent flow has an average daily flow rate of approximately 1.3 MGD.

Powerton's Metal Cleaning Treatment System sends treated effluent from the Non-Chemical Cleaning Waste Basin to the Ash Surge Basin during scheduled boiler cleanings. Specifically, as shown in the PFD on drawing POW-CSK-PFD-001, Powerton sends the gas-side boiler cleaning wastewater to the Non-Chemical Cleaning Waste Basin which discharges into the Metal Cleaning Treatment System. The Station cleans each unit's boiler once per year over a 5-day period. During this period, gas-side boiler cleaning wastewater is pumped to the Non-Chemical Cleaning Waste Basin at an average rate of 1,200 gpm over 20 hours. Thus, each cleaning event produces approximately 7.2 million gallons of gas-side boiler cleaning wastewater. For the two units, this intermittent flow has an equivalent annual average continuous flow rate of approximately 0.04 MGD.

Table 2 – Inflows into Powerton Ash Surge Basin / Bypass Basin

Wastestream	Description	Average Flow, MGD (Type)
CCR Wastestreams		**10.9**
Unit 5 & 6 Dewatering Bin Effluent	Effluent from the Unit 5 and 6 dewatering bins containing suspended bottom and economizer ash particles.	10.9 (Typical)
Non-CCR Wastestreams		**7.9**
Unit 5 & 6 Slag Tank Overflow	Overflow water from the boiler slag tanks. Includes wastewater from: • Dust extractors in the coal tripper room, and • Washdown of the tail end and tripper rooms.	6.2 (Typical)
East Yard Runoff Basin Overflow	Overflow water from the Station's East Yard Runoff Basin. In addition to run-off from the eastern portion of the plant's property, includes water from: • Roof and yard drains in the areas of former Units 1 – 4; • Boiler room sumps, roof drains, and building drains; • Polymer building floor drains; • Scrubber and limestone building area drains; • Condensate storage tank overflow; • Washdown of the trona mill; and • Trona mill roof drains.	1.3 (Intermittent)
Makeup Treatment Plant Effluent	Wastewater generated by the Station for treating makeup water prior to use in station processes. Includes: • Demineralizer sand filter backwash, • Demineralizer regenerant, • Reverse osmosis (RO) reject wastewater, and • RO cleaning wastewater.	0.4 (Typical)
Metal Cleaning Waste Treatment System Effluent	Effluent from the Station's Metal Cleaning Waste Treatment System, which treats gas-side boiler cleaning waste overflow from the Non-Chemical Cleaning Waste Basin.	0.04 (Intermittent)

Source: Powerton NPDES Permit (NPDES Permit No. IL0002232)

1.1.2.3 APPLICABLE REGULATIONS

1.1.2.3.1 FEDERAL & STATE CCR REGULATIONS

Since the rule went into effect in October 2015, the Ash Surge and Bypass Basins have been regulated by the EPA CCR Rule. Per the 2016 Water Infrastructure Improvements for the Nation (WIIN) Act, the Ash Surge and Bypass Basins will continue to be subject to the requirements prescribed in the EPA CCR Rule until the EPA approves a CCR permit program developed and submitted by the Illinois EPA. On July 30, 2019, the governor of Illinois signed Illinois Public Act 101-0171 (Ref. 2, also formerly known as "Illinois Senate Bill 9") into law which instructed the Illinois EPA to prepare regulations for CCR surface impoundments owned and/or operated by the state's coal-fired power plants. In December 2019, the Illinois EPA published its draft regulations for CCR surface impoundments for public comment. The Illinois EPA accepted public comments on its draft regulations until mid-January 2020, after which the agency reviewed and considered these comments as it continued preparing a proposed rule to submit to the Illinois Pollution Control Board.

On March 30, 2020, the Illinois EPA submitted its final proposal for regulating CCR surface impoundments in the state of Illinois to the Illinois Pollution Control Board. These proposed regulations are hereafter referred to collectively as the "Proposed Illinois CCR Rule" and are provided in Appendix D. As required by Illinois Public Act 101-0171, the Illinois EPA proposed regulations that the agency considers to be at least as protective as the EPA CCR Rule and also proposed a corresponding statewide CCR surface impoundment permit program. Per Illinois Public Act 101-0171, the Illinois Pollution Control Board (IPCB) has a year to adopt the CCR surface impoundment regulations into Title 35 of the Illinois Administrative Code (35 Ill. Adm. Code). This timeline would establish a Final Illinois CCR Rule and corresponding CCR permit program by the end of March 2021. In the interim, the IPCB held several hearings with stakeholders and the general public on the Proposed Illinois CCR Rule. MWG was an active participant in this rulemaking process.

The Illinois EPA has yet to publish a timeline for submitting its proposed CCR permit program to the EPA for approval. Therefore, it is currently unknown when the EPA would accept the Illinois EPA's CCR surface impoundment regulations and permitting program to operate in lieu of the EPA CCR Rule. Consequently, Illinois is currently considered a Nonparticipating State per 40 CFR 257.53. However, the Proposed Illinois CCR Rule generally appears to be at least as comprehensive and protective as the EPA CCR Rule, with some specific design and closure criteria proposed in the rule seemingly being more protective. Therefore, it is anticipated that the EPA will accept the Final Illinois CCR Rule to operate in lieu of the federal version at some point during the development of alternative CCR disposal capacity at Powerton. However, until that time, Powerton's CCR surface impoundments will be subject to both the federal and state rules.

1.1.2.3.2 FEDERAL ELG RULE

In addition to the federal and state regulations for CCR surface impoundments, the operation of the Ash Surge and Bypass Basins – specifically discharges through NPDES-permitted Outfall 001 – is also subject to compliance with the EPA's effluent limitation guidelines for steam electric power plants ("ELG Rule"). The 2020 update to the ELG Rule (Ref. 3) sets new limits for discharging bottom ash transport water and other wastestreams generated by steam electric power plants to waters of the U.S. Pursuant to the new 40 CFR 423.13(k)(1)(i) and (k)(2)(i)(A), the ELG Rule establishes a zero-liquid discharge (ZLD) standard for Powerton's bottom ash transport water – including any low-volume wastestreams that come into contact with bottom ash transport water – except under the following conditions:

- To maintain the bottom ash system's water balance during:
    - Significant precipitation events (10-year, 24-hour storm event or longer), and
    - Situations where excessive quantities of other wastestreams regularly handled by the bottom ash system compromise the system's ability to handle recycled bottom ash transport water;
- To maintain the bottom ash system's water chemistry, and
- To conduct maintenance when water volumes cannot be managed by redundancies, tanks, etc.

In any of the preceding situations, the plant would not be permitted to purge more than 10% of the bottom ash system's maximum volumetric capacity for bottom ash transport water (calculated on a 30-day rolling average and excluding redundancies, maintenance systems, *etc*.).

Powerton will be subject to the ZLD standard for bottom ash transport water promulgated by the updated ELG Rule upon incorporation into the facility's NPDES permit by a date determined by the Illinois EPA, which is required by the new 40 CFR 423.13(k)(1)(i) to occur no later than December 31, 2025.

1.1.2.3.3 ILLINOIS EPA NPDES PERMIT

Powerton discharges wastestreams to surface waters adjacent to the site in accordance with its NPDES permit issued by the Illinois EPA (NPDES Permit No. IL0002232). The Station's existing permit was effective on June 1, 2015, was subsequently modified on April 10, 2017, and expired on May 31, 2020. In November 2019, more than 180 days before the permit's expiration date, MWG submitted an NPDES permit renewal application to the Illinois EPA. So, although the Station's existing NPDES permit has expired, it has been administratively continued until the permit renewal is issued by the Illinois EPA. To date, MWG has not received a draft NPDES permit renewal for Powerton.

1.1.2.4 FUTURE REPLACEMENT

While both ponds are lined with a high-density polyethylene (HDPE) geomembrane liner, the Ash Surge and Bypass Basins are not compliant with the liner design criteria promulgated by 40 CFR 257.71(a)(3). Thus, per 40 CFR 257.101(a)(1) and (a)(3), Powerton must cease placing the CCR and non-CCR wastestreams

listed in Table 2 into these basins as soon as technically feasible and no later than April 11, 2021, unless an alternative deadline is granted by the EPA.

In early October 2020, Powerton took the Bypass Basin out of service for routine cleaning. Since the Station does not need to have both of its CCR surface impoundments in service to generate power and pursuant to the revised EPA CCR Rule, Powerton will not send CCR or non-CCR wastestreams to the Bypass Basin after April 11, 2021 and does not plan on sending any wastestreams to that basin in the interim. However, as detailed herein, MWG is requesting that the EPA allow Powerton to continue sending the CCR and non-CCR wastestreams listed in Table 2 to the Ash Surge Basin after April 11, 2021, while MWG develops alternative capacity to replace this basin because: (1) no existing alternative disposal capacity is available on- or off-site for these wastestreams, and (2) it was technically infeasible to develop the alternative capacity selected by April 11, 2021 for these wastestreams.

1.1.3 ADVERSE IMPACT TO PLANT OPERATIONS WITHOUT THE ASH SURGE BASIN

In order to generate power at Powerton, it is necessary to dispose of the bottom and economizer ash produced during the Station's coal-fired steam electric generating process. As demonstrated herein, the Ash Surge Basin is the only available site for Powerton's bottom and economizer ash disposal. There is currently no alternative on- or off-site disposal available for Powerton's bottom and economizer ash. Therefore, if Powerton was no longer able to use the Ash Surge Basin to dispose of its bottom and economizer ash, the Station could no longer generate power and would be forced to shut down until MWG develops alternative disposal capacity for the Station's ash, which is not expected to be completed until August 11, 2023.

There are three MWG facilities affected by the EPA CCR Rule – the Powerton, Waukegan, and Will County Generating Stations. None of these generating facilities have alternative options for ash disposal, and if they cannot dispose of their ash at existing locations they will also be forced to shut down. All three plants are located in the same subregion of the regional power market. Specifically, they are located in the ComEd zone of the PJM regional transmission organization. The ComEd zone consists of most of northern Illinois including the Chicago metropolitan area. These three MWG facilities provide 2,730 megawatts of installed capacity to electricity customers in PJM, or more than 10% of the total capacity needed in the ComEd zone. All three facilities have "cleared" in the PJM forward capacity auction to meet the region's reliability needs and therefore have an obligation to supply this capacity in future years. Ceasing use of the Ash Surge Basin at Powerton and the other CCR surface impoundments at the Waukegan and Will County Generating Stations would cause the loss of this substantial quantity of capacity beginning in April 2021. Shutdown would cause major financial harm and loss of jobs and could potentially increase the cost of capacity for ComEd zone customers. The financial impact could be so great as to cause the permanent shutdown of Powerton and the other two MWG power plants. The potential for substantial harm from loss of this capacity is disproportionate with the low risk of allowing operation of the Ash Surge Basin for the additional time

needed to bring alternative disposal capacity into service without major disruptions to the company, its employees, and its customers.

1.2 GENERAL STRATEGY FOR COMPLIANCE WITH EPA REGULATIONS

MWG has evaluated several different handling and/or disposal alternatives for Powerton's CCR and non-CCR wastestreams since 2015, shortly after the EPA's new CCR Rule and the amendment to its ELG Rule were published. Given the ZLD standards established for bottom ash transport water in the 2015 ELG Rule (Ref. 4), wastestreams which included (and still include) non-CCR wastestreams that are commingled with bottom ash transport water, MWG evaluated alternatives that either eliminated Powerton's need for bottom ash transport water or allowed it to be recirculated back into the plant's bottom ash system. In options where bottom ash transport water would be recirculated, MWG sought to separate Powerton's CCR and non-CCR wastestreams to ensure the latter were not subject to the stricter ELGs for bottom ash transport water.

1.3 ALTERNATIVE DISPOSAL SOLUTIONS CONSIDERED

As discussed in more detail in Section 1.5.1, MWG has been evaluating different disposal alternatives to replace the Ash Surge and Bypass Basins in some capacity since 2015. In accordance with MWG's strategy for compliance with the EPA's CCR and ELG Rules, these evaluations assessed not only permanent disposal solutions for Powerton's bottom ash transport water (*i.e.*, dewatering bin effluent), but also the low-volume wastestreams managed by these basins as required by the amended EPA CCR Rule. After the August 2018 *Utility Solid Waste Activities Group* (*USWAG*) decision by the U.S. Court of Appeals for the D.C. Circuit (Ref. 5), in which the Court ordered the provisions in the EPA CCR Rule allowing unlined ash ponds to continue operating be vacated and remanded, MWG started refining the conceptual designs of the potential disposal alternatives identified in previous studies for the Ash Surge and Bypass Basins and started preparing budgetary cost estimates and implementation schedules. In addition, MWG has continued evaluating and refining these alternative disposal options throughout Illinois's rulemaking process towards a Final Illinois CCR Rule. The final assessment of alternative disposal solutions considered to replace Powerton's Ash Surge and Bypass Basins is summarized in Section 1.3.3.

Pursuant to the recently-revised alternative closure requirements for CCR surface impoundments in the EPA CCR Rule, MWG also evaluated whether existing capacity is available on- or off-site for each wastestream currently being sent to the Ash Surge Basin. For those wastestreams where existing capacity is not available, MWG evaluated whether it was technically feasible to obtain alternative disposal capacity – either temporary or permanent – by April 11, 2021. The following subsections discuss the alternative disposal solutions considered for each wastestream managed in the Ash Surge Basin and how these wastestreams were ultimately dispositioned.

1.3.1 EXISTING ON-SITE DISPOSAL SOLUTIONS

As shown in the PFD on drawing POW-CSK-PFD-001 in Appendix B, Powerton relies on several settling basins to treat the total suspended solids (TSS) in wastestreams produced during the Station's steam electric generating process and in contact stormwater from various plant facilities. These settling basins are shown on drawing POW-CSK-001 and are referred to as:

- Ash Surge Basin (CCR surface impoundment),
- Bypass Basin (CCR surface impoundment),
- Service Water Basin (non-CCR surface impoundment),
- Non-Chemical Metal Cleaning Waste Basin (non-CCR surface impoundment),
- East Yard Runoff Basin (non-CCR surface impoundment),
- West Yard Runoff Basin (non-CCR surface impoundment),
- Coal Pile Collection Basin (non-CCR surface impoundment),
- Primary Coal Pile Basin (non-CCR surface impoundment), and
- Secondary Coal Pile Basin (non-CCR surface impoundment).

1.3.1.1 CCR WASTESTREAMS

Because the overflow water from the dewatering bins contains suspended CCR particles, it is considered a CCR wastestream. Consequently, it must be disposed of in a CCR unit. Per the preceding list, the only two CCR units at Powerton are the Ash Surge Basin and the Bypass Basin. As previously stated, both basins are not compliant with the EPA CCR Rule's liner design criteria. Thus, there is no existing, compliant alternative disposal capacity to the Ash Surge Basin at Powerton for the station's dewatering bin effluent.

1.3.1.2 NON-CCR WASTESTREAMS

MWG evaluated two general scenarios for providing alternative disposal capacity for the non-CCR wastestreams currently sent to the Ash Surge Basin: (1) divert a given non-CCR wastestream to one of the Station's seven non-CCR surface impoundments, or (2) hold a given non-CCR wastestream in its existing temporary storage facility/unit upstream of the Ash Surge Basin.

1.3.1.2.1 DIVERT TO NON-CCR SURFACE IMPOUNDMENT

Powerton has seven non-CCR surface impoundments on site. Of these, the Service Water Basin would provide the Station with the fastest feasible means of diverting non-CCR wastestreams away from the Ash Surge Basin. The non-CCR wastestreams currently going into the Ash Surge Basin ultimately end up in the Service Water Basin prior to being discharged through NPDES-permitted Outfall 001. As such, the infrastructure sending the non-CCR wastestreams into the Ash Surge Basin is generally closer to the Service Water Basin on the east side of the Station's property than the West Yard Runoff Basin and the three coal pile basins. Moreover, given that the Station has historically been able to comply with its NPDES permit

using the Bypass Basin as the primary or secondary settling pond for the subject non-CCR wastestreams, the larger Service Water Basin would likely provide adequate detention time to maintain the discharge limits in Powerton's NPDES permit.

To divert the subject non-CCR wastestreams to the Service Water Basin, MWG would need at least four to five months after initiating the project to perform the engineering and design work to determine the mechanical infrastructure required to convey these wastestreams directly to the Service Water Basin. This work would include routing and designing new pipes, evaluating existing pumps and designing necessary modifications, and verifying that the Service Water Basin indeed can adequately treat non-CCR wastestreams for TSS, pH, oil, and grease without an interim treatment facility like the Ash Surge and Bypass Basins upstream of it. Finally, the engineering and design work would include preparation of revised PFDs and other necessary documentation to be included in the NPDES permit application forms for this project.

Because the handling and treatment of these non-CCR wastestreams is being changed, MWG would need to apply for an NPDES construction permit to install the system and eventually modify its existing NPDES permit with the Illinois EPA to incorporate this new treatment method. MWG cannot currently modify Powerton's existing NPDES permit because, as discussed in Section 1.1.2.3.3, the Station's current permit expired in May 2020 and is administratively extended by MWG's timely permit renewal application that was submitted in November 2019. To date, MWG has not received a draft NPDES permit renewal from the Illinois EPA.

Based on recent experience in obtaining NPDES construction and renewal permits from the Illinois EPA, MWG anticipates an NPDES construction permit and the NPDES renewal permit would take approximately six and 18 months, respectively, given the time required for the agency to perform an initial review, accept public comments, review public comments, and draft the permits, not to mention the agency's current focus on establishing a CCR permit program. Finally, it would likely take another three to four months to install and commission this system, assuming a contractor has already been procured by the time the necessary permits are issued by the Illinois EPA.

Given the preceding timeframe, MWG expects that it would take at least 2.5 years (*i.e.*, summer 2023) to temporarily divert the non-CCR wastestreams from the Ash Surge Basin to the Service Water Basin while permanent alternative disposal capacity is being developed. As shown in the visual timeline representation in Section 2.0, MWG expects to develop new alternative disposal capacity for both the CCR and non-CCR wastestreams currently being sent to the Ash Surge Basin within a similar timeframe (August 11, 2023). Consequently, MWG does not consider the Service Water Basin or any of the Station's other non-CCR surface impoundments to be an appropriate alternative disposal solution for the non-CCR wastestreams currently going into the Ash Surge Basin.

Even if MWG could receive an NPDES construction permit and Powerton's NPDES renewal permit for this project sooner than forecasted (six and 18 months, respectively), MWG would be submitting at least one more permit application for the Illinois EPA to review for this site (the NPDES construction permit) in addition to the four CCR permit applications (two operating and two construction) that will need to be submitted to comply with the Final Illinois CCR Rule and to develop the alternative disposal capacity selected to replace the Ash Surge and Bypass Basins. (An NPDES permit renewal application will be required for either project.) Given the Illinois EPA's current focus on developing and implementing a new permit program for the 73 CCR surface impoundments the agency identified across 23 Illinois power plants (Ref. 6; Statement of Reasons, VI. Affected Facilities), MWG believes it is a more appropriate use of the agency's resources to submit only the permit applications necessary to develop the permanent alternative disposal solution proposed for Powerton rather than submitting additional permit applications for a temporary solution that may or may not be permitted faster than the permanent solution. Moreover, given that MWG's proposed alternative disposal capacity solution for Powerton includes closing the Ash Surge and Bypass Basins, and given Illinois's general focus on its current rulemaking process for regulating CCR surface impoundments, MWG expects that the Illinois EPA would prioritize the CCR surface impoundment closure construction permit applications included in the permanent solution than the NPDES construction permit application required for temporarily diverting wastestreams to a non-CCR surface impoundment at Powerton.

In conclusion, diverting the non-CCR wastestreams currently entering the Ash Surge Basin to one of Powerton's non-CCR surface impoundments would not be an appropriate solution given the longer path to compliance anticipated with the NPDES permitting timeframes.

1.3.1.2.2 HOLD IN EXISTING TEMPORARY STORAGE FACILITY

MWG also evaluated whether it would be possible to hold the non-CCR wastestreams at their sources in lieu of discharging them to the Ash Surge Basin. This evaluation is only appropriate for intermittent wastestreams, however, since the sources for the typical non-CCR wastestreams sent to the Ash Surge Basin (slag tank overflow and effluent from the Makeup Treatment Plant) were designed to discharge to the basin at regular intervals and would inherently not have sufficient capacity for long-term storage of these wastestreams. Conversely, the intermittent nature of overflow wastewater from the East Yard Runoff and Non-Chemical Metal Cleaning Water Basins may provide the opportunity of containing these flows in their respective basins until the Ash Surge Basin is replaced with alternative disposal capacity.

Based on MWG's projected date of obtaining alternative disposal capacity (August 11, 2023), both basins would need to be capable of providing approximately 2.5 years' worth of storage for their respective wastestreams. As demonstrated in the following paragraphs, neither the Non-Chemical Metal Cleaning Waste Basin nor the East Yard Runoff Basin have this much storage capacity.

The Non-Chemical Metal Cleaning Waste Basin only receives gas-side boiler cleaning wastewater during annual boiler cleanings. As previously stated, each boiler-clean produces 7.2 million gallons of gas-side boiler cleaning wastewater. However, the storage capacity of the Non-Chemical Metal Cleaning Waste Basin is only about 5.4 million gallons. Thus, this basin does not have adequate capacity to hold the volume of boiler cleaning wastewater generated during a single clean, let alone the volume that would be generated until alternative disposal capacity to the Ash Surge Basin becomes available in the summer of 2023. Thus, the Non-Chemical Metal Cleaning Waste Basin would not be capable of containing Powerton's gas-side boiler cleaning wastewater without discharging to the Ash Surge Basin.

Like the Metal Cleaning Treatment System, the East Yard Runoff Basin only discharges water to the Ash Surge Basin at irregular intervals, typically during significant storm events. Accordingly, MWG evaluated whether the East Yard Runoff Basin had sufficient storage capacity to hold the forecasted volume of stormwater it would receive until alternative disposal capacity to the Ash Surge Basin becomes available. The basin has an approximate storage capacity of 10.3 million gallons. Based on an average flow of 1.3 MGD of contact stormwater into the East Yard Runoff Basin (see Table 2), this basin would become full within eight days. Thus, the East Yard Runoff Basin would not be capable of retaining the stormwater sent to it until the summer of 2023 without discharging to the Ash Surge Basin.

1.3.2 OFF-SITE DISPOSAL

Although the EPA itself has acknowledged that it is not feasible to transport wet-generated CCR to an off-site disposal facility (Ref. 7), MWG performed its due diligence and evaluated the feasibility of temporarily transporting the average daily volume of CCR and non-CCR wastestreams currently sent to the Ash Surge Basin to an off-site disposal facility. Because the Illinois EPA generally prohibits solid waste landfills from receiving bulk or noncontainerized liquid wastes (Ref. 8), wastewater treatment plants (WWTP) are the only technically feasible alternative disposal facilities off-site for the CCR and non-CCR wastestreams currently being sent to the Ash Surge Basin. Per the average flow rates listed in Table 2, an average daily volume of 18.8 million gallons of CCR and non-CCR wastewater would need to be sent to a WWTP. Thus, to be a viable option, a WWTP would need to receive the full or significant portion of the 18.8 MGD of CCR and non-CCR wastewater generated by Powerton in addition to the daily volume of wastewater the WWTP currently manages.

Five WWTPs were identified within 20 miles of the Station, and four of these plants had listed design capacities less than 5 MGD. The other WWTP reported its average design capacity as just under 40 MGD and therefore may be a technically feasible solution for temporarily handling the CCR and non-CCR wastestreams currently going into the Ash Surge Basin. The technical feasibility of this temporary solution is contingent on MWG's ability to transport wastewater to this plant. Given the Station's existing infrastructure, trucks with tank trailers ("tankers") would likely be the only transportation method that could be established for the Station's CCR and non-CCR wastestreams prior to the April 11, 2021 deadline for ceasing all flows

into the Ash Surge Basin. In this scenario, new infrastructure would be installed as necessary to pump a given wastestream from its interim holding facility (*e.g.*, dewatering bin) into a tanker.

Illinois state law limits the overall gross vehicle weight to 80,000 pounds (Ref. 9). Assuming the specific weight of suspended solids in the subject CCR and non-CCR wastestreams is equal to that of water (*i.e.*, 62.4 pounds per cubic foot (pcf)), and assuming an empty tanker weight of 12,000 pounds, an 8,200-gallon tank trailer would be the largest tank trailer that would be permitted to transport wastewater off-site. Therefore, it would take 2,300 truckloads to transport the 18.8 MGD of CCR and non-CCR wastewater currently being sent to the Ash Surge Basin. Even if trucks were operating 24 hours a day, 7 days a week ("24/7"), this would require a truck to enter the Powerton site, get cleared by security, load the wastewater, and leave the site travelling over City of Pekin roadways every 40 seconds on average. This is not technically feasible, especially during winter weather conditions (*i.e.*, snow and ice) which would only exacerbate the logistical issues of hauling this volume of waste to an off-site disposal facility.

Even if the Station could support the number of tankers required to keep up with its daily production of CCR and non-CCR wastewater, there would be significant logistics concerns in coordinating 2,300 trips to and from the Station's property. The only way trucks can enter the Powerton site is via Manito Road (Illinois State Route 16). Based on traffic data compiled by the Illinois Department of Transportation (Ref. 10), the average annual daily traffic (AADT) in 2018 for commercial trucks along this road near the entrance to the Powerton facility was 400 trucks. Therefore, the 2,300 truckloads required to transport the Ash Surge Basin's daily intake of CCR and non-CCR wastewater would be over five times the daily volume of truck traffic currently on Manito Road.

Based on the preceding estimates, transporting Powerton's daily generation of CCR and non-CCR wastestreams off-site would impose an increase in air pollution emissions, significant congestion issues on the two-lane Manito Road, and an increased potential for traffic accidents. These factors may pose short-term risks to human health and the environment that have not been present at the Ash Surge Basin, which is lined with a 60-mil HDPE geomembrane liner and has not caused any groundwater protection standard exceedances. Finally, it is also not technically feasible to route 2,300 trips' worth of trucks per day to an off-site disposal facility until alternative disposal capacity is available on-site.

1.3.3 NEW ON-SITE DISPOSAL SOLUTIONS

Based on the preceding evaluations, no alternative disposal capacity currently exists on- or off-site for the CCR and non-CCR wastestreams currently being sent to the Ash Surge Basin. Consequently, MWG is in the process of developing alternative disposal capacity at Powerton for these wastestreams. This subsection presents the alternatives MWG evaluated as potential replacements for the Ash Surge and Bypass Basins, the alternative disposal capacity option that MWG ultimately selected, and why MWG selected this solution.

1.3.3.1 EVALUATION OF BOTTOM ASH DISPOSAL METHODS

In the summer of 2015, shortly after the EPA finalized its new CCR Rule, MWG started developing and subsequently evaluating conceptual designs for different disposal alternatives for the bottom ash wastestreams at its Powerton, Waukegan, and Will County facilities. When the 2015 update to the EPA ELG Rule was published, MWG expanded the scopes of these studies to evaluate multiple technology solutions that would provide compliance with the revised ELGs. Then, following the Illinois EPA's publication of its draft regulations for CCR surface impoundments, MWG updated these conceptual designs and the corresponding analysis as needed to comply with the draft CCR regulations and align with the EPA's proposed ELG regulations. Finally, in the second quarter of 2020, MWG performed a final update to its conceptual alternative disposal solutions after the Illinois EPA published the Proposed Illinois CCR Rule at the end of March of 2020.

For Powerton, MWG evaluated the following options for managing the Station's dewatering bin effluent in lieu of the existing Ash Surge and Bypass Basins:

- Retrofitting the Ash Surge Basin,
- Installing geotextile filter tubes,
- Installing an under-boiler or remote submerged scraper conveyor, and
- Installing a concrete ash-settling tank.

1.3.3.1.1 RETROFITTED ASH SURGE BASIN

Given the Ash Surge Basin's compliance with all other parts of the Proposed Illinois CCR Rule, it would be suitable for future bottom ash disposal provided it was retrofitted with an Illinois EPA-compliant liner system. In this scenario, MWG would first divert all CCR and non-CCR wastestreams to the Bypass Basin, then draw down the water level in the pond, and finally dewater and remove the ash stored therein (including any impacted soils). Pursuant to the proposed 35 Ill. Adm. Code 845.770, the pond's existing liner would also be removed. Following the removal of these materials, the pond would be retrofitted with a composite liner consisting of a 60-mil HDPE geomembrane over a 2-ft-thick, compacted clay layer with a permeability no greater than 1×10^{-7} cm/sec.

In addition to the composite liner, the Proposed IL CCR Rule also requires a leachate collection and removal system (LCRS) be installed within retrofitted CCR surface impoundments. The proposed 35 Ill. Adm. Code 845.420 requires the LCRS to be placed above the composite liner; consist of highly permeable, granular drainage material; contain collection pipes; extend at least two feet above the collection pipes; have a filter layer placed above it; and have a slope of at least 3% towards the collection pipes. The LCRS conceptualized for this retrofit option would consist of, from bottom to top:

- A collection pipe network (4-in.-diameter, perforated polyvinyl-chloride (PVC) pipes) installed within a 6-in.-thick sand drainage layer,

- A 22-in.-thick gravel drainage layer, and
- A non-woven geotextile to filter out solids from the water to prevent fouling of the gravel drainage layer and clogging of the collection pipes.

In order to protect the geotextile and LCRS components from being damaged by equipment excavating CCR throughout the retrofitted pond's lifetime in accordance with historical Station cleaning practices, an 18-in.-thick protective soil layer would be installed over the engineered liner system. This protective layer would consist of six inches of crushed stone installed over 12 inches of sand.

1.3.3.1.2 GEOTEXTILE FILTER TUBES

Another option that was considered for replacing the Ash Surge Basin was installing a series of geotextile filter tubes, which are containers with oval-shaped cross sections that are composed of engineered fabric that can filter out fine particles within water. Thus, Powerton's dewatering bin effluent could be routed directly to these tubes to filter out the bottom and economizer ash particles still in suspension in the transport water. As the ash particles are consolidated within each tube, filtered sluice water would percolate out of each tube's outer fabric onto an impermeable pad with appropriate run-off control measures. Once a tube is full of ash particles, the dewatering bin effluent would be redirected to another tube while the full tube is dewatered. After the filtered ash has been sufficiently dewatered, the full tube would be cut open, loaded onto trucks, and transported off-site to a beneficial-use or permitted-disposal facility.

1.3.3.1.3 SUBMERGED SCRAPER CONVEYOR

MWG also considered replacing Powerton's ash ponds with a submerged scraper conveyor (SSC). Both under-boiler and remote SSCs were considered. Other than physical location, both SSC options operate similarly. An SSC contains a water-filled trough that promotes sedimentation of suspended ash particles in the transport water. As its name suggests, the trough in an under-boiler SSC is positioned directly under the boiler to catch and cool falling bottom ash. Conversely, piping is used to sluice ash to a remote SSC located elsewhere on the plant site. Chains and flight scrapers then move the ash along the trough to an inclined ramp. As the ash is conveyed up the ramp, gravity causes it to dewater. Water removed from the ash as it moves up the inclined ramp is ultimately drained down the ramp back into the trough. Once the ash reaches the top of the ramp, the ash is deposited into a temporary storage bunker where it is ultimately recovered and transported off-site to a beneficial-use or permitted-disposal facility.

1.3.3.1.4 CONCRETE ASH-SETTLING TANK

Finally, MWG evaluated replacing Powerton's two ash-settling surface impoundments with a concrete ash-settling tank. This self-supporting, reinforced concrete tank would operate similar to the Ash Surge and Bypass Basins. It would be comprised of two primary settling cells in parallel trains with a common surge cell. To limit the sizes of these cells (in both area and depth), MWG would refurbish both sets of dewatering

bins to reduce the size and quantity of ash particles currently being conveyed to the Ash Surge and Bypass Basins. New piping would be installed to convey the dewatering bin effluent to the primary cells, which would settle out most of the suspended ash particles remaining. The wastewater would then overflow into the common surge cell where the remaining finer ash particles would settle. Effluent from the surge cell would then be discharged to the Bypass Basin, which would be clean closed and subsequently repurposed for this use.

1.3.3.2 OPTION SELECTED & JUSTIFICATION

Ultimately, MWG elected to replace the Ash Surge and Bypass Basins with a multiple technology solution:

- Installing a concrete ash-settling tank to manage the dewatering bin effluent, and
- Repurposing the Ash Surge Basin as the Station's new Low-Volume Waste Basin so that the pond can continue managing the non-CCR wastestreams currently managed therein.

Of the new, permanent on-site disposal alternatives considered to replace the Ash Surge and Bypass Basins, the multiple technology system selected is the alternative disposal capacity option that is technically feasible and expected to be implemented the fastest. MWG can and plans to refurbish Powerton's dewatering bins while going through the process of obtaining a construction permit under the Final Illinois CCR Rule to clean close and subsequently repurpose the Bypass Basin and to install a concrete ash-settling tank. Given its size and the need for a construction permit, MWG would not be able to retrofit the Ash Surge Basin in accordance with the Proposed Illinois CCR Rule faster than it is projected to take to clean close and repurpose the Bypass Basin while simultaneously constructing a new concrete ash-settling tank (approximately six months after awarding the construction contracts per the visual timeline representation of the project schedule in Section 2.0).

Given the Bypass Basin's small area (less than an acre) relative to the Ash Surge Basin (more than 8 acres), the former can be clean closed and repurposed faster than the latter. Moreover, the existing infrastructure at the plant – specifically the concrete trench that directs flows into either basin – allows for Powerton to immediately begin using the repurposed Bypass Basin for temporarily storing non-CCR wastestreams while the Ash Surge Basin is being clean closed. This is illustrated on drawing POW-CSK-PFD-002 in Appendix B. Therefore, even though it is not the permanent solution for managing Powerton's non-CCR wastestreams (repurposing the Ash Surge Basin as the Low-Volume Waste Basin as shown on drawing POW-CSK-PFD-003), MWG will effectively have access to alternative disposal capacity for the CCR and non-CCR wastestreams currently managed in the Ash Surge Basin once the Bypass Basin has been repurposed. Thus, the multiple technology solution selected provides alternative disposal capacity for the subject wastestreams faster than retrofitting the Ash Surge Basin in accordance with the Final Illinois CCR Rule.

Geotextile filter tubes have been successfully installed and operated to serve a variety of industrial purposes, including dewatering bottom ash ponds. These tubes could also be installed relatively quickly. However, this

option could be considered a “first-of-a-kind” technology for dewatering a power plant’s daily ash production. Moreover, limited information is available on the successful operation of geotextile filter tubes in winter conditions. Because Powerton operates under peak load conditions during the winter months, the reliable operation of geotextile tubes during this time would be crucial. Consequently, this option has significant uncertainties, especially as it pertains to dewatering and filtering out very fine economizer ash particles. Therefore, physical trials of geotextile tubes at the Powerton site would be warranted to determine filter aids that would be necessary to ensure the finer ash particles in Station’s bottom ash transport water are captured by the geotextile filter tubes. Testing would also be required during the winter months to certify with a high degree of certainty that this option is a technically feasible replacement for the Ash Surge Basin. Given this schedule impact and concerns of technical feasibility, MWG opted for refurbishing its dewatering bins instead and relying on a concrete ash-settling tank to remove the remaining fines from the bottom ash transport water.

Finally, although an SSC is a proven CCR-handling technology, there is not enough space under the Unit 5 and 6 boilers to install an under-boiler SSC, and a remote SSC would not be an appropriate alternative CCR disposal option for Powerton given the Station’s existing dewatering bins. These dewatering bins function like an SSC in that they dewater the ash and deposit it into a temporary storage area until it is loaded onto trucks and ultimately transported offsite.

1.4 CONCEPTUAL DESIGN OF MULTIPLE TECHNOLOGY SOLUTION

This section describes MWG’s conceptual designs for the concrete ash-settling tank to manage Powerton’s dewatering bin effluent and for the repurposed Ash Surge Basin to continue managing the low-volume wastestreams currently managed therein. The concrete ash-settling tank design is further illustrated on the drawings in Appendix A, and the modifications to Powerton’s management of the CCR and non-CCR wastestreams impacted by this multiple technology solution are shown in the modified PFDs on drawings POW-CSK-PFD-002 and POW-CSK-PFD-003 in Appendix B. These PFDs reflect the interim and final conditions for the proposed multiple technology solution, with the interim condition representing the point at which Powerton has developed alternative disposal capacity for the CCR and non-CCR wastestreams currently entering the Ash Surge Basin. Given the planned operational changes to the Ash Surge Basin and the Bypass Basin, they will be hereafter referred to as the Low-Volume Waste Basin and the Recycle Water Cooling Basin, respectively.

1.4.1 CONCRETE ASH-SETTLING TANK

1.4.1.1 SETTLING & SURGE CELLS

As shown on drawing POW-CSK-200 in Appendix A, the new ash-settling tank will be a self-supporting, cast-in-place reinforced concrete structure with primary settling cells in two parallel trains and a common surge (secondary) cell. Overflow from the dewatering bins currently sent to the Ash Surge and Bypass Basins will

be rerouted to one of the two primary concrete cells where most of the finer ash particles remaining in the dewatering bin effluent will settle. Water will then flow into the surge cell for final sedimentation of the ash particles. Treated effluent from this secondary cell will ultimately be discharged via gravity into the Bypass Basin, which will be clean closed and repurposed as the Station's new Recycle Water Cooling Basin. Given this planned operational change, the Bypass Basin will be hereafter referred to as the Recycle Water Cooling Basin.

Per drawing POW-CSK-200, the proposed site for the concrete ash-settling tank is a triangular area bordered by the new Recycle Water Cooling Basin to the north, a rail line to the east, the dewatering bins to the south, and the dewatering bin overflow trench to the west. The primary cell for each train will be approximately 75-ft long, 55-ft wide, and 10-ft deep. The common surge cell will be approximately 110-ft long, 30-ft wide, and 10-ft deep. In order for this proposed design to adequately handle and settle the ash particles remaining in the effluent from the Station's dewatering bins, however, the dewatering bins will need to be refurbished to reduce the size and quantity of ash particles currently suspended in the overflow water being sent to the Ash Surge Basin. It should be noted that the dimensions shown on drawing POW-CSK-200 are based on assumed settling characteristics of the effluent from the refurbished dewatering bins, which will need to be verified during the final engineering and design of the concrete settling and surge cells.

In accordance with EPA Office of Solid Waste and Emergency Response (OSWER) Directive No. 9483.01(83) (Ref. 11), the concrete ash-settling tank will be designed to ensure it can retain its structural integrity without the support of the adjacent earthen materials (*i.e.*, soils). The tank walls will be designed to provide sufficient structural support against the lateral pressures exerted by the ash and water stored in the tank's primary and surge cells like freestanding walls. Meanwhile, the combined weight of the tank and its contents will be supported by a cast-in-place, reinforced concrete mat foundation as shown on drawing POW-CSK-201.

1.4.1.2 RECYCLE WATER COOLING BASIN

Once the finer ash particles have settled out of the water in the concrete ash-settling tank's surge cell, the supernatant will drain through a gravity pipe into the Recycle Water Cooling Basin for heat dissipation. Cooled water leaving the Recycle Water Cooling Basin will then be conveyed to the pump station north of the existing Ash Surge Basin site via the existing outlet and discharge pipe. In accordance with current Station operations, this water will then be pumped to the Service Water Basin before ultimately being discharged to the Illinois River via NPDES-permitted Outfall 001.

In order to support the operation of the concrete ash-settling tank, the non-compliant Bypass Basin must first be clean closed in accordance with the Proposed Illinois CCR Rule. Specifically, the basin will be clean closed by removing the CCR and any impacted soils from the pond in accordance with the proposed 35 Ill. Adm. Code 845.740. As previously stated, Powerton has already taken the Bypass Basin out of service for

routine cleaning. Consistent with the Station's current ash-handling operations, the Station will draw down the water level in the basin, and then the Station's Ash Management Contractor will begin dewatering and removing the ash therein. Ash will be removed down to the top of the existing liner, loaded onto trucks, and ultimately transported offsite to a beneficial-use or permitted-disposal facility.

Pursuant to the Proposed Illinois CCR Rule, the pond's existing liner will also be removed. Prior to removing the liner, however, MWG will submit a closure construction permit application to the Illinois EPA pursuant to the proposed 35 Ill. Adm. Code 845.220. After receiving a final permit from the agency, the contractor hired to execute the pond closure work will mobilize to the site and start excavating and/or dredging the existing liner materials and any underlying soils impacted by CCR. All materials removed from the basin will be transported offsite in accordance with the requirements stipulated in the proposed 35 Ill. Adm. Code 845.740(b)(1). Finally, after the Bypass Basin has been certified as closed in accordance with the proposed 35 Ill. Adm. Code 845.740(e), the area will be lined with an HDPE geomembrane and repurposed as the Recycle Cooling Water Basin for temporary storage of the treated effluent from the concrete ash-settling tank.

1.4.1.3 FABRIC ENCLOSURE

The concrete ash-settling tank will be incorporated into an enclosed structure to ensure reliability of the concrete ash-settling tank during winter, to preclude direct precipitation from falling into the cells, and to prevent fugitive dust emissions from the temporary ash piles on the dewatering slab (see Section 1.4.1.4). Currently, MWG intends to procure a fabric enclosure from a vendor specializing in these types of structures. As shown in Sections B and C on drawing POW-CSK-201, the fabric enclosure would be supported by an internal metal roof truss spanning between and supported by the external concrete walls of the ash-settling tank. Per Section C, the enclosure would have an access door for heavy equipment to access the concrete dewatering slab to recover reclaimed ash from the ash-settling tank's primary cells.

1.4.1.4 DEWATERING SLAB

Similar to Powerton's historical operation of the Ash Surge and Bypass Basins, the concrete ash-settling tank will be designed for continuous plant operation and will cycle between trains for filling and reclaiming ash. Once ash in one train reaches the cell's storage capacity, overflow from the dewatering bins will be diverted to the other train. Free water in the full cell will then be decanted into the empty cell to the top of the ash material. Afterwards, a front-end loader, backhoe, or similar equipment will remove the ash and stack it on a concrete slab for dewatering. Concrete curbs and pushwalls will contain the stacked ash and water therefrom within the dewatering area, and water from the stacked ash will ultimately drain back into the cells. Once the ash becomes dry enough to handle, it will be loaded onto trucks and hauled offsite to a beneficial-use or permitted-disposal facility.

The dewatering slab will be contained within the fabric enclosure discussed previously. In accordance with the proposed 35 Ill. Adm. Code 845.120, concrete pushwalls will be installed along the perimeter of this area to contain the CCR material as its handled by equipment loading in into trucks to be hauled offsite. The walls will be sufficiently designed to resist the impact forces from the equipment operating in this area (*e.g.*, front-end loader), and appropriate measures will be taken to ensure the walls are sufficiently durable to withstand repeated occurrences of these impact forces. Moreover, the concrete pushwalls will be designed to be freestanding pursuant to EPA OSWER Directive No. 9483.01(83) (Ref. 11). Finally, similar to the concrete cells, the concrete dewatering slab will be supported by a base mat foundation as shown on drawing POW-CSK-201.

1.4.1.5 LEAK PREVENTION / DETECTION

Because the concrete ash-settling tank will be managing CCR wastestreams, its structural components will be designed in accordance with the design requirements promulgated by the American Concrete Institute (ACI) Committee 350's *Code Requirements for Environmental Engineering Concrete Structures and Commentary*, also known as ACI 350 (Ref. 12). The structural concrete design requirements set forth in this code have been specifically developed for structures used for "conveying, storing, or treating liquid or other materials such as solid waste" (*e.g.*, CCR). These requirements also ensure the proper design, material specification, and construction of environmental engineering structures "to produce serviceable concrete that is dense, durable, nearly impermeable, and resistant to chemicals, with limited deflections and cracking." By designing to ACI 350, the concrete ash-settling tank design will protect the groundwater, the general environment, and human health from the non-hazardous chemical constituents in CCR.

In addition to a robust structural design, MWG will consider additional leak prevention / detection measures for the concrete ash-settling tank. Such measures will be evaluated during detailed engineering and design and in consultation with the Illinois EPA and may include waterproofing admixtures, impervious protective coatings or barriers, electronic leak detection (ELD), and/or groundwater monitoring wells. Any leak prevention / detection measure incorporated into the final design of the concrete ash-settling tank will be implemented in accordance with the appropriate regulatory requirements.

1.4.2 REFURBISHED DEWATERING BINS

Refurbishing the Station's four dewatering bins (two per unit) is a critical aspect for the design and future operation of the concrete ash-settling tank. As previously mentioned, the ash particles in the effluent currently being discharged from the dewatering bins will need to be reduced in both size and quantity. MWG plans to perform a condition assessment (including an evaluation of the structural support steel) to determine which parts need to be replaced and what improvements can be made in order to limit the ash particles sent to the concrete tanks, improve operability, and extend the operating lives of the dewatering bins. In addition

to replacing degraded components, this work is expected to include installing new dewatering elements, low-leak sluice gate enclosures, and local control panels.

1.4.3 LOW-VOLUME WASTE BASIN

Once the concrete ash-settling tank is operational, Powerton will direct the dewatering bin effluent to the concrete tank and all non-CCR wastestreams to the Recycle Water Cooling Basin. The contractor who closed and repurposed the Bypass Basin would then start drawing down the water level in the Ash Surge Basin. Water may be removed by using temporary pumps to direct it to the Recycle Water Cooling Basin and/or Service Water Basin. Once the dewatering process is complete, the contractor will start excavating/dredging the ash stored in the Ash Surge Basin, the existing liner materials, and any underlying soils impacted by CCR in accordance with the Illinois EPA closure construction permit. All materials removed from the basin will be transported offsite in accordance with the requirements stipulated in the proposed 35 Ill. Adm. Code 845.740(b)(1). Finally, after the Ash Surge Basin has been certified as closed in accordance with the proposed 35 Ill. Adm. Code 845.740(e), the area will be lined with an HDPE geomembrane and repurposed as the Station's new Low-Volume Waste Basin for continued management of the non-CCR wastestreams currently sent to the existing Ash Surge Basin. Once the geomembrane liner has been installed, all non-CCR wastestreams will be diverted from the Recycle Water Cooling Basin to the Low-Volume Waste Basin.

1.5 EXPLANATION & JUSTIFICATION OF TIME REQUESTED

Per the visual timeline representation and narrative discussion of the project schedule presented in Sections 2.0 and 3.0, respectively, MWG is requesting the EPA allow the Ash Surge Basin to continue operating until construction of the multiple technology solution discussed in the previous section is completed, which is currently expected to be August 11, 2023. During this period, the following CCR and non-CCR wastestreams would be placed into the Ash Surge Basin since they do not currently have alternative disposal options at Powerton or offsite:

- Unit 5 and 6 dewatering bin effluent,
- Unit 5 and 6 slag tank overflow water,
- East Yard Runoff Basin overflow water,
- Makeup Treatment Plant effluent, and
- Metal Cleaning Waste Treatment System effluent.

MWG is requesting this additional time to continue operating the Ash Surge Basin because it is technically infeasible to refurbish Powerton's dewatering bins, construct a new concrete ash-settling tank, repurpose the Bypass Basin into the new Recycle Water Cooling Basin, and to repurpose the Ash Surge Basin into the new Low-Volume Waste Basin prior to April 11, 2021. This is primarily due to the ongoing Illinois rulemaking for regulating CCR surface impoundments. A detailed explanation and justification for the time required to

refurbish the dewatering bins, install the concrete ash-settling tank, and repurpose the Bypass Basin are provided in the narrative of the project schedule in Section 3.0.

Finally, pursuant to the recently-revised alternative closure requirements in the EPA CCR Rule, MWG also evaluated whether temporary storage could be provided for the preceding CCR and non-CCR wastestreams that will be sent to the Ash Surge Basin until the concrete ash-settling tank is constructed and the Recycle Cooling Water Basin is operational. This evaluation is summarized in Section 1.5.3.

1.5.1 DEVELOPMENT & EVALUATION OF ALTERNATIVE DISPOSAL METHODS

The analysis of alternative disposal capacity options to replace Powerton's Ash Surge and Bypass Basins presented in Section 1.4 is the result of several years' worth of evaluations and studies performed by MWG. In the summer of 2015, shortly after the EPA finalized its new CCR Rule, MWG initiated a study of potential alternative bottom ash disposal options to replace the existing Ash Surge and Bypass Basins in case they were determined to violate the Rule's groundwater protection standards or uppermost aquifer location restriction and therefore be subject to the closure-for-cause provisions in 40 CFR 257.101. Following the 2015 update to the EPA ELG Rule, MWG expanded the scope of this study to evaluate multiple technology solutions that would provide compliance with both the EPA CCR and ELG Rules for the CCR and non-CCR wastestreams currently managed in the Ash Surge and Bypass Basins. Although there was no regulatory driver to replace the Ash Surge or Bypass Basins at the time as neither basin required corrective measures be implemented to remedy statistically significant exceedances of groundwater protection standards, MWG continued to evaluate and refine the conceptual designs for the multiple technology solutions proposed in this study through 2016 and 2017.

As shown in the visual timeline representation of the project schedule in Section 2.0, and as previously stated in Section 1.3, MWG commenced detailed assessments of the different alternative disposal methods for the CCR wastestreams at its Powerton, Waukegan, and Will County facilities shortly after the August 2018 *USWAG* decision since the active CCR surface impoundments at these three facilities were all determined to be non-compliant with the EPA CCR Rule's liner design criteria. These assessments expanded the studies performed between 2015 and 2017 and evaluated each option's technical feasibility and implementation requirements (*e.g.*, schedule and physical space). During this planning phase, MWG also prepared budgetary cost estimates and high-level implementation schedules for each option to determine forthcoming capital expenditures and asset retirement obligations.

1.5.2 ILLINOIS EPA RULEMAKING

While MWG was refining its conceptual designs for developing alternative bottom ash disposal capacity at Powerton, Illinois Senate Bill 9 was introduced in the Illinois Senate, which sought to establish state-specific regulations for constructing, operating, and closing CCR surface impoundments at Illinois power plants.

Illinois Senate Bill 9 was first introduced in the Illinois Senate in early January 2019 (Ref. 13) and ultimately passed by the Illinois General Assembly on May 27, 2019. On July 30, 2019, the governor signed the bill into law as Illinois Public Act 101-0171. A primary purpose of the Act was to authorize and instruct the Illinois EPA to propose rules regulating the construction, operation, and closure of CCR surface impoundments at Illinois power plants (Ref. 2, § 22.59(g)). Moreover, § 22.59(b)(2) of the Act prohibits the construction, installation, modification, operation, or closure of any CCR surface impoundment without a permit issued by the Illinois EPA. Thus, MWG cannot implement the multiple technology solution selected to replace the Ash Surge and Bypass Basins at Powerton or, in fact, any solution involving the construction of a new CCR surface impoundment and/or retrofit or closure of Powerton's existing CCR surface impoundments until a Final Illinois CCR Rule is adopted by the Illinois Pollution Control Board and the Illinois EPA issues the appropriate construction permits.

As discussed in Section 1.1.2, the Illinois EPA published its draft regulations for CCR surface impoundments in December of 2019 for public comment. At this time, MWG reviewed the draft regulations and updated its 2018-2019 evaluation of alternative bottom ash disposal options for Powerton based on the Illinois EPA's draft regulations. MWG performed a similar update after the Illinois EPA finalized its draft regulations and submitted the Proposed Illinois CCR Rule to the Illinois Pollution Control Board on March 30, 2020. Per § 22.59(g) of Illinois Public Act 101-0171, the Illinois Pollution Control Board has one year to adopt the Final Illinois CCR Rule into 35 Ill. Adm. Code. This timeline would establish a Final Illinois CCR Rule and corresponding permit program by the end of March 2021.

Given the statutory limitations on constructing, modifying, and closing CCR surface impoundments at Illinois power plants and the ongoing rulemaking and development of the Illinois EPA's permitting program, MWG is unable to initiate the work required to repurpose the Ash Surge and Bypass Basins to support the multiple technology solution selected to replace these non-compliant ash basins. Because a Final Illinois CCR Rule and corresponding permit program is not expected until the end of March 2021, it is technically infeasible for MWG to implement this solution – or any solution involving the modification of the Ash Surge and Bypass Basins and/or construction of a new CCR surface impoundment – by April 11, 2021. Further, MWG is unable to complete final engineering and initiate any procurement activity until the Final Illinois CCR Rule is published, the Illinois EPA's requirements are known, and planning is approved by the Illinois EPA within the agency's permit process. However, as previously discussed, planning components of the multiple technology solution that could be initiated without a Final Illinois CCR Rule are indeed ongoing. Accordingly, MWG has developed a plan for implementing the option selected that minimizes the schedule impacts of the Illinois EPA's current rulemaking and future permitting processes, thereby providing alternative disposal capacity for the CCR and non-CCR wastestreams currently being sent to the Ash Surge Basin as soon as technically feasible. This plan is illustrated in the visual representation of the project schedule and corresponding narrative discussion in Sections 2.0 and 3.0, respectively.

1.5.3 TEMPORARY ON-SITE DISPOSAL OF WASTESTREAMS

MWG considered two temporary disposal solutions for the CCR and non-CCR wastestreams that will continue to be sent to the Ash Surge Basin until the concrete ash-settling tank and Recycle Water Cooling Basin are operational on August 11, 2023: storage tanks and water treatment trailers.

1.5.3.1 STORAGE TANKS

Based on MWG's current forecast of obtaining permanent alternative disposal capacity to replace the Ash Surge Basin, enough tanks would need to be procured and installed at the site to provide storage of wastewater produced by the plant for approximately 2.5 years. As shown in the PFD on drawing POW-CSK-PFD-001, Powerton currently uses frac tanks to temporarily dispose of water-side boiler cleaning water before it is transported offsite for final disposal. A frac tank is a heavy gauge steel storage tank with a typical capacity of about 20,000 gallons. The effluent from Powerton's Metal Cleaning Waste Treatment System, which is treated gas-side boiler cleaning wastewater, is the smallest wastestream (based on flow) currently managed by the Ash Surge Basin (0.04 MGD per Table 2). To provide 2.5 years' worth of temporary storage for just this wastestream, over 1,800 frac tanks would need to be furnished and installed on Powerton's property. This is not a technically feasible solution for the smallest wastestream currently managed by the Ash Surge Basin, let alone all of the CCR and non-CCR wastestreams currently entering the basin.

In lieu of procuring and installing thousands of frac tanks to temporarily store the CCR and non-CCR wastestreams currently going into the Ash Surge Basin, a more appropriate solution would be to install a network of large modular tanks on the Station's available property. The largest modular tank identified during MWG's review of tanks available on the market for temporary wastewater storage was a 1.7-million-gallon tank (Ref. 14). For the 0.04-MGD wastestream identified earlier, approximately 22 of these modular tanks would need to be installed to provide adequate storage for just this wastestream. Assuming 22 of these tanks are available on the market, approximately 20 acres of land would need to be identified at the Powerton site to support this many tanks (each tank occupies approximately 0.90 of an acre).

Of Powerton's property, only approximately 10 acres of land are currently undeveloped that are not otherwise in the 100-year floodplain of the Illinois River and/or contain a potential wetland (Refs. 15 and 16, respectively). This is only about half of the area that would be required to install enough modular tanks to store Powerton's gas-side boiler cleaning wastewater for the next 2.5 years. Consequently, modular tanks are not a technically feasible solution for this wastestream or the other CCR and non-CCR wastestreams currently being sent to the Ash Surge Basin.

1.5.3.2 WASTEWATER TREATMENT TRAILERS

While it is technically infeasible to use tanks to temporarily store and/or treat the large CCR and non-CCR flows currently going into the Ash Surge Basin, wastewater treatment trailers from a vendor that specializes

in such technology could provide a temporary solution for these wastestreams. These trailers can remove TSS, oil, and grease from and neutralize the pH of the CCR and non-CCR wastestreams currently going into the Ash Surge Basin (all of which are required under Powerton's existing NPDES permit), among other treatment capabilities. These trailers can also remove heavy metals from the CCR wastestreams. The amount of wastewater a trailer can treat is dependent on the water chemistry, but 1 MGD is generally achievable.

Per Table 2, approximately 18.8 MGD of CCR and non-CCR wastestreams are currently being managed by the Ash Surge Basin. Therefore, it would take about 19 wastewater treatment trailers to handle and treat the wastestreams currently going into the Ash Surge Basin. While it may be feasible to find space on the plant site for 19 trailers, the implementation of this temporary system would require time to perform the engineering and design of piping to and from the trailers, obtain an NPDES construction permit, and installation of the system itself. Moreover, it should be recognized that there is a limited number of these wastewater treatment trailers available on the market, which is an important consideration given the number of power plants that may need to implement temporary treatment solutions to comply with the alternative closure standards in the EPA CCR Rule.

Assuming Powerton is able to procure and find space for 19 wastewater treatment trailers, it would take a similar timeframe to implement this temporary solution as it would to divert the non-CCR wastestreams from the Ash Surge Basin to the Service Water Basin (2.5 years). Based on the discussion in Section 1.3.1.2.1 about temporarily utilizing the existing Service Water Basin for the subject non-CCR wastestreams, MWG does not consider wastewater treatment trailers to be an appropriate alternative solution for the wastestreams currently being sent to the Ash Surge Basin because (1) the permanent alternative disposal capacity solution system proposed herein will be operational within a similar timeframe, and (2) the Illinois EPA will likely prioritize the closure construction permit applications for the Ash Surge and Bypass Basins incorporated into the modified bottom ash treatment system proposed herein over the permit applications required to construct a temporary treatment system.

2.0 PROJECT SCHEDULE: VISUAL TIMELINE

This section presents a visual timeline representation of MWG's schedule for refurbishing Powerton's existing ash dewatering bins, constructing a new concrete ash-settling tank, and repurposing the Bypass Basin as a cooling pond. Pursuant to 40 CFR 257.103(f)(iv)(1)(A)(*2*), the following visual timeline representation of the project schedule shows:

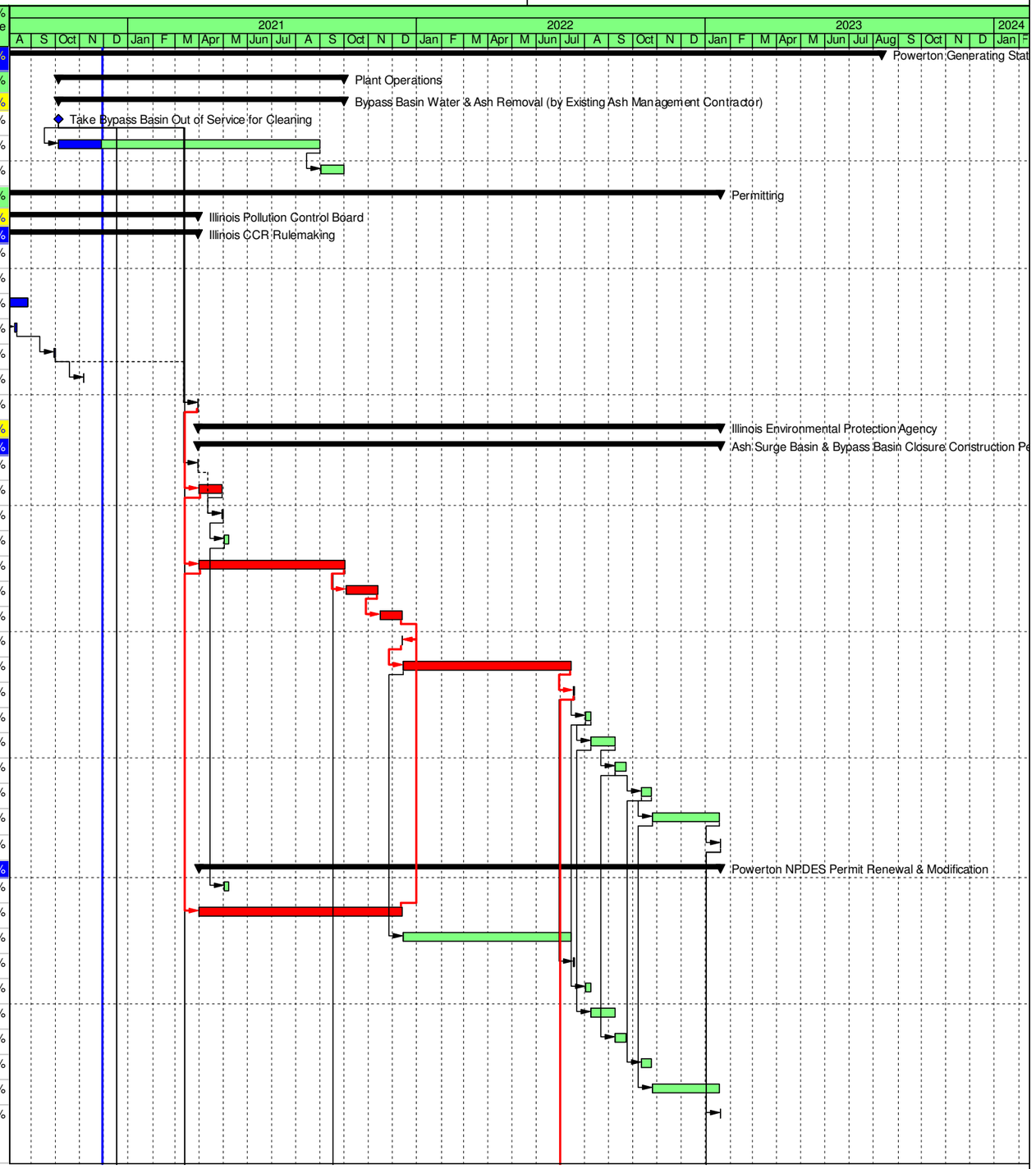
- How each phase and the steps within that phase interact with or are dependent on each other and the other phases,
- All of the steps and phases that can be completed concurrently,
- The total time needed to refurbish the dewatering bins, construct a new concrete ash-settling tank, and repurpose the Bypass Basin as a cooling pond.

As shown in its visual timeline representation, the project schedule is divided into the following phases:

- Plant Operations,
- Permitting,
- Engineering & Design,
- Contractor Selection,
- Equipment Fabrication & Delivery,
- Construction, and
- Start-Up & Implementation.

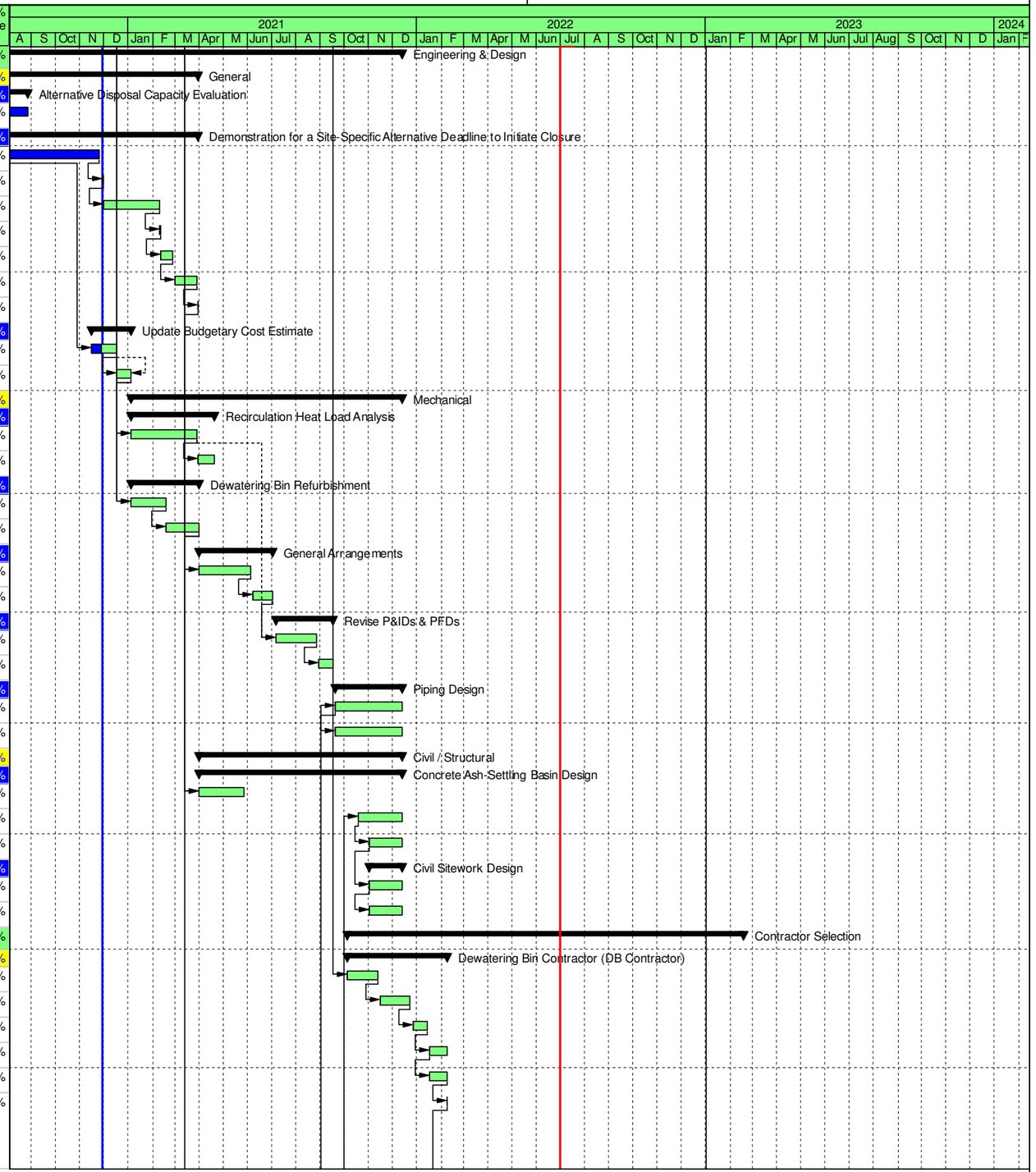
See Section 3.0 for the corresponding narrative discussion of the project schedule.

Activity ID	Activity Name	Ori Dur	Start	Finish	% Complete
Powerton Generating Station - Concrete Ash Settling Basin		731	19-Sep-18 A	11-Aug-23	5.2%
Plant Operations		251	05-Oct-20 A	30-Sep-21	15.14%
Bypass Basin Water & Ash Removal (by Existing Ash Management Contractor)		251	05-Oct-20 A	30-Sep-21	15.14%
1.1.1	Take Bypass Basin Out of Service for Cleaning	0	05-Oct-20 A		100%
1.1.2	Draw Down Water & Dewater Impounded Ash	230	05-Oct-20 A	31-Aug-21	16.52%
1.1.3	Excavate Ash & Transport to Offsite Facility	21	01-Sep-21	30-Sep-21	0%
Permitting		585	30-Mar-20 A	19-Jan-23	20.68%
Illinois Pollution Control Board		181	30-Mar-20 A	30-Mar-21	99.45%
Illinois CCR Rulemaking		181	30-Mar-20 A	30-Mar-21	99.45%
2.1.1.1	Illinois EPA Submits Proposed Illinois CCR Rule to IPCB	1	30-Mar-20 A	30-Mar-20 A	100%
2.1.1.2	Prepare & Submit Pre-Filed Questions to Illinois EPA	59	31-Mar-20 A	23-Jun-20 A	100%
2.1.1.3	Prepare & Submit Pre-Filed Testimonies to IPCB	45	24-Jun-20 A	27-Aug-20 A	100%
2.1.1.4	Participate in First IPCB Hearing on Proposed Illinois CCR Rule	2	11-Aug-20 A	13-Aug-20 A	100%
2.1.1.5	Participate in Second IPCB Hearing on Proposed Illinois CCR Rule	2	29-Sep-20 A	01-Oct-20 A	100%
2.1.1.6	IPCB Closes Record on Proposed Illinois CCR Rulemaking	1	06-Nov-20 A	06-Nov-20 A	100%
2.1.1.7	IPCB Adopts CCR Regulations into Title 35 of Illinois Admin. Code	1	30-Mar-21	30-Mar-21	0%
Illinois Environmental Protection Agency		464	30-Mar-21	19-Jan-23	0%
Ash Surge Basin & Bypass Basin Closure Construction Permits		464	30-Mar-21	19-Jan-23	0%
2.2.1.01	Illinois EPA Publishes Permit Application Forms	1	30-Mar-21	30-Mar-21	0%
2.2.1.02	Determine Closure Category Designation (845.700(c))	22	31-Mar-21	29-Apr-21	0%
2.2.1.03	Submit Closure Category Designation (845.700(c))	1	30-Apr-21	30-Apr-21	0%
2.2.1.04	Pre-Application Meeting with Illinois EPA	5	03-May-21	07-May-21	0%
2.2.1.05	Perform Closure Alternatives Analysis (845.710(b))	130	31-Mar-21	01-Oct-21	0%
2.2.1.06	Schedule & Hold Public Meetings (845.710(e) & 845.240(a))	30	04-Oct-21	12-Nov-21	0%
2.2.1.07	Finalize Closure Plan (845.710(f) & 845.720(b))	19	15-Nov-21	13-Dec-21	0%
2.2.1.08	Submit Closure Construction Permit Applications	1	13-Dec-21	13-Dec-21	0%
2.2.1.09	Illinois EPA Reviews Permit Applications	150	14-Dec-21	15-Jul-22	0%
2.2.1.10	Illinois EPA Issues Draft Permit (845.250)	1	18-Jul-22	18-Jul-22	0%
2.2.1.11	Illinois EPA Publishes Public Notice of Draft Permit (845.260(b))	5	02-Aug-22	08-Aug-22	0%
2.2.1.12	Illinois EPA Accepts Public Comments (845.260(c))	23	09-Aug-22	08-Sep-22	0%
2.2.1.13	Illinois EPA Issues Notice of Public Hearing (845.260(e))	10	09-Sep-22	22-Sep-22	0%
2.2.1.14	Illinois EPA Holds Public Hearing (845.260(d))	10	11-Oct-22	24-Oct-22	0%
2.2.1.15	Illinois EPA Reviews Public Comments (845.270(a))	62	25-Oct-22	18-Jan-23	0%
2.2.1.16	Illinois EPA Issues Final Permit (845.270(b))	1	19-Jan-23	19-Jan-23	0%
Powerton NPDES Permit Renewal & Modification		463	31-Mar-21	19-Jan-23	0%
2.2.2.01	Pre-Application Meeting with Illinois EPA	5	03-May-21	07-May-21	0%
2.2.2.02	Prepare & Submit Permit Application	179	31-Mar-21	13-Dec-21	0%
2.2.2.03	Illinois EPA Reviews Permit Application	150	14-Dec-21	15-Jul-22	0%
2.2.2.04	Illinois EPA Issues Draft Permit	1	18-Jul-22	18-Jul-22	0%
2.2.2.05	Illinois EPA Publishes Public Notice of Draft Permit	5	02-Aug-22	08-Aug-22	0%
2.2.2.06	Illinois EPA Accepts Public Comments	23	09-Aug-22	08-Sep-22	0%
2.2.2.07	Illinois EPA Issues Notice of Public Hearing	10	09-Sep-22	22-Sep-22	0%
2.2.2.08	Illinois EPA Holds Public Hearing	10	11-Oct-22	24-Oct-22	0%
2.2.2.09	Illinois EPA Reviews Public Comments	62	25-Oct-22	18-Jan-23	0%
2.2.2.10	Illinois EPA Issues Final Permit	1	19-Jan-23	19-Jan-23	0%



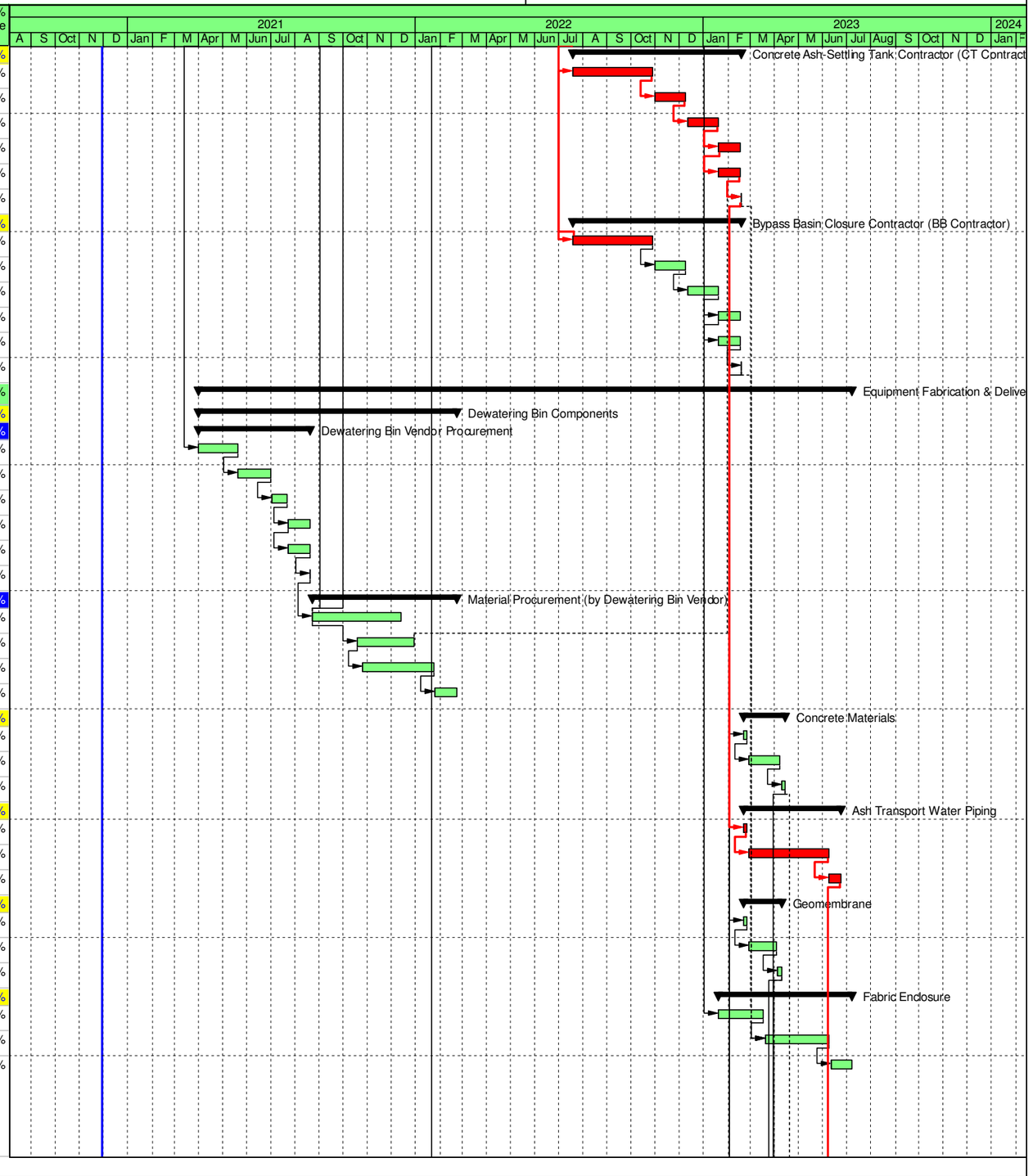
Remaining Work | Actual Work | Actual Milestone | Summary
Critical Remaining Work | Forecast Milestone | Summary | LOE

Activity ID	Activity Name	Ori Dur	Start	Finish	% Complete
Engineering & Design		492	19-Sep-18 A	13-Dec-21	46.54%
General		492	19-Sep-18 A	30-Mar-21	82.93%
Alternative Disposal Capacity Evaluation		492	19-Sep-18 A	28-Aug-20 A	100%
3.1.1.1	Develop & Evaluate Alternative Disposal Capacity Solutions	492	19-Sep-18 A	28-Aug-20 A	100%
Demonstration for a Site-Specific Alternative Deadline to Initiate Closure		236	26-Dec-19 A	30-Mar-21	64.41%
3.1.2.1	Prepare & Review	236	26-Dec-19 A	25-Nov-20 A	100%
3.1.2.2	Submit to U.S. EPA	1	30-Nov-20	30-Nov-20	0%
3.1.2.3	U.S. EPA Reviews Demonstration	48	01-Dec-20	09-Feb-21	0%
3.1.2.4	U.S. EPA Publishes Proposed Decision	1	10-Feb-21	10-Feb-21	0%
3.1.2.5	Public Comment Period on U.S. EPA Proposed Decision	12	11-Feb-21	26-Feb-21	0%
3.1.2.6	U.S. EPA Reviews Public Comments	21	01-Mar-21	29-Mar-21	0%
3.1.2.7	U.S. EPA Publishes Final Decision	1	30-Mar-21	30-Mar-21	0%
Update Budgetary Cost Estimate		31	16-Nov-20 A	04-Jan-21	25.81%
3.1.3.1	Prepare & Review	22	16-Nov-20 A	17-Dec-20	36.36%
3.1.3.2	Issue for Use	9	18-Dec-20	04-Jan-21	0%
Mechanical		240	05-Jan-21	13-Dec-21	0%
Recirculation Heat Load Analysis		75	05-Jan-21	19-Apr-21	0%
3.2.1.1	Prepare & Review	60	05-Jan-21	29-Mar-21	0%
3.2.1.2	Issue for Use	15	30-Mar-21	19-Apr-21	0%
Dewatering Bin Refurbishment		62	05-Jan-21	31-Mar-21	0%
3.2.2.1	Perform Condition Assessment	32	05-Jan-21	17-Feb-21	0%
3.2.2.2	Determine Target Ash Particle Size	30	18-Feb-21	31-Mar-21	0%
General Arrangements		67	31-Mar-21	02-Jul-21	0%
3.2.3.1	Prepare & Review	47	31-Mar-21	04-Jun-21	0%
3.2.3.2	Issue for Design	20	07-Jun-21	02-Jul-21	0%
Revise P&IDs & PFDs		53	06-Jul-21	17-Sep-21	0%
3.2.4.1	Prepare & Review	39	06-Jul-21	27-Aug-21	0%
3.2.4.2	Issue for Design	14	30-Aug-21	17-Sep-21	0%
Piping Design		59	20-Sep-21	13-Dec-21	0%
3.2.5.1	Design Dewatering Bin Effluent Piping	59	20-Sep-21	13-Dec-21	0%
3.2.5.2	Design Concrete Ash-Settling Basin Effluent Piping	59	20-Sep-21	13-Dec-21	0%
Civil / Structural		178	01-Apr-21	13-Dec-21	0%
Concrete Ash-Settling Basin Design		178	01-Apr-21	13-Dec-21	0%
3.3.1.1	Determine Preliminary Settling & Surge Tank Sizes	41	01-Apr-21	27-May-21	0%
3.3.1.2	Finalize Settling & Surge Tank Sizes	39	18-Oct-21	13-Dec-21	0%
3.3.1.3	Concrete Wall & Slab Design	29	01-Nov-21	13-Dec-21	0%
Civil Sitework Design		29	01-Nov-21	13-Dec-21	0%
3.3.2.1	Design Site Grading	29	01-Nov-21	13-Dec-21	0%
3.3.2.2	Design Access Roads	29	01-Nov-21	13-Dec-21	0%
Contractor Selection		353	05-Oct-21	17-Feb-23	0%
Dewatering Bin Contractor (DB Contractor)		86	05-Oct-21	08-Feb-22	0%
4.1.1	Prepare & Issue Technical Specification & Commerical Terms	29	05-Oct-21	12-Nov-21	0%
4.1.2	Bid Period	27	15-Nov-21	23-Dec-21	0%
4.1.3	Bid Evaluation	13	27-Dec-21	14-Jan-22	0%
4.1.4	Contract Negotiation	16	17-Jan-22	07-Feb-22	0%
4.1.5	Conform Technical Specification for Contract	16	17-Jan-22	07-Feb-22	0%
4.1.6	Contract Award	1	08-Feb-22	08-Feb-22	0%



Remaining Work · Actual Work · Actual Milestone · Summary
Critical Remaining Work · Forecast Milestone · Summary · LOE

Activity ID	Activity Name	Ori Dur	Start	Finish	% Complete
Concrete Ash-Settling Tank Contractor (CT Contractor)		154	19-Jul-22	17-Feb-23	0%
4.2.1	Prepare & Issue Technical Specification & Commerical Terms	74	19-Jul-22	28-Oct-22	0%
4.2.2	Bid Period	30	31-Oct-22	09-Dec-22	0%
4.2.3	Bid Evaluation	29	12-Dec-22	19-Jan-23	0%
4.2.4	Contract Negotiation	20	20-Jan-23	16-Feb-23	0%
4.2.5	Conform Technical Specification for Contract	20	20-Jan-23	16-Feb-23	0%
4.2.6	Contract Award	1	17-Feb-23	17-Feb-23	0%
Bypass Basin Closure Contractor (BB Contractor)		154	19-Jul-22	17-Feb-23	0%
4.3.1	Prepare & Issue Technical Specification & Commerical Terms	74	19-Jul-22	28-Oct-22	0%
4.3.2	Bid Period	30	31-Oct-22	09-Dec-22	0%
4.3.3	Bid Evaluation	29	12-Dec-22	19-Jan-23	0%
4.3.4	Contract Negotiation	20	20-Jan-23	16-Feb-23	0%
4.3.5	Conform Technical Specification for Contract	20	20-Jan-23	16-Feb-23	0%
4.3.6	Contract Award	1	17-Feb-23	17-Feb-23	0%
Equipment Fabrication & Delivery		583	01-Apr-21	07-Jul-23	0%
Dewatering Bin Components		226	01-Apr-21	22-Feb-22	0%
Dewatering Bin Vendor Procurement		100	01-Apr-21	20-Aug-21	0%
5.1.1.1	Prepare & Issue Technical Specification & Commercial Terms	36	01-Apr-21	20-May-21	0%
5.1.1.2	Bid Period	29	21-May-21	01-Jul-21	0%
5.1.1.3	Bid Evaluation	14	02-Jul-21	22-Jul-21	0%
5.1.1.4	Contract Negotiation	20	23-Jul-21	19-Aug-21	0%
5.1.1.5	Conform Technical Specification for Contract	20	23-Jul-21	19-Aug-21	0%
5.1.1.6	Contract Award	1	20-Aug-21	20-Aug-21	0%
Material Procurement (by Dewatering Bin Vendor)		126	23-Aug-21	22-Feb-22	0%
5.1.2.1	Design Modifications for Existing Dewatering Bins	78	23-Aug-21	13-Dec-21	0%
5.1.2.2	Material Order	51	18-Oct-21	30-Dec-21	0%
5.1.2.3	Fabrication	61	25-Oct-21	24-Jan-22	0%
5.1.2.4	Delivery	21	25-Jan-22	22-Feb-22	0%
Concrete Materials		40	20-Feb-23	14-Apr-23	0%
5.2.1	Material Order	5	20-Feb-23	24-Feb-23	0%
5.2.2	Fabrication (Detailing, Shop Drawing Approval)	30	27-Feb-23	07-Apr-23	0%
5.2.3	Delivery	5	10-Apr-23	14-Apr-23	0%
Ash Transport Water Piping		90	20-Feb-23	23-Jun-23	0%
5.3.1	Material Order	5	20-Feb-23	24-Feb-23	0%
5.3.2	Fabrication	74	27-Feb-23	08-Jun-23	0%
5.3.3	Delivery	11	09-Jun-23	23-Jun-23	0%
Geomembrane		36	20-Feb-23	10-Apr-23	0%
5.4.1	Material Order	5	20-Feb-23	24-Feb-23	0%
5.4.2	Fabrication	26	27-Feb-23	03-Apr-23	0%
5.4.3	Delivery	5	04-Apr-23	10-Apr-23	0%
Fabric Enclosure		121	20-Jan-23	07-Jul-23	0%
5.5.1	Material Order	41	20-Jan-23	17-Mar-23	0%
5.5.2	Fabrication	60	20-Mar-23	09-Jun-23	0%
5.5.3	Delivery	20	12-Jun-23	07-Jul-23	0%

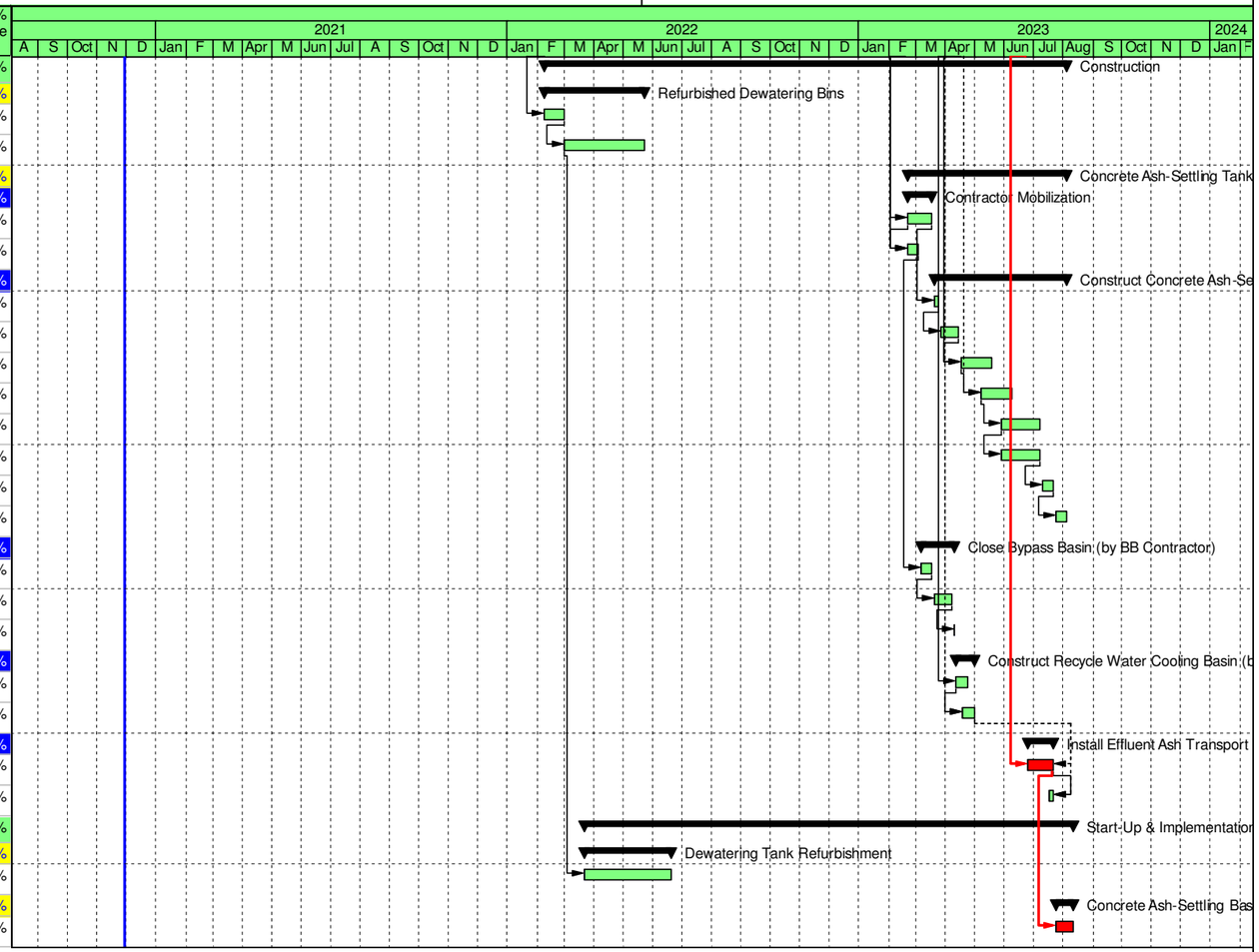


Midwest Generation, LLC
Powerton Generating Station - Concrete Ash Settling Basin

Engineering, Procurement and Construction Schedule

30-Nov-20 10:31
Data Date: 30-Nov-20

Activity ID	Activity Name	Ori Dur	Start	Finish	% Complete
Construction		388	08-Feb-22	04-Aug-23	0%
Refurbished Dewatering Bins		75	08-Feb-22	23-May-22	0%
6.1.1	DB Contractor Mobilizes to Project Site	15	08-Feb-22	28-Feb-22	0%
6.1.2	Refurbish Dewatering Bins	60	01-Mar-22	23-May-22	0%
Concrete Ash-Settling Tank & Repurposed Bypass Basin		120	20-Feb-23	04-Aug-23	0%
Contractor Mobilization		20	20-Feb-23	17-Mar-23	0%
6.2.1.1	CT Contractor Mobilizes	20	20-Feb-23	17-Mar-23	0%
6.2.1.2	BB Contractor Mobilizes	10	20-Feb-23	03-Mar-23	0%
Construct Concrete Ash-Settling Tank (by CT Contractor)		100	20-Mar-23	04-Aug-23	0%
6.2.2.1	Install Erosion & Sediment Control Measures	5	20-Mar-23	24-Mar-23	0%
6.2.2.2	Excavate Basin Area & Prepare Subgrade	15	27-Mar-23	14-Apr-23	0%
6.2.2.3	Install Base Mat Foundations	25	17-Apr-23	19-May-23	0%
6.2.2.4	Install Concrete Slabs for Basins & Dewatering Area	25	08-May-23	09-Jun-23	0%
6.2.2.5	Install Basin Walls	30	29-May-23	07-Jul-23	0%
6.2.2.6	Install Pushwalls & Curbs for Dewatering Area	30	29-May-23	07-Jul-23	0%
6.2.2.7	Erect Fabric Enclosure	10	10-Jul-23	21-Jul-23	0%
6.2.2.8	Construct New Access Roads	10	24-Jul-23	04-Aug-23	0%
Close Bypass Basin (by BB Contractor)		26	06-Mar-23	10-Apr-23	0%
6.2.3.1	Excavate Existing Liner & CCR-Impacted Soils (if Any)	10	06-Mar-23	17-Mar-23	0%
6.2.3.2	Decontaminate Pond Floor & Appurtenances	15	20-Mar-23	07-Apr-23	0%
6.2.3.3	Certify Bypass Basin Closure	1	10-Apr-23	10-Apr-23	0%
Construct Recycle Water Cooling Basin (by BB Contractor)		15	11-Apr-23	01-May-23	0%
6.2.4.1	Prepare Subgrade	10	11-Apr-23	24-Apr-23	0%
6.2.4.2	Place Geomembrane Liner	10	18-Apr-23	01-May-23	0%
Install Effluent Ash Transport Water Piping (by CT Contractor)		20	26-Jun-23	21-Jul-23	0%
6.2.5.1	Install Effluent Piping from Dewatering Bins	20	26-Jun-23	21-Jul-23	0%
6.2.5.2	Install Effluent Piping from Concrete Ash-Settling Tank	5	17-Jul-23	21-Jul-23	0%
Start-Up & Implementation		363	22-Mar-22	11-Aug-23	0%
Dewatering Tank Refurbishment		65	22-Mar-22	20-Jun-22	0%
7.1.1	Commission Refurbished Dewatering Bins	65	22-Mar-22	20-Jun-22	0%
Concrete Ash-Settling Basin		15	24-Jul-23	11-Aug-23	0%
7.2.1	Commission Concrete Ash-Settling Tank	15	24-Jul-23	11-Aug-23	0%



Remaining Work
Critical Remaining Work
Actual Work
Forecast Milestone
Actual Milestone
Summary
Summary
LOE

Sargent & Lundy

3.0 PROJECT SCHEDULE: NARRATIVE DISCUSSION

This section presents a narrative of the project steps and sequencing necessary to develop the alternative disposal capacity selected to replace the Ash Surge and Bypass Basins. This narrative follows and supplements the visual timeline representation of the project schedule provided in Section 2.0.

Section 3.1 presents the steps MWG will take to refurbish Powerton's dewatering bins, construct a new concrete ash-settling tank, and repurpose the Bypass Basin, and the general sequence in which these steps will occur. This workflow is based on the steps necessary to execute the project and is considered to be the fastest feasible timeline in which MWG can establish an EPA CCR Rule-compliant system at Powerton for addressing the CCR and non-CCR wastestreams currently managed in the Ash Surge and Bypass Basins. The subsequent sections discuss the steps that occur within each phase of the project (as shown in the visual timeline representation), including the tasks that occur during each of those steps.

See Section 4.0 for a narrative discussion of the progress MWG has made to date in developing this alternative disposal capacity for the Ash Surge and Bypass Basins.

3.1 INSTALLATION ACTIVITIES & PROJECTED WORKFLOW

As currently designed, a new, EPA CCR Rule-compliant ash management system will be installed at Powerton by executing the following sequence of activities:

- Cleaning the Bypass Basin;
- Refurbishing the existing ash dewatering bins, which will include:
    - Performing a condition assessment,
    - Procuring a specialty vendor to design and procure new/modified dewatering bin components,
    - Procuring a contractor to install the new/modified dewatering bin components,
    - Installing the new/modified dewatering bin components, and
    - Commissioning the refurbished dewatering bins;
- Preparing and permitting the final closure plan for the Bypass Basin;
- Designing the new concrete ash-settling tank;
- Procuring contractors to construct the concrete ash-settling tank and to close the Bypass Basin;
- Constructing the concrete ash-settling tank, which will include:
    - Excavating the area to install the tank,
    - Constructing the primary cells, surge cell, ramps, and dewatering slab, and
    - Installing mechanical components within the tank (*e.g.*, mud valves);

- Closing and repurposing the Bypass Basin, which will include:
  - Removing the existing liner and excavating CCR-impacted soils (if any),
  - Certifying the basin's closure in accordance with the Illinois EPA closure construction permit, and
  - Installing a geomembrane liner;
- Installing the dewatering bin effluent piping to the concrete ash-settling tank;
- Installing the concrete ash-settling tank effluent piping to the Recycle Water Cooling Basin;
- Constructing new access roads to and around the concrete ash-settling tank; and
- Commissioning the new concrete ash-settling tank.

3.2 PLANT OPERATIONS

Although the Bypass Basin cannot be closed until MWG receives a closure construction permit from the Illinois EPA, Powerton can remove the ash currently stored in the pond in accordance with historical Station cleaning practices (see Section 1.1.2). This work will expedite the future closure of the Bypass Basin. Once a closure construction permit is received, the only work left to clean close the Bypass Basin will be to remove the existing liner and to decontaminate the pond area and pond appurtenances.

Before any water or ash can be removed from the Bypass Basin, Powerton must first cease sending all CCR and non-CCR wastestreams to the pond. Indeed, the Station recently took the Bypass Basin out of service after it finished recovering ash in the Ash Surge Basin for beneficial use by third parties. The Station will now draw down the water in the Bypass Basin and then dewater the ash currently stored therein.

Powerton intends to remove the initial volume of free surface water from the Bypass Basin by natural means (*e.g.*, evaporation) and by allowing the water to drain towards the existing outlet structure in the southeast corner of the pond. Once the water level falls below the overflow weir elevation, the Station's Ash Management Contractor may excavate sumps and trenches within the impounded material to promote additional drainage and dewatering. The contractor may also use portable pumps to remove additional water by pumping water over the weir into the pond's discharge pipe. Finally, the contractor may utilize earthmoving equipment to move the ash within the pond to promote additional drainage and dewatering.

Once it has been dewatered enough to handle, the ash in the Bypass Basin will be dredged and removed from the pond, loaded onto trucks, and transported offsite to a beneficial-use or permitted disposal facility. Fugitive dust control measures (*e.g.*, water spray, dust suppressants) will be implemented to minimize airborne CCR particulates while the CCR is being handled.

Drawdown of the free surface water in the Bypass Basin is expected to continue through the winter of 2020 and into the summer of 2021. Powerton's Ash Management Contractor is expected to mobilize to the site in the third quarter of 2021 and implement the necessary procedures to remove the remaining free water in the

pond as well as to dewater the ash. It is currently anticipated that the contractor will start removing ash from the Bypass Basin by the end of summer 2021. Given the small size of the Bypass Basin, it is expected that Powerton's Ash Management Contractor can remove the CCR stored in the pond within a month. Therefore, the Bypass Basin is currently scheduled to be emptied (*i.e.*, only small amounts of CCR and the liner remaining) by the end of September 2021.

It should be noted that the removal of ash in the Bypass Basin is not on the critical path of the overall project schedule so long as the ash is removed before the final closure work can start on the Bypass Basin (*i.e.*, Illinois EPA issues final permit and contractor mobilizes to the site). Given that contractor responsible for closing the Bypass Basin is not expected to mobilize to the site until the appropriate permits have been issued, this work by Powerton's Ash Management Contractor is expected to be completed more than a year in advance of the final closure activities for the pond. As previously stated, removing the water and ash currently stored in the Bypass Basin in 2021 will expedite the pond's final closure and subsequent refurbishment in 2023.

3.3 PERMITTING

MWG will need two permits from the Illinois EPA to implement the planned modifications to the bottom-ash handling operations at Powerton. First, MWG will need construction permits under the forthcoming Final Illinois CCR Rule to close the Ash Surge and Bypass Basins so that they can then be repurposed for other uses (Recycle Water Cooling Basin and Low-Volume Waste Basin, respectively) and to install the new concrete ash-settling tank. Second, MWG will need to renew Powerton's NPDES permit since the existing permit has expired and the current treatment methods are being modified for the Station's CCR wastestreams prior to being discharged to the Illinois River via permitted Outfall 001. Since both permits will be issued by the Illinois EPA and are based on the same project, MWG intends to prepare both the CCR construction permit and NPDES permit renewal/modification applications concurrently and submit them at the same time. Imbedded in this strategy is MWG's hope that a renewed Powerton NPDES permit can be obtained sooner than previous modifications, which have historically taken six to 12 months to receive after closure of the public comment period (*i.e.*, not including the Illinois EPA's initial review time or the time of the public comment period itself).

3.3.1 ILLINOIS CCR RULEMAKING

To better understand the Illinois EPA's intentions for regulating CCR surface impoundments at Illinois power plants, MWG has actively participated in the corresponding rulemaking process. After the Illinois EPA submitted its Proposed Illinois CCR Rule to the IPCB in late March 2020, stakeholders began preparing questions for the Illinois EPA to answer prior to the first IPCB hearing on the new rule in mid-August 2020. These questions were filed in late June 2020, and MWG received responses in early August 2020. MWG reviewed these responses and asked follow-up questions during the first IPCB hearing in which the Illinois

EPA responded to questions from other stakeholders. As discussed later in Section 3.4.1, the Illinois EPA's responses to MWG's and the other stakeholders' questions were used to finalize MWG's selection of alternative disposal capacity for Powerton's Ash Surge and Bypass Basins.

In addition to asking the Illinois EPA questions on its Proposed Illinois CCR Rule, MWG also prepared expert testimonies on the proposed regulations and suggested changes. MWG started preparing these testimonies after submitting its pre-filed questions to the Illinois EPA with the IPCB in late June 2020. These testimonies were the focus of the second IPCB hearing in late September 2020 and were filed with the IPCB in late August 2020, one month prior to the hearing.

3.3.2 ASH SURGE & BYPASS BASIN CLOSURE CONSTRUCTION PERMITS

3.3.2.1 PERMIT APPLICATIONS

Prior to closing the Ash Surge and Bypass Basins, MWG must first receive closure construction permits from the Illinois EPA to perform the work. Indeed, per Illinois Public Act 101-0171, MWG cannot "close any CCR surface impoundment without a permit granted by the [Illinois EPA]." Preparation of the closure construction permit applications for these two CCR surface impoundments is also contingent on when the Illinois EPA publishes the corresponding application form. Per the Illinois EPA's answers to pre-filed questions it received ahead of the August 2020 Illinois Pollution Control Board hearings on the Proposed Illinois CCR Rule, the agency will be making "every effort to have CCR permit specific application forms available by March 31, 2021" (Ref. 17). Accordingly, MWG expects to start preparing the closure construction permit application form for closing the Bypass Basin in early April 2021, which is when MWG expects to start preparing the final written closure plan for the Bypass Basin and the required closure alternatives analysis. Since both documents are required in the permit application, MWG intends to prepare the closure construction permit application form for closing the Bypass Basin concurrently with the basin's final written closure plan and the closure alternatives analysis.

Early in the permit application preparation process, MWG will seek to hold a pre-application meeting with the Illinois EPA to discuss the overall project, the preliminary closure method for the Ash Surge and Bypass Basins, and the agency's requirements and expectations. This meeting will likely occur in early May 2021 after MWG has submitted the closure category designations for the Ash Surge and Bypass Basins and has performed some preliminary engineering and design work.

Although not required to develop alternative disposal capacity for the Ash Surge and Bypass Basins, it is important to note that MWG will also need to prepare and submit operating permit applications for both basins while simultaneously preparing the closure construction permit applications. Per the proposed 35 Ill. Adm. Code 845.230(d), MWG expects to have the initial operating permit applications for the Ash Surge and

Bypass Basins completed and submitted to the Illinois EPA by September 30, 2021. Pursuant to the proposed 35 Ill. Adm. Code 845.230(d)(2), this application must contain, at a minimum:

- The basins' histories of construction;
- An analysis of the chemical constituents found within the CCR and non-CCR wastestreams placed in both basins (including all chemical additives and sorbent materials);
- Demonstrations that the basins comply with the Proposed Illinois CCR Rule's location standards;
- Evidence that the permanent name markers for the basins have been installed;
- Documentation that both basins will be operated and maintained with a form of slope protection specified by the Proposed Illinois CCR Rule (*e.g.*, vegetative cover);
- Certifications of the basins' Emergency Action Plans and fugitive dust control plans;
- Information on the basins' groundwater monitoring program;
- Preliminary written closure plan;
- Initial written post-closure plan;
- Documentation on whether the basins' liners comply with the proposed rule's liner design criteria; and
- Documentation of known groundwater protection standard exceedances and any corrective action taken.

In order to develop alternative disposal capacity for the Ash Surge and Bypass Basins as soon as technically feasible, MWG intends to prepare the closure construction and operating permit applications for both basins at the same time once the Final Illinois CCR Rule is published. Accordingly, many of MWG's resources will be relied on to prepare both sets of applications for not only the Ash Surge and Bypass Basins but also for their CCR surface impoundments at Waukegan, Will County, and Joliet. While many of the preceding documents are expected to be similar if not equivalent to the EPA CCR Rule compliance documentation already prepared for the Ash Surge and Bypass Basins, some documents may require more information to comply with the Final Illinois CCR Rule's requirements relative to those of the EPA CCR Rule. In the case of the chemical constituent analysis, MWG will need to sample the wastestreams currently going into the Ash Surge and Bypass Basins and have each sample analyzed for its chemical constituents.

3.3.2.2 CLOSURE PRIORITIZATION CATEGORY

The first step in the closing the Ash Surge and Bypass Basins will be determining each basin's closure prioritization category pursuant to the proposed 35 Ill. Adm. Code 845.700(g). The closure prioritization categories range from Category 1 (highest priority) to Category 7 (lowest priority) and will ultimately influence the permitting timeframe for closing the Bypass Basin. The Illinois EPA will prioritize issuing construction permits for Category 1 closures, then Category 2 closures, then Category 3 closures, and so forth. In accordance with the proposed 35 Ill. Adm. Code 845.700(c), MWG will assign and submit the closure category designations for the Ash Surge and Bypass Basins to the Illinois EPA within 30 days after the

effective date of the Final Illinois CCR Rule. Based on an effective rule date of March 30, 2021, MWG therefore expects to submit a closure category designation for the Bypass Basin to the Illinois EPA by the end of April 2021.

As its name indicates, the closure prioritization category establishes the Illinois EPA's priority for reviewing and processing closure construction permit applications. Accordingly, pursuant to 845.700(h), owners or operators of CCR surface impoundments with the highest closure priorities (Categories 1 through 4) are required to submit a closure construction permit application to the Illinois EPA no later than January 1, 2022. Conversely, closure construction permit applications for Category 5 CCR surface impoundments are not due to the Illinois EPA until July 1, 2022. Finally, Category 6 and 7 CCR surface impoundments do not require a closure construction permit application be submitted to the Illinois EPA until July 1, 2023.

It should be noted that MWG does not expect the Ash Surge or Bypass Basin to have a high priority for closure given that they have not impacted a potable water supply, are in compliance with the safety factors and location restrictions promulgated by the Proposed Illinois CCR Rule, are not in an area of environmental justice concern, and have not caused an exceedance of groundwater protection standards. Per the proposed 35 Ill. Adm. Code 845.700(g)(1), MWG anticipates both basins will be considered Category 7 CCR surface impoundments (*i.e.*, the lowest closure priority for the Illinois EPA). Conversely, MWG expects the Illinois EPA to have a higher closure priority for the East and West Ash Ponds at the Waukegan Generating Station in Waukegan, Illinois given that those ash ponds are located in an area of environmental justice concern (Category 3 per the proposed 35 Ill. Adm. Code 845.700(g)(1)).

Upon submission of the closure prioritization category for the Bypass Basin to the Illinois EPA, MWG will have initiated closure of the Bypass Basin in accordance with the federal standard promulgated by 40 CFR 257.102(e)(3)(iii). Since MWG will complete this prerequisite to closing the Bypass Basin in accordance with the Proposed Illinois CCR Rule by the end of April 2021, this action will have taken place within 30 days of the April 11, 2021 cessation-of-waste deadline promulgated by the EPA CCR Rule in compliance with 40 CFR 257.102(e)(1).

3.3.2.3 CLOSURE ALTERNATIVES ANALYSIS

Concurrent with determining the Illinois EPA closure prioritization categories for the Ash Surge and Bypass Basins, MWG will also commence an analysis of closure alternatives for both basins. As stipulated in the proposed 35 Ill. Adm. Code 845.710(b), this analysis – which is also required by Illinois Public Act 101-0171 to be in the Final Illinois CCR Rule – must be performed before MWG can formally select a method for closing the Bypass Basin and thus before MWG can finalize the written closure plan for the pond. Pursuant to the proposed 35 Ill. Adm. Code 845.710(c), MWG must evaluate the following criteria for each closure method considered in the analysis:

- Level of effectiveness and protectiveness in the short- and long-terms;

- Ability to control future releases to the environment;
- Degree of difficulty to implement the closure method; and
- Extent to which concerns of residents impacted by the closure method are addressed, including CCR handling, transportation, and final disposal.

In addition to the preceding criteria, MWG must also:

- Evaluate whether a landfill can be constructed at the Powerton site to dispose of the CCR removed from the Ash Surge and/or Bypass Basins,
- Prepare a Class 4 cost estimate per the Association for the Advancement of Cost Engineering's (AACE) classification standards,
- Perform groundwater contaminant transport modeling and corresponding calculations to demonstrate how each closure alternative will achieve compliance with the site's groundwater protection standards,
- Describe the fate and transport of contaminants in each closure method over time, and
- Evaluate each closure method's impact to waters in Illinois.

While the tasks required for the closure alternatives analysis can generally be performed concurrently, the overall analysis requires a thorough and exhaustive evaluation of potential methods for closing the Ash Surge and Bypass Basins and of the CCR contaminants therein. Moreover, MWG will also be preparing the written closure plans and the operating permit application forms (see Section 3.3.2.1) for both basins concurrent with this closure alternatives analysis. Accordingly, this analysis is expected to take approximately six months to complete. Based on the IPCB publishing the Final Illinois CCR Rule by the end of March 2021, which will include the final requirements for the closure alternatives analysis, MWG plans to have the analysis completed and a preliminary closure method selected by the beginning of October 2021.

3.3.2.4 PUBLIC MEETINGS ON PROPOSED CLOSURE METHOD

Once MWG has completed the closure alternatives analysis required by the Proposed IL CCR Rule for the Ash Surge and Bypass Basins and has selected a preliminary closure method, MWG can then hold the public meetings with parties interested and/or affected by the basins' future closures. Per the proposed 35 Ill. Adm. Code 845.240 and 845.710(e), MWG must hold at least two public meetings to discuss the proposed closure activities and the results from the closure alternatives analysis at least 30 days before submitting the corresponding closure construction permit application. It is anticipated that these meetings will take place approximately 40 days after MWG completes the closure alternatives analysis. The proposed 35 Ill. Adm. Code 845.240 would require MWG to secure an accessible facility (14 days), mail and post notices of the proposed project and meeting dates (10 days), and conduct the meetings (at least 14 days after anticipated last notice receipt date). This time is also necessary for MWG to adequately prepare for these meetings, which will include coordinating with their consultants and preparing presentation materials. Therefore, based

on the closure alternatives analysis being completed by the beginning of October 2021, it is anticipated that MWG will hold these public meetings in early to mid-November 2021.

3.3.2.5 FINAL WRITTEN CLOSURE PLANS

After conducting the public meetings on the proposed method for closing the Ash Surge and Bypass Basins, MWG will select a final closure method pursuant to the proposed 35. Ill. Adm. Code 845.710(f). This final closure method will be described in each basin's final written closure plan, which will include the results of MWG's alternatives closure analysis and will address comments received during the public meetings as necessary. Although most of the written closure plan can and will be prepared as MWG performs the closure alternatives analysis, it cannot be finalized until after the public meetings. Pursuant to the proposed 35 Ill. Adm. Code 845.240(a), MWG will submit the final written closure plans, closure alternatives analysis, and closure construction permit applications for the Ash Surge and Bypass Basins no sooner than 30 days after holding the last public meeting. During these 30 days, MWG will review public comments, finalize the written closure plans, and finish preparing the closure construction permit application forms (see Section 3.3 for permitting requirements). Therefore, MWG expects to have the final written closure plans for the Ash Surge and Bypass Basins prepared and ready to submit to the Illinois EPA by mid-December 2021.

3.3.2.6 ILLINOIS EPA REVIEW & PERMIT ISSUANCE

Based on a mid-December 2021 submittal, it is expected the Illinois EPA will begin reviewing the closure construction permit application for closing the Bypass Basin in late December 2021 or early January 2022. The time required for the agency to perform its review and make a tentative determination on issuing a closure construction permit is unknown. However, MWG expects the initial Illinois EPA review to take at least seven months because:

- The agency will likely receive a large volume of operating and closure construction permit applications for the 73 CCR surface impoundments the Illinois EPA has identified across 23 Illinois power plants;
- Closure construction permit applications for CCR surface impoundments closing due to groundwater protection standard exceedances will be prioritized over Powerton's Ash Surge and Bypass Basins (Ref. 6, § 845.700(g));
- Closure construction permit applications for CCR surface impoundments located in area of environmental justice concern (like the East and West Ash Ponds at MWG's Waukegan Generating Station) will be prioritized over Powerton's Ash Surge and Bypass Basins (Ref. 6, § 845.700(g));
- The agency will need to review the substantial amount of information required to be in the closure alternatives analysis (Ref. 6, § 845.710), which may also require reviews by other state agencies (*e.g.*, Illinois Department of Natural Resources); and

- The agency will need to efficiently allocate its resources to simultaneously cover NPDES permit modifications and renewals, ELG Rule assessments, and its new permit program for CCR surface impoundments.

Based on the preceding factors, it is assumed that the earliest the Illinois EPA will be able to issue draft closure construction permits for the Ash Surge and Bypass Basin would be seven months from the date MWG submits the corresponding application. Therefore, MWG expects the Illinois EPA to issue draft permits for closing the Ash Surge and Bypass Basins by mid-July 2022.

It should be noted that the assumed timeframe for receiving a draft permit from the Illinois EPA is significantly shorter than MWG's recent experience in renewing/modifying an NPDES permit with the agency. MWG submitted a renewal permit application for Powerton's NPDES permit in November 2019 and has yet to receive the draft permit. However, given the recent focus by the Illinois EPA, the IPCB, the Illinois General Assembly, and the public on regulating CCR surface impoundments, MWG assumes that draft permits for operating, modifying, and closing ash ponds in Illinois will be issued in a more expeditious manner than previous experience with the Illinois EPA NPDES permitting program.

Upon issuing the draft closure construction permit for the Bypass Basin, the Illinois EPA will prepare and distribute a public notice of its tentative decision to issue the permit. Per the proposed 35 Ill. Adm. Code 845.260(b), the Illinois EPA would distribute this notice at least 15 days after issuing the draft permit in mid-July 2022. Once the public notice is distributed, a 30-day public comment period on the draft permit would commence in accordance with the proposed 35 Ill. Adm. Code 845.260(c). Therefore, it is expected that the public comment period on the draft construction permits for closing the Ash Surge and Bypass Basins will span from early August 2022 to early September 2022.

During the public comment period, any person may submit a request for the Illinois EPA to hold a public hearing on the draft closure construction permits. Per the proposed 35 Ill. Adm. Code 845.260(d)(1), the Illinois EPA may hold this public hearing if "there exists a significant degree of public interest in the proposed permit." During the August 12, 2020 IPCB hearing on the Proposed Illinois CCR Rule, a representative from the Illinois EPA stated that the agency has historically held a public hearing for NDPES draft permits if anyone requests such a hearing (Ref. 18). The representative added, "I can't think of a recent example where we have denied anyone." Given this agency precedent; the statutory mandate in Illinois Public Act 101-0171 that the IPCB adopt final CCR regulations that "specify meaningful public participation procedures for the issuance of CCR surface impoundment construction and operating permits, including, but not limited to…an opportunity for a public hearing prior to permit issuance" (Ref. 2, § 22.59(g)(6)); and the general level of public participation made throughout Illinois's rulemaking process, MWG presumes that a public hearing will be requested during the 30-day public comment period on the Ash Surge and Bypass Basin closure construction permits and that the Illinois EPA will grant the public hearing.

Pursuant to the proposed 35 Ill. Adm. Code 845.260(e)(1), the Illinois EPA cannot hold a public hearing sooner than 30 days after notifying the public of the hearing date. Assuming it takes the agency approximately two weeks to schedule the hearing (reserving a location, notifying the public, *etc*.), the public hearing cannot not occur until at least 45 days after the Illinois EPA agrees to hold one. Presuming a public hearing will be called near the end of the public comment period in late August or early September of 2022, it is anticipated that the public hearing will be held in mid- to late October 2022.

After consideration of the public comments the agency receives on the draft closure construction permit, including those submitted during the public hearing, the Illinois EPA will then make a final permit determination. During this time, the Illinois EPA will consider all timely comments submitted by the public and will prepare written responses to these comments. In MWG's experience with renewing its NPDES permits with the Illinois EPA for its power plants, it has generally taken the Illinois EPA several months to issue final permits after the completion of the public comment period. Moreover, the Illinois EPA has often extended the public comment period beyond the public hearing date (typically 30 days), which would be permitted under the proposed 35 Ill. Adm. Code 845.260(c)(4). In its response to pre-filed questions ahead of the August 2020 Illinois Pollution Control Board hearings (Ref. 17), the Illinois EPA states, "The proposed permitting process was modeled after the existing NPDES permit program, which also does not include a time frame for a final Agency decision. The complex nature of these applications, public notice requirements, and the opportunity for a public hearing, make it difficult to complete the process within a defined timeframe. Like the NPDES program, robust public participation is an essential part of this proposal. Not having a specific deadline allows for the maximum flexibility during the public notice and hearing processes."

Given the Illinois EPA's lack of a decision deadline for a final permit, MWG's experience in receiving final NPDES permits from the agency, and the precedence of the agency extending the public comment period beyond a public hearing, MWG presumes the Illinois EPA will require a few months after the public hearing to respond to public comments and finalize the closure construction permits for the Ash Surge and Bypass Basins. However, MWG also expects the Illinois EPA to prioritize issuing final permits for closing non-compliant CCR surface impoundments like the Ash Surge and Bypass Basins given the state's recent focus on establishing regulations and a corresponding permitting program for CCR surface impoundments in general and the public participation throughout the rulemaking process. Thus, MWG assumes the agency will finish reviewing public comments approximately three months after the public hearing is held. This timeline would result in MWG receiving the final closure construction permits for the Ash Surge and Bypass Basins from the Illinois EPA by mid-January 2023, approximately 11 months after submitting the corresponding permit application to the agency.

As previously stated, this overall permitting timeline is based on MWG's experience with obtaining other permits from the Illinois EPA; the agency's need to allocate its resources to implement its new CCR permit program and to renew or modify the NPDES permits at power plants in Illinois in accordance with the EPA's

revised ELG Rule; and the closure prioritization categories in the proposed 35 Ill. Adm. Code 845.700(g). A delay in this permitting timeframe may result in a delay in implementing the alternative disposal capacity selected for the Ash Surge and Bypass Basins within the requested timeframe.

3.3.3 POWERTON NPDES PERMIT RENEWAL & MODIFICATION

Because this project will modify the treatment methods used for Powerton's CCR wastestreams prior to being discharged to the Illinois River via permitted Outfall 001 and because the Station's NPDES permit has expired, MWG will need to renew Powerton's NPDES permit and modify the current treatment methods historically implemented in accordance with the permit. Since this permit renewal is related to the same project for which the Ash Surge and Bypass Basin closure construction permit applications are being submitted, MWG intends to prepare the application for modifying Powerton's NPDES permit concurrently with its preparation of the Ash Surge and Bypass Basin closure construction permits. By submitting the NPDES and CCR permit applications together, MWG expects that both permits can be processed together and will follow the same (or at least similar) review and public participation timeframes. Thus, MWG anticipates submitting the application for renewing Powerton's NPDES permit to the Illinois EPA by mid-December 2021 and expects to have the final permit by mid-January 2023.

3.4 ENGINEERING & DESIGN

As Powerton works to draw down the water level in the Bypass Basin, MWG will commence the final engineering and design work for the project. Based on the design activities required for this project and the dependence of some activities on vendor design inputs and Illinois EPA regulatory timeframes, the engineering and design work is expected to be completed in the following three phases:

1. General Engineering & Design,
2. Dewatering Bin Refurbishment, and
3. Concrete Ash-Settling Tank Design.

3.4.1 GENERAL

General engineering and design commenced in September 2018, approximately one month after the *USWAG* decision, and focused on developing permanent alternative disposal capacity solutions for the Powerton CCR and non-CCR wastestreams sent to the Ash Surge and Bypass Basins. As previously discussed, this work focused on refining and adding to conceptual alternative disposal capacity designs developed in 2015 in addition to evaluating each design's technical feasibility, physical space requirements, implementation schedule, and capital cost. MWG also assessed the potential impacts of the EPA's forthcoming (at the time) revision to the ELG Rule to each potential solution.

After the Illinois EPA published its draft CCR surface impoundment regulations for comment in December of 2019, MWG reviewed the draft regulations and incorporated them into its alternative disposal capacity

evaluation. MWG has continued updating its evaluation of alternative disposal capacity options for the Ash Surge and Bypass Basins throughout Illinois's CCR rulemaking and has actively participated in this rulemaking to better understand the Illinois EPA's intentions, including future permitting priorities and timeframes (see Section 3.3.1). Shortly after the IPCB's first hearing on the Proposed Illinois CCR Rule in mid-August 2020, during which the Illinois EPA responded to stakeholder questions on the proposed regulations (including MWG questions), MWG finalized its evaluation of alternative disposal capacity solutions for Powerton's two CCR surface impoundments and selected the multiple technology solution described herein.

Shortly after the EPA published its proposed revisions to the alternative closure requirements in 40 CFR 257.103 in early December 2019, MWG began preparing this demonstration for a site-specific alternative deadline to initiate closure. MWG updated this demonstration concurrent with updates to its evaluation of alternative disposal capacity solutions for the bottom ash transport water sent to the Ash Surge and Bypass Basins in response to the Illinois rulemaking process for CCR surface impoundments. Pursuant to the final amendment to 40 CFR 257.103 published in late August 2020, MWG incorporated its evaluation of alternative disposal capacity solutions for the non-CCR wastestreams sent to both CCR surface impoundments at Powerton. In accordance with 40 CFR 257.103(f)(3)(i), MWG has submitted this demonstration to the EPA for approval by November 30, 2020.

Upon completing this demonstration, MWG will begin updating the budgetary cost estimate prepared in 2019 for the multiple technology solution described in this demonstration in accordance with the revisions and refinements that have since been made to this alternative disposal capacity solution. MWG will then use this updated cost estimate to ensure adequate funding is allocated for this project. This work will include acquiring and/or confirming budgetary cost estimates and lead times from vendors (*e.g.*, fabric enclosure), revising and adding material quantities as necessary, and updating labor rates as necessary. Given that a budgetary cost estimate has already been prepared for this solution and only requires updating, it is expected the updated estimate will be prepared by mid-December of 2020 and subsequently finalized in early January 2021 at the onset of the mechanical and civil engineering tasks for the project.

3.4.2 DEWATERING BIN REFURBISHMENT

The initial phase of engineering and design will focus on designing the components required to refurbish the Station's dewatering bins. These modifications need to be designed first since they will influence the size of the concrete ash-settling tank required to settle the quantity and size of ash particles in the effluent from the modified dewatering bins. Ultimately, MWG will seek an optimal engineering solution that balances the modifications made to the dewatering bins and the sizes of the tanks within the concrete ash-settling tank, so some design iterations are expected.

To determine what modifications are required to reduce the quantity and size of ash particles sent to the future concrete ash-settling tank, MWG must first perform a condition assessment of the dewatering bins, including their supporting structures. MWG started this assessment in September 2019 as part of its evaluation of alternative disposal capacity solutions by engaging in discussions with Powerton personnel on their observations and recommendations for repairing the dewatering bins. In recent discussions, Station personnel noted the relatively large sizes of ash particles that were removed from the Ash Surge Basin during the recent beneficial-use recovery work. MWG has also contacted a vendor specializing in ash-handling equipment and discussed various options for refurbishing the dewatering bins.

MWG intends to follow up these preliminary assessments with a formal condition assessment of the Powerton dewatering bins, which would be performed by an ash-handling vendor (evaluation of equipment and components) and an engineering design firm (evaluation of supporting structures). These evaluations are expected to start in January 2021 and will likely take the ash-handling vendor and engineering design firm approximately six weeks to perform their respective assessments and document their findings for all four dewatering bins. Therefore, the dewatering bin condition assessment is expected to be finished by mid-February 2021.

Based on the findings from the condition assessment, MWG will identify the components that need to be replaced and new equipment and components that should be installed to improve the operability of Powerton's dewatering bins and to extend their operating lives. Part of this work will include determining an appropriate size distribution of ash particles that can remain suspended in the dewatering bin overflow, which will influence the sizes of the tanks within the concrete ash-settling tank. As previously stated, MWG plans to identify a target ash particle size distribution that balances the required modifications to the dewatering bins and the size of the concrete ash-settling tank. This work will include performing calculations to determine the areas and depths required for the tanks within the ash-settling tank to remove the suspended ash particles in the dewatering bin effluent. An evaluation of chemical additives to facilitate flocculation of ash particles to promote settlement may also occur during this time.

Given the design activities and likely iterations required to determine preliminary tank sizes for the concrete ash-settling tank and to finalize the modifications required for the dewatering bins, it is expected that this engineering and design work will take approximately six weeks to complete following the condition assessment. Based on the scheduled end date for the condition assessment (mid-February 2021), it is expected that MWG will be able to finalize the dewatering bin refurbishment scope of work by the end of March 2021.

MWG also plans on conducting heat load analysis of the future bottom ash recirculation system while the dewatering bins are being evaluated. This analysis will verify that the proposed Recycle Water Cooling Basin can indeed adequately cool treated effluent from the future concrete ash-settling tank before the water is

recirculated back into the Station's bottom ash system. Although the recirculation system will not be installed during this project, this design concept needs to be validated to ensure the appropriate segregation of CCR and non-CCR wastestreams to facilitate future compliance with the EPA ELG Rule. Should it be determined that the existing Bypass Basin footprint is too small to function as a cooling pond, MWG would likely modify the proposed design to turn the Ash Surge Basin into the cooling pond for bottom ash transport water and the Bypass Basin into a low-volume waste basin. Doing this analysis at the onset of the project will minimize the risks of delays to the overall project schedule should it be determined that the existing Bypass Basin footprint would be incapable of fulfilling MWG's need to provide a means of adequately cooling the bottom ash transport water prior to recirculation. Based on this analysis being performed concurrently with the dewatering bin refurbishment work, it is expected to be completed by mid-April 2021.

Finally, once the recirculation heat load analysis validates the repurposing of the Bypass Basin as a cooling pond and after preliminary sizes for the tanks in the concrete ash-settling tank are determined, then MWG will begin preparing general arrangement drawings for the project and revising the Station's piping and instrumentation diagrams (P&IDs) and PFDs for the modified bottom ash-handling process. These tasks are therefore expected to start in early February 2021. MWG plans on having the general arrangement drawings, P&IDs, and PFDs for the project ready for design/use by the time the Illinois Pollution Control Board adopts the Final Illinois CCR Rule at the end of March 2021. This will facilitate use of these documents during MWG's planned pre-application meeting with the Illinois EPA once the final state rule has been promulgated.

3.4.3 CONCRETE ASH-SETTLING TANK DESIGN

The third and final design phase for this project will be the engineering and design of the concrete ash-settling tank and its appurtenances. The preliminary tank sizes shown on drawing POW-CSK-200 in Appendix A will be verified or updated as necessary after the target ash particle size is finalized at the end of March 2021. As previously discussed, some design iterations will likely be performed to determine an optimal combination of tank area and depth to ensure the ash particles in the dewatering bin effluent are settled out of the transport water prior to being discharged into the Recycle Water Cooling Basin. This work will also include preliminary engineering and design of the concrete ash-settling tank appurtenances (*i.e.*, building enclosure, site grading, and access roads). Accordingly, this task is expected to take approximately two months to complete, from early April to late May 2021.

The subsequent detailed design for the concrete ash-settling tank can commence once the dewatering bin vendor has progressed far enough into the final design modifications for the dewatering bins to provide certainty that the target ash particle size distribution determined in the first engineering and design phase can and will be met. This is expected to occur approximately two months into the dewatering bin vendor's design efforts, which corresponds to when the vendor will begin placing material orders for equipment and components (see Section 3.6.1). At this time, MWG can begin finalizing the sizes of the primary and surge

cells for the concrete ash-settling tank. Thus, the detailed engineering and design for this phase is expected to start in mid-October 2021.

While the sizes of the tanks within the concrete ash-settling tank are being finalized to provide adequate detention time to promote sedimentation of the ash particles in the dewatering bin effluent, the structural designs of the tank walls and slabs will also be finalized. Specifically, the required thicknesses of these structural elements will be determined as well as the required reinforcement (*i.e.*, rebar). Some design iterations will likely occur to obtain an efficient structural design. The site grading required to construct the concrete ash-settling tank and the roads necessary to access the tank to periodically dewater and remove ash stored therein will also be designed at this time. Finally, the effluent pipes from the dewatering bins to the concrete ash-settling tank and from the tank to the Recycle Water Cooling Basin will be designed (routing, sizing, designing of supports) while the aforementioned structural and civil engineering is being performed.

The preceding concrete ash-settling tank design tasks are expected to be performed concurrently and are anticipated to take approximately two months to complete. It is expected that the structural and mechanical engineering design tasks will start in mid-October 2021 once necessary design inputs are received from the dewatering bin vendor, particularly the expected size distribution of ash particles in the dewatering bin effluent. The internal design of the concrete ash-settling tank and the design of access roads thereto are expected to commence a few weeks after MWG starts determining the final sizes for the primary and surge cells within the concrete tank. Overall, these tasks are expected to take between 1.5 and 2 months to complete. Thus, MWG expects to have the designs for the concrete ash-settling tank and its appurtenances by mid-December 2021.

3.5 CONTRACTOR SELECTION

MWG intends to hire three separate contractors to execute this project. The first contractor will be responsible for refurbishing Powerton's existing dewatering bins. The second contractor will be charged with installing the concrete ash-settling tank, the dewatering bin and tank effluent piping, and the access roads and general site grading. Finally, the third contractor will be responsible for clean closing the Bypass Basin and repurposing it as a cooling pond for the treated effluent from the concrete ash-settling tank. This contracting strategy will allow MWG to hire contractors specialized in the different scopes of work specified within this project. This strategy will also allow MWG to expedite construction of the project given the anticipated permitting timeline for closing the Bypass Basin and constructing the concrete ash-settling tank, because the dewatering bin refurbishment can start before receiving the closure construction and NPDES modification permits from the Illinois EPA.

3.5.1 DEWATERING BIN CONTRACTOR (DB CONTRACTOR)

MWG intends to prepare, bid, and award the contract for installing the new equipment and components for Powerton's dewatering bins to a contractor experienced in installing mechanical systems. MWG plans to award this contract by the time the dewatering bin vendor has furnished the required components and equipment for refurbishing the dewatering bins and is ready to ship the materials to the project site. Per Section 3.6.1, it is currently anticipated that the dewatering bin vendor will begin delivering these materials to Powerton in late January 2022. Therefore, MWG plans on hiring the Dewatering Bin Contractor ("DB Contractor") by early February 2022.

To facilitate the DB Contractor mobilizing to the Powerton site by March 2022, MWG plans to start preparing the technical specification and commercial terms and conditions for the dewatering bin refurbishment work in early October 2021. The bid package is expected to be completed approximately six weeks later and subsequently issued to prospective contractors in mid-November 2021. The corresponding bid period is expected to last about six weeks, after which MWG will evaluate the bids and ultimately select the DB Contractor. After a three-week bid evaluation phase, MWG will begin negotiating the installation contract with the DB Contractor, which will include conformance of the technical specification with the commercial terms and conditions outlined in the contract. The contract negotiation phase is expected to take approximately three weeks, which would conclude with MWG awarding the dewatering bin refurbishment work to the DB Contractor in early February 2021.

3.5.2 BYPASS BASIN CLOSURE CONTRACTOR (BB CONTRACTOR)

MWG plans to start clean closing the Bypass Basin as soon as possible after receiving a final closure construction permit from the Illinois EPA. Given that the permit will establish the agency's requirements and expectations for closing the basin, MWG will begin preparing the technical requirements and commercial terms and conditions upon receipt of the draft permit from the Illinois EPA. Per Section 3.3.1, this is currently anticipated to be completed in mid-July 2022.

Given the public comment period and likely public hearing that will be held between the Illinois EPA's issuance of the draft and final permits for the Bypass Basin closure work, MWG does not plan on issuing the corresponding bid package until after the public hearing, at which time MWG will have some reasonable certainty that the project will be approved as proposed or will require some modifications. Bidding the work beforehand would leave MWG susceptible to potential material changes required by the Illinois EPA to MWG's closure plan which would then require MWG to rebid the work, causing unavoidable delays to the project. Thus, MWG does not anticipate issuing the Bypass Basin closure work for bids until after the public hearing on Illinois EPA's draft permit is held in mid-October 2022.

MWG intends to provide the prospective Bypass Basin contractors ("BB Contractor") approximately six weeks to review the bid package materials, including the draft closure construction permit from the Illinois

EPA. After the bid period concludes in early December 2022, MWG will review the submitted bids. MWG expects to take approximately six weeks to thoroughly review the submitted bids before ultimately selecting the BB Contractor with the intention of having a final closure construction permit from the Illinois EPA before beginning contract negotiations with the selected contractor (expected mid-January 2023 per Section 3.3.1). This final permit will be incorporated into the final contract documents and conformed technical specification. Ultimately, MWG expects to award the Bypass Basin closure work to the BB Contractor by mid-February 2023 following a month-long contract negotiation phase.

3.5.3 CONCRETE ASH-SETTLING TANK CONTRACTOR (CT CONTRACTOR)

Because the concrete ash-settling tank work will be on the same permitting timeline as the Bypass Basin closure work, MWG will procure the contractor responsible for installing the concrete ash-settling tank and its appurtenances (“CT Contractor”) coincident with procuring the BB Contractor. Therefore, the activities and corresponding timeframes for procuring the CT Contractor are expected to follow the same sequence as that for the BB Contractor described in the preceding section. Accordingly, MWG expects to have the CT Contractor hired by mid-February 2023.

3.6 EQUIPMENT FABRICATION & DELIVERY

The major equipment and materials being fabricated for this bottom ash-handling modification project at Powerton are the components and equipment for refurbishing the Station’s four dewatering bins, the structural materials to construct the concrete ash-settling tank, piping for the dewatering bin overflow and for the treated effluent from the concrete ash-settling tank, and geomembrane liner for the Recycle Water Cooling Basin. The following subsections discuss how MWG anticipates these various materials will be procured for the project.

3.6.1 DEWATERING BIN COMPONENTS

3.6.1.1 DEWATERING BIN VENDOR PROCUREMENT

After MWG finalizes the dewatering bin refurbishment scope of work in late March 2021 (as detailed in Section 3.4.1), MWG will begin preparing the technical specification and commercial terms to procure a vendor specialized in ash-handling equipment to design, furnish, manufacture, and deliver the components and equipment required to refurbish Powerton’s dewatering bins. MWG plans to issue this scope of work a couple weeks after meeting with the Illinois EPA in early May 2020 (see Section 3.3.1) to discuss the project with the Illinois EPA. This will ensure MWG meets the agency’s requirements and expectations for the handling and treatment of the dewatering bin effluent, which will allow MWG to accurately convey the scope of work and schedule requirements to potential vendors.

Following a six-week period for vendors to evaluate the scope of work, to develop design and manufacturing strategies, and to ultimately submit bids, MWG will start evaluating the bids and ultimately select a vendor. Immediately after selecting the winning bidder, MWG will work with the selected vendor to conform the commercial terms and technical specification before ultimately awarding the contract. These bid evaluation and contract negotiation phases are expected to collectively take about seven weeks to complete, which would have the dewatering bin vendor receiving its contract to perform the dewatering bin refurbishment design work by mid-August 2021.

3.6.1.2 MATERIAL PROCUREMENT

Upon receiving the contract in mid-August 2021, the dewatering bin vendor will begin designing the equipment and components to refurbish Powerton's dewatering bins to obtain the specified performance standards (*e.g.*, size distribution of ash particles in the dewatering bin effluent). It is expected that the vendor will take approximately four months to complete the engineering and design work associated with the new equipment and components for refurbishing the four Powerton dewatering bins. This work may include, but not be limited to, preparing, reviewing, and/or designing:

- General arrangement drawings;
- Piping and Instrumentation Diagrams (P&IDs);
- Mechanical equipment, valve, and line lists;
- Equipment supplier drawings; and
- Mechanical equipment data sheets.

As an individual component or piece of equipment is designed and/or specified for the dewatering bins, the vendor would submit the pertinent design document to MWG for review. After receiving MWG's approval, the vendor would then place a material order for the subject equipment, component, or set of equipment and/or components. It is expected that the first such material order will be placed in mid-October 2021 – approximately two months after the vendor starts the engineering and design work for refurbishing the dewatering bins – following the initial engineering and design work by the vendor and initial review by MWG.

It is expected that the dewatering bin vendor will work with third-party suppliers to procure and/or fabricate the equipment and components required for refurbishing Powerton's four dewatering bins consistent with the vendor's engineering and design. Once the vendor submits a material release and purchase order to its supplier(s), the supplier(s) would first prepare and submit shop drawings to the dewatering bin vendor to review and approve. Once approved, the equipment and/or components would be fabricated and inspected for conformance with the shop drawings and/or the vendor's design. Fabrication is expected to occur throughout the fourth quarter of 2021, concurrent with the last few months of the dewatering bin vendor's engineering and design work. Thus, the equipment and components for refurbishing Powerton's four dewatering bins are expected to be ready for delivery to the project site by the end of January 2022. This

would allow for the dewatering bin materials to be delivered to the project site by the end of February 2022 as the DB Contractor is mobilizing to the site to install the fabricated components and equipment (see Section 3.5.1).

3.6.2 CONCRETE MATERIALS

Immediately after being awarded the contract to install the concrete ash-settling tank in mid-February 2023, the CT Contractor will begin contacting concrete and rebar suppliers to furnish and deliver the materials required to construct the ash-settling tank and its foundations.

Once the rebar supplier receives the tank and foundation design drawings from the CT Contractor, the supplier will begin preparing rebar shop drawings for the tank and its base mat foundations. Given the tank's small profile relative to most other concrete construction projects, it is expected that the supplier can have the shop drawings prepared within two weeks and submitted to the CT Contractor and MWG for review. After a two-week review period and ultimate approval of the shop drawings, the rebar supplier will begin fabricating the steel reinforcement. Fabrication is also expected to take approximately two weeks to complete, after which the rebar supplier will start delivering the rebar to the project site. Based on these timeframes and given the concrete ash-settling tank contract being awarded in mid-February 2023, it is expected that the rebar supplier will furnish and deliver the reinforcement for the concrete ash-settling tank and its base mat foundations to the project site by mid-April 2023.

Several potential ready-mix concrete suppliers are located within a 20-mile radius of the Powerton site, which includes the cities of Peoria and East Peoria, Illinois. Therefore, it is expected that concrete for the ash-settling tank and its base mat foundations will be prepared at one of these plants and delivered to the site via ready-mix trucks. Given the proximity of these plants, ready-mix trucks should have adequate time to deliver and discharge the concrete in accordance with ASTM C94, "Standard Specification for Ready-Mixed Concrete," which requires concrete be discharged within 90 minutes after hydration commences.

3.6.3 EFFLUENT PIPING

Like the concrete materials, the CT Contractor will begin ordering the effluent piping for the dewatering bin and ash-settling tank shortly after being awarded the installation contract. However, since this piping will not be needed until early June 2023 (see Section 3.7.2), these materials are not expected to be fabricated and delivered to the project site until mid-to-late June 2023. This schedule should provide adequate lead time for a pipe supplier to fulfill the CT Contractor's order. It is currently anticipated that the CT Contractor will arrange to have all piping delivered to the site just as the contractor begins installing the dewatering bin effluent pipes in late June 2023.

3.6.4 GEOMEMBRANE

Once the BB Contractor is awarded the contract for closing and repurposing the Bypass Basin, the contractor will place the material order for the geomembrane panels required to line the basin after it has been clean-closed. Although geomembrane can be a long-lead time component for solid waste facility construction projects, the relatively small size of the Bypass Basin (less than an acre) should facilitate a shorter lead time and thus timely delivery of the geomembrane panels. Therefore, MWG expects the geomembrane panels for the new Recycle Water Cooling Basin to be delivered to the project site shortly after the BB Contractor has finished closing the existing Bypass Basin in mid-April 2023 (see Section 3.7.2).

3.6.5 FABRIC ENCLOSURE

After receiving a final construction permit from the Illinois EPA, MWG will order the fabric enclosure for the concrete ash-settling tank. Based on a budgetary cost estimate from a vendor specializing in these enclosures, MWG expects a 60- to 90-day lead time for this enclosure. Given that the concrete ash-settling tank walls are expected to be installed by early July 2023, ordering the enclosure between late January 2023 and mid-March 2023 should provide plenty of time for the selected vendor to fabricate and deliver the fabric enclosure to the Powerton site in time for the CT Contractor to erect it over the new concrete ash-settling tank.

3.7 CONSTRUCTION

Like the engineering and design work for this project, construction of this modified bottom ash-handling system for Powerton is expected to occur in three phases. A fourth phase of construction will implement the segregation of CCR and non-CCR wastestreams currently managed in the Ash Surge Basin. This phased approach will allow MWG to install the different components of the project as soon as technically feasible while accommodating the different regulatory and procurement timeframes discussed earlier. Accordingly, construction of the alternative disposal capacity to replace the Ash Surge Basin is expected to be executed in the following three phases:

1. Refurbish Dewatering Bins (by DB Contractor),
2. Close and Repurpose Bypass Basin (by BB Contractor), and
3. Construct Concrete Ash-Settling Tank (by CT Contractor).

Although not discussed herein since alternative disposal capacity for all wastestreams will be developed following the third phase of construction, the BB Contractor will also execute the fourth phase of construction for this project: Close and Repurpose the Ash Surge Basin.

The following construction schedule assumes that each of the three contractors hired to execute this project and their respective subcontractors (if any) will normally work five days per week at 10 hours per day.

3.7.1 PHASE 1: REFURBISH DEWATERING BINS

The DB Contractor will begin refurbishing the dewatering bins after mobilizing to the site and upon delivery of the components and equipment designed and furnished by the dewatering bin vendor. Per Section 3.5.1, MWG expects to award the installation contract for this work by mid-February 2022. Similarly, per Section 3.6.1, the dewatering bin vendor is expected to start delivering the new components and equipment to Powerton throughout February 2022. Thus, the DB Contractor should be able to fully mobilize to the site by the end of February 2022 and begin refurbishing Powerton's four dewatering bins by the beginning of March 2022.

Because each unit has two dedicated dewatering bins, it is expected that the DB Contractor can perform the refurbishment work without a given unit being taken offline (*i.e.*, during a scheduled outage). To execute this work, it is anticipated that the DB Contractor will refurbish one dewatering bin at a time. When one of the dewatering bins at a given unit is being refurbished, it will be taken out of service to perform the specified modifications while all bottom and economizer ash sluice water generated by the unit during this time is directed to the other dewatering bin. As the DB Contractor finishes its work at one dewatering, that dewatering bin will be commissioned (see Section 3.8.1), and the DB Contractor will begin refurbishing the next dewatering bin. Refurbishing and subsequently commissioning multiple dewatering bins at once would be logistically challenging without a unit outage, as the DB Contractor could not start refurbishing the second pair of dewatering bins until the first pair of dewatering bins are commissioned and placed back into service. Thus, the proposed sequencing is expected to provide the fastest technically feasible schedule for refurbishing the dewatering bins, especially since the work can be performed while Powerton Units 5 and 6 remain online.

In general, the DB Contractor's scope of work is expected to include replacing degraded components; installing new dewatering elements, new low-leak sluice gate enclosures, and new local control panels; and performing general maintenance tasks (*e.g.*, painting). This work is expected to take the DB Contractor approximately three weeks to complete at each dewatering bin. Based on the expected maintenance sequencing (one dewatering bin at a time), it is expected that all four dewatering bins will be refurbished within three months of the DB Contractor mobilizing to the site in late February 2022. Thus, it is currently anticipated that all four dewatering bins at Powerton will be refurbished by the end of May 2022.

3.7.2 PHASE 2: CLOSE & REPURPOSE BYPASS BASIN

3.7.2.1 BYPASS BASIN CLOSURE

Closure activities for the Bypass Basin are expected to commence within a couple weeks of the BB Contractor being awarded the closure contract in mid-February 2023 (see Section 3.5.2). All closure work will be performed in accordance with the final closure construction permit issued by the Illinois EPA (expected mid-January 2023).

Upon mobilizing to the site in early March 2023, the BB Contractor will begin removing any CCR remaining on the Bypass Basin liner from the initial cleaning performed by Powerton's Ash Management Contractor (see Section 3.2) and will then remove the 60-mil HDPE geomembrane liner itself. In addition to removing the liner, the BB Contractor will also be responsible for removing all CCR and CCR-impacted soils beneath the liner (if any). All liner, CCR, and CCR-impacted materials will be removed by excavating them out of the pond, loading them onto trucks, and transporting them offsite to a permitted disposal facility. As the existing liner is removed, the subgrade will be visually inspected to ensure all CCR constituents have been removed from the pond area. Finally, after all the excavation work is complete, the BB Contractor will begin decontaminating the pond's appurtenances (including the outlet structure) for re-use or removing them.

Given the relatively small size of the Bypass Basin, it is expected that the BB Contractor will be able to remove any CCR remaining on the pond's liner, remove the liner, and excavate any CCR-impacted soils within two weeks of mobilizing to the site. It is anticipated that the subsequent decontamination of the area and the appurtenant structures can be completed within three weeks after the pond's liner has been removed. Therefore, it is expected that the Bypass Basin will be clean closed and certified as such by mid-April 2023.

3.7.2.2 RECYCLE WATER COOLING BASIN CONSTRUCTION

Once the Bypass Basin has been closed, the BB Contractor will begin repurposing the area into the new Recycle Water Cooling Basin. First, the BB Contractor will prepare the subgrade to receive a new geomembrane liner. This work will include any re-grading necessary to restore the basin floor to a relatively smooth surface after the existing liner and underlying soils have been excavated during the Bypass Basin closure work. As the floor is being re-graded, it will be compacted and/or rolled smooth and then lined with new geomembrane panels. Given the pond's small area, this work is expected to be completed within three weeks. Thus, it is currently anticipated that the Recycle Water Cooling Basin will be lined by the beginning of May 2023.

3.7.3 PHASE 3: CONSTRUCT CONCRETE ASH-SETTLING TANK

Based on being awarded the contract in mid-February 2023 (see Section 3.5.3), the CT Contractor is expected to start mobilizing to the site shortly thereafter and be fully mobilized about one month later in mid-March 2023. Once fully mobilized, the CT Contractor will likely spend the first week installing appropriate erosion and sediment control measures around the area(s) to be disturbed by construction activities. Once these environmental protection measures are established, the CT Contractor will then begin excavating the area to install the base mat foundations for the concrete ash-settling tank's cells and dewatering slab. Excavation work will include compacting and rolling smooth the subgrade to ensure it can adequately support the base mat foundations. By the time the excavation work is completed in mid-April 2023, the CT

Contractor can begin forming out the base mats and placing rebar, which is expected to be delivered to the site around this time (see Section 3.6.2).

The base mat foundations will be constructed by first forming out the area, then installing the specified rebar, and finally placing the concrete. As previously mentioned, the concrete is expected to be installed via ready-mix trucks from a nearby concrete supplier. Because the base mat foundations for the concrete cells and the dewatering slab will be structurally isolated, it is anticipated that they will be installed around the same time. After the base mats have reached their design strengths – within 28 days per standard practice – the CT Contractor can begin constructing the concrete ash-settling tank and dewatering slab on top of their respective foundations.

Like the base mat foundations, the concrete cells for the ash-settling tank will be constructed by first forming out the area, then installing the specified rebar for the slabs and dowels for the walls, and finally placing the concrete. As previously mentioned, the concrete is expected to be installed via ready-mix trucks from a nearby concrete supplier. A similar process will be followed for placing the concrete walls and curbs. After the concrete has reached sufficient strength (within 28 days per standard practice), the CT Contractor will strip the formwork and backfill the tank. Each set of concrete pours (slabs then walls and curbs) are expected to take approximately four to six weeks to form, install the appropriate rebar, place the concrete, and verify the concrete strength. However, it is expected that CT Contractor can begin installing the vertical concrete elements (walls/curbs) approximately three weeks after starting work on the horizontal concrete elements (slabs) so that the walls and curbs can be placed once the concrete strengths of the slabs have been verified. Consequently, it is currently anticipated that all concrete work will be completed by early July 2023, approximately two months after completing the excavation.

Once the concrete walls have been constructed and have achieved their specified design strength, the CT Contractor can begin erecting the fabric structure. Based on a budgetary cost estimate from a vendor specializing in these enclosures, MWG expects the structure to be erected within two weeks. Thus, MWG currently anticipates the concrete ash-settling tank structure to be constructed by late July 2023.

Installation of the effluent piping to and from the new concrete ash-settling tank is expected to be timed with the erection of the fabric enclosure. Given the longer distance between the dewatering bins and the new ash-settling tank relative to that between the tank and the Recycle Water Cooling Basin, it is expected that the CT Contractor will begin installing the dewatering bin effluent piping first. This work is expected to take approximately one month to complete, so it is expected that the CT Contractor will begin installing the dewatering bin effluent piping in late June 2023 so that the piping can be fully installed by the time the fabric enclosure is erected. Given the proximity of the new ash-settling tank to the Recycle Water Cooling Basin, the gravity effluent pipe between the two units is expected to be installed within a week. After these new effluent lines have been installed, the concrete ash-settling tank will be ready for commissioning.

After both effluent lines have been installed, the CT Contractor will start constructing the new roads around the ash-settling tank to allow trucks to access the site for reclaiming the dewatered ash for beneficial use or disposal in a permitted solid waste facility. This work is expected to be performed as MWG is commissioning the new concrete ash-settling tank, and the CT Contractor is expected to finish this work about two weeks later as Powerton prepares to start using the concrete ash-settling tank to manage its CCR wastestreams and the Recycle Water Cooling Basin to temporarily manage its non-CCR wastestreams.

3.8 START-UP & IMPLEMENTATION

Given the preceding construction schedules, commissioning of Powerton's new bottom ash treatment system is expected to occur in two phases: first the dewatering bins, then the new concrete ash-settling tank.

3.8.1 COMMISSION DEWATERING BINS

Once the DB Contractor completes the modifications at a given dewatering bin, MWG can beginning commissioning it to ensure it operates as intended. Specifically, MWG will verify that the effluent from each modified dewatering bin meets the specified standards for the size distribution and quantity of ash particles remaining in suspension.

In general, the commissioning process will be performed by first ensuring each piece of equipment is operational and functional. The dewatering bin will then be commissioned as a system, during which MWG will optimize and tune the system as necessary to ensure it operates at maximum efficiency in accordance with the design specifications. Modifications will be made as necessary in order to meet the performance requirements.

It is expected that each dewatering bin will take approximately one month to commission. Based on the anticipated construction sequence presented in Section 3.7.1 (*i.e.*, refurbish one dewatering bin at a time), approximately three months will be needed to commission all four dewatering bins. Given that the last dewatering bin is expected to be refurbished by late May 2022, it is currently anticipated that all four modified dewatering bins will be commissioned and operational by late June 2022.

3.8.2 COMMISSION CONCRETE ASH-SETTLING TANK

Upon installation of the dewatering bin and ash-settling tank effluent lines, MWG can begin commissioning Powerton's new bottom ash treatment system. This work will include inspecting and testing the new effluent pipelines and concrete ash-settling tank to ensure they are functional, operate as designed, and are reliable. In particular, MWG will verify that the settling tank operates as intended by removing the suspended ash particles remaining in the effluent from the refurbished dewatering bins. During this time, Powerton will need to continue sending CCR and non-CCR wastestreams to the Ash Surge Basin until the new bottom ash treatment system components are commissioned and accepted by MWG. Should issues arise during

commissioning, appropriate modifications will be made to ensure the system performance requirements are met.

After the new bottom ash treatment system has been commissioned and MWG has accepted the contractors' work, Powerton may start using the new system for managing the CCR and non-CCR wastestreams currently being sent to the Ash Surge Basin. Given that the dewatering bins will have been commissioned by this time and given the relative simplicity of this new system, commissioning the new concrete ash-settling tank is expected to take three weeks to ensure it has been installed in accordance with the design specifications, operates in accordance with the applicable permits, and is reliable. Thus, it is expected that Powerton will have alternative disposal capacity for the CCR and non-CCR wastestreams currently being sent to the Ash Surge Basin by August 11, 2023.

4.0 PROJECT SCHEDULE: PROGRESS TO DATE

This section presents a narrative of the progress MWG has made in installing a new bottom ash treatment system at Powerton to replace the non-compliant Ash Surge and Bypass Basins. The project commenced in the fall of 2018 with the development of conceptual engineering solutions for the non-compliant ash ponds at MWG's Powerton, Waukegan, and Will County stations. Per the project schedule presented and discussed in Sections 2.0 and 3.0, detailed engineering and design work is set to commence in January 2021.

To date, MWG has completed the following steps to develop the new bottom ash treatment system that will replace the Ash Surge and Bypass Basins at Powerton:

- Took the Bypass Basin out of service for routine cleaning,
- Evaluated several options for obtaining alternative disposal capacity to replace the non-compliant Ash Surge and Bypass Basins,
- Developed a conceptual design for the new bottom ash treatment system to be installed at Powerton,
- Actively participated in Illinois's rulemaking for CCR surface impoundments, and
- Engaged in preliminary discussions with vendors for dewatering bin components and for a fabric enclosure for the new concrete ash-settling tank.

5.0 DEMONSTRATION OF COMPLIANCE

Pursuant to criteria listed in 40 CFR 257.103(f)(1)(iv)(B), the following information demonstrates that Powerton's Ash Surge Basin, Bypass Basin, and the Former Ash Basin are in compliance with the EPA CCR Rule.

5.1 SIGNED CERTIFICATION OF COMPLIANCE

In accordance with 40 CFR 257.103(f)(1)(iv)(B)(*1*), a certification of compliance signed by Powerton's plant manager is included with this demonstration in Appendix C.1.

5.2 VISUAL REPRESENTATION OF SITE HYDROGEOLOGY

In accordance with 40 CFR 257.103(f)(1)(iv)(B)(*2*), the following information is provided in Appendix C.2 to provide a visual representation of hydrogeology at and around the Ash Surge Basin, Bypass Basin, and the Former Ash Basin that supports the design, construction, and installation of the unit's groundwater monitoring system:

- Maps showing the locations of the groundwater monitoring wells,
- Well construction diagrams and drilling logs for the groundwater monitoring wells, and
- Maps characterizing the direction of groundwater flow under the Ash Surge Basin, Bypass Basin, and the Former Ash Basin (including seasonal variations).

5.3 GROUNDWATER MONITORING CONSTITUENT CONCENTRATIONS

In accordance with 40 CFR 257.103(f)(1)(iv)(B)(*3*), a table summarizing the constituent concentrations recorded during each sampling event through the second quarter of 2020 at each groundwater monitoring well around the Ash Surge Basin, Bypass Basin, and the Former Ash Basin is provided in Appendix C.3.

5.4 NARRATIVE OF SITE HYDROGEOLOGY

In accordance with 40 CFR 257.103(f)(1)(iv)(B)(*4*), a narrative description of the Powerton site's hydrogeology and stratigraphic cross sections are provided in Appendix C.2.

5.5 CORRECTIVE MEASURES ASSESSMENTS

To date, Powerton has not had to perform a corrective measures assessment required by 40 CFR 257.96 for the Ash Surge Basin, Bypass Basin, and the Former Ash Basin. Accordingly, no corrective measures assessment is included in this demonstration.

5.6 CORRECTIVE ACTION REMEDY REPORTS

To date, Powerton has not had to perform any corrective action remedies required by 40 CFR 257.97 for the Ash Surge Basin, Bypass Basin, and the Former Ash Basin. Accordingly, no corrective action remedy reports are included in this demonstration.

5.7 STRUCTURAL STABILITY ASSESSMENT

In accordance with 40 CFR 257.103(f)(1)(iv)(B)(*7*), the most recent structural stability assessment demonstrating the Ash Surge and Bypass Basin's' compliance with 40 CFR 257.73(d), dated October 2016, is provided in Appendix C.4-1. Similarly, the most recent structural stability assessment demonstrating the Former Ash Basin's compliance with 40 CFR 257.73(d), dated April 2018, is provided in Appendix C.4-2.

5.8 SAFETY FACTOR ASSESSMENT

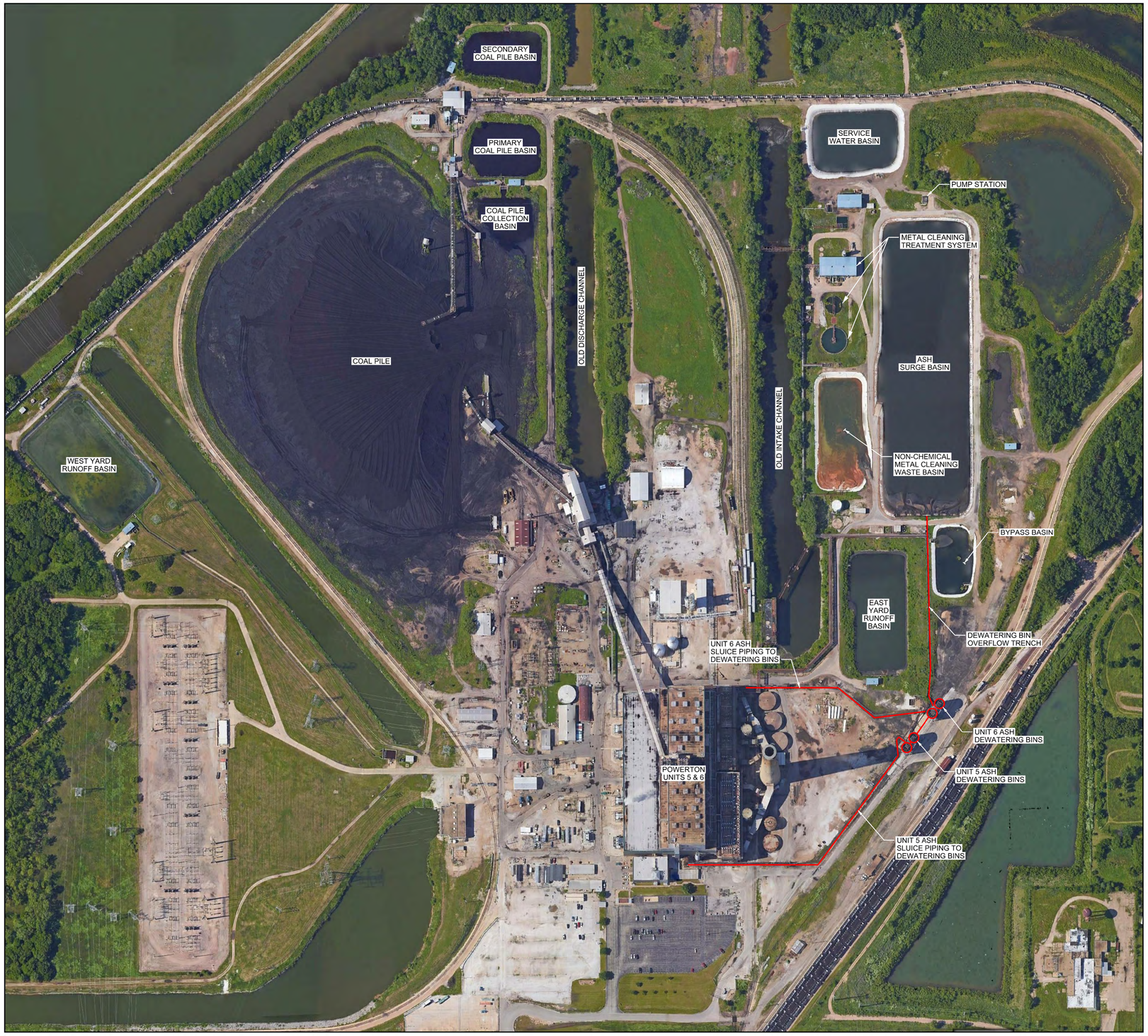
In accordance with 40 CFR 257.103(f)(1)(iv)(B)(*8*), the most recent safety factor assessment demonstrating the Ash Surge and Bypass Basin's' compliance with 40 CFR 257.73(e), dated October 2016, is provided in Appendix C.4-1. Similarly, the most recent safety factor assessment demonstrating the Former Ash Basin's compliance with 40 CFR 257.73(e), dated April 2018, is provided in Appendix C.4-2.

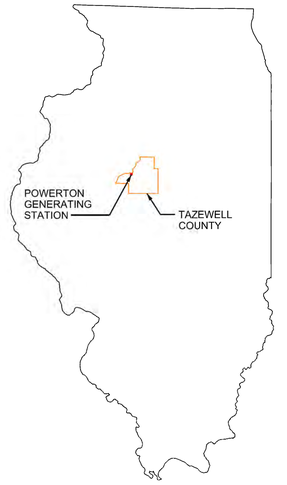
6.0 REFERENCES

1. 40 CFR Part 257 Subpart D, “Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments.”
2. Illinois Public Act 101-0171, “Coal Ash Pollution Prevention,” Effective 07/30/2019, http://www.ilga.gov/legislation/publicacts/101/PDF/101-0171.pdf, Accessed 10/28/2020.
3. U.S. Environmental Protection Agency, “Steam Electric Reconsideration Rule,” 85 Fed. Reg. 198, pp. 64650–64723, 10/13/2020.
4. U.S. Environmental Protection Agency, “Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category,” 80 Fed. Reg. 212, pp. 67838– 67903, 11/03/2015.
5. U.S. Court of Appeals, District of Columbia Circuit, *Utility Solid Waste Activities Group et al. v. Environmental Protection Agency*, No. 15-1219, 08/21/2018.
6. Proposed 35 Ill. Adm. Code Part 845, “Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments.” Published 03/30/2020.
7. U.S. Environmental Protection Agency, “Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities, Part VI (Development of Final Rule – Technical Requirements),” 80 Fed. Reg. 74, p. 21423, 04/17/2015.
8. Title 35 Illinois Administrative Code Section 811.107, “Standards for New Solid Waste Landfills, Operating Standards.”
9. Illinois Department of Transportation, “Understanding the Illinois Size & Weight Laws,” 2019.
10. Illinois Department of Transportation, “Getting Around Illinois, Annual Average Daily Traffic,” http://www.gettingaroundillinois.com/gai.htm?mt=aadt, Accessed 10/28/2020.
11. U.S. Environmental Protection Agency, *Office of Solid Waste and Emergency Response Directive No. 9483.01(83), Memorandum from Bruce R. Weddle to Thomas W. Devine, Determination of Tanks vs. Surface Impoundments*, Effective 04/15/1983.
12. American Concrete Institute. *Code Requirements for Environmental Engineering Concrete Structures and Commentary*. ACI 350-06. 2006.
13. Illinois General Assembly, “Bill Status of SB0009, 101st General Assembly,” https://www.ilga.gov/legislation/billstatus.asp?DocNum=0009&GAID=15&GA=101&DocTypeID=SB&LegID=113581&SessionID=108&SpecSess=, Accessed 10/28/2020.
14. Rain For Rent, “B-40 LakeTank,” http://www.rainforrent.com/equipment/b-40-laketank/, Accessed 10/28/2020.
15. Federal Emergency Management Agency, “Flood Insurance Rate Map, Tazewell County, Illinois, Panel 175 of 500,” Map No. 17179C0175E, Effective 02/17/2017.
16. Fish and Wildlife Service, “National Wetlands Inventory, Wetlands Mapper,” https:// https://www.fws.gov/wetlands/data/Mapper.html, Accessed 10/28/2020.
17. “Illinois EPA’s Pre-Filed Answers.” Illinois Pollution Control Board Case No. R2020-019. 08/03/2020.
18. “Transcript of August 12, 2020 Hearing.” Illinois Pollution Control Board Case No. R20-19. 08/12/2020.

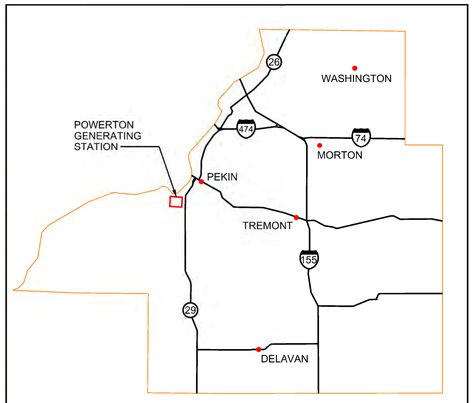
APPENDIX A — CONCEPTUAL DESIGN DRAWINGS

Drawing No.	Drawing Title	Rev.	Date
POW-CSK-001	Site Plan	0	11-25-2020
POW-CSK-200	Concrete Ash-Settling Tank, Plan	0	11-25-2020
POW-CSK-201	Concrete Ash-Settling Tank, Sections and Details	0	11-25-2020





ILLINOIS KEY PLAN
SCALE: N.T.S



TAZEWELL COUNTY PLAN
SCALE: N.T.S

NORTH

150' 0' 150' 300'
GRAPHIC SCALE

NOTES

1. AERIAL IMAGE IS FROM GOOGLE EARTH PRO V.7.3 AND IS DATED 09/14/2017.

REFERENCE DRAWINGS

UNDERGROUND OR EMBEDDED UTILITIES MAY BE LOCATED WITHIN OR ADJACENT TO THE AREA IN WHICH EXCAVATION, DEMOLITION, FOUNDATION, OR MODIFICATION WORK IS TO BE PERFORMED.

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THE CONTRACTOR/INSTALLER SHALL EXERCISE DUE CAUTION DURING ALL EXCAVATION/FOUNDATION/DEMOLITION WORK.

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RELEASE INFORMATION

REV.	DATE	DESCRIPTION
0	11-25-2020	FOR USE

ISSUE PURPOSE: FOR USE
SPECIFICATION: ---
PROJECT NO.: 12661-097

CAD FILE NAME: POW-CSK-001.DGN
PREPARED BY: J. CHAVEZ
REVIEWED BY: T. DEHLIN
APPROVED BY: T. DEHLIN

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PROJECT

MIDWEST GENERATION, LLC
POWERTON
GENERATING STATION
UNITS 5 & 6

DRAWING TITLE

SITE PLAN

DRAWING NUMBER	REVISION
POW-CSK-001	0

SHEET 1 OF 1

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Form GDG-0401-01-08. ANSI (Imperial) MicroStation Border - Size E - 34 x 44
Revision 11A. Revision Date: 04-30-2010
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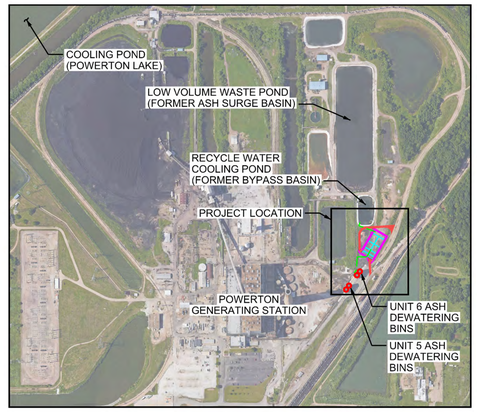

KEY PLAN
SCALE: 1"=500'

NORTH

30' 0' 30' 60'
GRAPHIC SCALE

PRELIMINARY
NOT FOR CONSTRUCTION

NOTES

1. AERIAL IMAGE IS FROM GOOGLE EARTH PRO V7.3 AND IS DATED 09/14/2017.
2. FOR SECTIONS AND DETAILS SEE DRAWING POW-CSK-201.
3. ASH REMOVED FROM CONCRETE SETTLING TANK WILL BE TEMPORARILY STORED ON THE CONCRETE DEWATERING SLAB FOR DEWATERING PRIOR TO BEING HAULED OFFSITE FOR FINAL DISPOSAL OR BENEFICIAL USE.
4. BYPASS BASIN WILL BE CLEAN CLOSED AND REPURPOSED FOR COOLING AND TEMPORARY STORAGE OF RETURN WATER.

REFERENCE DRAWINGS

POW-CSK-001	SITE PLAN
POW-CSK-201	CONCRETE ASH-SETTLING TANK SECTIONS AND DETAILS.

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REV.	DATE	DESCRIPTION
0	11-25-2020	FOR USE

ISSUE PURPOSE: FOR USE
SPECIFICATION: ---
PROJECT NO.: 12661-097

CAD FILE NAME: POW-CSK-200.DGN
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APPROVED BY: T. DEHLIN

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MWG

PROJECT

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POWERTON
GENERATING STATION
UNITS 5 & 6

DRAWING TITLE

CONCRETE ASH-SETTLING TANK
PLAN

DRAWING NUMBER	REVISION
POW-CSK-200	0

SHEET 1 OF 1

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Revision 11A. Revision Date: 04-30-2010
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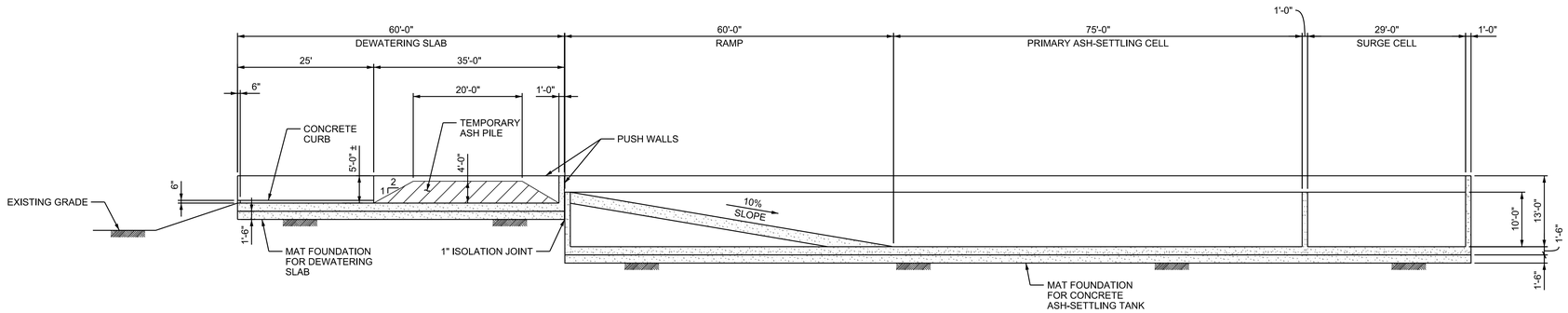
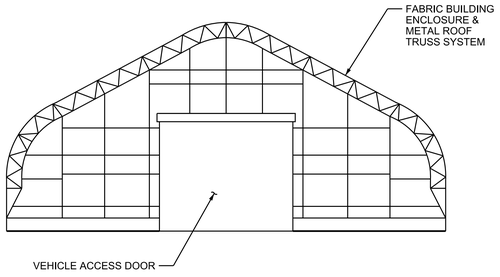


SECTION A



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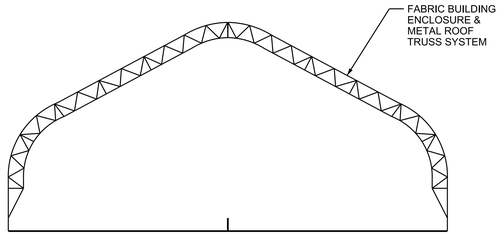

SECTION C
N.T.S

HOLD INFORMATION	
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RELEASE INFORMATION

REV.	DATE	DESCRIPTION
0	11-25-2020	FOR USE

ISSUE PURPOSE: FOR USE

SPECIFICATION: ---

PROJECT NO.: 12661-097

CAD FILE NAME: POW-CSK-201.DGN

PREPARED BY: J. CHAVEZ

REVIEWED BY: T. DEHLIN

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CHICAGO, ILLINOIS 60603-5780

NORTH

10' 0' 10' 20'
GRAPHIC SCALE

NOTES

1. FOR PLAN SEE DRAWING POW-CSK-200.

REFERENCE DRAWINGS

POW-CSK-001	SITE PLAN
POW-CSK-200	CONCRETE ASH-SETTLING TANK PLAN

UNDERGROUND OR EMBEDDED UTILITIES MAY BE LOCATED WITHIN OR ADJACENT TO THE AREA IN WHICH EXCAVATION, DEMOLITION, FOUNDATION, OR MODIFICATION WORK IS TO BE PERFORMED.

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PROJECT

MIDWEST GENERATION, LLC
POWERTON
GENERATING STATION
UNITS 5 & 6

DRAWING TITLE

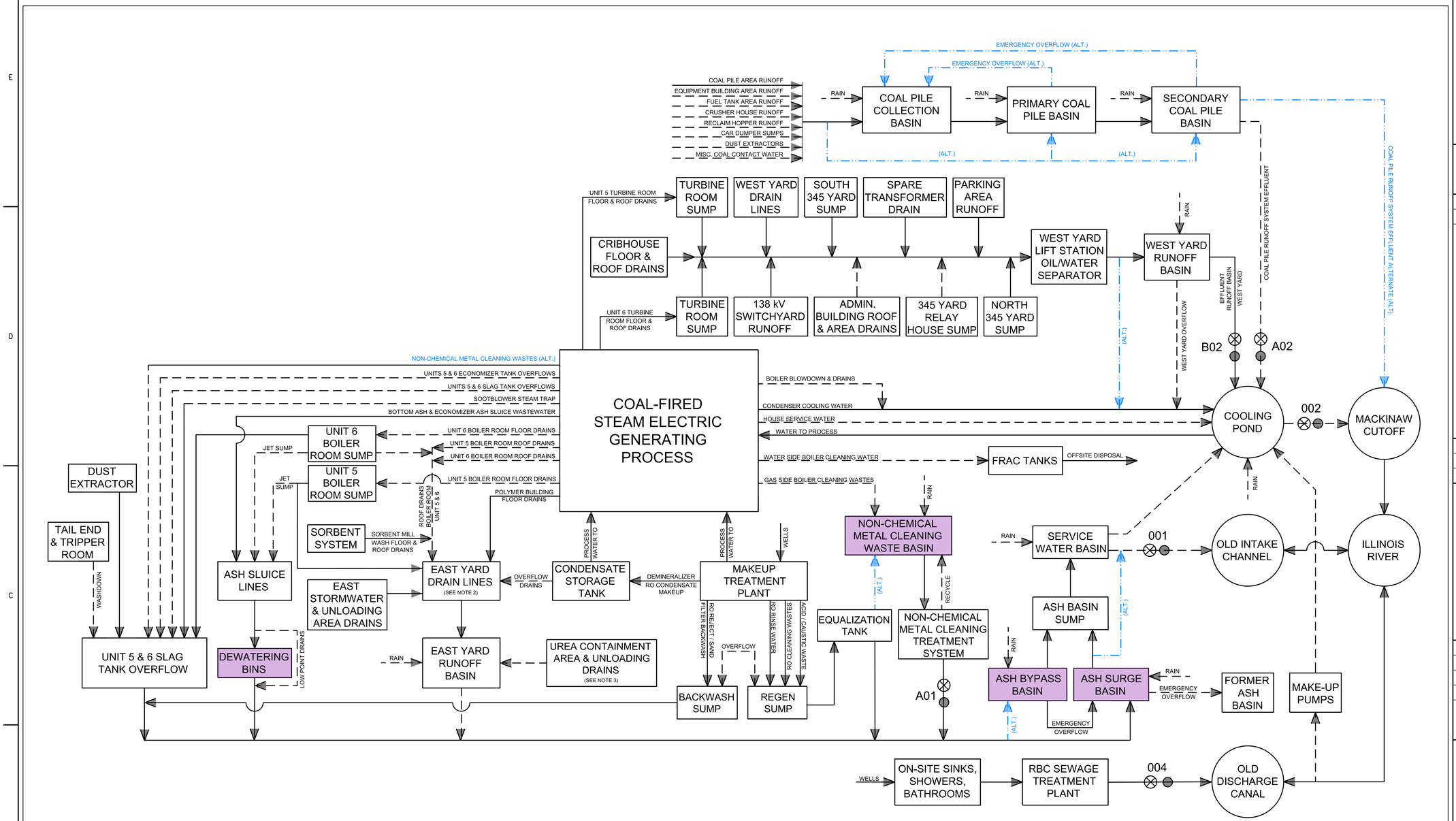
CONCRETE ASH-SETTLING TANK SECTIONS AND DETAILS

DRAWING NUMBER	REVISION
POW-CSK-201	0

SHEET 1 OF 1

APPENDIX B — PROCESS FLOW DIAGRAMS

Drawing No.	Drawing Title	Rev.	Date
POW-CSK-PFD-001	Existing Water Block Flow Diagram	0	11-25-2020
POW-CSK-PFD-002	Proposed Interim Water Block Flow Diagram for EPA CCR Rule Compliance	0	11-25-2020
POW-CSK-PFD-003	Proposed Final Water Block Flow Diagram for EPA CCR Rule Compliance	0	11-25-2020



LEGEND

- TYPICAL
- INTERMITTENT
- ALTERNATE
- OUTFALL NUMBER
- SAMPLING POINT
- CCR TREATMENT/STORAGE FACILITY

NOTES

1. THIS DRAWING WAS DEVELOPED USING MIDWEST GENERATION, LLC DRAWING "GENERAL FLOW DIAGRAM WITH NPDES OUTFALLS, NPDES PERMIT NO. IL0002232," PREPARED BY APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC (DATED NOVEMBER 2019) AND USED WITH PERMISSION FROM MIDWEST GENERATION, LLC. SARGENT & LUNDY HAS NOT INDEPENDENTLY VERIFIED THE INFORMATION SHOWN ON THIS DRAWING.
2. "EAST YARD DRAIN LINES" INCLUDES FAN BAY DRAINS, DRAINS ON EAST HALF OF PROPERTY.
3. VALVE IS LOCATED ON SUMP FROM UREA CONTAINMENT AREA & UNLOADING DRAINS TO THE EAST YARD RUNOFF BASIN.
4. OUTFALL 006, TREATED ASBESTOS CONTAMINATED STORMWATER, IS NOT INCLUDED IN THIS DIAGRAM AND IS BEING PROPOSED FOR REMOVAL DUE TO THERE NO LONGER BEING DEMOLITION DEBRIS.

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RELEASE INFORMATION

REV.	DATE	DESCRIPTION
0	11-25-2020	FOR USE

ISSUE PURPOSE: FOR USE

SPECIFICATION: ---

PROJECT NO.: 12661-097

CAD FILE NAME: POW-CSK-PFD-001.DGN

PREPARED BY: J. CHAVEZ

REVIEWED BY: T. DEHLIN

APPROVED BY: T. DEHLIN

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MIDWEST GENERATION, LLC
POWERTON
GENERATING STATION
UNITS 5 & 6

DRAWING TITLE

EXISTING WATER BLOCK FLOW DIAGRAM

DRAWING NUMBER	REVISION
POW-CSK-PFD-001	0

SHEET 1 OF 1

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Revision 11A. Revision Date: 04-30-2010
11/24/2020 3:15:33 PM
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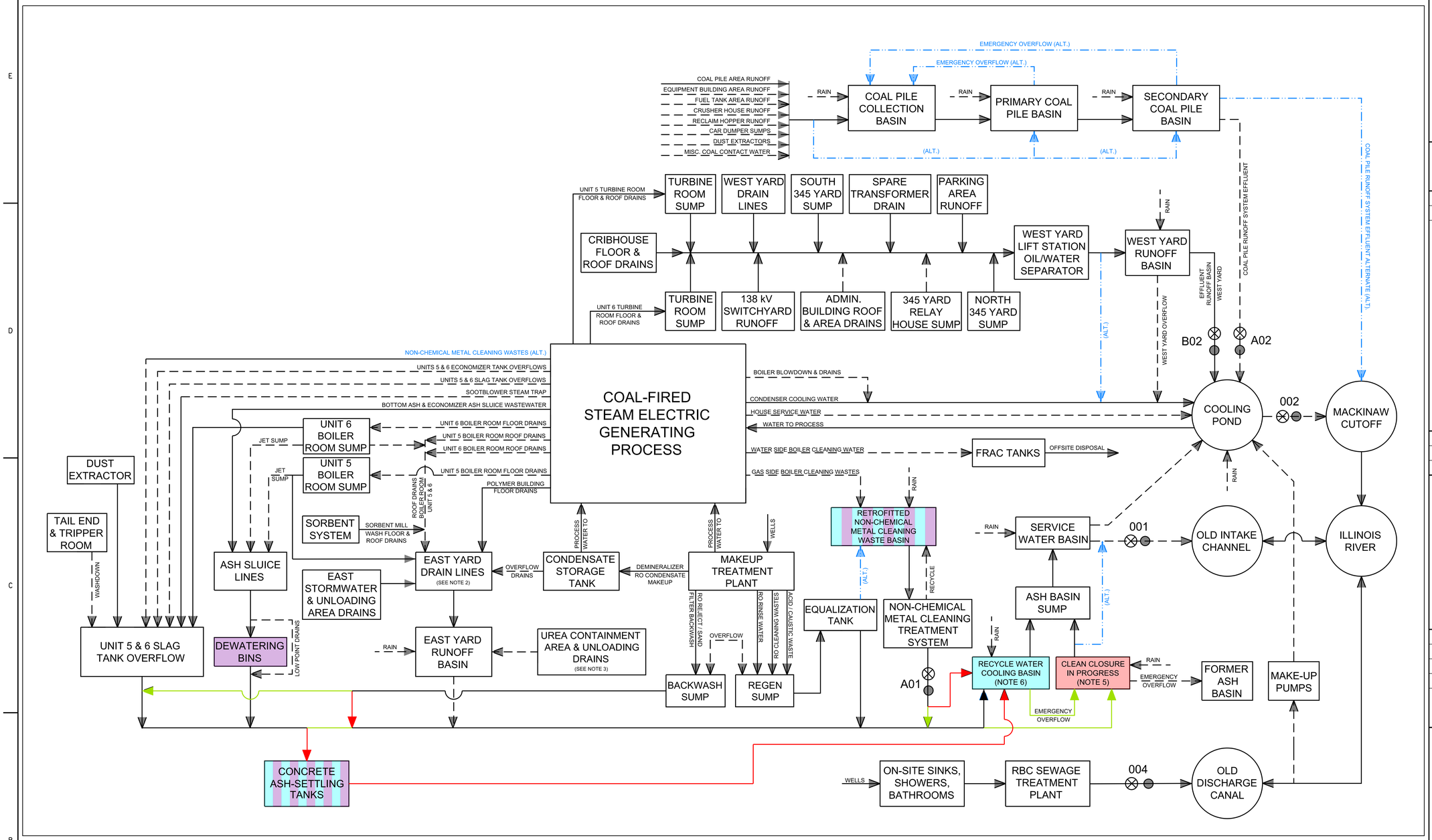

LEGEND

- TYPICAL
- INTERMITTENT
- ALTERNATE
- NEW LINE
- ABANDONED LINE
- OUTFALL NUMBER
- SAMPLING POINT
- CCR TREATMENT/STORAGE FACILITY
- REPURPOSED / NEW EQUIPMENT

NOTES

1. THIS DRAWING WAS DEVELOPED USING MIDWEST GENERATION, LLC DRAWING "GENERAL FLOW DIAGRAM WITH NPDES OUTFALLS, NPDES PERMIT NO. IL0002232," PREPARED BY APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC (DATED NOVEMBER 2019) AND USED WITH PERMISSION FROM MIDWEST GENERATION, LLC. SARGENT & LUNDY HAS NOT INDEPENDENTLY VERIFIED THE INFORMATION SHOWN ON THIS DRAWING.
2. "EAST YARD DRAIN LINES" INCLUDES FAN BAY DRAINS, DRAINS ON EAST HALF OF PROPERTY.
3. VALVE IS LOCATED ON SUMP FROM UREA CONTAINMENT AREA & UNLOADING DRAINS TO THE EAST YARD RUNOFF BASIN.
4. OUTFALL 006, TREATED ASBESTOS CONTAMINATED STORMWATER, IS NOT INCLUDED IN THIS DIAGRAM AND IS BEING PROPOSED FOR REMOVAL DUE TO THERE NO LONGER BEING DEMOLITION DEBRIS.
5. ALL FLOWS TO ASH SURGE BASIN WILL BE TEMPORARILY DIVERTED TO RECYCLE WATER COOLING BASIN DURING CLEAN CLOSURE.
6. RECYCLE WATER COOLING BASIN WILL REPLACE THE EXISTING BYPASS BASIN BY CLEAN CLOSING THE EXISTING POND PER THE ILLINOIS EPA CCR RULE AND THEN LINING THE AREA FOR TEMPORARY STORAGE OF ASH TRANSPORT WATER.

HOLD INFORMATION

NO.	DESCRIPTION

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RELEASE INFORMATION

REV.	DATE	DESCRIPTION
0	11-25-2020	FOR USE

ISSUE PURPOSE: FOR USE

SPECIFICATION: ---

PROJECT NO.: 12661-097

CAD FILE NAME: POW-CSK-PFD-002.DGN

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PROJECT

MIDWEST GENERATION, LLC
POWERTON
GENERATING STATION
UNITS 5 & 6

DRAWING TITLE

PROPOSED INTERIM WATER BLOCK FLOW DIAGRAM FOR EPA CCR RULE COMPLIANCE

DRAWING NUMBER	REVISION
POW-CSK-PFD-002	0

SHEET 1 OF 1

PD111153/OM1864/Site#2-Powerton - CCR#Drawings#POW-CSK-PFD-002.dgn
Form 000-0401-01-08, ANSI (Imperial) MicroStation Border - Size E - 34 x 44
Revision 11A. Revision Date: 04-30-2010

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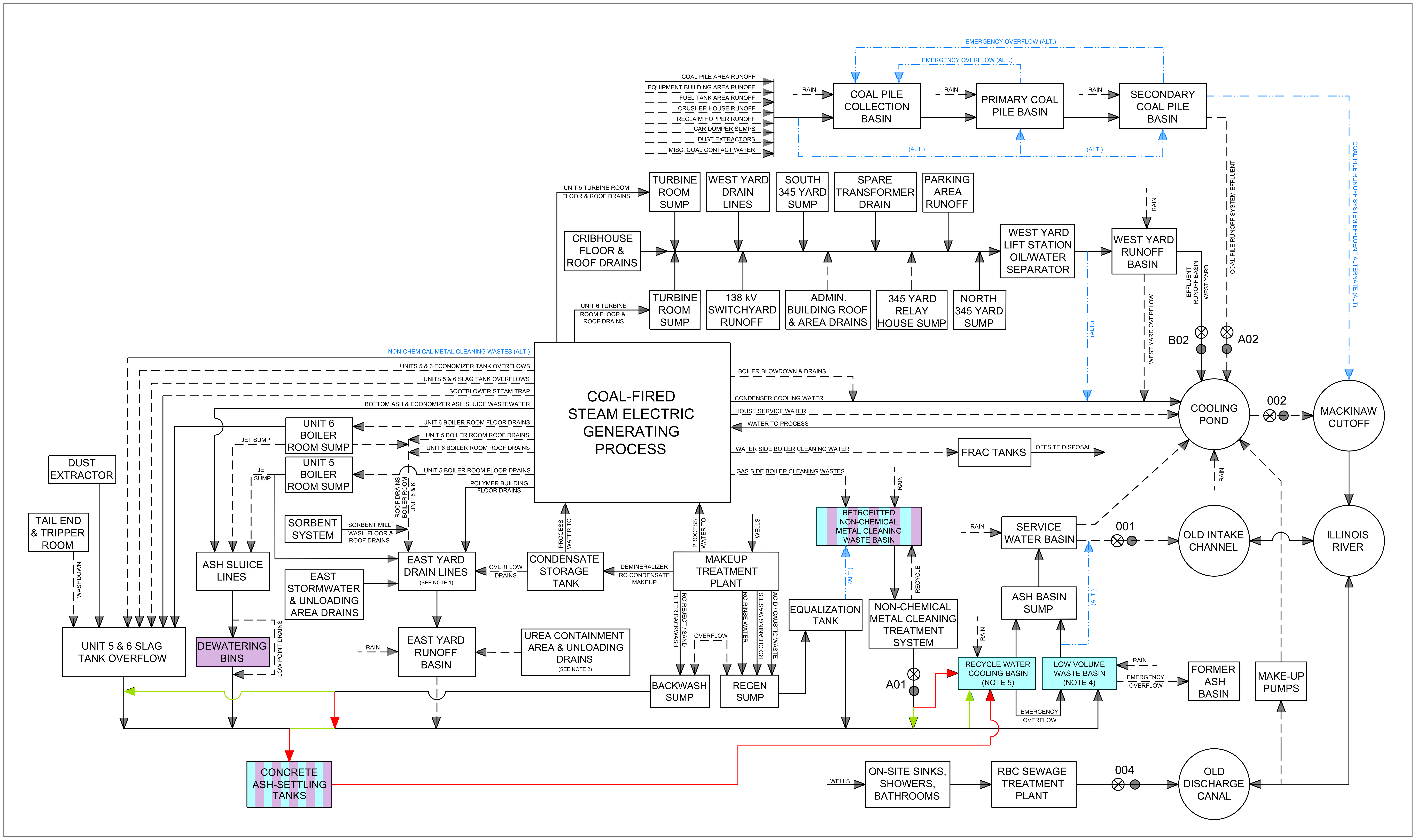

LEGEND

(solid line)	TYPICAL
(dashed line)	INTERMITTENT
(dash-dot line)	ALTERNATE
(red line)	NEW LINE
(green line)	ABANDONED LINE
●	OUTFALL NUMBER
⊗	SAMPLING POINT
(purple box)	CCR TREATMENT/STORAGE FACILITY
(cyan box)	REPURPOSED / NEW EQUIPMENT

NOTES

1. THIS DRAWING WAS DEVELOPED USING MIDWEST GENERATION, LLC DRAWING "GENERAL FLOW DIAGRAM WITH NPDES OUTFALLS, NPDES PERMIT NO. IL0002232," PREPARED BY APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC (DATED NOVEMBER 2019) AND USED WITH PERMISSION FROM MIDWEST GENERATION, LLC. SARGENT & LUNDY HAS NOT INDEPENDENTLY VERIFIED THE INFORMATION SHOWN ON THIS DRAWING.
2. EAST YARD DRAIN LINES" INCLUDES FAN BAY DRAINS, DRAINS ON EAST HALF OF PROPERTY.
3. VALVE IS LOCATED ON SUMP FROM UREA CONTAINMENT AREA & UNLOADING DRAINS TO THE EAST YARD RUNOFF BASIN.
4. OUTFALL 006, TREATED ASBESTOS CONTAMINATED STORMWATER, IS NOT INCLUDED IN THIS DIAGRAM AND IS BEING PROPOSED FOR REMOVAL DUE TO THERE NO LONGER BEING DEMOLITION DEBRIS.
5. LOW VOLUME WASTE BASIN WILL REPLACE THE EXISTING ASH SURGE BASIN BY CLEAN CLOSING THE EXISTING POND PER THE ILLINOIS EPA CCR RULE AND THEN LINING THE AREA FOR FUTURE LOW VOLUME WASTE DISPOSAL. LINER WILL BE GEOMEMBRANE OR SIMILAR MATERIAL.
6. RECYCLE WATER COOLING BASIN WILL REPLACE THE EXISTING BYPASS BASIN BY CLEAN CLOSING THE EXISTING POND PER THE ILLINOIS EPA CCR RULE AND THEN LINING THE AREA FOR TEMPORARY STORAGE OF ASH TRANSPORT WATER.

HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
0	11-25-2020	FOR USE

ISSUE PURPOSE: FOR USE
SPECIFICATION: ---
PROJECT NO.: 12661-097

CAD FILE NAME: POW-CSK-PFD-003.DGN
PREPARED BY: J. CHAVEZ
REVIEWED BY: T. DEHLIN
APPROVED BY: T. DEHLIN

Sargent & Lundy LLC
SARGENT & LUNDY LLC
55 EAST MONROE STREET
CHICAGO, ILLINOIS 60603-5780

MWG

PROJECT

MIDWEST GENERATION, LLC
POWERTON
GENERATING STATION
UNITS 5 & 6

DRAWING TITLE

PROPOSED FINAL WATER BLOCK FLOW DIAGRAM FOR EPA CCR RULE COMPLIANCE

DRAWING NUMBER	REVISION
POW-CSK-PFD-003	0

SHEET 1 OF 1

APPENDIX C — COMPLIANCE DOCUMENTATION

Appendix No.	Document Title
C.1	Certification of Compliance
C.2	Geology/Hydrogeology
C.3	Analytical Data Tables Thru 2nd Quarter 2020
C.4	Structural Stability & Safety Factor Assessments

APPENDIX C.1
Certification of Compliance

On behalf of Midwest Generation, LLC, I hereby certify that the Powerton Generating Station is in compliance with all of the requirements of 40 CFR Part 257 Subpart D, "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments."

Dale Green

Dale Green

Plant Manager, Powerton Generating Station

11-24-2020

Date

APPENDIX C.2

GEOLOGY/HYDROGEOLOGY

C.2.1 INTRODUCTION

The site is located slightly south and west of Pekin, Illinois. It is bordered by the Illinois River to the north, industrial and residential properties to the east, agricultural land to the south and Lake Powerton to the west. A hydrogeologic assessment in the vicinity of the ash basins (Bypass Basin and Ash Surge Basin), the Former Ash Basin, the Service Water Basin and the Non-Chemical Metal Cleaning Waste Basin was completed by Patrick Engineering, Inc. and summarized in a report dated February 2011. A total of 15 monitoring wells were installed (MW-1 through MW-15) as part of that study. Subsequently, an additional four monitoring wells (MW-16 through MW-19) were installed at varying times by KPRG and Associates, Inc. (KPRG) to better define the groundwater flow system and meet compliance with the federal Coal Combustion Residual (CCR) Rule. At the present time, the overall CCR monitoring well network consists of fourteen monitoring wells (MW-01, MW-02, MW-03, MW-04, MW-05, MW-08, MW-09, MW-10, MW-11, MW-12, MW-15, MW-17, MW-18 and MW-19) as shown on Figure C-1. Soil boring logs and well construction summaries are provided in Attachment C.2-1.

C.2.2 SITE GEOLOGY

Regionally, the stratigraphy in the area consists of approximately 100 to 125 feet of unconsolidated deposits consisting mainly of alluvial sands and gravels with some interspersed clays/silty clays. The unconsolidated deposits are underlain by alternating layers of limestone, shale, and coal of the Carbondale Formation.

Site specific stratigraphy to a depth of approximately 41 feet below ground surface (bgs; the maximum depth of soil borings in the vicinity of the subject basins) is described as follows:

- Fill (16’ to 24.5’ thick) – Consisting of tan, brown and black fine to medium sand with some gravel and clay seams. Several locations also included black cinders and brick fragments.

- Clay/silty clay (0’ to approximately 18’ thick) – Consisting of brown to gray clays, silts and silty clays with some more organic rich layers. This unit is not mappable across the site (i.e., discontinuous).

- Sand and gravel (thickness undetermined; borings terminate within unit) – Consisting of light brown, brown and/or gray medium to coarse sands and gravels.

A geologic cross-section from the Patrick Engineering Hydrogeologic Assessment Report dated February 2011 is provided in Attachment C.2-2.

C.2.3 SITE HYDROGEOLOGY

Water level data from each CCR monitoring well are summarized in Table C.2-1 through the most recent sampling completed in second quarter 2020. Groundwater occurs under unconfined conditions with depth to groundwater ranging from approximately 18 to 32 feet across the site.

CCR monitoring wells MW-08, MW-12, MW-15 and MW-17 are screened within the shallow, localized (discontinuous), saturated clay/silt unit. The remaining monitoring wells, have deeper screens, within the more extensive sand and gravel unit. The water levels from wells screened in the clay/silt unit and the water levels from monitoring wells screened within the sand unit were evaluated separately and used to generate groundwater flow maps for each unit, however, the two unit are hydraulically connected. These maps are provided on Figures C-2 and C-3, respectively, for the most recent round of CCR sampling (second quarter 2020). The water elevation data within the clay/silt unit indicates localized groundwater flow in a westerly direction (Figure C-2). Groundwater flow within the more extensive sand unit shows some divergence with general flow in a northerly direction with flow components to the northwest and northeast (Figure C-3). It is noted that concurrently measured water elevation data from other monitoring wells in the area that are not part of the CCR monitoring well network were also used in development of the groundwater flow map.

A summary of the water quality analytical data generated for the CCR monitoring wells to date through the most recent sampling in the second quarter of 2020 is provided in Appendix C.3.

Table C.2-1. Groundwater Elevations - Midwest Generation, LLC, Powerton Station, Pekin, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-01	11/16/2015	465.24	26.04	439.20
	2/22/2016	465.24	21.90	443.34
	5/16/2016	465.24	21.83	443.41
	8/15/2016	465.24	23.89	441.35
	11/14/2016	465.24	23.38	441.86
	2/13/2017	465.24	21.71	443.53
	5/1/2017	465.24	18.87	446.37
	6/20/2017	465.24	21.54	443.70
	8/25/2017	465.24	24.70	440.54
	11/8/2017	465.24	24.92	440.32
	5/17/2018	465.24	22.66	442.58
	8/8/2018	465.24	26.05	439.19
	10/30/2018	465.24	24.69	440.55
	4/29/2019	465.24	20.15	445.09
	11/11/2019	465.24	19.49	445.75
	4/27/2020	465.24	20.90	444.34
MW-08	11/16/2015	471.75	26.06	445.69
	2/22/2016	471.75	23.99	447.76
	5/16/2016	471.75	25.48	446.27
	8/15/2016	471.75	23.61	448.14
	11/14/2016	471.75	24.31	447.44
	2/13/2017	471.75	23.97	447.78
	5/1/2017	471.75	23.28	448.47
	6/20/2017	471.75	23.31	448.44
	8/29/2017	471.75	24.52	447.23
	11/8/2017	471.75	25.27	446.48
	5/17/2018	471.75	24.36	447.39
	8/8/2018	471.75	24.04	447.71
	10/31/2018	471.75	24.92	446.83
	4/29/2019	471.75	24.28	447.47
	11/11/2019	471.75	24.24	447.51
	4/27/2020	471.75	24.50	447.25
MW-09	11/16/2015	469.14	26.07	443.07
	2/22/2016	469.14	22.83	446.31
	5/16/2016	469.14	23.06	446.08
	8/15/2016	469.14	24.50	444.64
	11/14/2016	469.14	24.33	444.81
	2/13/2017	469.14	23.43	445.71
	5/1/2017	469.14	20.77	448.37
	6/20/2017	469.14	22.15	446.99
	8/25/2017	469.14	24.79	444.35
	11/8/2017	469.14	25.74	443.40
	5/16/2018	469.14	23.89	445.25
	8/8/2018	469.14	25.49	443.65
	11/1/2018	469.14	26.02	443.12
	4/29/2019	469.14	21.30	447.84
	11/11/2019	469.14	21.31	447.83
	4/27/2020	469.14	21.80	447.34

Table C.2-1. Groundwater Elevations - Midwest Generation, LLC, Powerton Station, Pekin, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-11	11/16/2015	471.62	31.67	439.95
	2/22/2016	471.62	28.34	443.28
	5/16/2016	471.62	27.11	444.51
	8/15/2016	471.62	29.64	441.98
	11/14/2016	471.62	29.19	442.43
	2/13/2017	471.62	27.49	444.13
	5/1/2017	471.62	24.34	447.28
	6/20/2017	471.62	26.94	444.68
	8/29/2017	471.62	30.42	441.20
	11/9/2017	471.62	30.27	441.35
	5/16/2018	471.62	28.58	443.04
	8/9/2018	471.62	31.04	440.58
	11/1/2018	471.62	30.82	440.80
	4/29/2019	471.62	25.38	446.24
	11/11/2019	471.62	24.88	446.74
	4/27/2020	471.62	26.35	445.27
MW-12	11/16/2015	473.38	24.48	448.90
	2/22/2016	473.38	21.41	451.97
	5/16/2016	473.38	22.94	450.44
	8/15/2016	473.38	23.85	449.53
	11/14/2016	473.38	23.89	449.49
	2/13/2017	473.38	21.93	451.45
	5/1/2017	473.38	22.26	451.12
	6/20/2017	473.38	22.76	450.62
	8/26/2017	473.38	23.92	449.46
	11/10/2017	473.38	24.29	449.09
	5/16/2018	473.38	22.46	450.92
	8/9/2018	473.38	23.78	449.60
	11/1/2018	473.38	23.74	449.64
	4/29/2019	473.38	22.05	451.33
	11/11/2019	473.38	22.85	450.53
	4/27/2020	473.38	21.44	451.94
MW-15	11/16/2015	471.37	25.33	446.04
	2/22/2016	471.37	22.91	448.46
	5/16/2016	471.37	24.71	446.66
	8/15/2016	471.37	23.45	447.92
	11/14/2016	471.37	23.94	447.43
	2/13/2017	471.37	23.73	447.64
	5/1/2017	471.37	23.27	448.10
	6/20/2017	471.37	22.86	448.51
	8/29/2017	471.37	23.13	448.24
	11/10/2017	471.37	25.13	446.24
	5/17/2018	471.37	23.85	447.52
	8/9/2018	471.37	23.96	447.41
	10/31/2018	471.37	24.55	446.82
	4/29/2019	471.37	23.57	447.80
	11/11/2019	471.37	23.79	447.58
	4/27/2020	471.37	23.95	447.42

Table C.2-1. Groundwater Elevations - Midwest Generation, LLC, Powerton Station, Pekin, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-17	11/16/2015	467.75	26.92	440.83
	2/22/2016	467.75	19.86	447.89
	5/16/2016	467.75	20.42	447.33
	8/15/2016	467.75	21.61	446.14
	11/14/2016	467.75	21.39	446.36
	2/13/2017	467.75	19.66	448.09
	5/1/2017	467.75	18.78	448.97
	6/20/2017	467.75	19.42	448.33
	8/29/2017	467.75	22.68	445.07
	11/6/2017	467.75	24.66	443.09
	5/14/2018	467.75	19.79	447.96
	8/6/2018	467.75	21.03	446.72
	10/29/2018	467.75	21.98	445.77
	4/29/2019	467.75	18.75	449.00
	11/11/2019	467.75	19.60	448.15
	4/27/2020	467.75	19.15	448.60
MW-18	11/16/2015	469.28	28.42	440.86
	2/22/2016	469.28	27.96	441.32
	5/16/2016	469.28	25.57	443.71
	8/15/2016	469.28	27.86	441.42
	11/14/2016	469.28	27.39	441.89
	2/13/2017	469.28	25.06	444.22
	5/1/2017	469.28	22.49	446.79
	6/20/2017	469.28	24.97	444.31
	8/28/2017	469.28	27.30	441.98
	11/6/2017	469.28	26.33	442.95
	5/14/2018	469.28	24.65	444.63
	8/6/2018	469.28	25.67	443.61
	10/29/2018	469.28	25.79	443.49
	4/29/2019	469.28	23.00	446.28
	11/11/2019	469.28	23.94	445.34
	4/27/2020	469.28	23.97	445.31
MW-19	11/14/2016	465.07	22.65	442.42
	2/13/2017	465.07	21.27	443.80
	5/1/2017	465.07	18.39	446.68
	6/20/2017	465.07	20.44	444.63
	8/28/2017	465.07	23.60	441.47
	11/9/2017	465.07	23.80	441.27
	5/14/2018	465.07	22.08	442.99
	8/6/2018	465.07	24.14	440.93
	10/29/2018	465.07	24.31	440.76
	4/29/2019	465.07	19.12	445.95
	11/11/2019	465.07	18.80	446.27
	4/27/2020	465.07	19.94	445.13

MSL - Mean Sea Level
TOC - Top of Casing

ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

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

14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

CCR MONITORING WELL SITE MAP

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: December 19, 2018

KPRG Project No. 12313.1 | FIGURE C-1

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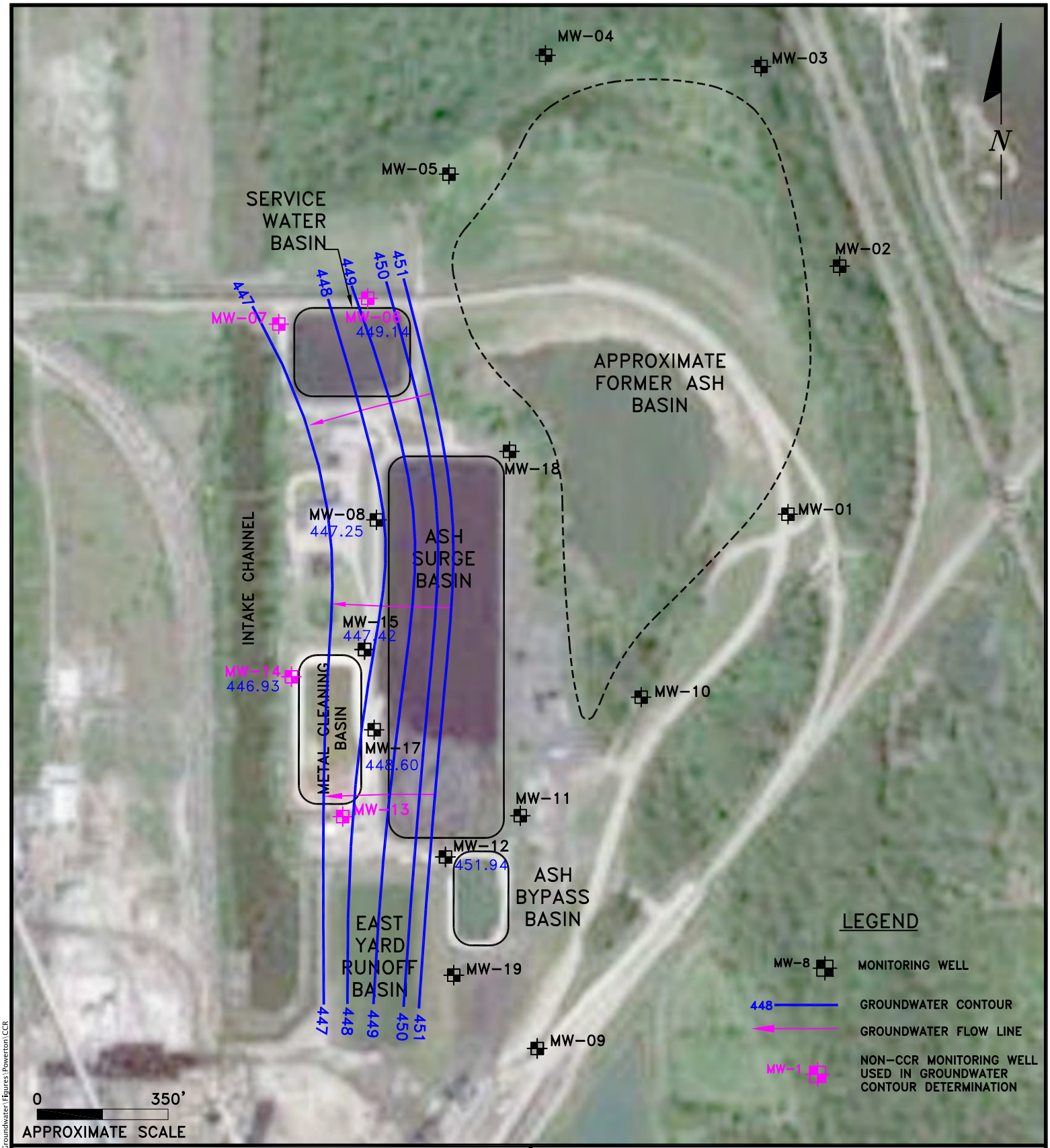

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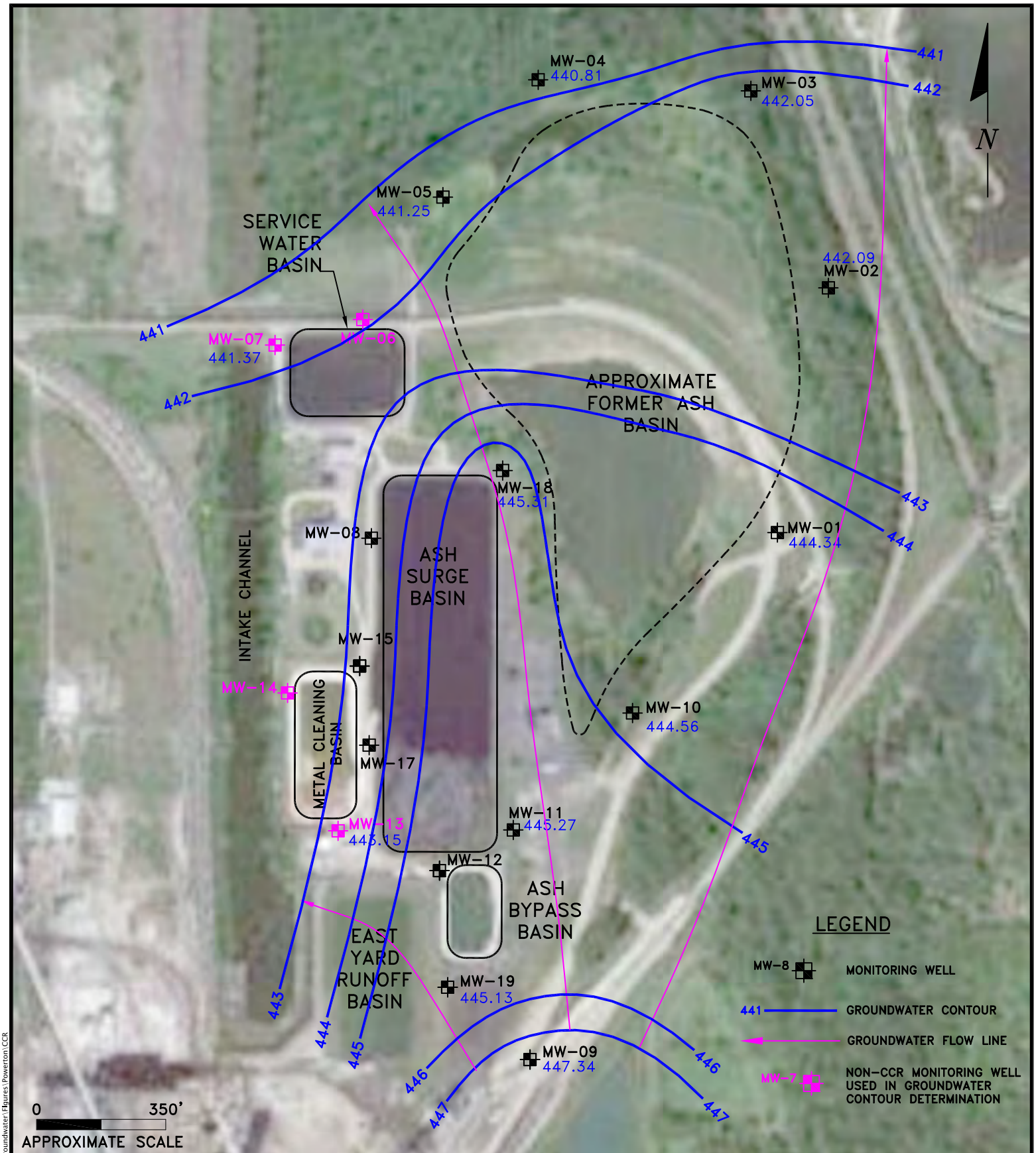
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 04/2020

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: June 08, 2020

KPRG Project No. 12313.1 | FIGURE C-2

W:\Projects\Midwest Generation\12313 Ash Pond Groundwater\Figures\Powerton\CCR



W:\Projects\Midwest Generation\12313 Ash Pond Groundwater\Figures\Powerton\CCR

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, inc.

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

CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 04/2020

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: June 08, 2020

KPRG Project No. 12313.1 | FIGURE C-3

ATTACHMENT C.2-1
Boring Logs and Well Construction Summaries

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-1-Po** SHEET 1 OF 2
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **461.7**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □---○---△ LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) * (1 2 3 4 5)	NOTES & TEST RESULTS
461.7	0.0		Brown coarse to fine sand, dry FILL				
				SS-1 1.0-2.5 14"R	3 4 4		qu=NT
							Bentonite seal 3.0'-18.0'. Stickup protective cover installed.
				SS-2 3.5-5.0 12"R	3 3 5		qu=NT
				SS-3 6.0-7.5 12"R	2 6 8		qu=NT
				SS-4 8.5-10.0 10"R	2 5 8		qu=NT
			Trace coarse gravel	SS-5 11.0-12.5 8"R	5 9 10		qu=NT
				SS-6 13.5-15.0 12"R	3 6 6		qu=NT
				SS-7 16.0-17.5 16"R	4 6 7		qu=NT
443.2	18.5		Brown coarse to medium sand, trace fine gravel, medium dense, saturated SW	SS-8 18.5-20.0 14"R	4 5 6		Sand pack 18.0'-30.0' qu=NT

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/4/10** ENDED **10/4/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **22.0**

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-1-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **461.7**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
441.7	20.0						Set screen (slot 0.010") 20.5'-30.5'
				SS-9 21.0-22.5 15"R	4 5 5		qu=NT
439.7	22.0	▽					
				SS-10 23.5-25.0 18"R	4 4 4		qu=NT
				SS-11 28.0-27.5 18"R	4 4 6		qu=NT
433.7	28.0		Coarse to fine gravel, some coarse sand, medium dense, saturated GP	SS-12 28.5-30.0 18"R	4 5 6		qu=NT
				SS-13 31.0-32.5 18"R	4 6 7		qu=NT
429.2	32.5		End of Boring at 32.5'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/4/10** ENDED **10/4/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **22.0**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-2-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **459.2**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) 1 2 3 4 5	NOTES & TEST RESULTS
459.2	0.0		Dark brown topsoil, silty clay, dry FILL				
457.7	1.5		Light brown coarse to fine sand, loose, dry FILL	SS-1 1.0-2.5 10"R	4 4 4		qu=NT
				SS-2 3.5-5.0 10"R	2 3 2		Bentonite seal 3.0'-20.0'. Stickup protective cover installed. qu=NT
				SS-3 6.0-7.5 12"R	3 3 4		qu=NT
			Dry	SS-4 8.5-10.0 14"R	4 5 4		qu=NT
				SS-5 11.0-12.5 15"R	2 2 3		qu=NT
			Some fine gravel	SS-6 13.5-15.0 15"R	3 6 5		qu=NT
				SS-7 16.0-17.5 18"R	2 5 6		qu=NT
			Dry	SS-8 18.5-20.0 18"R	3 3 4		qu=NT
439.2	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/5/10** ENDED **10/5/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **24.0**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-2-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **459.2**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) ✳ 1 2 3 4 5	NOTES & TEST RESULTS
439.2	20.0		Light brown fine to medium sand, well graded, medium dense, dry FILL				Sand pack 20.0'-33.5'
				SS-9 21.0-22.5 18"R	4 10 11		qu=NT
435.7	23.5						
435.2	24.0		▽ Gray coarse to fine gravel, coarse sand, trace fine sand and silt, poorly graded, medium dense GP	SS-10 23.5-25.0 18"R	5 13 13		qu=NT Set screen (slot 0.010") 23.5'-33.5'
				SS-11 26.0-27.5 18"R	4 6 8		qu=NT
				SS-12 28.5-30.0 18"R	7 10 10		qu=NT
				SS-13 31.0-32.5 18"R	7 8 7		qu=NT
				SS-14 33.5-35.0 18"R	6 9 10		qu=NT
424.2	35.0		End of Boring at 35.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/5/10** ENDED **10/5/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **24.0**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-3-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **459.1**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □---○---△ LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) * (1 2 3 4 5)	NOTES & TEST RESULTS
459.1	0.0		Dark brown silty clay topsoil				
458.6	0.5		Light brown coarse to medium sand, trace fine gravel, trace fine sand, very loose to loose, dry FILL	SS-1 1.0-2.5 16"R	2 1 2		qu=NT
				SS-2 3.5-5.0 14"R	1 1 2		Bentonite seal 3.0'-20.0'. Stickup protective cover installed. qu=NT
				SS-3 6.0-7.5 16"R	2 2 3		qu=NT
			Some fine sand	SS-4 8.5-10.0 18"R	2 3 2		qu=NT
			Light brown medium to fine sand, loose, dry	SS-5 11.0-12.5 17"R	1 2 2		qu=NT
				SS-6 13.5-15.0 18"R	4 5 6		qu=NT
				SS-7 16.0-17.5 16"R	2 2 3		qu=NT
440.1	19.0		Brown coarse sand, trace fine gravel, well graded, very loose, wet	SS-8 18.5-20.0 16"R	3 4 3		qu=NT

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/5/10** ENDED **10/5/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.0**
▼
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-3-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **459.1**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □---○---△ LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)	NOTES & TEST RESULTS
439.1	20.0		SW				Sand pack 20.0'-34.0'
				SS-9 21.0-22.5 18"R	1 1 1		qu=NT
436.1	23.0		▽ Saturated				
				SS-10 23.5-25.0 0"R	1 2 2		qu=NT Set screen (slot 0.010") 24.0'-34.0'
				SS-11 26.0-27.5 18"R	1 2 2		qu=NT
				SS-12 28.5-30.0 18"R	2 1 2		qu=NT
				SS-13 31.0-32.5 18"R	1 2 2		qu=NT
425.1	34.0		End of Boring at 34.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/5/10** ENDED **10/5/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.0**
▼
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-4-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **457.3**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □ ○ △ LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)	NOTES & TEST RESULTS
457.3	0.0		Brown silty clay, roots, topsoil				
456.5	0.8		FILL				
			Light brown sand, medium to fine brown silty clay, fine gravel, dry	SS-1 1.0-2.5 10"R	6 3 4		
			FILL				
				SS-2 3.5-5.0 8"R	3 4 4		Bentonite seal 3.0'-20.0'. Stickup protective cover installed.
				SS-3 6.0-7.5 18"R	4 6 9		qu=4.0**tsf
			Brown clayey silt				
				SS-4 8.5-10.0 18"R	4 5 5		qu=4.0**tsf
				SS-5 11.0-12.5 17"R	3 3 4		qu=3.5**tsf
				SS-6 13.5-15.0 17"R	2 2 3		qu=3.5**tsf
			Black clayey silt to silty clay				
441.3	16.0		Light brown coarse to fine sand, fine gravel, loose, dry	SS-7 16.0-17.5 18"R	2 2 3		
			SP				
				SS-8 18.5-20.0 18"R	2 3 5		
437.3	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/16/10** ENDED **10/16/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **24.0**
▼
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-4-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **457.3**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □---○---△ LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)	NOTES & TEST RESULTS
437.3	20.0		Brown coarse to fine gravel, trace coarse to medium sand, loose to medium dense, poorly graded GP				Sand pack 20.0'-34.0'
				SS-9 21.0-22.5 12"R	4 6 6		qu=NT
433.3	24.0		▽ Saturated	SS-10 23.5-25.0 18"R	6 5 7		qu=NT Set screen (slot 0.010") 24.0'-34.0'
				SS-11 26.0-27.5 14"R	2 3 3		qu=NT
				SS-12 28.5-30.0 18"R	5 6 10		qu=NT
				SS-13 31.0-32.5 10"R	4 4 8		qu=NT
			Coarse to fine gravel, trace silt				
423.3	34.0		End of Boring at 34.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/16/10** ENDED **10/16/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **24.0**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-5-Po** SHEET 1 OF 2
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **455.8**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL–LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)	NOTES & TEST RESULTS
455.8	0.0		Dark brown silty clay, black coal cinders, topsoil				
			FILL	SS-1 1.0-2.5 12"R	2 2 3		qu=NT
			Dry				Bentonite seal 2.0'-19.0'. Stickup protective cover installed.
				SS-2 3.5-5.0 14"R	6 8 10		qu=NT
			Coarse gravel, red coal cinders				
			Gray silty clay with coarse sand and fine gravel, medium stiff, dry	SS-3 6.0-7.5 16"R	2 3 3		qu=1.25**tsf
				SS-4 8.5-10.0 18"R	1 2 2		qu=1.0**tsf
				SS-5 11.0-12.5 18"R	2 2 3		qu=0.5**tsf
			Trace black coal cinders Trace coarse sand, moist				
			Gray clayey silt	SS-6 13.5-15.0 18"R	WOH 2 2		
				SS-7 16.0-17.5 18"R	WOH 6 6		
438.8	17.0		Gray coarse to fine gravel, coarse to fine sand, poorly graded, medium dense, dry				
			GP	SS-8 18.5-20.0 18"R	4 8 7		Sand pack 19.0'-31.0'
435.8	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/5/10** ENDED **10/6/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **20.5**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-5-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **455.8**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
435.8 435.3	20.0 20.5		▽ Coarse to fine gravel, trace coarse to fine sand, poorly graded, medium dense, saturated GP				
				SS-9 21.0-22.5 0"R	4 6 6		qu=NT Set screen (slot 0.010") 21.0'-31.0'
				SS-10 23.5-25.0 10"R	4 6 6		qu=NT
			Loose	SS-11 26.0-27.5 10"R	3 4 4		qu=NT
				SS-12 28.5-30.0 10"R	4 5 6		qu=NT
424.8	31.0		End of Boring at 31.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/5/10** ENDED **10/6/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **20.5**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-8-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **468.7**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 60 / Unconfined Compressive Strength (TSF) 1 2 3 4 5	NOTES & TEST RESULTS
468.7	0.0		Fine gravel, sand, silt, clay, black cinders, dry FILL	SS-1 1.0-2.5			
				SS-2 3.5-5.0			Bentonite seal 3.0'-18.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
458.7	10.0		Black cinders FILL	SS-5 11.0-12.5 14"R	15 28 15/3"		
				SS-6 13.5-15.0 18"R	11 15 12		
			Silty clay seam 15.5'-16.5'	SS-7 16.0-17.5 17"R	15 15 14		
				SS-8 18.5-20.0 18"R	7 11 11		Sand pack 18.0'-30.0'
449.2	19.5		▽				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0**
▽ **19.5**
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-8-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **468.7**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
448.7	20.0		Black cinders FILL				Set screen (slot 0.010") 20.0'-30.0'
447.7	21.0		▽ Saturated	SS-9 21.0-22.5 18"R	5 5 3		
				SS-10 23.5-25.0 18"R	1 1 2		
444.2	24.5		Dark gray organic clay, soft, moist OH				qu=0.75**tsf
				SS-11 26.0-27.5 18"R	1 2 2		qu=1.0**tsf
441.2	27.5		Dark gray organic silt, medium stiff to soft, low plasticity, moist OL				
				SS-12 28.5-30.0 18"R	2 4 4		qu=1.25**tsf
438.7	30.0		End of Boring at 30.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0**
▼ **19.5**

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-9-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **466.2**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
466.2	0.0		Black cinders, fine gravel, crushed rock, dry FILL				
				SS-1 1.0-2.5			
				SS-2 3.5-5.0			Bentonite seal 3.0'-20.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
456.2	10.0		Black cinders, coarse to fine sand, brick, fine gravel, dry FILL				
				SS-5 11.0-12.5 14"R	6 12 15		qu=NT
				SS-6 13.5-15.0 18"R	5 6 7		qu=NT
				SS-7 16.0-17.5 18"R	6 9 10		qu=NT
449.2	17.0		Moist Brown clayey silt, trace fine sand, moist CL				
447.2	19.0		Light brown fine to medium sand, loose, well graded	SS-8 18.5-20.0 18"R	3 6 11		qu=NT

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/28/10** ENDED **9/28/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.5**
▼ **21.6**
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-9-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **466.2**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
446.2	20.0		SW				Sand pack 20.0'-32.0'
444.6	21.6		▼	SS-9 21.0-22.5 18"R	3 3 4		Set screen (slot 0.010") 22.0'-32.0'
442.7	23.5		▽ Saturated	SS-10 23.5-25.0 18"R	1 3 8		
				SS-11 26.0-27.5 18"R	0 2 2		
			Medium dense	SS-12 28.5-30.0 18"R	2 6 13		
			Trace fine gravel	SS-13 31.0-32.5 18"R	2 5 10		
433.7	32.5		End of Boring at 32.5'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/28/10** ENDED **9/28/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.5**
▼ **21.6**

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-10-Po** SHEET 1 OF 2
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **454.1**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □ LL △ 10 20 30 40 50 / Unconfined Compressive Strength (TSF) ✳ 1 2 3 4 5	NOTES & TEST RESULTS
454.1	0.0		Black and brown silty clay topsoil CL				
				SS-1 1.0-2.5			
				SS-2 3.5-5.0			Bentonite seal 3.0'-17.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
444.1	10.0		Brown organic silt, some clay, trace peat, soft, moist OL				
				SS-5 11.0-12.5 16"R	1 2 2		qu=0.5**tsf
440.6	13.5		Black organic clay, medium plasticity, medium stiff, dry OL	SS-6 13.5-15.0 18"R	2 3 4		qu=1.5**tsf
438.1	16.0		Brown and gray silty clay, trace to little coarse to fine sand, medium stiff, dry CL	SS-7 16.0-17.5 18"R	4 4 4		qu=2.0**tsf
							Sand pack 17.0'-29.0'
				SS-8 18.5-20.0			Set screen (slot 0.010") 19.0'-29.0'

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/4/10** ENDED **10/4/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0'**
▼
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-10-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **454.1**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
434.1	20.0						
433.1	21.0		Gray coarse to fine sand, trace fine gravel, silt, poorly graded, loose, saturated SP	SS-9 21.0-22.5 18"R	2 2 1		qu=NT
				SS-10 23.5-25.0 10"R	2 4 3		qu=NT
429.6	24.5		Brown and gray coarse to fine gravel, poorly graded, loose, saturated GP				
				SS-11 26.0-27.5 10"R	2 4 7		qu=NT
				SS-12 28.5-30.0 14"R	5 7 8		qu=NT
424.1	30.0		End of Boring at 30.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/4/10** ENDED **10/4/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0'**

PATRICK ENGINEERING INC.

BORING NUMBER B-MW-11-Po SHEET 1 OF 2
CLIENT Midwest Generation
PROJECT & NO. 21053.070
LOCATION Powerton

LOGGED BY MPG
GROUND ELEVATION 468.1

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
468.1	0.0		Cinders, gravel, sand, silt FILL				
				SS-1 1.0-2.5			
							Bentonite seal 3.0'-28.0'. Stickup protective cover installed.
				SS-2 3.5-5.0			
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
458.1	10.0		Black and brown clay, fine gravel, cinders, bricks, silt, coarse sand, dry FILL				
				SS-5 11.0-12.5 16"R	8 10 10		qu=NT
				SS-6 13.5-15.0 17"R	2 2 3		qu=2.5**tsf
452.1	16.0		Brown and gray silty clay, trace fine gravel, trace fine sand, stiff, dry CL	SS-7 16.0-17.5 18"R	1 3 4		qu=1.5**tsf
449.6	18.5		Gray clayey silt, organics, very soft, moist ML	SS-8 18.5-20.0 18"R	WOH 2 2		qu=0.5**tsf

DRILLING CONTRACTOR Groff Testing
DRILLING METHOD 4.25" I.D. HSA
DRILLING EQUIPMENT CME 550 ATV
DRILLING STARTED 9/28/10 ENDED 9/29/10

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ 32.5 while drilling
▼ 26.5 after 12 hours
▼ 26.5 after 48 hours

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-11-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **468.1**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □ ○ △ LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) * (1 2 3 4 5)	NOTES & TEST RESULTS
448.1	20.0						
				SS-9 21.0-22.5 0"R	1 2 3		qu=NT
				SS-10 23.5-25.0 18"R	WOH WOH 1		qu=0.5**tsf
442.1	26.0						
441.6	26.5		▼ Dark gray silty clay, some organics, medium stiff, dry CL	SS-11 26.0-27.5 18"R	1 3 4		qu=1.5**tsf
				SS-12 28.5-30.0 18"R	3 4 6		Sand pack 28.0'-40.0' qu=2.5**tsf
				SS-13 31.0-32.5 18"R	3 4 6		Set screen (slot 0.010") 30.0'-40.0' qu=2.5**tsf
435.6	32.5		▽ Brown and gray coarse to fine gravel, coarse to fine sand, loose, saturated GP	SS-14 33.5-35.0 18"R	1 2 1		qu=NT
431.6	36.5		Light brown fine sand, well graded, very loose, saturated SW	SS-15 36.0-37.5 18"R	1 0 0		qu=NT
				SS-16 38.5-40.0 18"R	2 3 4		qu=NT
428.1	40.0		End of Boring at 40.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/28/10** ENDED **9/29/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **32.5** while drilling
▼ **26.5** after 12 hours
▼ **26.5** after 48 hours

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-12-Po** SHEET 1 OF 2
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **470.0**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
470.0	0.0		Black cinders, fine gravel, silty clay, dry FILL	SS-1 1.0-2.5			
				SS-2 3.5-5.0			Bentonite seal 3.0'-18.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
460.0	10.0		Black cinders FILL	SS-5 11.0-12.5 18"R	17 18 11		qu=NT
				SS-6 13.5-15.0 18"R	12 20 17		qu=NT
			Seam of l ight brown coarse sand	SS-7 16.0-17.5 18"R	6 7 6		qu=NT
451.5	18.5						Sand pack 18.0'-35.0'
450.5	19.5		▽ Gray silt, little to some coarse to fine sand, trace clay, very soft, saturated	SS-8 18.5-20.0 18"R	1 5 2		qu=NT Set screen (slot 0.010") 19.0'-29.0'

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/29/10** ENDED **9/29/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **20.5**
▼ **19.5**

PATRICK ENGINEERING INC.

BORING NUMBER B-MW-12-Po SHEET 2 OF 2
CLIENT Midwest Generation
PROJECT & NO. 21053.070
LOCATION Powerton

LOGGED BY MPG
GROUND ELEVATION 470.0

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
450.0	20.0		ML				
449.5	20.5		▽	SS-9 21.0-22.5 18"R	1 2 1		qu=0.25**tsf
			Trace peat	SS-10 23.5-25.0 18"R	WOH 2 1		qu=0.5**tsf
444.0	26.0		Gray mottled black clayey silt, with some organics, trace peat, very soft, medium stiff, moist OH	SS-11 26.0-27.5 18"R	WOH WOH 2		qu=0.5**tsf
				SS-12 28.5-30.0 18"R	1 3 4		qu=1.75**tsf
				SS-13 31.0-32.5 18"R	2 3 3		qu=2.0**tsf
437.5	32.5		Dark brown and gray silty clay, trace coarse sand, trace organics, stiff to very stiff, dry CL				
				SS-14 33.5-35.0 18"R	4 6 6		qu=2.5**tsf
435.0	35.0		End of Boring at 35.0'				

DRILLING CONTRACTOR Groff Testing
DRILLING METHOD 4.25" I.D. HSA
DRILLING EQUIPMENT CME 550 ATV
DRILLING STARTED 9/29/10 ENDED 9/29/10

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ 20.5
▼ 19.5
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-16-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **468.3**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 50 LL; Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
468.3	0.0		Black cinders, fine gravel, sand, silt, dry FILL	SS-1 1.0-2.5			
				SS-2 3.5-5.0			Bentonite seal 3.0'-17.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
458.3	10.0		Black cinders, fine gravel, coarse sand, silt, dry FILL	SS-5 11.0-12.5 14"R	6 13 12		
				SS-6 13.5-15.0 0"R	50/1"		
				SS-7 16.0-17.5 14"R	7 7 5		Sand pack 17.0'-30.0'
				SS-8 18.5-20.0 18"R	2 1 1		
448.8	19.5		▽				
448.3	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **20.0'**
▽ **19.5**
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-15-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **468.3**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □ ○ △ LL (10 20 30 40 60) / Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)	NOTES & TEST RESULTS
448.3	20.0		Gray fine sand, trace medium sand, loose, saturated SM				Set screen (slot 0.010") 20.0'-30.0'
				SS-9 21.0-22.5 18"R	1 1 1		qu=NT
444.8	23.5		Gray silt, mottled black, some organics, soft, moist to wet OL	SS-10 23.5-25.0 18"R	1 2 2		qu=0.75**tsf
				SS-11 26.0-27.5 18"R	1 2 2		qu=1.0**tsf
440.3	28.0		Gray silty clay, some organics, soft, medium stiff, dry CL	SS-12 28.5-30.0 18"R	1 3 2		qu=1.0**tsf
438.3	30.0		End of Boring at 30.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **20.0'**
▼ **19.5**
▼

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF MW-17

(Page 1 of 2)

Midwest Generation, LLC
Powerton Station
Pekin, Illinois

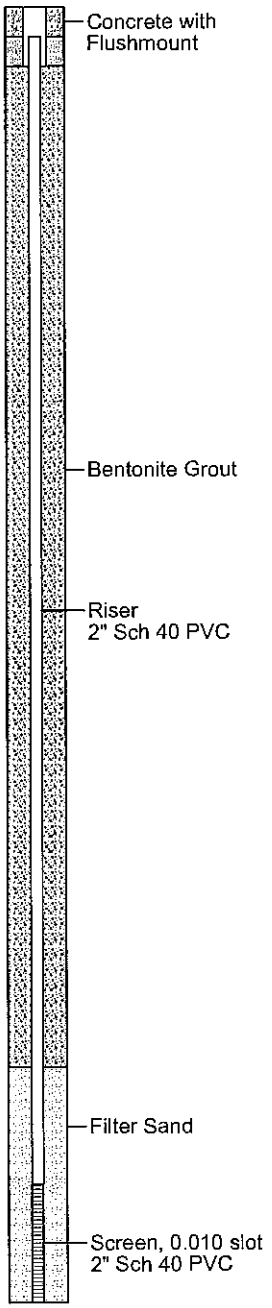
Project No. 15315.7

Date Starfed	: 09/21/15
Date Well Set	: 09/21/15
Drilling Tools	: 8 1/4 HSA
Reaming Tools	: None
Drill Rig	: Geoprobe
Driller Name/Co	: Nick / Cabeno Env. Serv.

Total Boring Depth	: 30.0 feet
Well Bottom Depth	: 30.0 feet
Surface Elev.	: xxx feet above MSL
TOC Elev.	: xxx feet above MSL
Groundwater Elev.	: xxx feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	:
Coordinate E	:
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 575	DESCRIPTION	% RQD	% Recovery
0	575	Asphalt Roadway over sand, silt, gravel mix, brown, dry.		
1	574			
2	573	SILTY SAND, fine to coarse, black, slightly moist, occ silty layers.		
3	572			
4	571			
5	570			
6	569			
7	568			
8	567			
9	566			
10	565			
11	564			
12	563	- begin black with orange brown		
13	562			
14	561			
15	560			
16	559	- some gray silt laminates		
17	558			
18	557			
19	556	SILT, gray, laminated with SILTY SAND, moist		
20	555	- increase to very moist then wet		
21	554			
22		SILT, gray, laminated with light brown silt, trace organics, wet.		

Well Diagram:



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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

Midwest Generation, LLC
Powerton Station
Pekin, Illinois

Project No. 15315.7

GEOLOGIC LOG OF MW-17

Date Started	: 09/21/15
Date Well Set	: 09/21/15
Drilling Tools	: 8 1/4 HSA
Reaming Tools	: None
Drill Rig	: Geoprobe
Driller Name/Co	: Nick / Cabeno Env. Serv.

Total Boring Depth	: 30.0 feet
Well Bottom Depth	: 30.0 feet
Surface Elev.	: xxx feet above MSL
TOC Elev.	: xxx feet above MSL
Groundwater Elev.	: xxx feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	:
Coordinate E	:
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 575	DESCRIPTION	% RQD	% Recovery	Well Diagram:
22	553				
23	552				
24	551				
25	550				Filter Sand
26	549	SILTY SAND, black and dark gray, fine to meduim, wet.			Screen, 0.010 slot 2" Sch 40 PVC
27	548	SILT and SAND, gray and black, wet.			
28	547				
29	546				
30	545				
31	544	End of Boring at 30 feet.			
32	543				
33	542				
34	541				
35	540				
36	539				
37	538				
38	537				
39	536				
40	535				
41	534				
42	533				
43	532				
44					

ENVIRONMENTAL CONSULTATION & REMEDIATION

XPRG and Associates, Inc.

Midwest Generation, LLC
Powerton Station
Pekin, Illinois

Project No. 15315.7

GEOLOGIC LOG OF MW-18

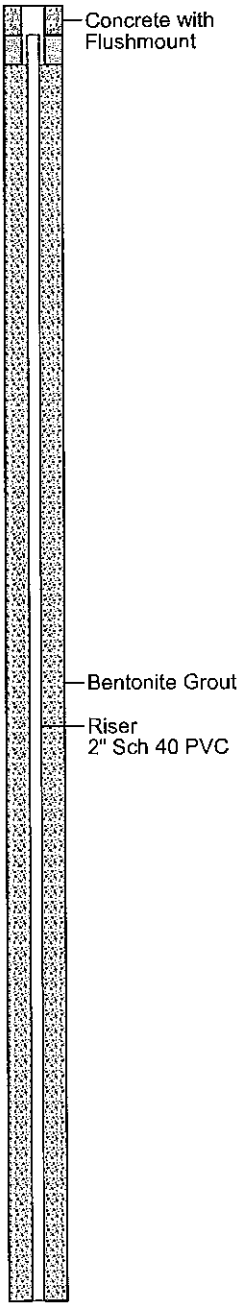
(Page 1 of 2)

Date Started	: 09/21/15
Date Well Set	: 09/21/15
Drilling Tools	: 8 1/4 HSA
Reaming Tools	: None
Drill Rig	: Geoprobe
Driller Name/Co	: Nick / Cabeno Env. Serv.

Total Boring Depth	: 30.0 feet
Well Bottom Depth	: 30.0 feet
Surface Elev.	: xxx feet above MSL
TOC Elev.	: xxx feet above MSL
Groundwater Elev.	: xxx feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	:
Coordinate E	:
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 575	DESCRIPTION	% RQD	% Recovery
0	575	SILTY CLAY, brown, trace gravel, slightly moist.		
1	574			
2	573			
3	572	SILTY SAND, fine to coarse, black, brown and dark gray, dry to slightly moist.		
4	571			
5	570			
6	569			
7	568	- clayey from 7-8, followed by occasional clayey layers		
8	567			
9	566			
10	565			
11	564			
12	563			
13	562			
14	561			
15	560			
16	559	- begin all black		
17	558			
18	557			
19	556	- very moist		
20	555			
21	554			
22				

Well Diagram:



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ENVIRONMENTAL CONSULTATION & REMEDIATION
KPRG and Associates, Inc.

Midwest Generation, LLC
Powerton Station
Pekin, Illinois

Project No. 15315.7

GEOLOGIC LOG OF MW-18

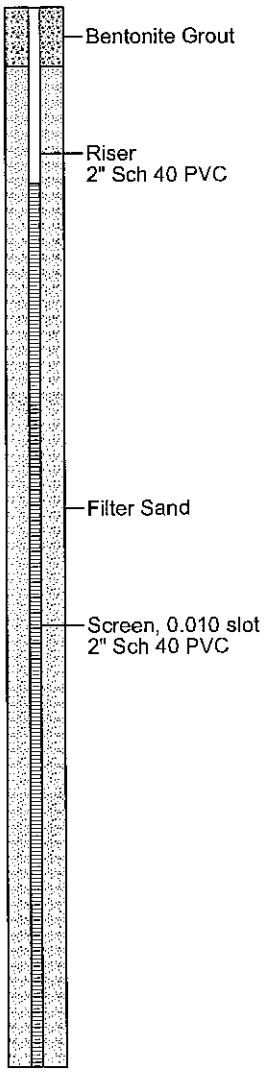
(Page 2 of 2)

Date Started	: 09/21/15
Date Well Set	: 09/21/15
Drilling Tools	: 8 1/4 HSA
Reaming Tools	: None
Drill Rig	: Geoprobe
Driller Name/Co	: Nick / Cabeno Env. Serv.

Total Boring Depth	: 30.0 feet
Well Bottom Depth	: 30.0 feet
Surface Elev.	: xxx feet above MSL
TOC Elev.	: xxx feet above MSL
Groundwater Elev.	: xxx feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	:
Coordinate E	:
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 575	DESCRIPTION	% RQD	% Recovery
22	553			
23	552			
24	551			
25	550			
26	549			
27	548			
28	547			
29	546			
30	545	CLAY, gray, some black, moist.		
31	544			
32	543	CLAY, dark gray, trace organics, moist.		
33	542			
34	541			
35	540			
36	539			
37	538	CLAY, greenish gray, trace organics, moist.		
38	537			
39	536			
40	535	SILTY SAND, tan, some gravel, very moist.		
41	534	End of Boring at 40 feet.		
42	533			
43	532			
44				

Well Diagram:



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KPRG and Associates, Inc.

Midwest Generation, LLC
Powerton Station
Pekin, Illinois

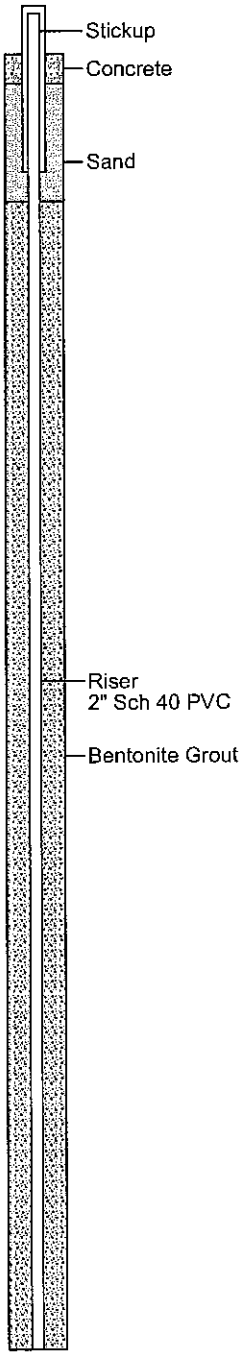
GEOLOGIC LOG OF MW-19

Date Started	: 10/05/16
Date Well Set	: 10/05/16
Drilling Tools	: 8 1/4 HSA
Reaming Tools	: None
Drill Rig	: Geoprobe
Driller Name/Co	: Nick / Cabeno Env. Serv.

Total Boring Depth	: 41.0 feet
Well Bottom Depth	: 41.0 feet
Surface Elev.	: xxx feet above MSL
TOC Elev.	: xxx feet above MSL
Groundwater Elev.	: xxx feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	:
Coordinate E	:
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 575	DESCRIPTION	% RQD	% Recovery
0	575			
1	574	SILTY SAND, black, fine to coarse, occasional clayey layers slightly moist.		
2	573			
3	572			
4	571			
5	570	- very moist to wet		
6	569			
7	568	- slightly moist		
8	567			
9	566			
10	565			
11	564			
12	563			
13	562			
14	561	- 6" white and brown gravel		
15	560			
16	559			
17	558			
18	557	- moist		
19	556			
20	555			
21	554			
22				

Well Diagram:



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Midwest Generation, LLC
Powerton Station
Pekin, Illinois

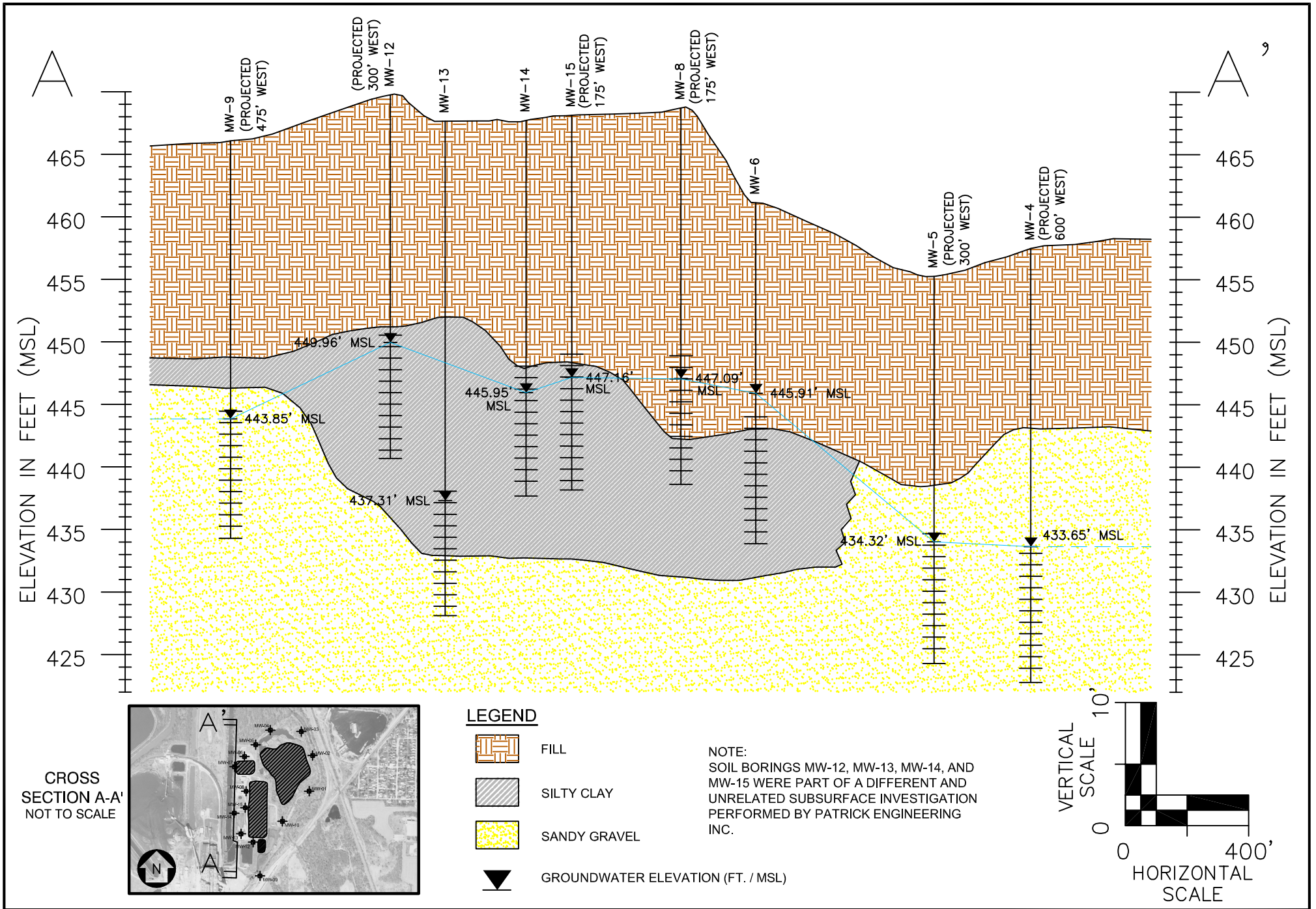
GEOLOGIC LOG OF MW-19

Date Started	: 10/05/16
Date Well Set	: 10/05/16
Drilling Tools	: 8 1/4 HSA
Reaming Tools	: None
Drill Rig	: Geoprobe
Driller Name/Co	: Nick / Cabeno Env. Serv.

Total Boring Depth	: 41.0 feet
Well Bottom Depth	: 41.0 feet
Surface Elev.	: xxx feet above MSL
TOC Elev.	: xxx feet above MSL
Groundwater Elev.	: xxx feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	:
Coordinate E	:
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 575	DESCRIPTION	% RQD	% Recovery	Well Diagram:
22	553				
23	552				
24	551				
25	550				
26	549				Bentonite Grout
27	548				Riser 2" Sch 40 PVC
28	547				
29	546	SAND, fine to medium, gray, trace gravel, moist.			
30	545	SAND, fine to medium, brown, very moist.			
31	544				
32	543				
33	542				
34	541				Filter Sand
35	540				
36	539				Screen, 0.010 slot 2" Sch 40 PVC
37	538				
38	537				
39	536				
40	535				
41	534				
42	533	End of Boring at 41 feet.			
43	532				
44					

ATTACHMENT C.2-2
Geologic Cross-Section from Patrick Engineering, February 2011



PATRICK ENGINEERING INC.
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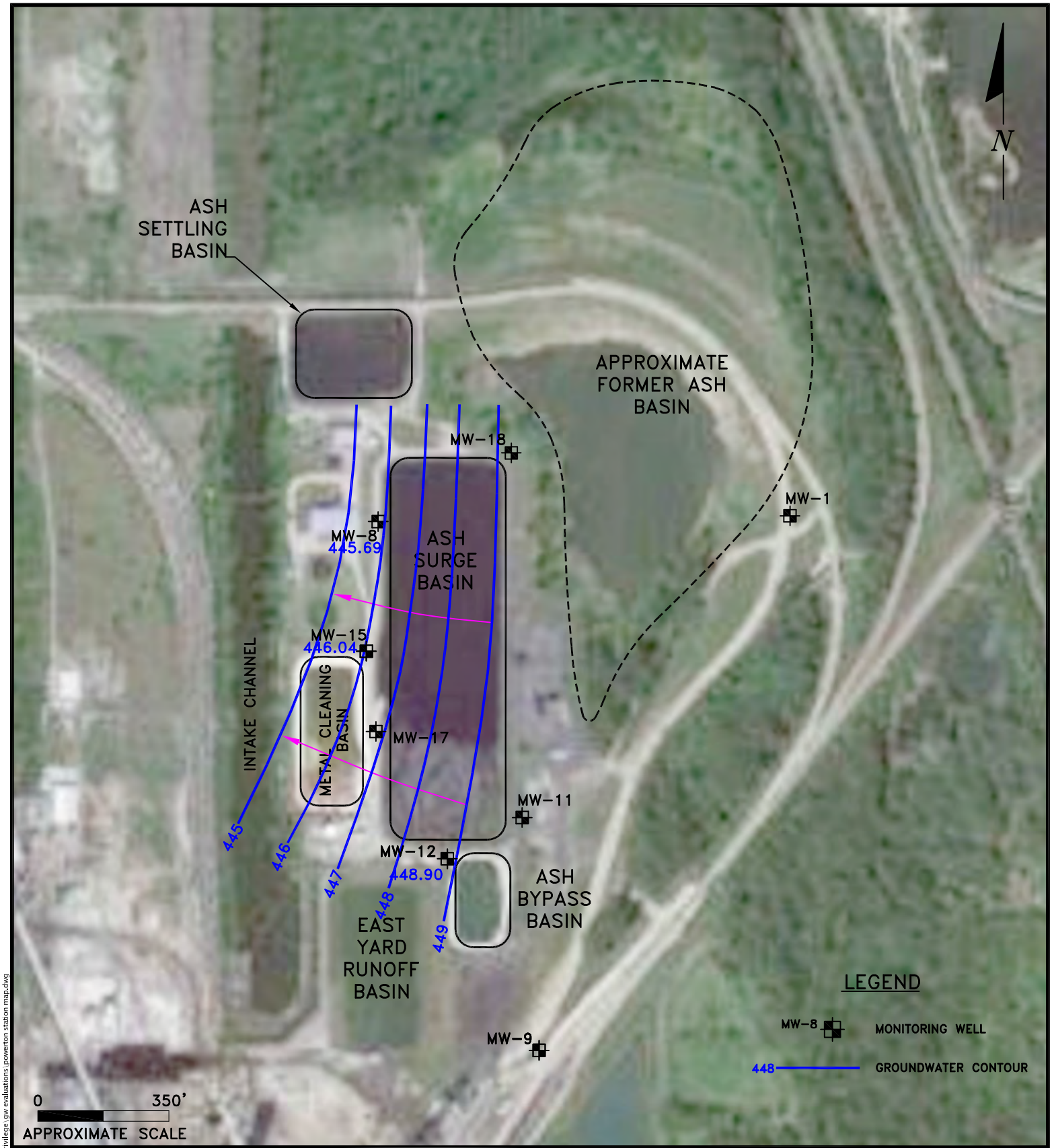
FAX (630) 724-1681
http://www.patrickengineering.com
PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000409

FIGURE 4
CROSS SECTION A-A' - SITE LITHOLOGY
POWERTON STATION
PEKIN, ILLINOIS

Date: FEB. 2011
Proj No.: 21053.070
App. By: RMF

ATTACHMENT C.2-3
Groundwater Contour Maps



ENVIRONMENTAL CONSULTATION & REMEDIATION

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14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

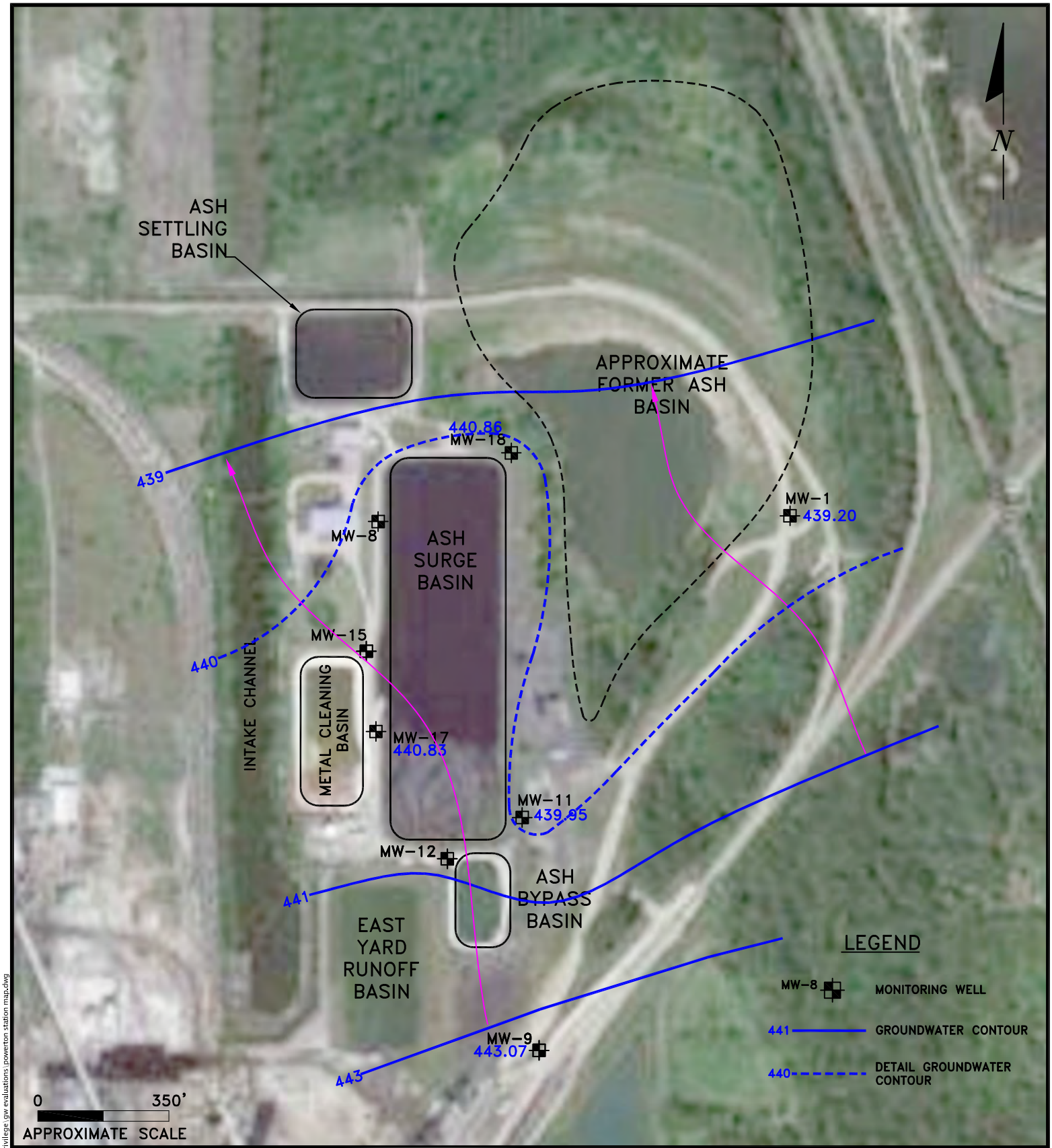
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 11/2015

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: February 11, 2016

KPRG Project No. 12313.1 | FIGURE 2

W:\projects\midwest generation\attorney-client privilege\gw evaluations\powerton station map.dwg



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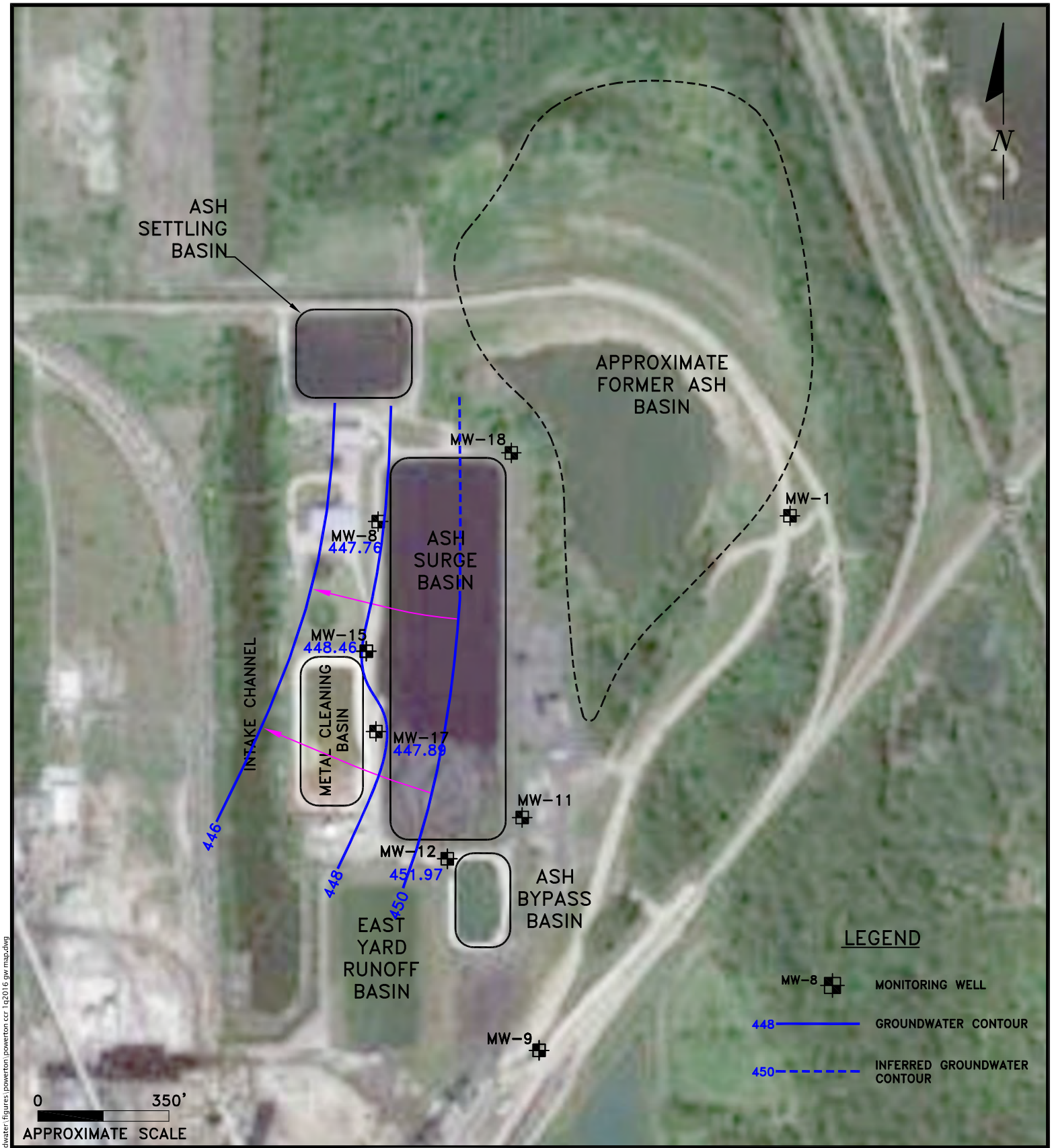
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 11/2015

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: February 11, 2016
KPRG Project No. 12313.1	FIGURE 3



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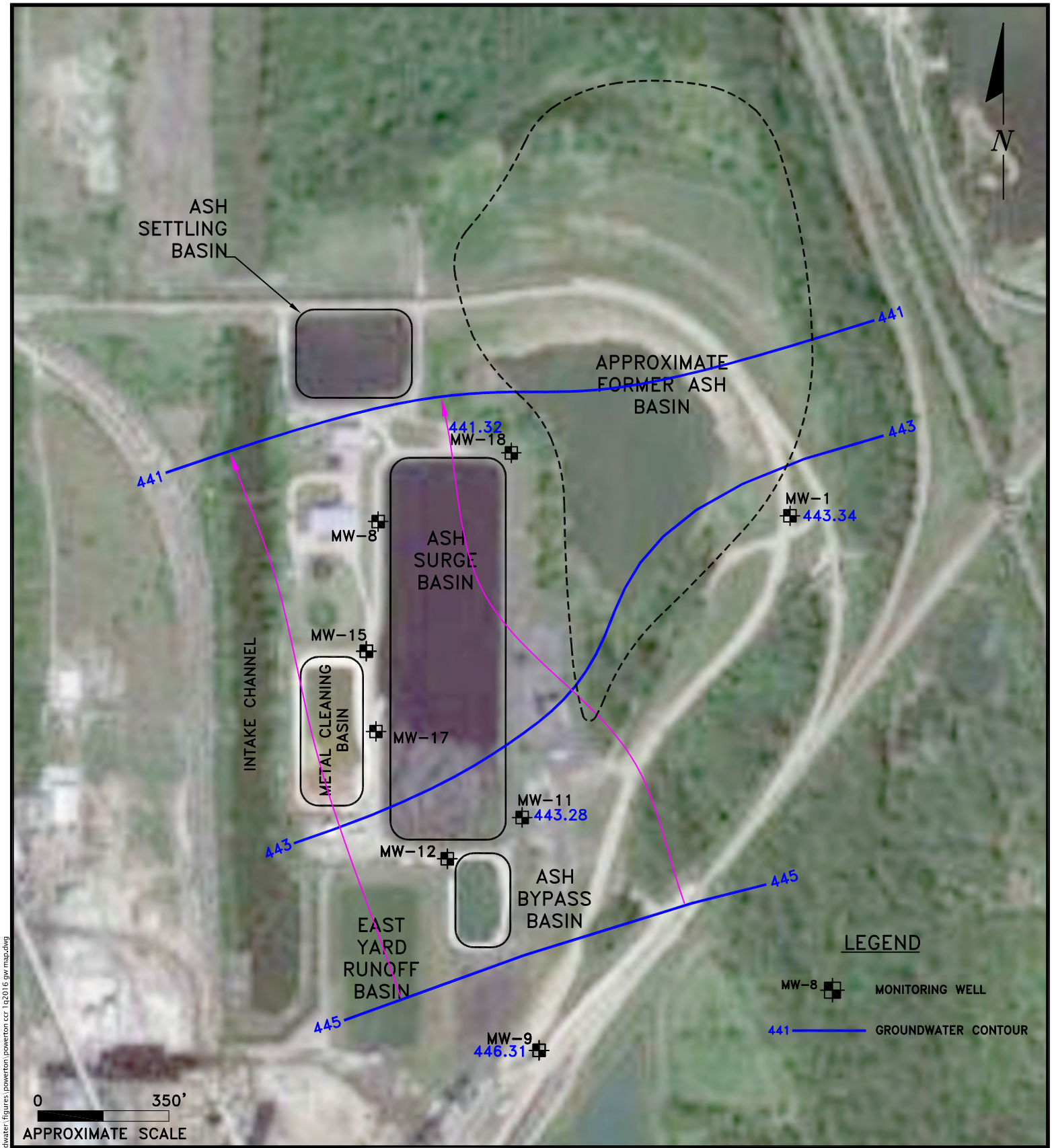
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 2/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: April 19, 2016

KPRG Project No. 12313.1 | FIGURE 4

W:\projects\midwest generation\12313 ash groundwater\figures\powerton\powerton ccr 1q2016 gw map.dwg



W:\projects\midwest generation\12313 ash groundwater\figures\powerton\powerton ccr 1q2016 gw map.dwg

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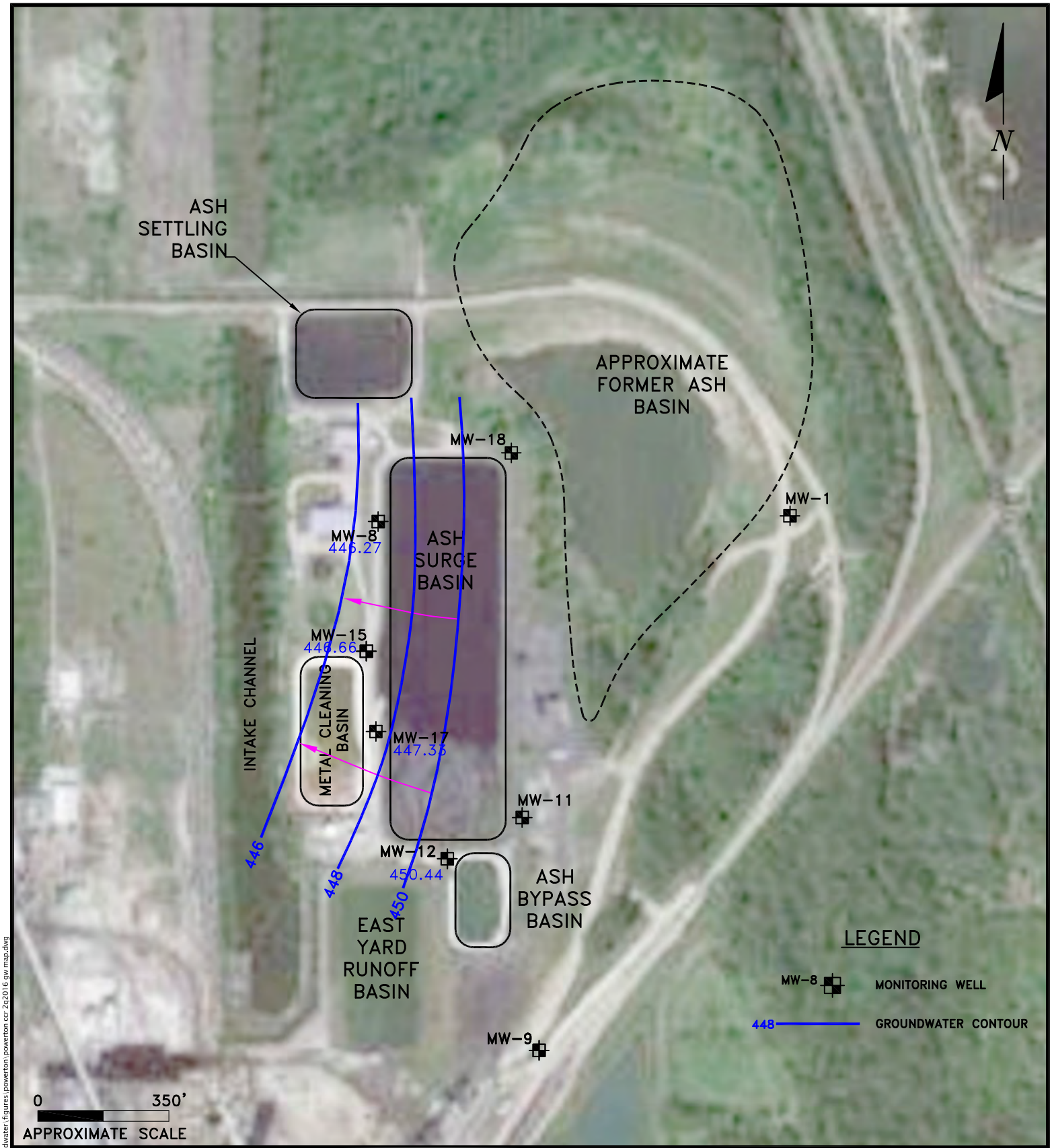
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 2/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: April 19, 2016
KPRG Project No. 12313.1	FIGURE 5



ENVIRONMENTAL CONSULTATION & REMEDIATION

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14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

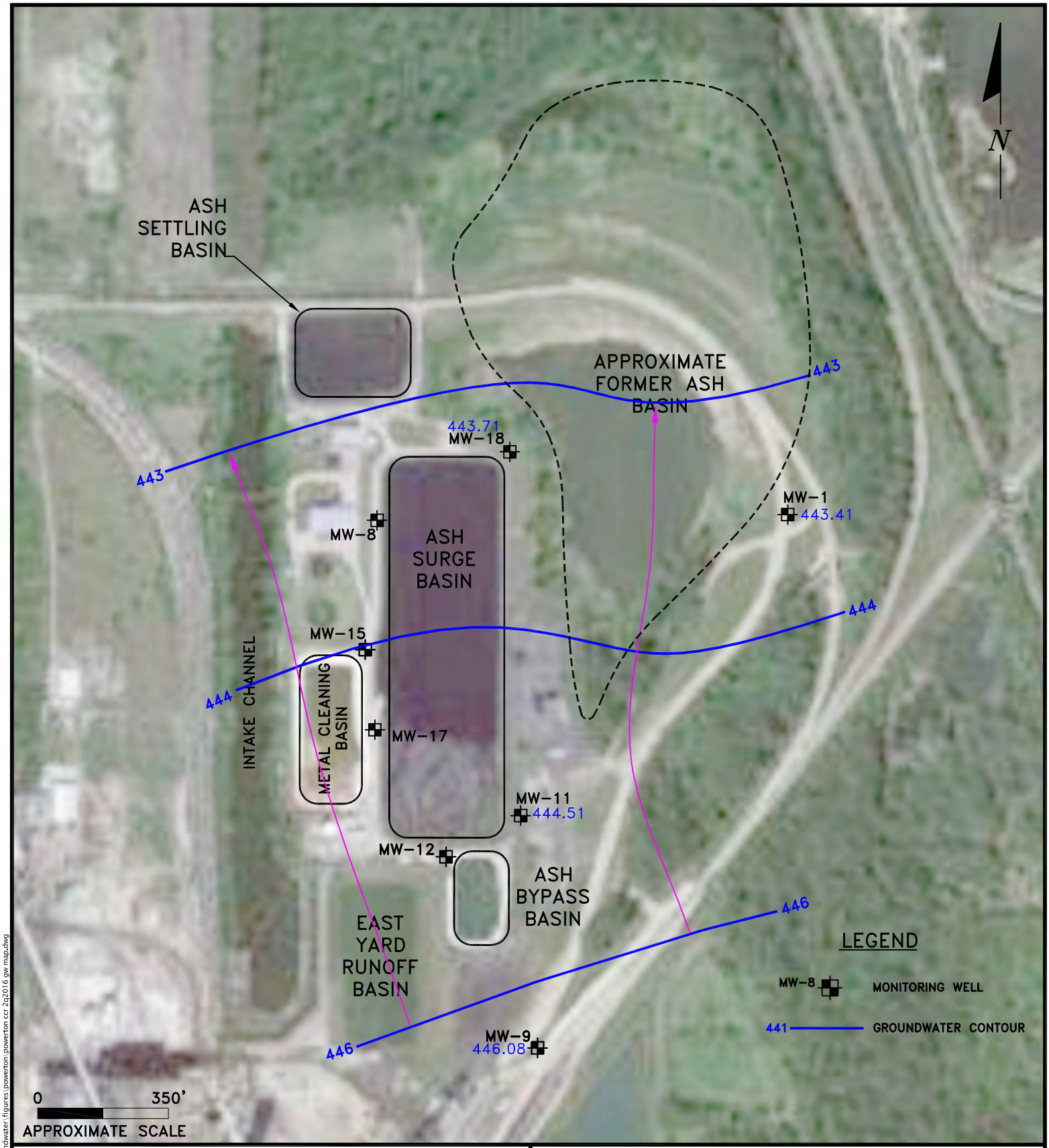
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 5/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: July 12, 2016

KPRG Project No. 12313.1 | FIGURE 6

W:\projects\midwest generation\12313 ash groundwater\figures\powerton\powerton ccr 2q2016 gw map.dwg



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ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

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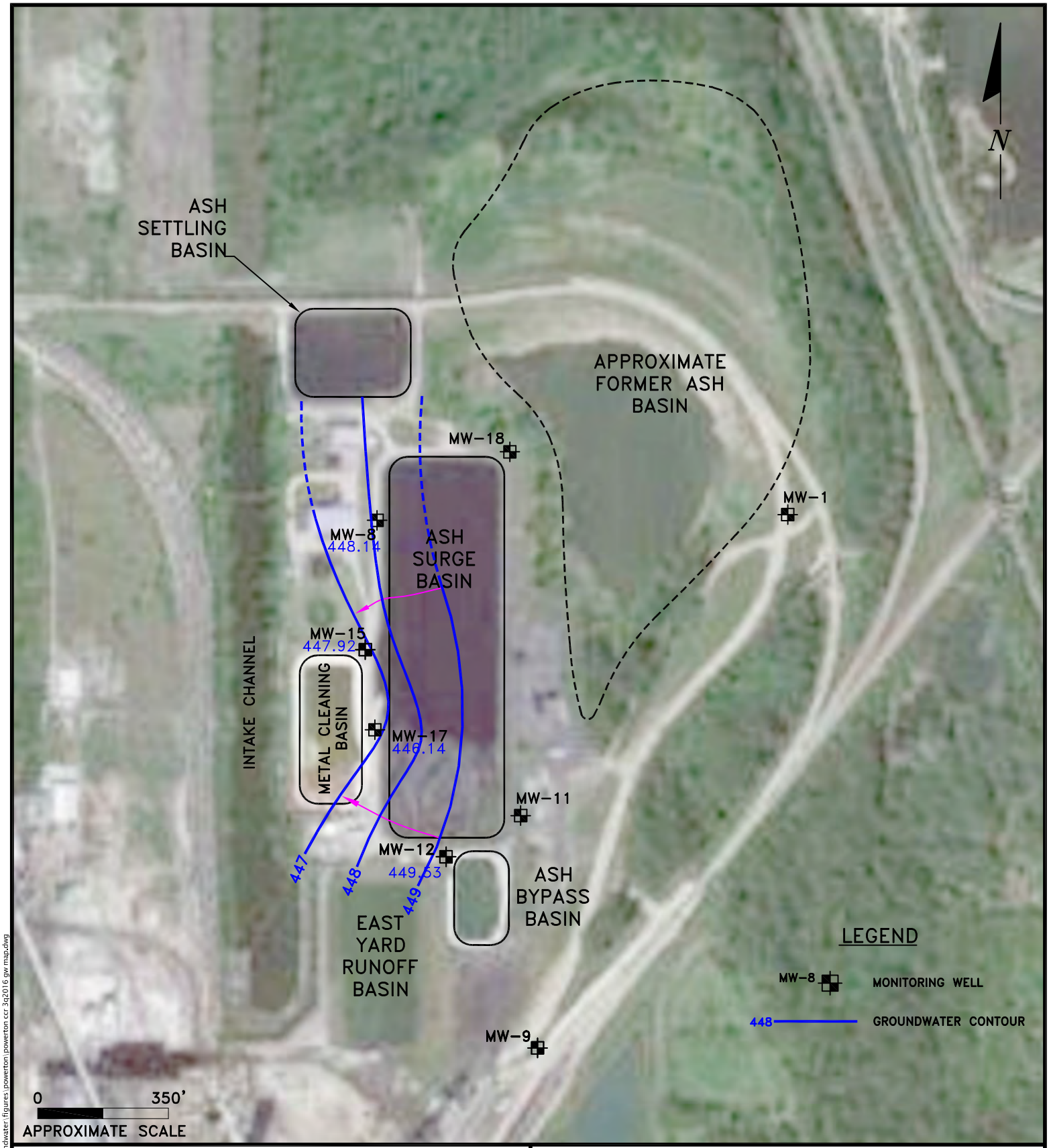
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 5/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: July 12, 2016
KPRG Project No. 12313.1	FIGURE 7



ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

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14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 08/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: October 10, 2016
KPRG Project No. 12313.1	FIGURE 8

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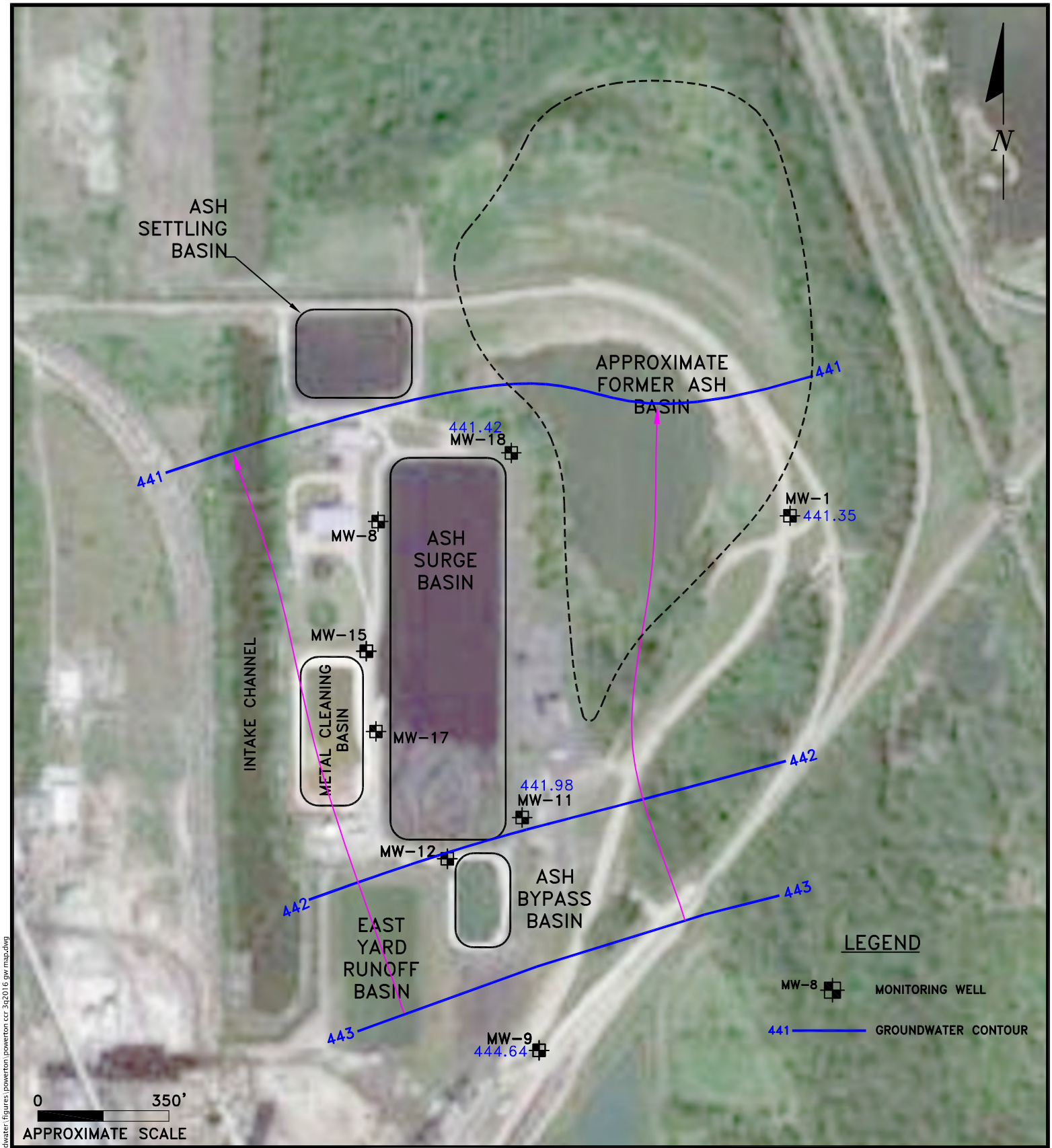

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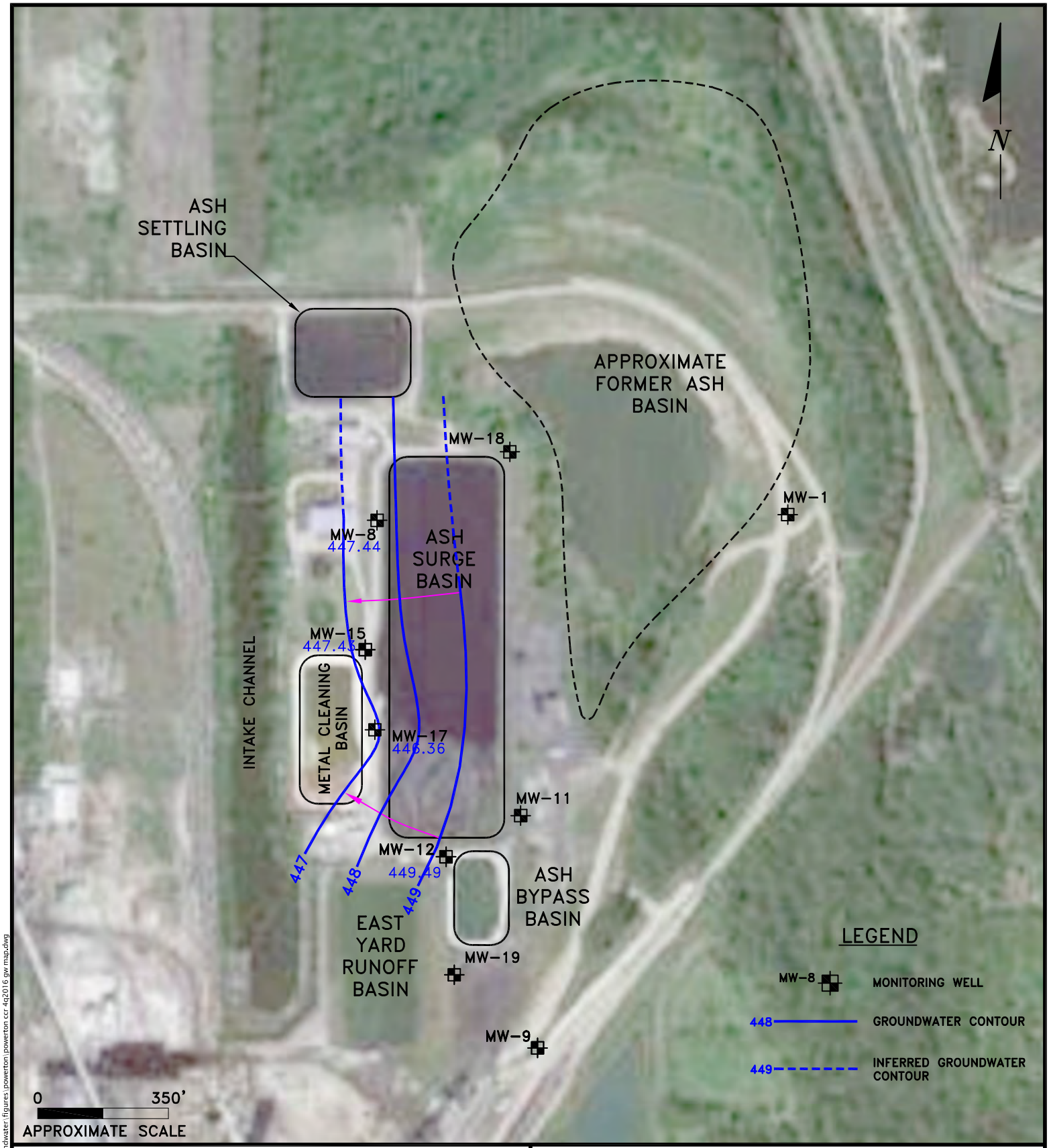
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 08/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: October 10, 2016

KPRG Project No. 12313.1 | FIGURE 9



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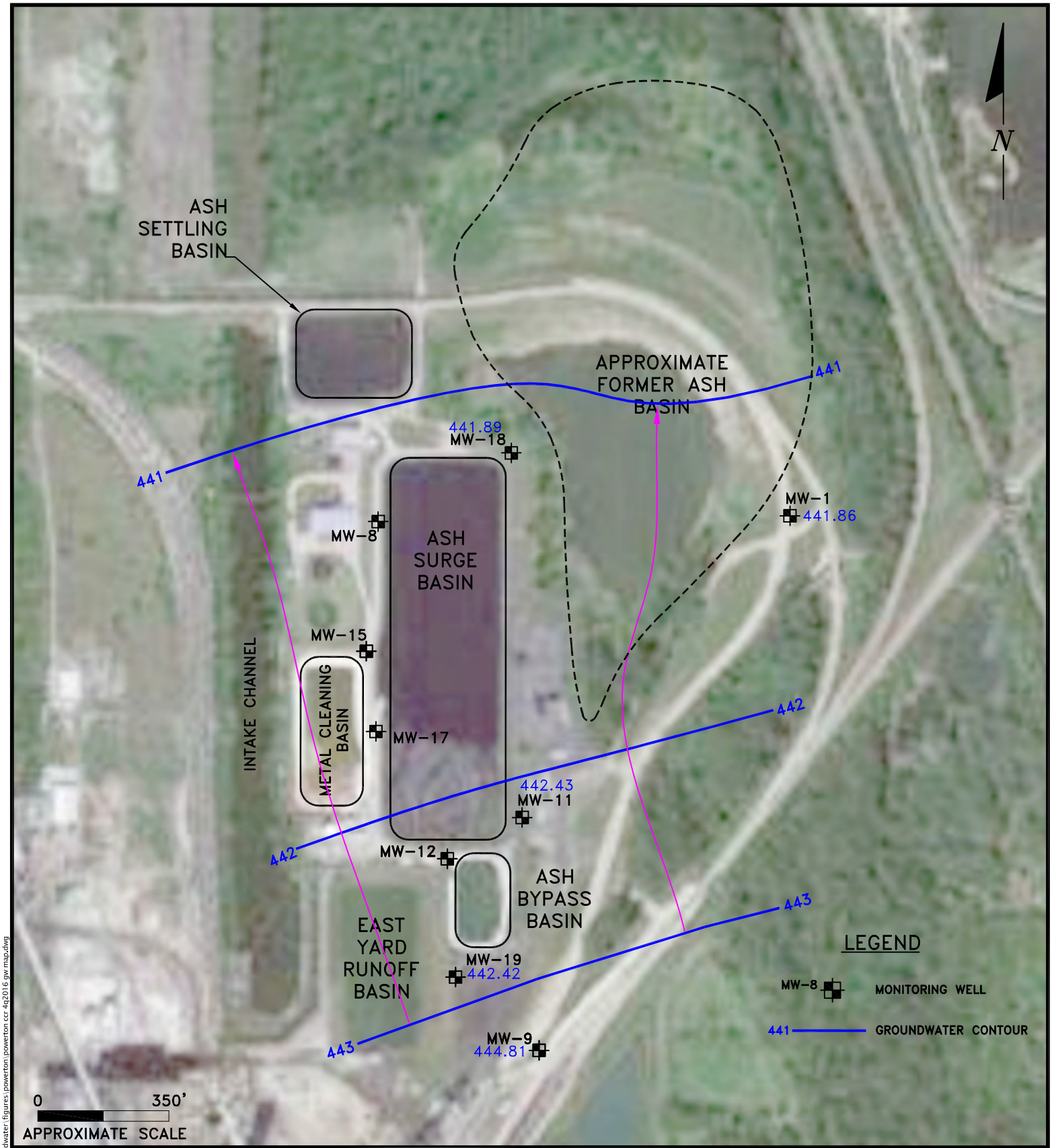
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 11/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: January 3, 2017

KPRG Project No. 12313.1 | FIGURE 10

W:\projects\midwest generation\12313 ash groundwater\figures\powerton\powerton ccr 4q2016 gw map.dwg



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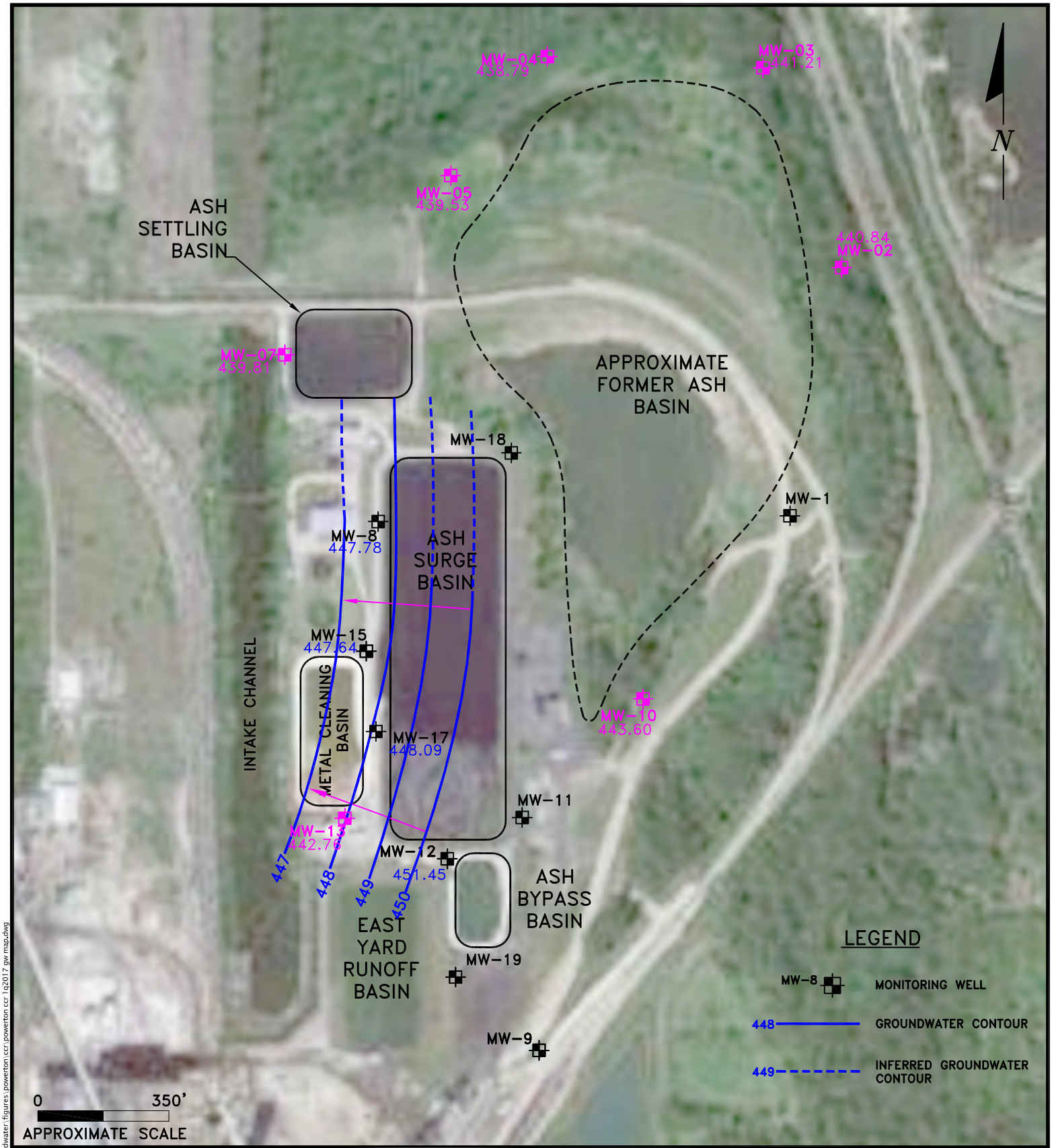
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 11/2016

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: January 3, 2017
KPRG Project No. 12313.1	FIGURE 11



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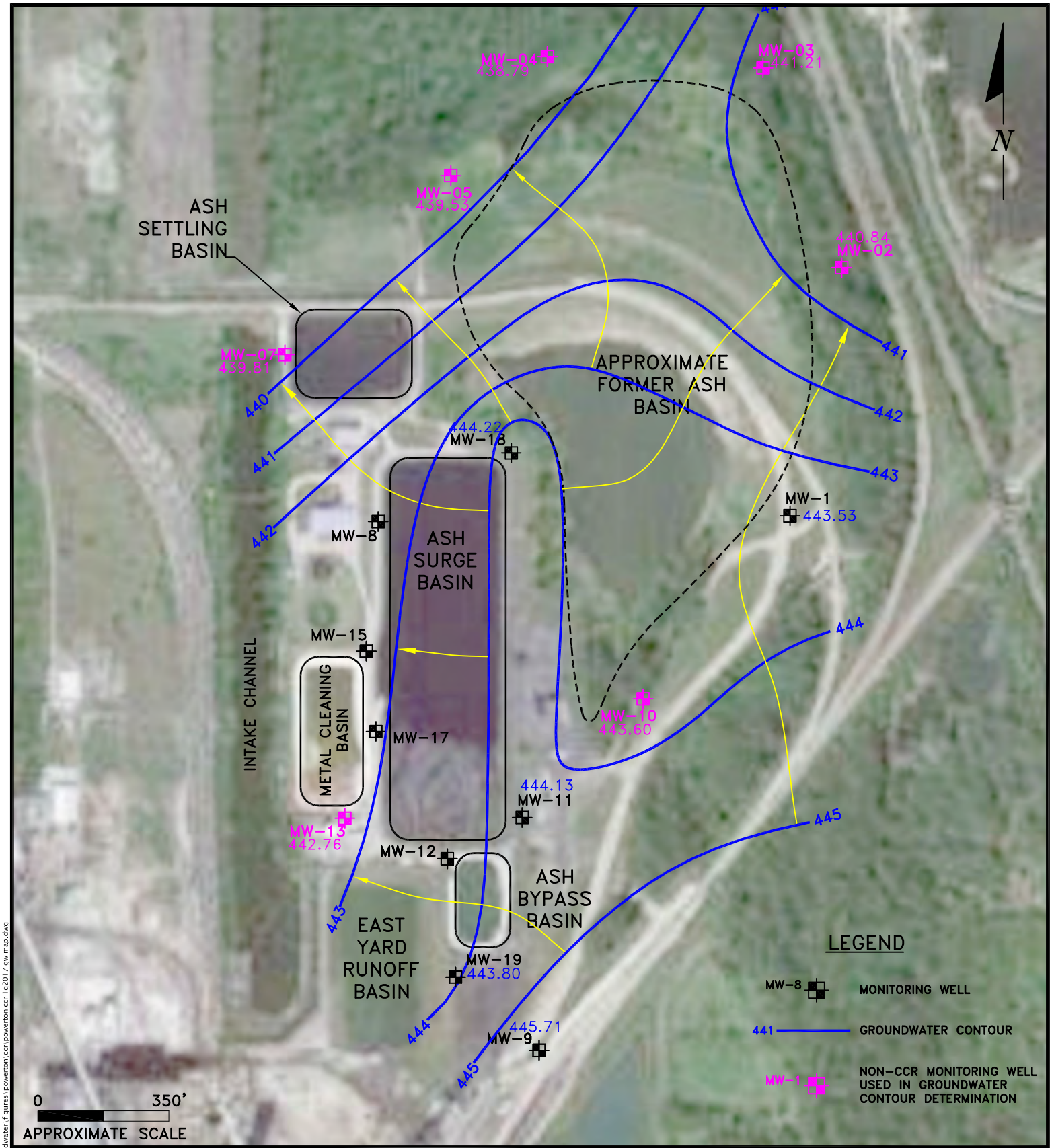
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 02/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: April 5, 2017

KPRG Project No. 12313.1 | FIGURE 12



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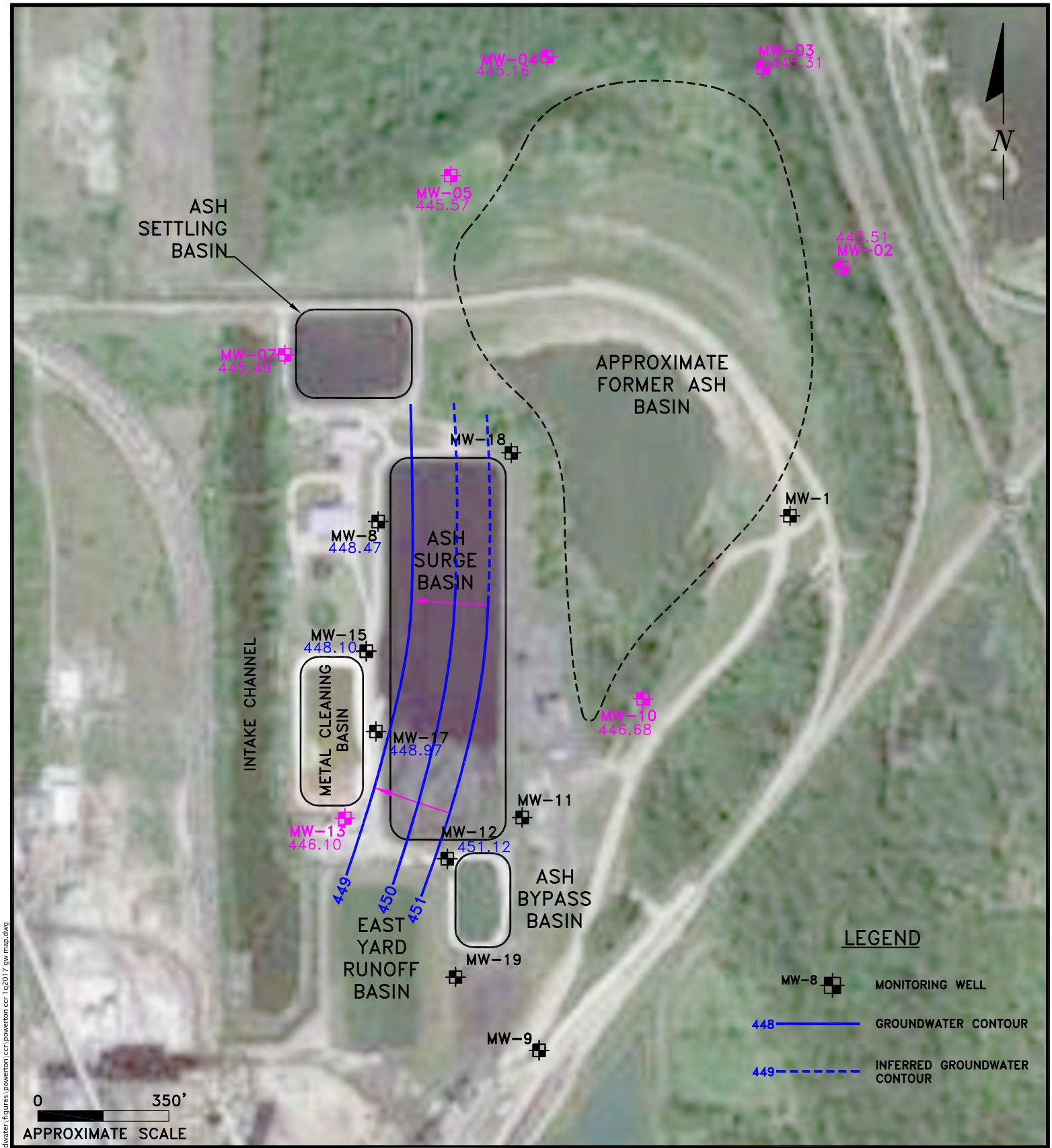
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 02/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: April 5, 2017

KPRG Project No. 12313.1 | FIGURE 13



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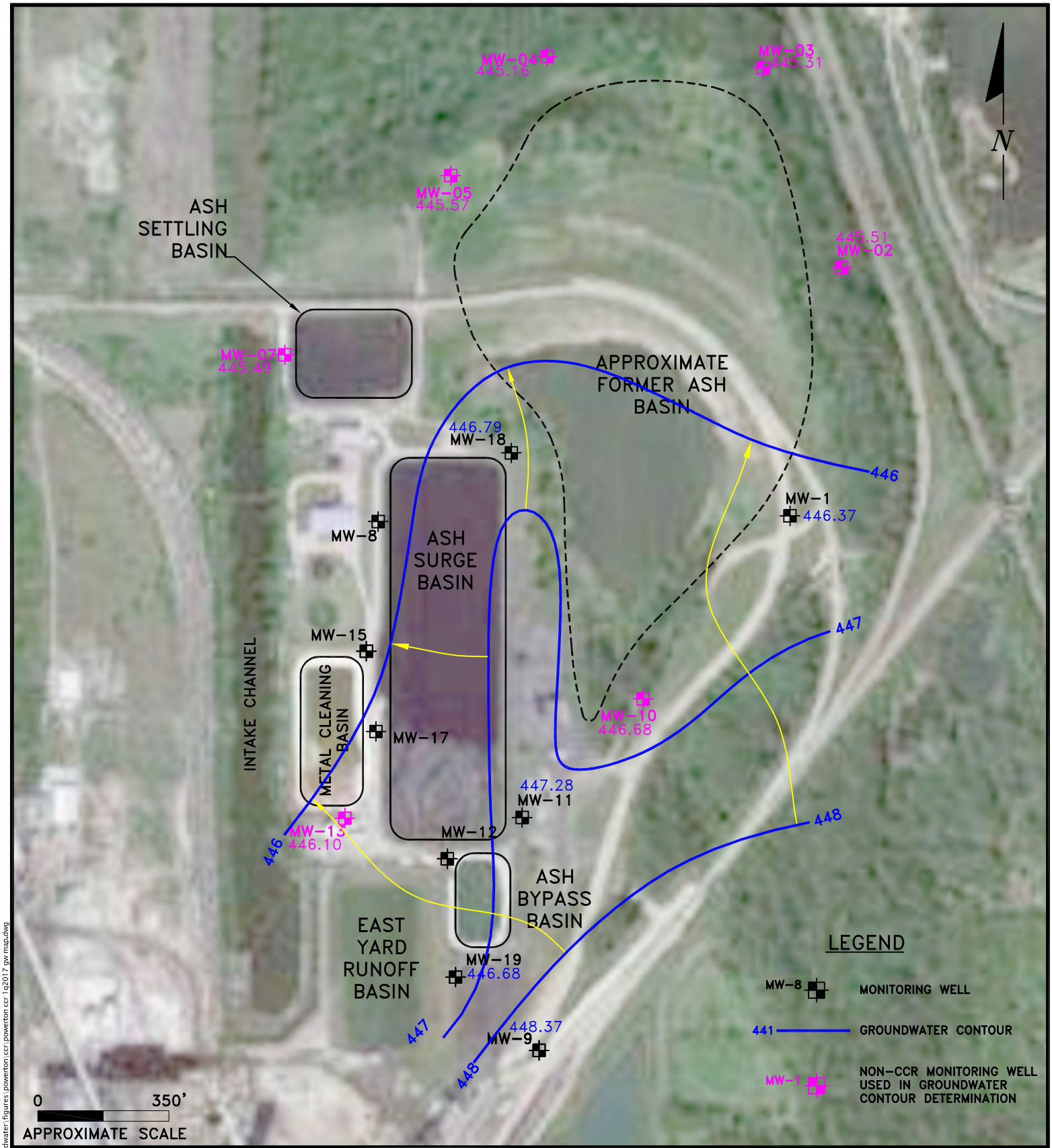
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 05/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: June 22, 2017
KPRG Project No. 12313.1	FIGURE 14



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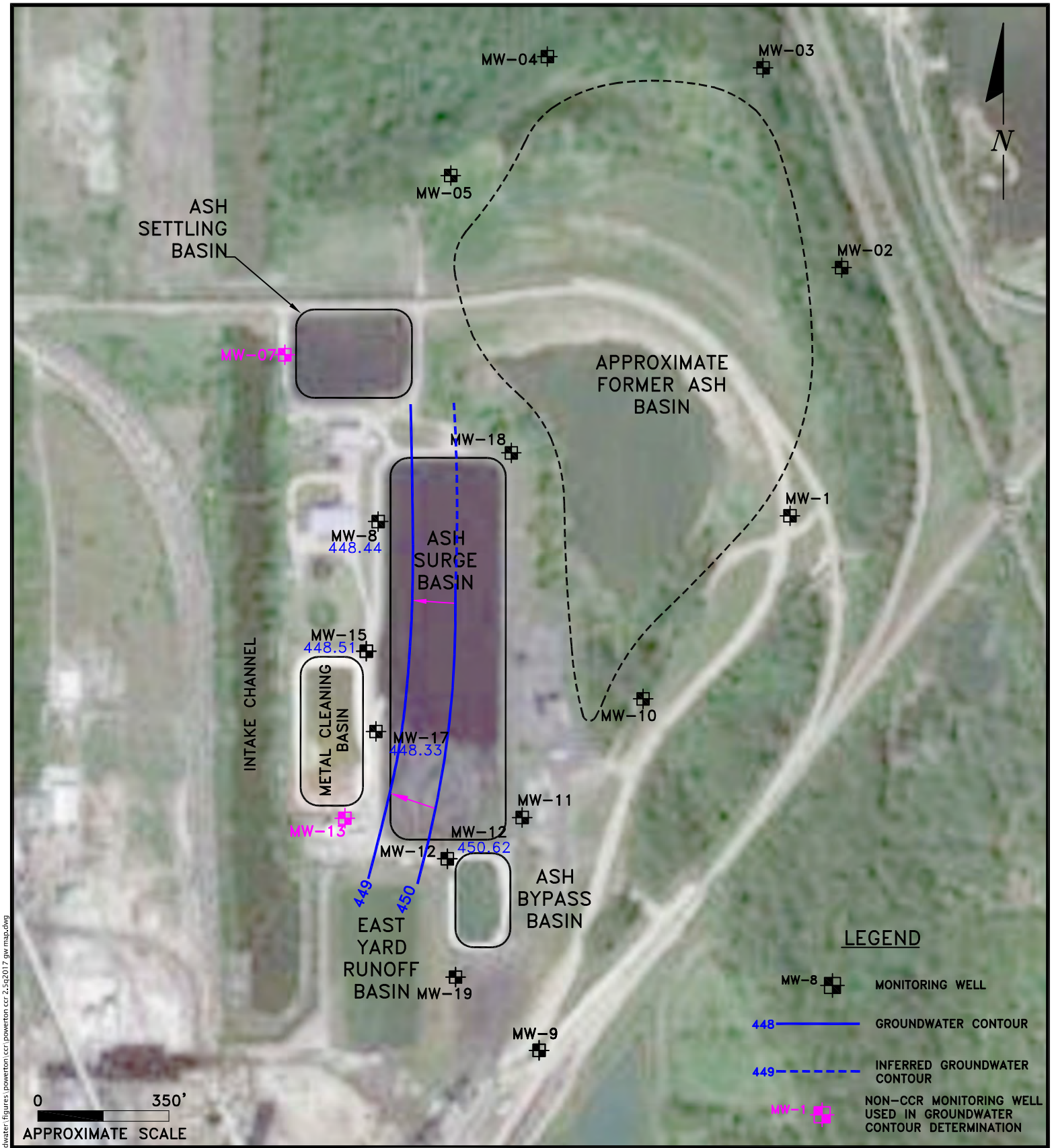
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 05/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: June 22, 2017

KPRG Project No. 12313.1 | FIGURE 15



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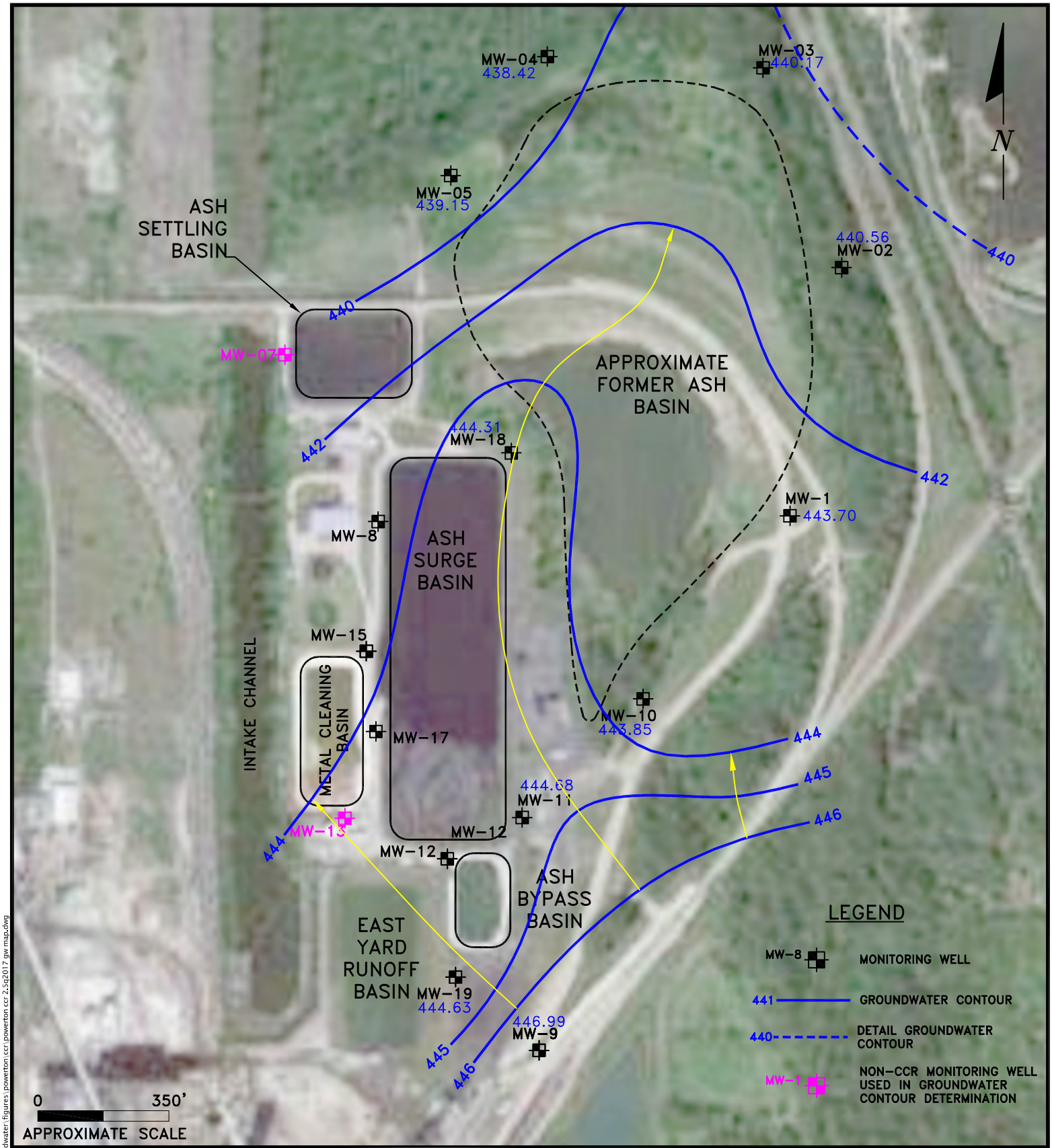
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 06/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: August 9, 2017
KPRG Project No. 12313.1	FIGURE 16



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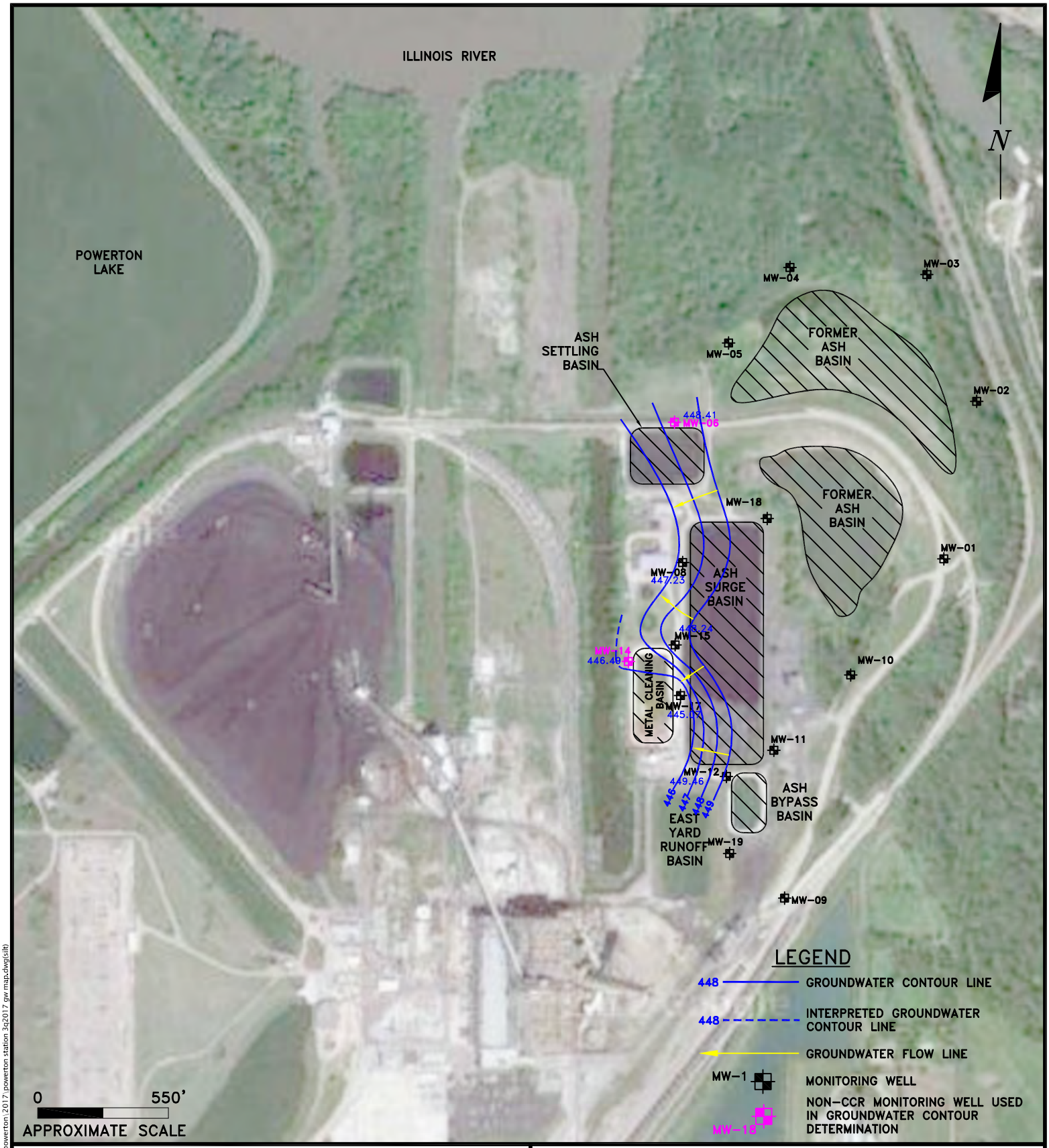
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 06/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: August 9, 2017
KPRG Project No. 12313.1	FIGURE 17



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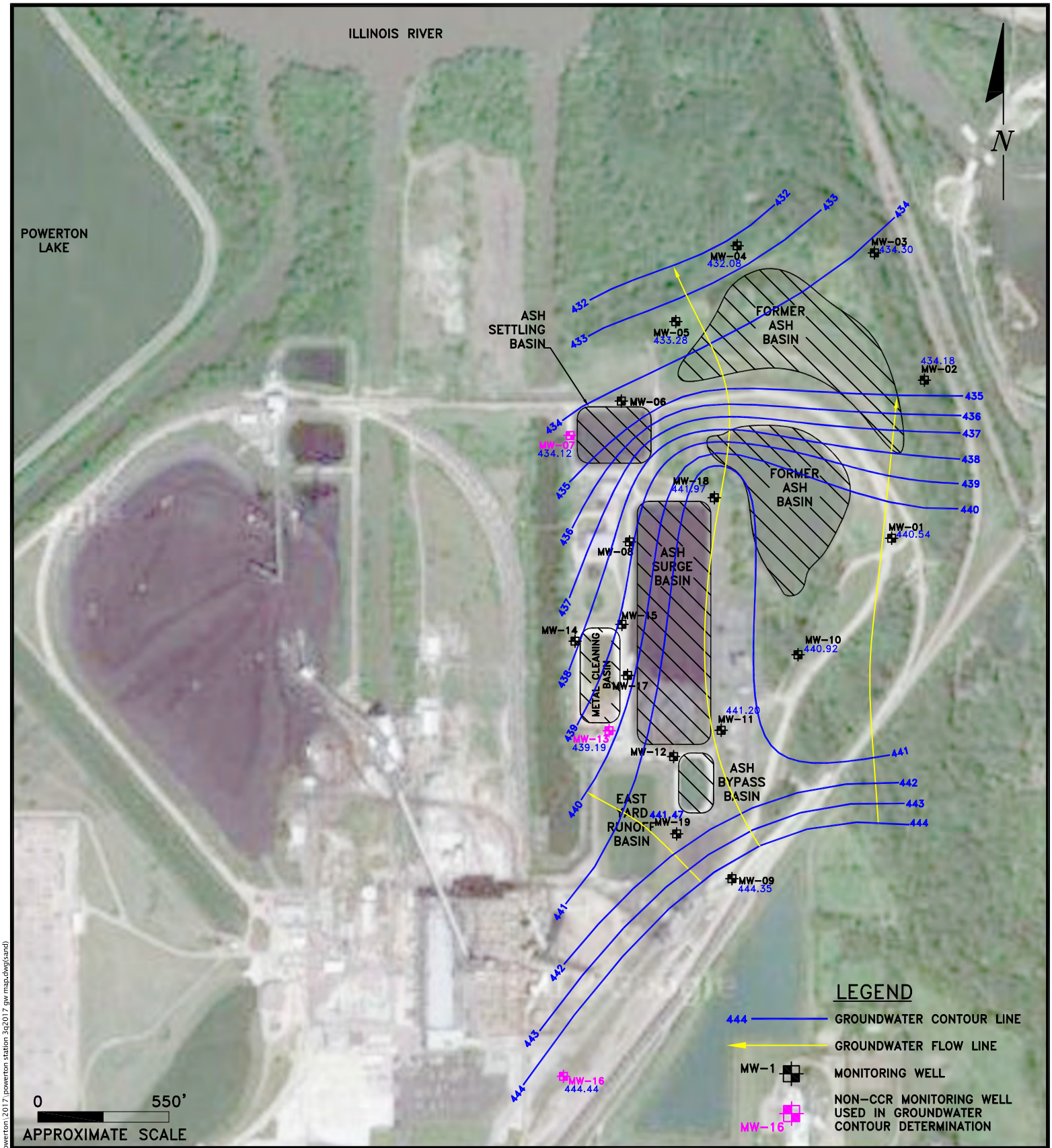
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 08/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550' | Date: October 18, 2017

KPRG Project No. 12313.1 | FIGURE 18



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CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 08/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550' | Date: October 18, 2017

KPRG Project No. 12313.1 | FIGURE 19

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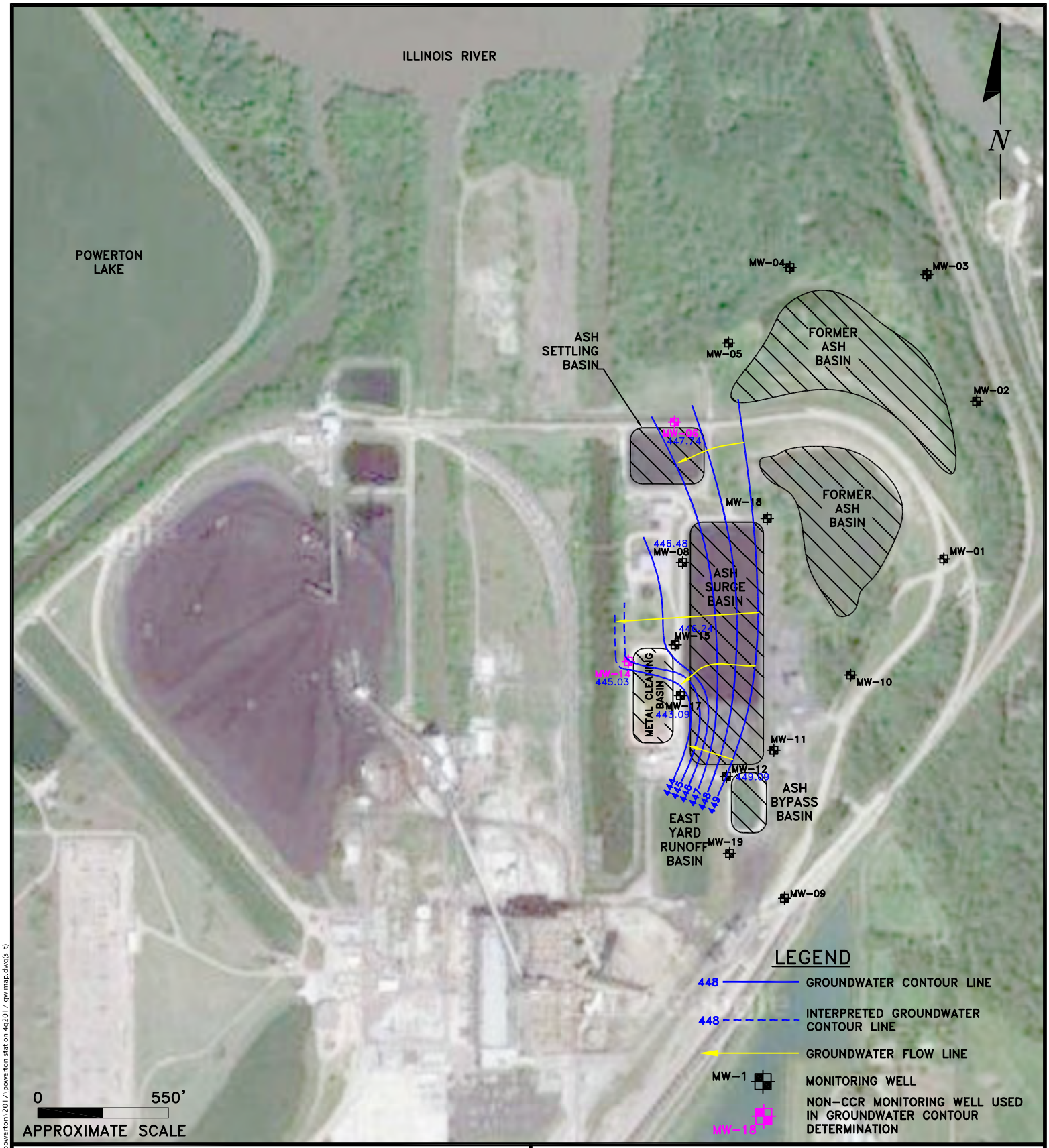

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CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 11/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550' | Date: December 18, 2017

KPRG Project No. 12313.1 | FIGURE 20

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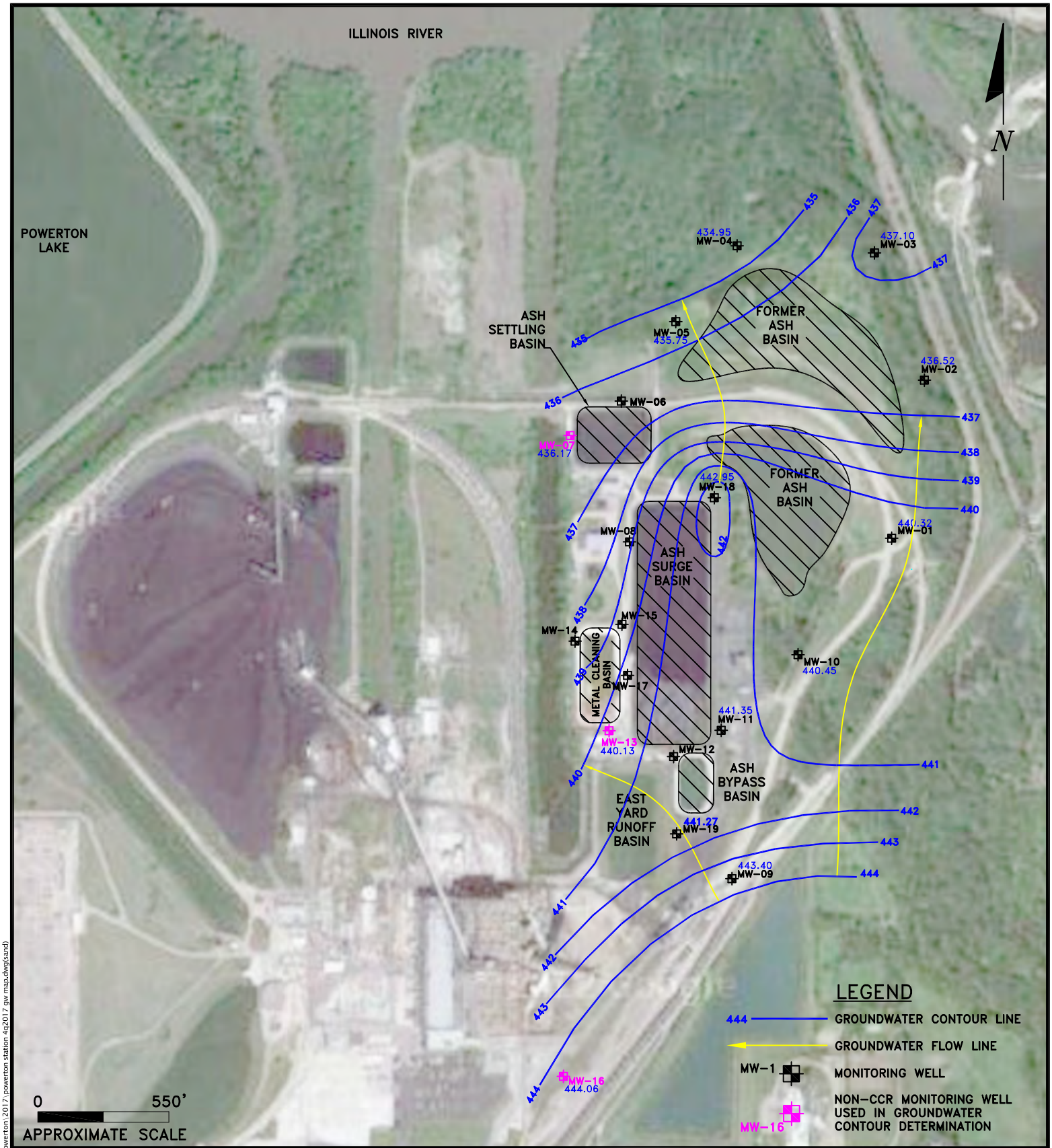

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CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 11/2017

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550' | Date: December 18, 2017

KPRG Project No. 12313.1 | FIGURE 21

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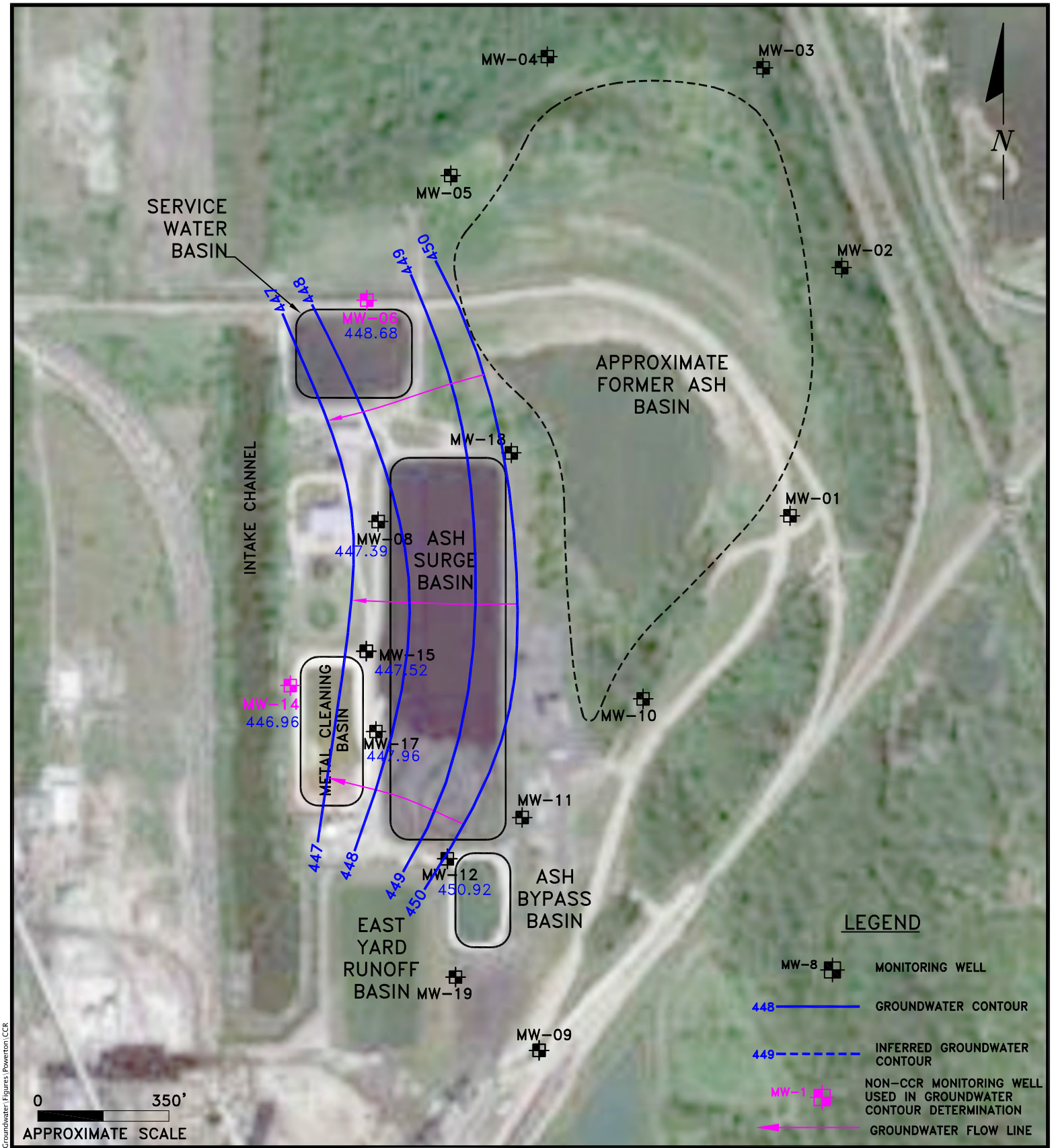

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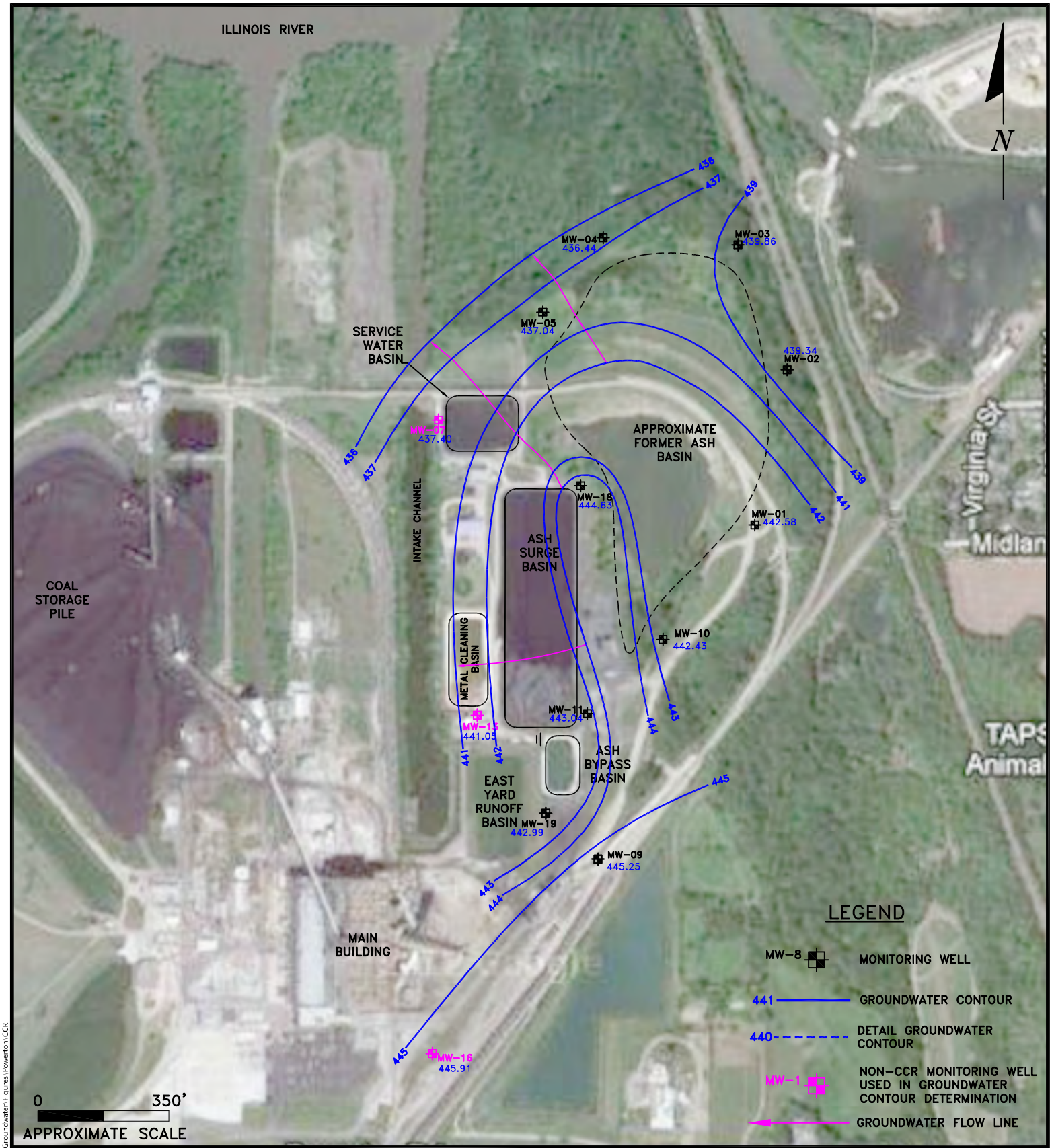
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 05/2018

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: June 08, 2018
KPRG Project No. 12313.1	FIGURE 2



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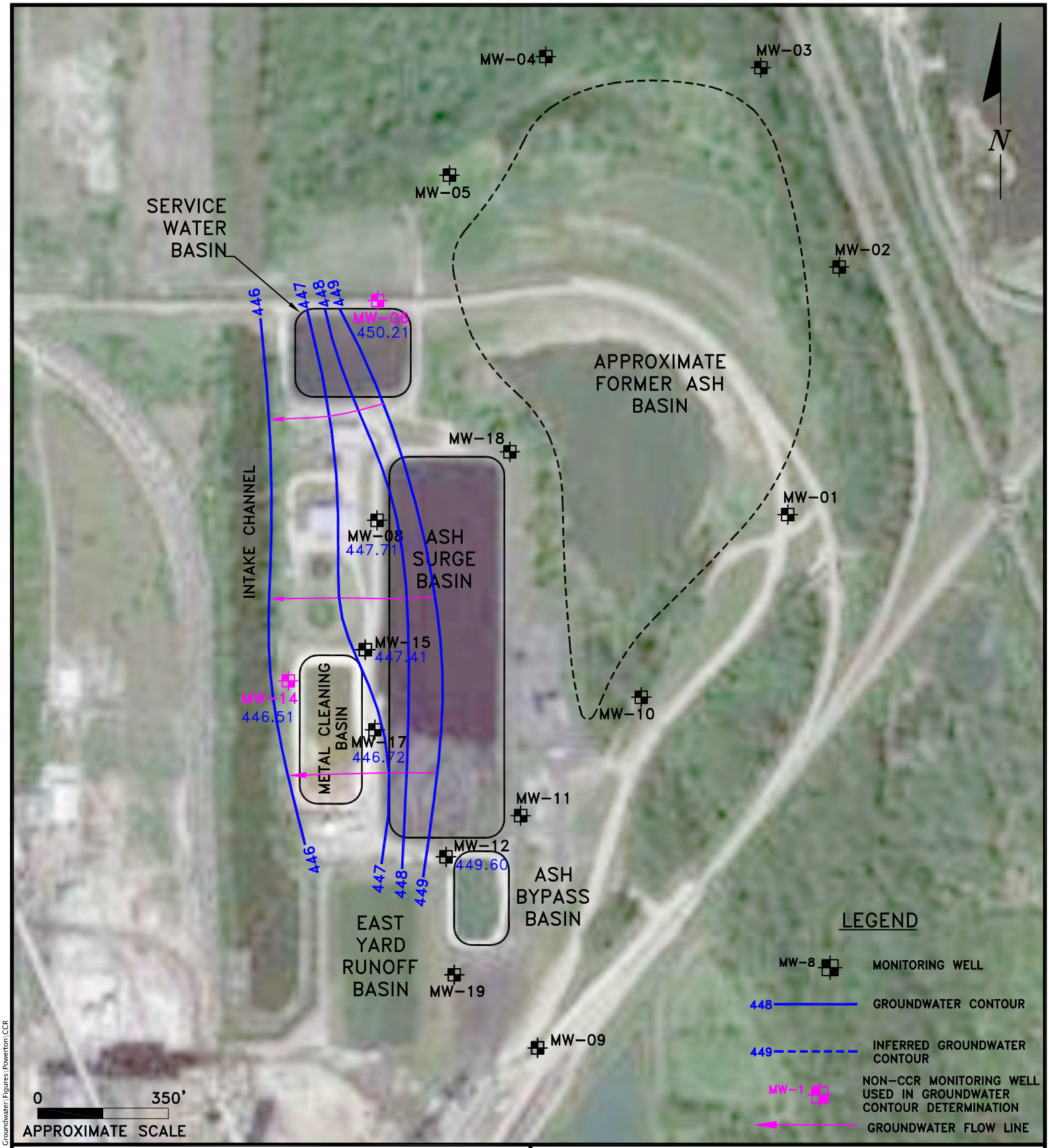
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 05/2018

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: June 08, 2018
KPRG Project No. 12313.1	FIGURE 3



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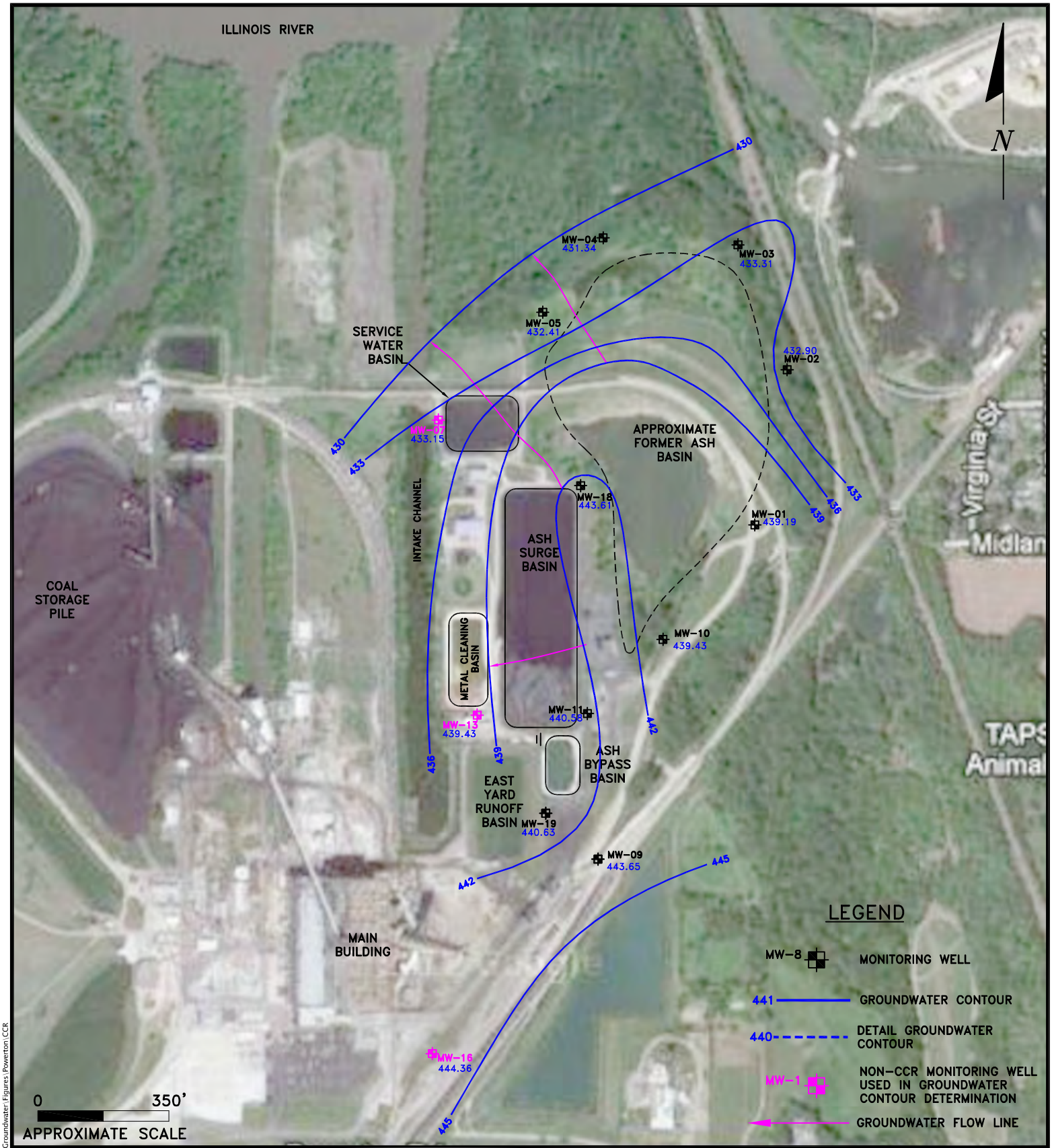
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 08/2018

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: October 08, 2018
KPRG Project No. 12313.1	FIGURE 4



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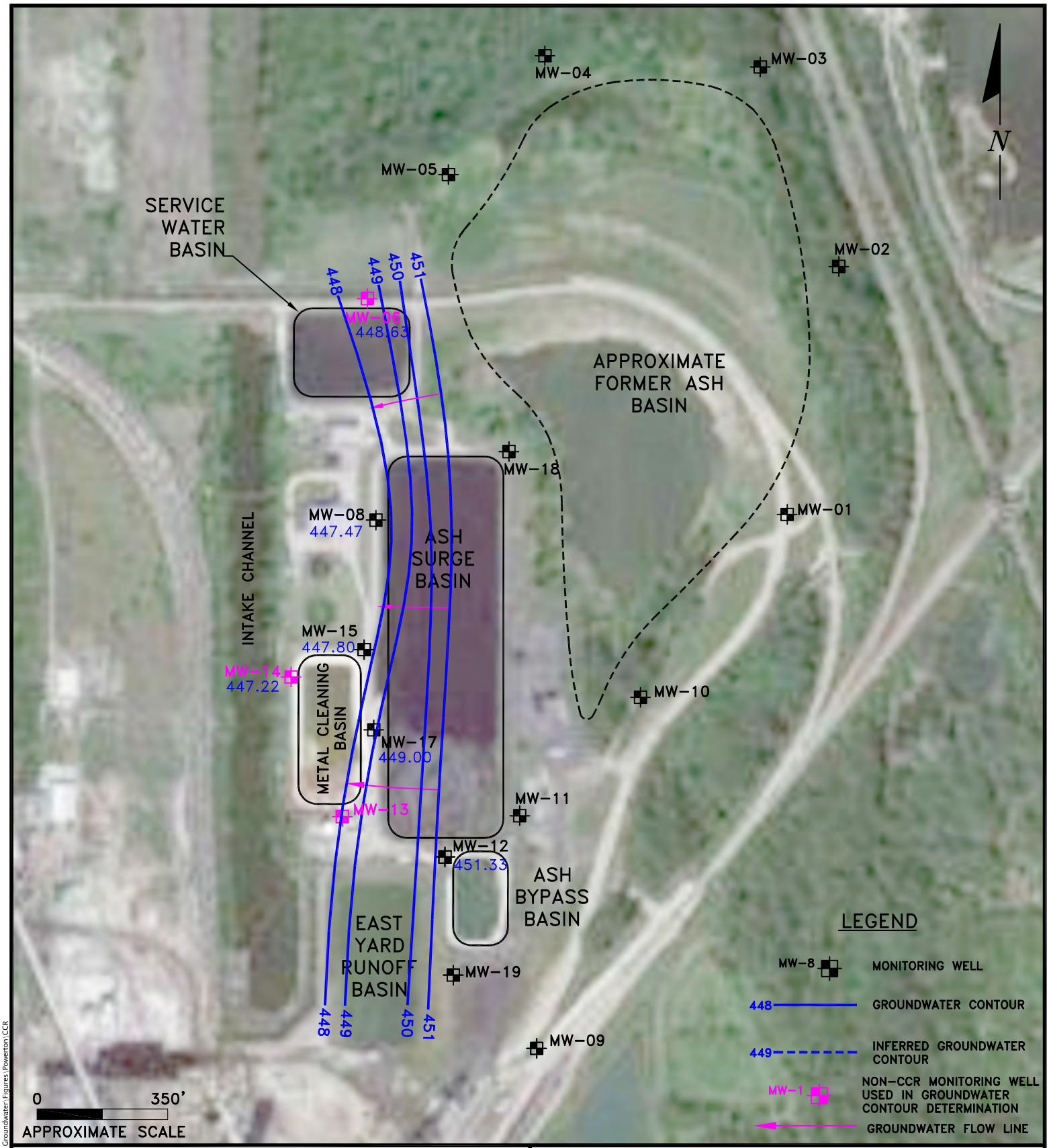
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 08/2018

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: June 08, 2018
KPRG Project No. 12313.1	FIGURE 5



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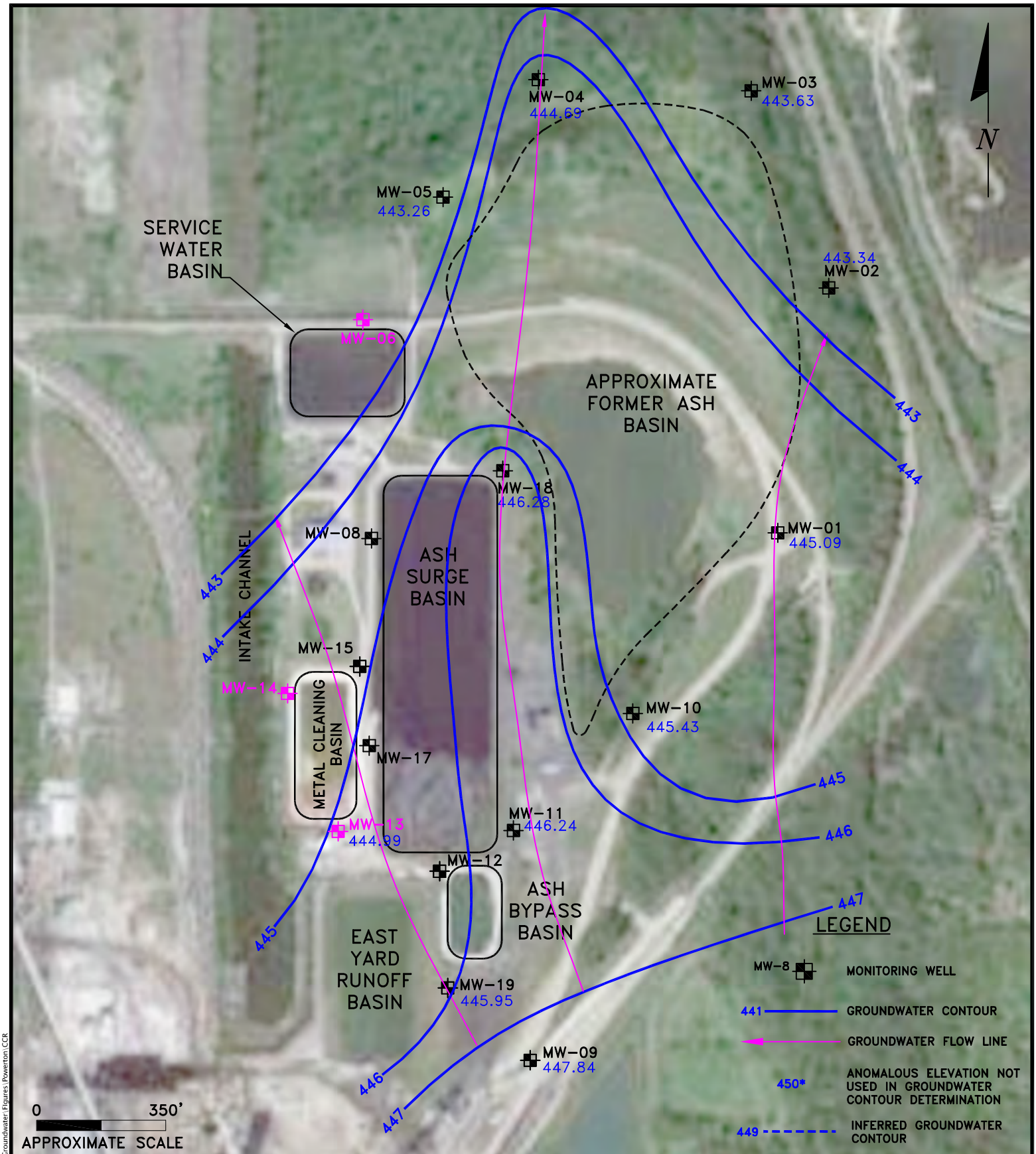
CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 05/2019

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: June 28, 2019

KPRG Project No. 12313.1 | FIGURE 2



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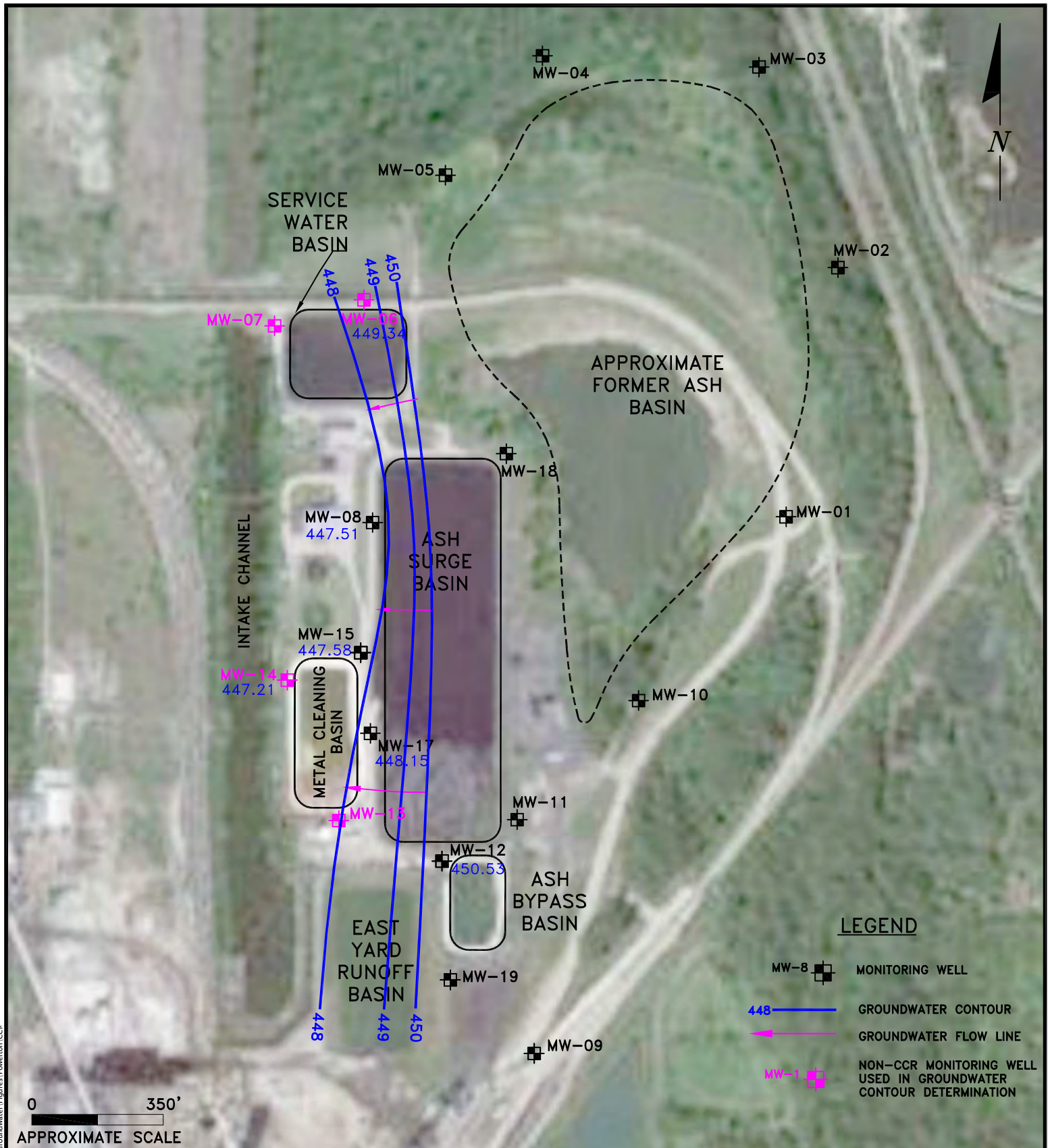
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 05/2019

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: June 28, 2019

KPRG Project No. 12313.1 | FIGURE 3



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CCR GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 11/2019

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: December 19, 2019

KPRG Project No. 12313.1 | FIGURE 4

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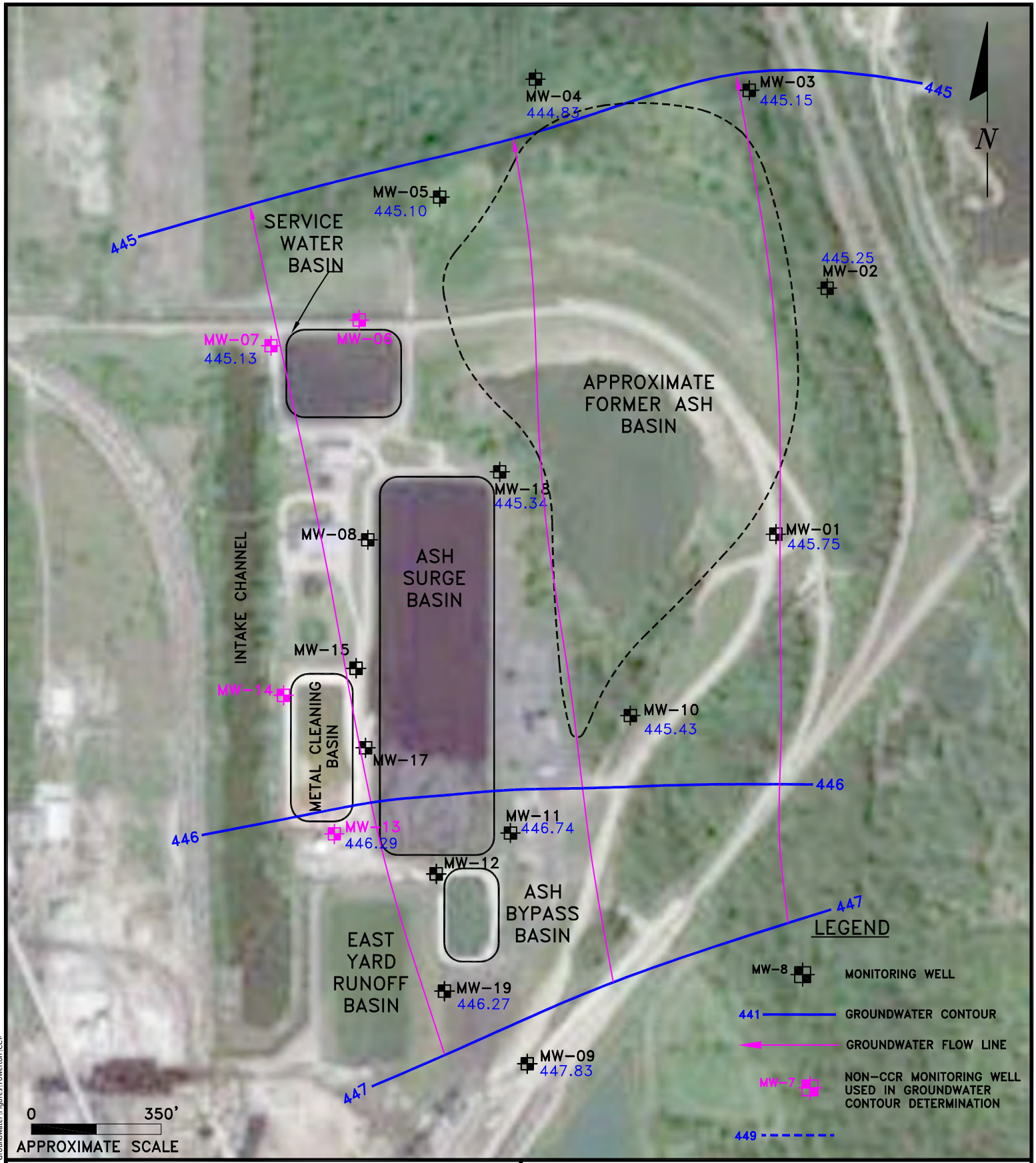

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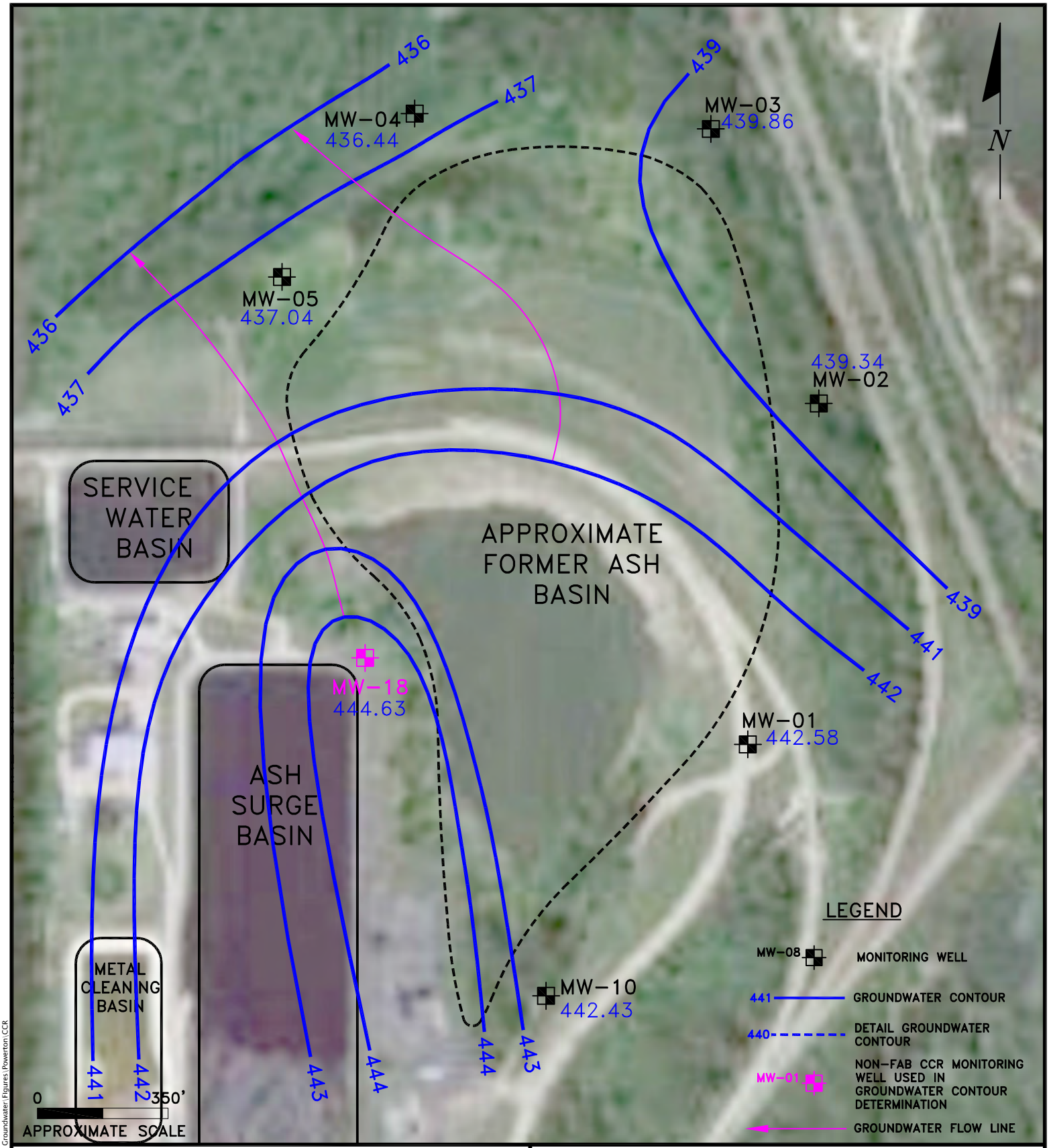
CCR GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 11/2019

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: December 19, 2019

KPRG Project No. 12313.1 | FIGURE 5



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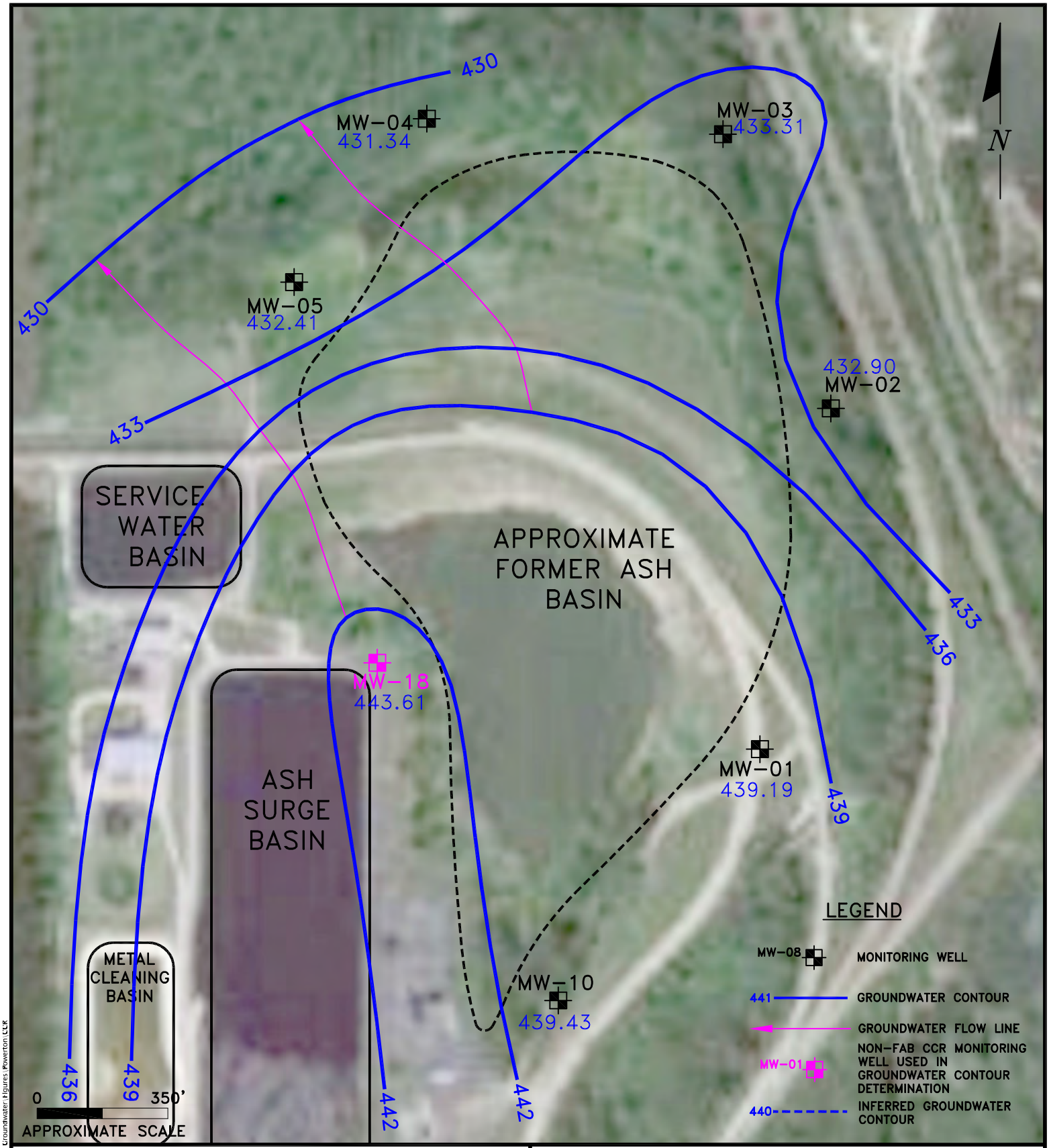
CCR GROUNDWATER CONTOUR MAP FOR FORMER ASH BASIN 05/2018

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: January 07, 2019

KPRG Project No. 12313.1 | FIGURE 2



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CCR GROUNDWATER CONTOUR MAP FOR FORMER ASH BASIN 08/2018

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: January 07, 2019

KPRG Project No. 12313.1 | FIGURE 3

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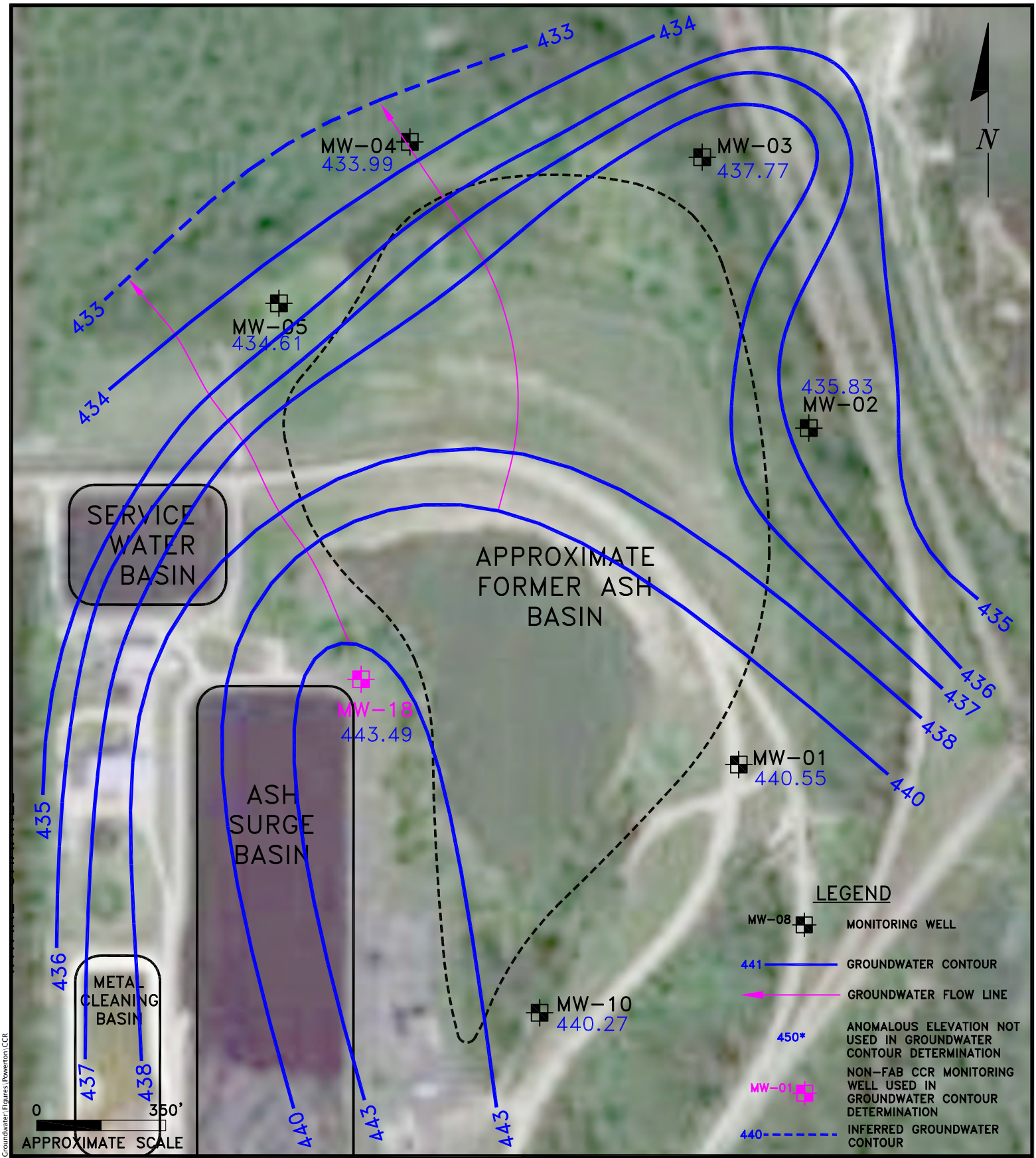

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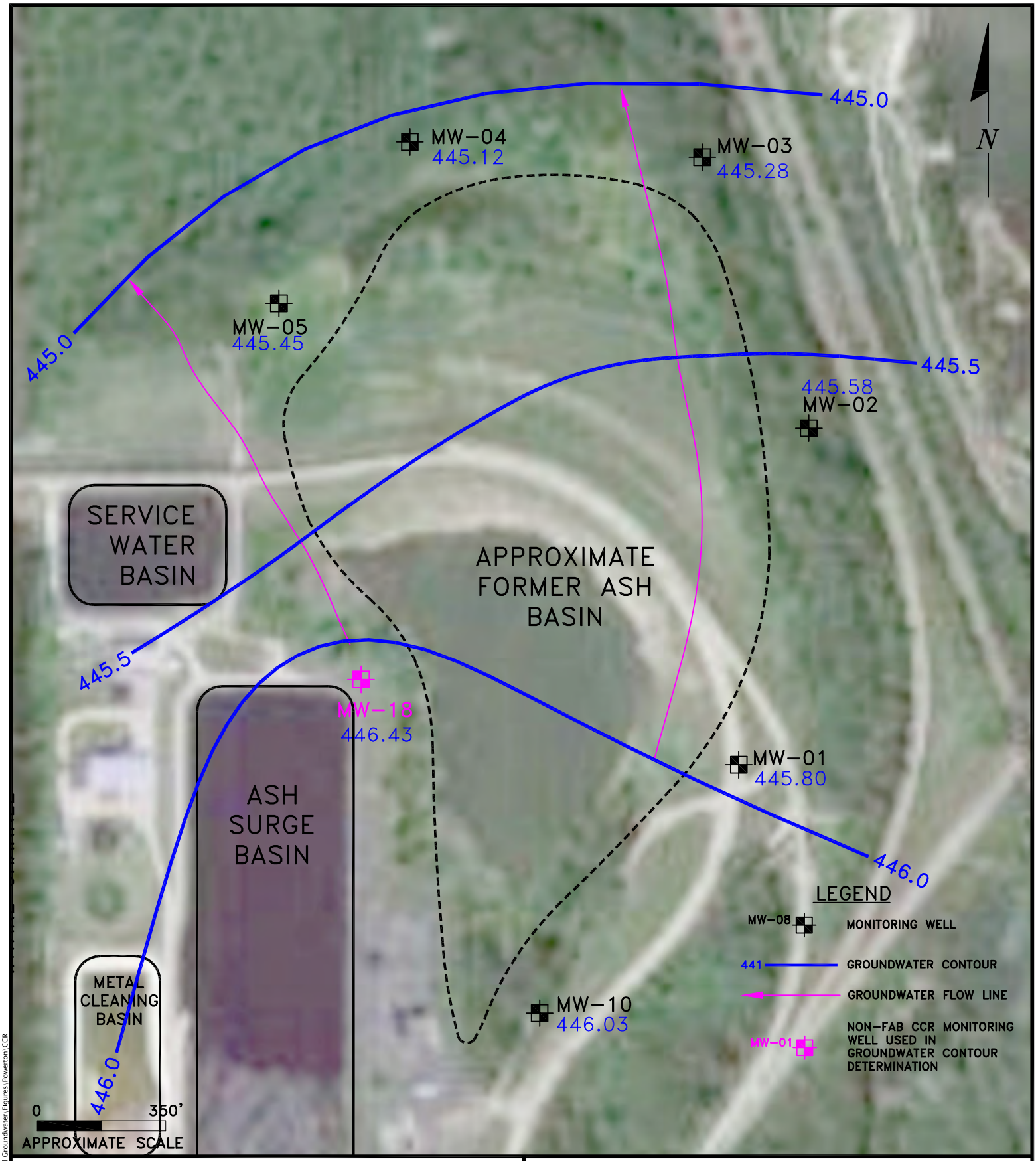
CCR GROUNDWATER CONTOUR MAP FOR FORMER ASH BASIN 10/2018

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: January 07, 2019

KPRG Project No. 12313.1 | FIGURE 4



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KPRG and Associates, inc.

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

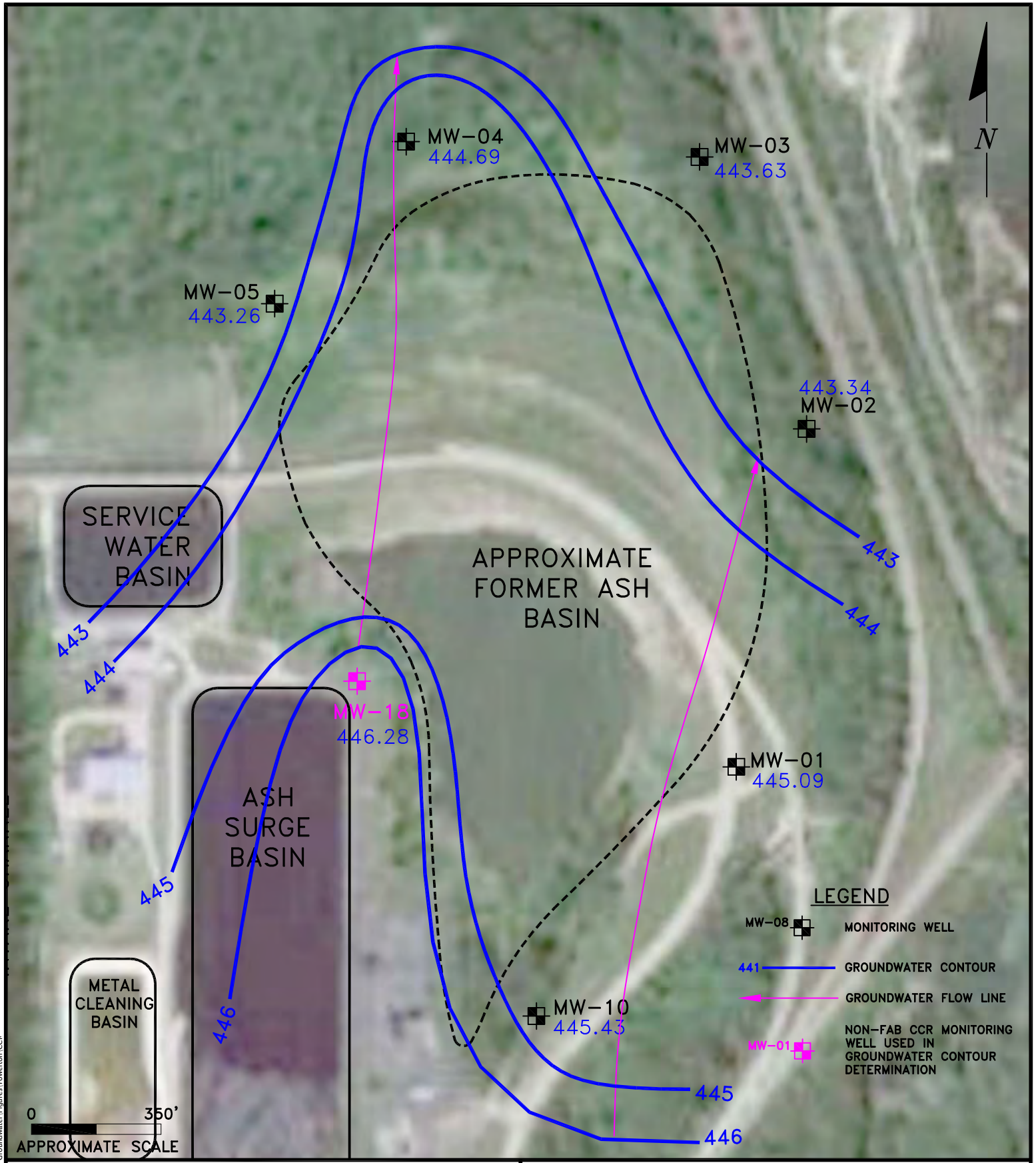
14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

CCR GROUNDWATER CONTOUR MAP FOR FORMER ASH BASIN 02/2019

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: April 09, 2019

KPRG Project No. 12313.1 | FIGURE 2



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CCR GROUNDWATER CONTOUR MAP FOR FORMER ASH BASIN 05/2019

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350'	Date: June 28, 2019
KPRG Project No. 12313.1	FIGURE 3

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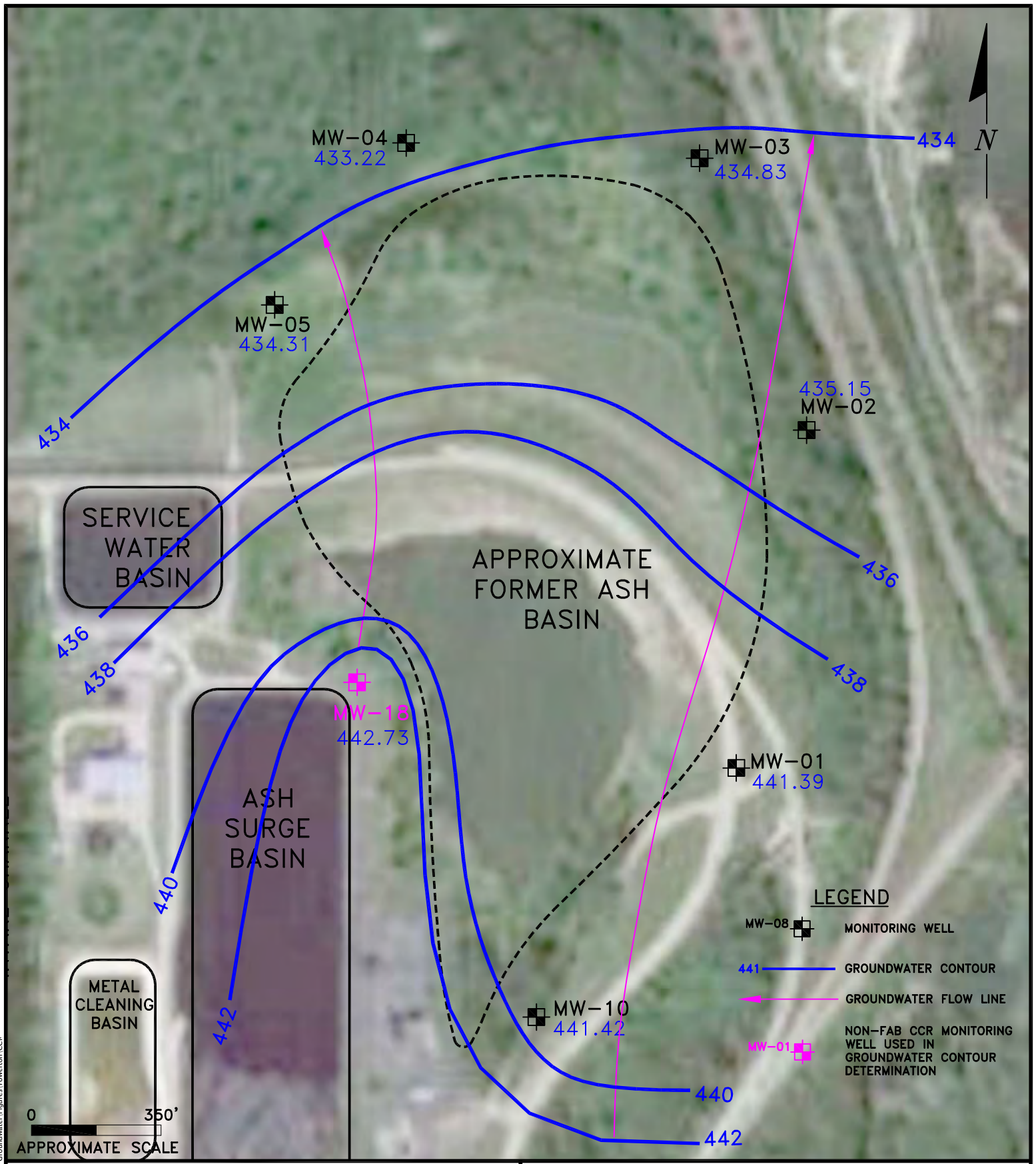

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14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

CCR GROUNDWATER CONTOUR MAP FOR FORMER ASH BASIN 08/2019

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 350' | Date: August 30, 2019

KPRG Project No. 12313.1 | FIGURE 4

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APPENDIX C.3
Analytical Data Tables Thru 2nd Quarter 2020

Table C.3-1. Ash Surge Basin/By-pass Basin Assessment Monitoring - Appendix III Groundwater Analytical Results through Second Quarter 2020 - Midwest Generation, LLC, Powerton Station, Pekin, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-01 (S) up-gradient	11/16/2015	1.0	98	44	0.17	7.07	93	530
	2/25/2016	0.2	110	42	0.16	7.23	54	460
	5/20/2016	0.34	100	44	0.17	6.95	65	430
	8/17/2016	0.27	78	39	0.25	7.16	50	530
	11/16/2016	0.18	97	39	0.21	7.22	32	500
	2/14/2017	0.18	120	55	0.17	7.30	60	550
	5/3/2017	0.19	86	66	0.16	7.41	45	460
	6/21/2017	0.18	85	58	0.18	7.60	47	540
	Pred. Limit*	**1.0**	**142**	**81**	**0.25**	**7.90-6.58**	**115**	**648**
	8/25/2017	0.56	86	41	0.18	7.41	63	490
	11/8/2017	0.57	130	38	0.12	6.69	61	640
	5/17/2018	0.15	88	50	0.12	6.7	48	540
	8/8/2018	0.14	86	48	0.13	6.8	43	430
	4/30/2019	0.07	78	54	0.17	7.2	27	450
	11/13/2019	0.52	95	47	0.18	7.51	41	390
	4/28/2020	0.33	110	46	0.19	7.17	41	470
MW-09 (S) up-gradient	11/18/2015	2.0	63	H 31	H 0.19	7.15	H 110	H 440
	2/25/2016	2.3	77	36	0.19	7.34	120	500
	5/19/2016	2.0	73	38	0.17	7.30	100	520
	8/17/2016	2.7	74	39	0.15	7.32	120	750
	11/17/2016	4.5	85	38	0.13	7.37	110	630
	2/15/2017	4.1	84	38	0.13	6.94	160	620
	5/3/2017	3.5	85	38	0.17	7.48	170	680
	6/21/2017	3.3	82	38	0.14	7.63	180	760
	Pred. Limit*	**6.19**	**103**	**39**	**0.24**	**7.99-6.64**	**236**	**1000**
	8/25/2017	3.8	85	36	0.14	7.30	150	630
	11/8/2017	4	89	37	0.13	6.92	190	650
	5/16/2018	4.1	89	36	0.15	7.83	180	550
	8/8/2018	4.3	86	39	0.14	7.31	180	690
	5/1/2019	4.6	79	37	0.17	7.11	170	640
	11/14/2019	2.5	85	36	0.18	7.49	82	500
	4/29/2020	2	71	34	0.2	7.19	140	510
MW-19^ (S) up-gradient	11/18/2016	3.8	89	38	0.13	7.34	120	670
	2/15/2017	4.7	88	37	0.13	7.50	180	630
	5/5/2017	3.3	88	38	0.14	7.51	160	640
	6/21/2017	2.3	110	35	0.12	7.30	170	690
	8/28/2017	3.5	97	36	0.16	7.20	160	700
	11/6/2017	4.5	86	35	0.17	7.26	190	640
	5/14/2018	4.1	96	35	0.16	7.92	180	820
	8/6/2018	3.8	100	37	0.13	7.57	170	720
	Pred. Limit*	**6.2**	**121**	**41**	**0.20**	**8.20-6.70**	**236**	**890**
	5/2/2019	3.7	100	39	0.13	6.86	160	700
	11/13/2019	2.5	130	**53**	0.15	7.51	140	740
	4/27/2020	2.3	100	**43**	0.17	6.87	110	570
MW-08 (CL) down-gradient	11/18/2015	1.5	160	H 170	H 0.44	7.61	H 470	H 1300
	2/25/2016	1.7	160	200	0.30	7.00	280	1100
	5/18/2016	1.7	160	140	0.34	7.67	300	1200
	8/17/2016	1.0	150	230	0.35	7.33	360	1400
	11/15/2016	1.2	140	290	0.33	6.90	230	1300
	2/16/2017	1.5	150	460	0.28	7.00	230	1500
	5/2/2017	0.55	140	300	0.33	7.30	320	1300
	6/21/2017	1.2	160	490	0.30	7.27	350	1700
	Pred. Limit	**1.0**	**136**	**77**	**0.24****	**7.73-6.83****	**107**	**788****
	8/29/2017	**1.2**	**150**	**360**	**0.47**	7.29	**300**	**1500**
	11/8/2017	0.68	130	**260**	**0.45**	7.27	**270**	**1200**
	5/17/2018	**1.2**	130	**200**	**0.37**	6.79	**170**	**1000**
	8/8/2018	**1.1**	140	**270**	**0.32**	6.93	**190**	**1200**
	5/1/2019	0.54	95	73	**0.35**	7.60	85	600
	11/13/2019	0.98	110	**92**	**0.33**	7.66	**110**	640
	4/28/2020	0.74	110	**120**	**0.38**	7.58	58	660

Notes: All units are in mg/l except pH is in standard units.
Pred. Limit - Prediction Limit
(S) - Sandy Unit
(CL) - Silty Clay Unit
* - Intrawell Prediction Limit. All others are interwell comparisons.
** - Based on pooled background from MW-01/MW-09. All others based on MW-01 as background.
^ - Recently installed upgradient well. Insufficient rounds of sampling for statistical evaluation at this time.
Italics Date - First round of Detection Monitoring and resample after statistical background establishment.

Bold - Potential statistically significant increase.
F1 - MS and/or MSD Recovery outside of limits.
H - Sample was prepped or analyzed beyond the specified holding time.
V- Serial dilution exceeds control limits.

Table C.3-1. Ash Surge Basin/By-pass Basin Assessment Monitoring - Appendix III Groundwater Analytical Results through Second Quarter 2020 - Midwest Generation, LLC, Powerton Station, Pekin, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-11 (S) down-gradient	11/18/2015	1.7	110	H 54	H 0.55	7.06	H 160	H 670
	2/26/2016	1.5	140	120	0.55	7.25	220	850
	5/20/2016	1.6	140	120	0.56	7.10	210	920
	8/17/2016	1.0	130	93	0.67	7.08	180	910
	11/17/2016	1.2	140	130	0.44	7.21	240	1100
	2/16/2017	1.6	140	110	0.40	6.62	260	910
	5/3/2017	1.3	160	160	0.42	7.36	440	1300
	6/22/2017	1.2	140	120	0.60	7.21	260	1000
	Pred. Limit	**1.0**	**136**	**77**	**0.24****	**7.73-6.83****	**107**	**788****
	8/29/2017	**2.2**	130	**83**	**0.52**	7.23	**310**	**1100**
	11/9/2017	**1.5**	**140**	**100**	**0.59**	6.96	**230**	**970**
	5/16/2018	**2.0**	**140**	**88**	**0.61**	**7.89**	**270**	**1000**
	8/9/2018	**1.4**	**160**	**120**	**0.65**	7.24	**220**	**1000**
	5/1/2019	**2.3**	110	60	**0.62**	7.08	**200**	730
	11/14/2019	**1.8**	120	**83**	**0.55**	7.43	**150**	**890**
	4/29/2020	**1.2**	100	**110**	**0.62**	7.08	**320**	**950**
MW-12 (CL) down-gradient	11/19/2015	0.94	160	H 220	H 0.57	7.12	H 650	H 1400
	2/26/2016	0.42	130	200	0.40	7.96	530	1200
	5/20/2016	0.65	150	200	0.49	7.28	550	1400
	8/18/2016	0.69	170	200	0.49	7.06	620	1600
	11/18/2016	0.83	140	180	0.46	7.34	340	1300
	2/16/2017	0.48	140	190	0.37	7.54	630	1300
	5/3/2017	0.49	120	190	0.37	7.47	500	1200
	6/22/2017	0.50	130	190	0.48	7.36	580	1400
	Pred. Limit	**1.0**	**136**	**77**	**0.24****	**7.73-6.83****	**107**	**788****
	8/29/2017	0.78	**140**	**180**	**0.52**	7.34	**520**	**1400**
	11/10/2017	0.94	130	**170**	**0.48**	7.38	**370**	**1200**
	5/16/2018	0.46	100	**180**	**0.47**	**8.12**	**720**	**1500**
	8/9/2018	0.61	120	**190**	**0.44**	7.42	**480**	**1300**
	5/1/2019	0.4	100	**170**	**0.38**	7.68	**330**	**1000**
	11/14/2019	0.74	120	**160**	**0.45**	7.61	**280**	**1100**
	4/29/2020	0.34	71	**150**	**0.34**	**7.96**	**360**	**980**
MW-15 (CL) down-gradient	11/18/2015	1.5	270	H 210	H 0.53	6.55	H 1400	H 2400
	2/25/2016	2.0	240	110	0.61	6.84	640	1700
	5/19/2016	2.7	320	240	0.53	6.83	1200	2800
	8/18/2016	1.5	200	F1 170	0.54	6.96	660	1900
	11/17/2016	1.3	120	180	0.47	6.91	560	1900
	2/17/2017	1.9	200	190	0.43	7.24	670	1700
	5/4/2017	1.5	180	190	0.57	7.35	670	1700
	6/21/2017	1.6	180	200	0.56	7.30	530	1600
	Pred. Limit	**1.0**	**136**	**77**	**0.24****	**7.73-6.83****	**107**	**788****
	8/29/2017	**2.2**	**190**	**200**	**0.53**	6.87	**540**	**1800**
	11/10/2017	**1.6**	**170**	**180**	**0.63**	7.09	**530**	**1500**
	5/17/2018	**2.3**	**200**	**160**	**0.5**	**6.75**	**680**	**1800**
	8/9/2018	**2.3**	**200**	**200**	**0.48**	7.06	**520**	**1700**
	5/2/2019	**1.5**	**180**	**200**	**0.52**	6.89	**420**	**1500**
	11/14/2019	**1.8**	**170**	**170**	**0.5**	7.24	**260**	**1300**
	4/29/2020	**1.2**	**160**	**200**	**0.58**	6.90	**370**	**1300**
MW-17 (CL) down-gradient	11/19/2015	1.6	210	H 230	H 0.43	7.11	H 850	H 1800
	2/22/2016	1.8	290	280	0.55	7.19	960	2100
	5/18/2016	1.4	200	230	0.64	7.02	700	1800
	8/15/2016	1.1	220	220	0.60	7.08	860	2100
	11/14/2016	1.5	200	210	0.56	7.26	560	2000
	2/13/2017	1.6	190	230	0.56	6.84	770	1600
	5/4/2017	1.2	170	210	0.61	7.29	720	1500
	6/22/2017	0.95	150	230	0.72	7.38	580	1600
	Pred. Limit	**1.0**	**136**	**77**	**0.24****	**7.73-6.83****	**107**	**788****
	8/29/2017	**1.4**	**190**	**230**	**0.64**	7.19	**640**	**1900**
	11/6/2017	**1.7**	**190**	**240**	**0.62**	7.27	**840**	**1800**
	5/14/2018	**1.6**	**170**	**220**	**0.6**	**7.79**	**800**	**1700**
	8/6/2018	**1.3**	**170**	**230**	**0.6**	7.12	**620**	**1600**
	4/29/2019	0.98	**150**	**190**	**0.66**	7.25	**660**	**1500**
	11/13/2019	1.9	**230**	**600**	**0.55**	7.16	**730**	**2300**
	4/27/2020	**1.2**	**150**	**170**	**0.79**	7.27	**520**	**1300**
MW-18 (S) down-gradient	11/19/2015	0.80	140	H 220	H 0.66	7.62	H 310	H 1200
	2/22/2016	0.76	150	220	0.68	7.06	310	1200
	5/18/2016	0.72	120	230	0.71	7.68	230	1200
	8/15/2016	0.67	130	210	0.64	7.52	330	1300
	11/18/2016	0.94	130	200	0.58	7.69	250	1300
	2/15/2017	0.56	140	190	0.50	7.81	340	1200
	5/5/2017	0.46	130	180	0.52	8.12	360	1100
	6/21/2017	0.53	120	190	0.51	8.10	320	1200
	Pred. Limit	**1.00**	**136**	**77**	**0.24****	**7.73-6.83****	**107**	**788****
	8/28/2017	0.65	120	**200**	**0.53**	**7.81**	**310**	**1200**
	11/6/2017	0.67	120	**190**	**0.57**	**7.74**	**400**	**1200**
	5/14/2018	0.57	130	**180**	**0.59**	**8.27**	**440**	**1200**
	8/6/2018	0.58	120	**230**	**0.57**	**7.88**	**270**	**1100**
	4/29/2019	0.54	120	**180**	**0.61**	**7.77**	**170**	**1000**
	11/13/2019	0.79	130	**180**	**0.56**	**8.26**	**210**	**1100**
	4/27/2020	0.6	120	**170**	**0.69**	**7.90**	**180**	**1000**

Notes: All units are in mg/l except pH is in standard units.
Pred. Limit - Prediction Limit
(S) - Sandy Unit
(CL) - Silty Clay Unit
* - Intrawell Prediction Limit. All others are interwell comparisons.
** - Based on pooled background from MW-01/MW-09. All others based on MW-01 as background.
^ - Recently installed upgradient well. Insufficient rounds of sampling for statistical evaluation at this time.
Italics Date - First round of Detection Monitoring and resample after statistical background establishment.

Bold - Potential statistically significant increase.
F1 - MS and/or MSD Recovery outside of limits.
H - Sample was prepped or analyzed beyond the specified holding time.
V- Serial dilution exceeds control limits.

Table C.3-2 Ash Surge Basin/By-pass Basin Assessment Monitoring - Detected Appendix IV Groundwater Analytical Results Second Quarter 2020 - Midwest Generation, LLC, Powerton Station, Pekin, IL.

Well	Date	Arsenic	Barium	Cadmium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
MW-01 up-gradient	11/16/2015	< 0.001	0.057	< 0.0005	< 0.001	0.17	* < 0.0005	< 0.01	< 0.0002	< 0.0050	0.744	< 0.0025	* < 0.002
	2/25/2016	0.0025	0.053	< 0.0005	0.0014	0.16	0.0019	< 0.01	< 0.0002	< 0.005	< 0.722	0.0029	< 0.002
	5/20/2016	0.0081	0.062	< 0.0005	0.0053	0.17	0.011	< 0.01	< 0.0002	< 0.005	< 0.953	< 0.0025	< 0.002
	8/17/2016	0.0014	0.048	< 0.0005	< 0.001	0.25	0.0014	< 0.010	< 0.0002	0.0057	< 0.491	< 0.0025	< 0.002
	11/16/2016	0.0051	0.056	< 0.0005	0.0044	0.21	0.0082	< 0.01	< 0.0002	0.0059	< 0.618	< 0.0025	< 0.002
	2/14/2017	0.0041	0.056	< 0.0005	0.0045	0.17	0.0076	< 0.01	< 0.0002	0.0056	< 0.837	< 0.0025	< 0.002
	5/3/2017	0.0015	0.045	< 0.0005	0.0033	0.16	0.0067	< 0.01	< 0.0002	< 0.005	0.574	< 0.0025	< 0.002
	6/21/2017	< 0.001	0.04	< 0.0005	< 0.001	0.18	< 0.0005	< 0.01	< 0.0002	0.0061	< 0.418	< 0.0025	< 0.002
	8/25/2017	< 0.001	0.049	< 0.0005	< 0.001	0.18	< 0.0005	< 0.01	< 0.0002	0.0059	0.775	< 0.0025	< 0.002
	11/8/2017	< 0.001	0.083	< 0.0005	< 0.001	0.12	< 0.0005	< 0.01	< 0.0002	< 0.005	0.343	< 0.0025	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/17/2018	< 0.001	0.045	< 0.0005	< 0.001	0.12	0.00068	< 0.01	< 0.0002	< 0.005	< 0.396	< 0.0025	< 0.002
	8/8/2018	< 0.001	0.051	< 0.0005	< 0.001	0.13	< 0.0005	< 0.01	< 0.0002	< 0.005	0.579	< 0.0025	< 0.002
	4/30/2019	0.0014	0.039	< 0.0005	< 0.001	0.17	0.0017	< 0.01	< 0.0002	< 0.005	< 0.656	< 0.0025	< 0.002
	11/13/2019	0.029	0.091	0.00085	**0.016**	0.18	**0.034**	0.012	< 0.0002	0.0079	0.884	< 0.0025	< 0.002
	4/28/2020	< 0.001	0.051	< 0.0005	< 0.001	0.19	< 0.0005	< 0.01	< 0.0002	< 0.005	0.628	< 0.0025	< 0.002
MW-09 up-gradient	11/18/2015	< 0.001	0.027	< 0.0005	< 0.001	H 0.19	< 0.0005	< 0.01	H < 0.0002	0.043	< 0.655	< 0.0025	< 0.002
	2/25/2016	0.0042	0.036	< 0.0005	0.0011	0.19	< 0.0005	< 0.01	< 0.0002	0.053	< 0.361	< 0.0025	< 0.002
	5/19/2016	< 0.001	0.029	< 0.0005	< 0.001	0.17	< 0.0005	< 0.01	< 0.0002	0.042	< 0.394	0.0032	< 0.002
	8/17/2016	< 0.001	0.031	< 0.0005	< 0.001	0.15	< 0.0005	< 0.01	< 0.0002	0.036	< 0.498	< 0.0025	< 0.002
	11/17/2016	0.0038	0.039	< 0.0005	< 0.001	0.13	< 0.0005	< 0.010	< 0.0002	0.036	0.646	0.0025	< 0.002
	2/15/2017	0.0032	0.043	< 0.0005	< 0.001	0.13	< 0.0005	< 0.010	< 0.0002	0.035	< 0.377	0.0062	< 0.002
	5/3/2017	0.0012	0.034	< 0.0005	< 0.001	0.17	< 0.0005	< 0.010	< 0.0002	0.034	< 0.445	0.011	< 0.002
	6/21/2017	< 0.001	0.037	< 0.0005	< 0.001	0.14	< 0.0005	< 0.010	< 0.0002	0.033	< 0.380	0.0072	< 0.002
	8/25/2017	< 0.001	0.044	< 0.0005	< 0.001	0.14	< 0.0005	< 0.010	< 0.0002	0.028	< 0.160	0.0043	< 0.002
	11/8/2017	0.0012	0.048	< 0.0005	< 0.001	0.13	< 0.0005	< 0.010	< 0.0002	0.026	0.344	< 0.0025	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/16/2018	< 0.001	0.038	< 0.0005	< 0.001	0.15	< 0.0005	< 0.010	0.00029	0.031	< 0.424	0.006	< 0.002
	8/8/2018	< 0.001	0.037	< 0.0005	< 0.001	0.14	< 0.0005	< 0.010	< 0.0002	0.032	0.44	0.0078	< 0.002
	5/1/2019	< 0.001	0.038	< 0.0005	< 0.001	0.17	< 0.0005	< 0.010	< 0.0002	0.031	< 0.66	0.0036	< 0.002
	11/14/2019	0.0056	0.057	< 0.0005	0.0032	0.18	0.00076	< 0.010	< 0.0002	0.026	< 0.457	< 0.0025	< 0.002
	4/29/2020	0.0012	0.031	< 0.0005	< 0.001	0.2	< 0.0005	< 0.010	< 0.0002	0.028	< 0.698	< 0.0025	< 0.002
MW-19 up-gradient	11/18/2016	< 0.001	0.084	< 0.0005	0.001	0.13	0.00068	< 0.01	< 0.0002	0.035	< 0.476	0.0043	< 0.002
	2/15/2017	< 0.001	0.088	< 0.0005	< 0.001	0.13	0.00061	< 0.01	< 0.0002	0.046	< 0.482	0.0063	< 0.002
	5/5/2017	< 0.001	0.076	< 0.0005	0.0013	0.14	0.0012	< 0.01	< 0.0002	0.035	0.923	0.0068	< 0.002
	6/21/2017	< 0.001	0.089	< 0.0005	< 0.001	0.12	< 0.0005	< 0.01	< 0.0002	0.024	< 0.334	0.0028	< 0.002
	8/28/2017	< 0.001	0.073	< 0.0005	< 0.001	0.16	< 0.0005	< 0.01	< 0.0002	0.041	0.370	0.0035	< 0.002
	11/6/2017	< 0.001	0.071	< 0.0005	< 0.001	0.17	< 0.0005	< 0.01	< 0.0002	0.042	0.360	< 0.0025	< 0.002
	5/14/2018	< 0.001	0.079	< 0.0005	< 0.001	0.16	< 0.0005	< 0.01	< 0.0002	0.043	0.562	0.0044	< 0.002
	8/7/2018	< 0.001	0.078	< 0.0005	< 0.001	0.13	< 0.0005	< 0.01	< 0.0002	0.032	0.835	0.0052	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/2/2019	< 0.001	0.1	< 0.0005	< 0.001	0.1	< 0.0005	< 0.01	< 0.0002	0.03	< 0.431	0.0035	< 0.002
	11/13/2019	0.0014	0.1	< 0.0005	< 0.001	0.2	0.00056	< 0.01	< 0.0002	0.04	< 0.447	< 0.0025	< 0.002
	4/27/2020	< 0.001	0.1	< 0.0005	< 0.001	0.2	< 0.0005	< 0.01	< 0.0002	0.04	0.630	< 0.0025	< 0.002
MW-08 down-gradient	11/18/2015	0.0029	0.15	< 0.0005	< 0.001	H 0.44	< 0.0005	0.028	H < 0.0002	0.01	< 0.559	< 0.0025	< 0.002
	2/25/2016	0.0018	0.11	0.00052	< 0.001	0.30	0.00072	0.015	< 0.0002	0.02	0.535	< 0.0025	< 0.002
	5/18/2016	0.0029	0.16	< 0.0005	< 0.001	0.34	< 0.0005	0.036	< 0.0002	0.0069	0.417	< 0.0025	< 0.002
	8/17/2016	0.0032	0.15	< 0.0005	< 0.001	0.35	< 0.0005	0.023	< 0.0002	0.013	< 0.519	< 0.0025	< 0.002
	11/15/2016	0.0012	0.076	< 0.0005	< 0.001	0.33	< 0.0005	0.017	< 0.0002	0.016	0.583	< 0.0025	< 0.002
	2/16/2017	0.003	0.086	< 0.0005	< 0.001	0.28	0.00087	< 0.01	< 0.0002	0.026	< 0.375	< 0.0025	< 0.002
	5/2/2017	0.0029	0.13	< 0.0005	< 0.001	0.33	< 0.0005	0.022	< 0.0002	0.0083	< 0.480	< 0.0025	< 0.002
	6/21/2017	0.0045	0.14	< 0.0005	< 0.001	0.30	< 0.0005	0.017	< 0.0002	0.031	< 0.439	< 0.0025	< 0.002
	8/29/2017	0.0011	0.062	< 0.0005	< 0.001	0.47	< 0.0005	< 0.01	< 0.0002	0.034	0.699	< 0.0025	< 0.002
	11/8/2017	0.0027	0.10	< 0.0005	< 0.001	0.45	< 0.0005	0.019	< 0.0002	0.014	0.806	< 0.0025	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/17/2018	0.003	0.07	< 0.0005	< 0.001	0.37	< 0.0005	< 0.01	< 0.0002	0.024	0.655	< 0.0025	< 0.002
	8/8/2018	0.0055	0.07	< 0.0005	< 0.001	0.32	< 0.0005	< 0.01	< 0.0002	0.019	< 0.410	< 0.0025	< 0.002
	5/1/2019	0.0018	0.07	< 0.0005	< 0.001	0.35	< 0.0005	0.021	< 0.0002	0.0069	0.892	< 0.0025	< 0.002
	11/13/2019	0.0025	0.087	< 0.0005	< 0.001	0.33	0.00094	0.022	< 0.0002	0.013	< 0.498	< 0.0025	< 0.002
	4/28/2020	0.0026	0.095	< 0.0005	< 0.001	0.38	< 0.0005	0.026	< 0.0002	0.011	< 0.450	< 0.0025	< 0.002

Notes:

All units are in mg/l except Radium is in pCi/L as noted.

Italics - Assessment Monitoring Conducted After Identification of Detected Appendix IV Compounds.

GWPS - Groundwater Protection Standard based on Table 2 and discussion in text

BOLD - Exceeds established GWPS.

F1 - MS and/or MSD Recovery outside of limits.

H - Sample was prepped or analyzed beyond the specified holding time.

* - LCS or LCSD is outside acceptance limits.

^ - Denotes instrument related QC exceeds the control limits

DNYA - Data Not Yet Available

Table C.3-2 Ash Surge Basin/By-pass Basin Assessment Monitoring - Detected Appendix IV Groundwater Analytical Results Second Quarter 2020 - Midwest Generation, LLC, Powerton Station, Pekin, IL.

Well	Date	Arsenic	Barium	Cadmium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
MW-11 down-gradient	11/18/2015	0.017	0.18	< 0.0005	0.002	H 0.55	< 0.0005	< 0.01	H < 0.0002	0.0120	0.788	< 0.0025	< 0.002
	2/26/2016	0.023	0.23	< 0.0005	0.0023	0.55	< 0.0005	< 0.01	< 0.0002	0.013	0.562	< 0.0025	< 0.002
	5/20/2016	0.027	0.26	< 0.0005	0.0024	0.56	0.00076	< 0.01	< 0.0002	0.014	0.524	< 0.0025	< 0.002
	8/17/2016	F1 0.29	1.4	< 0.0005	0.0034	0.67	0.001	< 0.010	< 0.0002	0.011	1.130	< 0.0025	< 0.002
	11/17/2016	0.071	0.44	< 0.0005	0.0037	0.44	0.0013	< 0.01	< 0.0002	0.0088	0.734	< 0.0025	< 0.002
	2/16/2017	0.04	0.3	< 0.0005	0.003	0.40	0.00094	< 0.01	< 0.0002	0.013	0.341	< 0.0025	< 0.002
	5/3/2017	0.039	0.26	< 0.0005	0.0035	0.42	0.00093	< 0.01	< 0.0002	0.015	0.662	< 0.0025	< 0.002
	6/22/2017	0.07	0.36	< 0.0005	0.0025	0.60	< 0.0005	< 0.01	< 0.0002	0.014	< 0.418	< 0.0025	< 0.002
	8/29/2017	**0.017**	0.21	< 0.0005	0.0026	0.52	< 0.0005	< 0.01	< 0.0002	0.016	< 0.313	< 0.0025	< 0.002
	11/9/2017	**0.092**	0.54	< 0.0005	0.0034	0.59	< 0.0005	< 0.01	< 0.0002	0.014	1.24	< 0.0025	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/16/2018	**0.089**	0.47	< 0.0005	0.0041	0.61	< 0.0005	< 0.01	< 0.0002	0.014	1.12	< 0.0025	< 0.002
	8/9/2018	**0.68**	**3.0**	0.0008	0.0053	0.65	0.0012	< 0.01	< 0.0002	0.013	1.48	< 0.0025	< 0.002
	5/1/2019	**0.11**	0.6	< 0.0005	0.0026	0.62	0.0011	< 0.01	< 0.0002	0.014	1.59	< 0.0025	< 0.002
	11/14/2019	**0.14**	0.7	< 0.0005	0.0041	0.55	0.0021	< 0.01	< 0.0002	0.02	2.64	< 0.0025	< 0.002
	4/29/2020	**0.019**	0.2	< 0.0005	0.0019	0.62	< 0.0005	< 0.01	< 0.0002	0.024	0.470	< 0.0025	< 0.002
MW-12 down-gradient	11/19/2015	0.10	0.180	0.00068	< 0.001	H 0.57	0.00063	0.023	H < 0.0002	0.0280	< 0.685	< 0.0025	< 0.002
	2/26/2016	0.077	0.130	0.0016	< 0.001	0.40	0.0014	0.014	< 0.0002	0.0150	1.11	< 0.0025	< 0.002
	5/20/2016	0.065	0.16	0.00077	< 0.001	0.49	0.0016	0.013	< 0.0002	0.028	0.576	< 0.0025	< 0.002
	8/18/2016	0.33	0.88	0.007	0.001	0.49	0.0011	0.015	< 0.0002	0.011	3.68	< 0.0025	< 0.002
	11/18/2016	0.23	0.67	0.0028	< 0.001	0.46	< 0.0005	0.017	< 0.0002	< 0.01	1.86	< 0.0025	< 0.002
	2/16/2017	0.29	0.26	0.0057	0.0013	0.37	0.0042	0.010	< 0.0002	0.015	1.15	< 0.0025	< 0.002
	5/3/2017	0.10	0.17	0.0022	< 0.001	0.37	0.0038	0.011	< 0.0002	0.017	0.518	< 0.0025	< 0.002
	6/22/2017	0.025	0.11	< 0.0005	< 0.001	0.48	0.00096	< 0.010	< 0.0002	0.028	0.376	< 0.0025	< 0.002
	8/29/2017	**0.02**	0.095	< 0.0005	< 0.001	0.52	< 0.0005	0.014	< 0.0002	0.024	0.529	< 0.0025	< 0.002
	11/10/2017	**0.50**	0.45	0.0015	< 0.001	0.48	0.00097	0.018	< 0.0002	0.023	1.67	< 0.0025	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/16/2018	**0.09**	0.1	0.00052	< 0.001	0.47	0.00067	0.012	< 0.0002	0.021	0.741	< 0.0025	< 0.002
	8/9/2018	**0.12**	0.15	0.00084	< 0.001	0.44	0.00072	< 0.010	< 0.0002	0.026	0.735	< 0.0025	< 0.002
	5/1/2019	**0.04**	0.13	0.00054	< 0.001	0.38	0.0012	0.014	< 0.0002	0.011	0.666	< 0.0025	< 0.002
	11/14/2019	**0.026**	0.072	< 0.0005	< 0.001	0.45	< 0.0005	0.014	< 0.0002	0.027	0.568	< 0.0025	< 0.002
	4/29/2020	0.0029	0.03	< 0.0005	< 0.001	0.34	< 0.0005	0.012	< 0.0002	0.015		< 0.0025	< 0.002
MW-15 down-gradient	11/18/2015	0.03	0.096	0.00061	< 0.001	H 0.53	< 0.0005	0.042	H < 0.0002	0.023	< 0.599	0.0065	< 0.002
	2/25/2016	0.025	0.083	< 0.0005	< 0.001	0.61	< 0.0005	0.041	< 0.0002	0.035	0.870	0.045	< 0.002
	5/19/2016	0.04	0.097	0.00098	< 0.001	0.53	< 0.0005	0.044	< 0.0002	0.041	< 0.420	0.0067	< 0.002
	8/18/2016	0.13	0.11	0.0041	< 0.001	0.54	< 0.0005	0.028	< 0.0002	0.027	< 0.672	0.0061	< 0.002
	11/17/2016	0.0033	0.031	< 0.0005	< 0.0010	0.47	< 0.0005	0.016	< 0.0002	0.018	< 0.570	0.0078	< 0.002
	2/17/2017	0.02	0.056	< 0.0005	< 0.0010	0.43	< 0.0005	0.025	< 0.0002	0.027	< 0.392	0.0032	< 0.002
	5/4/2017	0.011	0.049	< 0.0005	< 0.0010	0.57	< 0.0005	0.023	< 0.0002	0.023	< 0.456	0.0034	< 0.002
	6/21/2017	0.0093	0.054	< 0.0005	< 0.0010	0.56	< 0.0005	0.027	< 0.0002	0.03	< 0.347	0.019	< 0.002
	8/29/2017	0.0018	0.044	< 0.0005	< 0.0010	0.53	< 0.0005	0.023	< 0.0002	0.032	0.377	0.0092	< 0.002
	11/10/2017	0.0063	0.046	< 0.0005	< 0.0010	0.63	< 0.0005	0.025	< 0.0002	0.02	< 0.313	0.016	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/17/2018	0.0081	0.05	< 0.0005	< 0.0010	0.5	< 0.0005	0.029	< 0.0002	0.03	0.397	**0.077**	< 0.002
	8/9/2018	0.0083	0.048	< 0.0005	< 0.0010	0.48	< 0.0005	0.026	< 0.0002	0.033	0.566	**0.06**	< 0.002
	5/2/2019	0.0045	0.052	< 0.0005	< 0.0010	0.52	< 0.0005	0.027	< 0.0002	0.023	< 0.424	< 0.0025	< 0.002
	11/14/2019	0.0044	0.053	< 0.0005	< 0.0010	0.5	< 0.0005	0.029	< 0.0002	0.025	< 0.475	< 0.0025	< 0.002
	4/29/2020	0.0036	0.06	< 0.0005	< 0.0010	0.58	< 0.0005	0.027	< 0.0002	0.023	0.578	< 0.0025	< 0.002
MW-17 down-gradient	11/19/2015	0.0028	0.14	< 0.0005	0.0012	H 0.43	0.0012	0.019	H < 0.0002	0.035	< 0.790	< 0.0025	< 0.002
	2/22/2016	0.021	0.051	< 0.0005	0.0012	0.55	< 0.0005	0.038	< 0.0002	0.093	1.07	< 0.0025	< 0.002
	5/18/2016	0.32	0.12	0.0011	0.0015	0.64	< 0.0005	0.026	< 0.0002	0.12	8.27	< 0.0025	0.0028
	8/15/2016	0.34	0.12	0.001	0.0016	0.6	< 0.0005	0.022	< 0.0002	0.1	0.606	< 0.0025	0.0031
	11/14/2016	0.19	0.073	0.00051	0.0012	0.56	< 0.0005	0.022	< 0.0002	0.042	3.76	< 0.0025	0.0021
	2/13/2017	0.35	0.16	0.00093	0.0014	0.56	0.00079	0.019	< 0.0002	0.088	2.08	< 0.0025	0.0025
	5/4/2017	0.24	0.39	0.0023	0.0023	0.61	0.00066	0.016	< 0.0002	0.036	1.91	< 0.0025	0.0065
	6/22/2017	0.41	0.13	0.0007	0.0012	0.72	0.0011	0.022	< 0.0002	0.11	1.21	< 0.0025	0.0022
	8/29/2017	**0.24**	0.092	< 0.0005	< 0.001	0.64	0.00058	0.021	< 0.0002	**0.13**	3.32	< 0.0025	**0.0025**
	11/6/2017	**0.17**	0.38	0.0022	0.0015	0.62	< 0.0005	< 0.01	< 0.0002	0.019	2.54	< 0.0025	**0.0075**
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/14/2018	**0.42**	0.17	0.002	0.0029	0.6	0.0021	0.015	< 0.0002	**0.13**	2.03	< 0.0025	**0.0068**
	8/6/2018	**0.087**	0.055	0.00094	0.0015	0.6	< 0.0005	0.019	< 0.0002	0.084	1.34	< 0.0025	**0.0023**
	4/29/2019	**0.042**	0.04	0.00052	< 0.001	0.66	0.00069	0.015	< 0.0002	0.06	0.517	< 0.0025	< 0.002
	11/13/2019	**0.088**	0.1	0.0015	0.0011	0.55	0.00093	0.021	< 0.0002	0.058	0.643	< 0.0025	**0.0029**
	4/27/2020	**0.026**	0.036	< 0.0005	< 0.001	0.79	0.00081	0.021	< 0.0002	0.075	0.498	< 0.0025	< 0.002
MW-18 down-gradient	11/19/2015	0.0014	0.14	< 0.0005	< 0.001	H 0.66	< 0.0005	0.017	H < 0.0002	0.0051	< 0.845	< 0.0025	< 0.002
	2/22/2016	0.0012	0.15	< 0.0005	< 0.001	0.68	< 0.0005	0.022	< 0.0002	0.0055	1.88	< 0.0025	< 0.002
	5/18/2016	< 0.001	0.13	< 0.0005	< 0.001	0.71	< 0.0005	0.014	< 0.0002	0.0052	< 0.493	< 0.0025	< 0.002
	8/15/2016	< 0.001	0.14	< 0.0005	< 0.001	0.64	< 0.0005	0.012	< 0.0002	0.0059	0.836	< 0.0025	< 0.002
	11/18/2016	< 0.001	0.14	< 0.0005	< 0.001	0.58	< 0.0005	0.013	< 0.0002	0.0053	0.488	< 0.0025	< 0.002
	2/15/2017	< 0.001	0.14	< 0.0005	< 0.001	0.5	< 0.0005	0.014	< 0.0002	0.0058	< 0.347	< 0.0025	< 0.002
	5/5/2017	0.0032	0.12	< 0.0005	< 0.001	0.52	0.00057	0.01	< 0.0002	< 0.005	0.612	< 0.0025	< 0.002
	6/21/2017	< 0.001	0.12	< 0.0005	< 0.001	0.51	< 0.0005	0.014	< 0.0002	0.0051	0.629	< 0.0025	< 0.002
	8/28/2017	< 0.001	0.12	< 0.0005	< 0.001	0.53	< 0.0005	0.012	< 0.0002	0.005	0.498	< 0.0025	< 0.002
	11/6/2017	< 0.001	0.12	< 0.0005	< 0.001	0.57	< 0.0005	0.011	< 0.0002	0.0057	0.755	< 0.0025	< 0.002
	GWPS	**0.011**	**2.0**	**0.005**	**0.009**	**4.0**	**0.018**	**0.04**	**0.002**	**0.10**	**5.0**	**0.05**	**0.002**
	5/14/2018	< 0.001	0.13	< 0.0005	< 0.001	0.59	< 0.0005	0.013	< 0.0002	0.0052	0.641	< 0.0025	< 0.002
	8/6/2018	< 0.001	0.12	< 0.0005	< 0.001	0.57	< 0.0005	0.013	< 0.0002	0.0052	1.02	< 0.0025	< 0.002
	4/29/2019	< 0.001	0.12	< 0.0005	< 0.001	0.61	< 0.0005	0.013	< 0.0002	< 0.005	< 0.445	< 0.0025	< 0.002
	11/13/2019	0.0013	0.12	< 0.0005	< 0.001	0.56	< 0.0005	0.014	< 0.0002	< 0.005	< 0.49	< 0.0025	< 0.002
	4/27/2020	< 0.001	0.12	< 0.0005	< 0.001	0.69	< 0.0005	0.016	< 0.0002	< 0.005	< 0.526	< 0.0025	< 0.002

Notes:

All units are in mg/l except Radium is in pCi/L as noted.

Italics - Assessment Monitoring Conducted After Identification of Detected Appendix IV Compounds.

GWPS - Groundwater Protection Standard based on Table 2 and discussion in text

BOLD - Exceeds established GWPS.

F1 - MS and/or MSD Recovery outside of limits.

H - Sample was prepped or analyzed beyond the specified holding time.

* - LCS or LCSD is outside acceptance limits.

^ - Denotes instrument related QC exceeds the control limits

DNYA - Data Not Yet Available

Table C.3-3. Former Ash Basin Detection Monitoring Appendix III Groundwater Analytical Results Thru Second Quarter 2020 - Midwest Generation, LLC, Powerton Station, Pekin, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-01 up-gradient	11/16/2015	1.0	98	44	0.17	7.07	93	530
	2/25/2016	0.2	110	42	0.16	7.23	54	460
	5/20/2016	0.34	100	44	0.17	6.95	65	430
	8/17/2016	0.27	78	39	0.25	7.16	50	530
	11/16/2016	0.18	97	39	0.21	7.22	32	500
	2/14/2017	0.18	120	55	0.17	7.30	60	550
	5/3/2017	0.19	86	66	0.16	7.41	45	460
	6/21/2017	0.18	85	58	0.18	7.60	47	540
	8/25/2017	0.56	86	41	0.18	7.41	63	490
	11/8/2017	0.57	130	38	0.12	6.69	61	640
	5/17/2018	0.15	88	50	0.12	6.70	48	540
	8/8/2018	0.14	86	48	0.13	6.80	43	430
	4/30/2019	0.07	78	54	0.17	7.20	27	450
	Pred. Limit*	**0.968**	**130.7**	**66.4**	**0.246**	**7.75-6.52**	**89**	**634.4**
	8/26/2019	0.57	100	39	0.13	7.15	71	550
	2/24/2020	0.28	87	53	0.21	7.19	34	410
	4/28/2020	0.33	110	46	0.19	7.17	41	470
MW-10 up-gradient	6/22/2017	0.46	100	48	0.19	6.81	54	1.0
	8/24/2017	0.32	93	51	0.18	7.14	57	480
	11/9/2017	0.36	98	48	0.18	6.78	64	500
	5/16/2018	0.42	93	44	0.19	7.64	80	530
	8/8/2018	0.39	99	58	0.19	7.10	60	550
	10/30/2018	0.34	110	49	0.22	7.65	49	510
	2/26/2019	0.39	150	48	0.21	6.77	36	540
	5/1/2019	0.35	92	50	0.22	6.81	30	470
	Pred. Limit*	**0.499**	**150**	**60**	**0.241**	**7.65-6.77**	**95**	**598**
	8/26/2019	0.30	84	48	0.19	7.09	30	410
	2/25/2020	1.40	110	45	0.23	6.82	59	500
	4/28/2020	1.00	110	41	0.24	6.80	64	550
MW-02 down-gradient	6/20/2017	0.33	90	55	0.19	7.01	47	500
	8/23/2017	V 1.30	86	49	0.19	7.40	61	440
	11/7/2017	3.70	98	46	0.17	7.10	88	550
	5/15/2018	0.22	80	45	0.23	7.71	54	500
	8/7/2018	1.50	89	54	0.15	7.09	51	530
	10/30/2018	0.23	86	43	0.17	7.83	34	480
	2/26/2019	0.07	69	49	0.16	7.82	23	400
	4/30/2019	0.12	79	48	0.16	7.60	30	440
	Pred. Limit	**0.77**	**132**	**62**	**0.25**	**7.69-6.54**	**85**	**609**
	8/26/2019	0.51	86	50	0.18	7.13	32	400
	2/24/2020	0.33	89	53	0.20	7.43	37	410
	4/28/2020	0.33	90	50	0.20	7.32	41	430
MW-03 down-gradient	6/20/2017	0.4	76	54	0.29	7.26	49	480
	8/23/2017	0.40	79	52	0.28	7.44	52	430
	11/7/2017	0.31	79	62	0.26	7.04	61	460
	5/15/2018	0.35	87	66	0.27	7.53	77	520
	8/7/2018	0.40	82	67	0.22	6.60	49	500
	10/30/2018	0.20	74	44	0.25	7.84	26	400
	2/26/2019	0.06	74	56	0.24	7.49	25	410
	4/30/2019	0.28	74	49	0.22	7.17	38	390
	Pred. Limit	**0.77**	**132**	**62**	**0.25**	**7.69-6.54**	**85**	**609**
	8/26/2019	0.31	75	50	**0.26**	7.17	14	380
	2/24/2020	0.33	87	53	0.22	7.10	65	470
	4/28/2020	0.24	86	46	0.22	7.03	79	410
MW-04 down-gradient	6/20/2017	0.5	77	55	0.29	7.45	53	480
	8/28/2017	V 0.73	90	89	0.33	7.13	110	680
	11/7/2017	0.60	110	94	0.24	6.80	130	650
	5/15/2018	0.68	87	66	0.27	7.63	100	630
	8/7/2018	0.79	84	71	0.32	6.72	49	510
	10/30/2018	0.54	100	80	0.24	7.55	91	690
	2/26/2019	0.38	79	55	0.25	7.18	52	490
	4/30/2019	0.36	74	48	0.25	7.08	35	380
	Pred. Limit	**0.77**	**132**	**62**	**0.25**	**7.69-6.54**	**85**	**609**
	8/26/2019	0.64	91	60	0.24	7.08	14	490
	2/24/2020	0.34	81	49	0.20	7.05	67	440
	4/28/2020	0.55	76	52	**0.27**	7.03	47	380
MW-05 down-gradient	5/17/2016	0.70	100	85	0.35	7.08	120	660
	8/16/2016	0.69	110	97	0.30	6.85	150	830
	11/15/2016	0.93	94	66	0.23	6.96	77	620
	2/14/2017	0.79	100	100	0.25	7.25	170	760
	5/1/2017	0.70	100	92	0.28	7.60	170	710
	6/20/2017	0.64	89	63	0.28	7.32	78	550
	8/28/2017	0.62	110	120	0.33	7.05	210	870
	11/7/2017	0.51	99	110	0.31	6.87	160	990
	5/15/2018	0.61	130	89	0.29	7.70	210	910
	8/7/2018	0.49	110	120	0.32	6.56	180	890
	4/30/2019	0.56	84	73	0.36	6.96	120	590
	Pred. Limit	**0.77**	**132**	**62**	**0.25**	**7.69-6.54**	**85**	**609**
	8/26/2019	0.57	110	**75**	**0.29**	7.01	**110**	**660**
	2/24/2020	0.54	110	**70**	**0.36**	6.90	**120**	H **700**
	4/28/2020	0.49	110	56	**0.37**	6.87	**130**	**620**

Notes: All units are in mg/l except pH is in standard units.

Bold - Potential statistically significant increase.

V- Serial dilution exceeds control limits.

*- Intrawell Prediction Limit. All otehers are interwell comparisons.

H- Sample was prepped or analyzed beyond specified holding time

Table C.3-4. Former Ash Basin Appendix IV Groundwater Analytical Results Thru Second Quarter 2020 - Midwest Generation, LLC, Powerton Station, Pekin, IL.

Well	Date	Arsenic	Barium	Chromium	Cobalt	Fluoride	Lead	Molybdenum	Radium 226 + 228 Combined	Selenium
MW-01 up-gradient	11/16/2015	< 0.001	0.057	< 0.005	< 0.001	0.17	* < 0.0005	< 0.0050	0.744	< 0.0025
	2/25/2016	0.0025	0.053	< 0.005	0.0014	0.16	0.0019	< 0.005	< 0.722	0.0029
	5/20/2016	0.0081	0.062	0.007	0.0053	0.17	0.011	< 0.005	< 0.953	< 0.0025
	8/17/2016	0.0014	0.048	< 0.005	< 0.001	0.25	0.0014	0.0057	< 0.491	< 0.0025
	11/16/2016	0.0051	0.056	< 0.005	0.0044	0.21	0.0082	0.0059	< 0.618	< 0.0025
	2/14/2017	0.0041	0.056	< 0.005	0.0045	0.17	0.0076	0.0056	< 0.837	< 0.0025
	5/3/2017	0.0015	0.045	< 0.005	0.0033	0.16	0.0067	< 0.005	0.574	< 0.0025
	6/21/2017	< 0.001	0.040	< 0.005	< 0.001	0.18	< 0.0005	0.0061	< 0.418	< 0.0025
	8/25/2017	< 0.001	0.049	< 0.005	< 0.001	0.18	< 0.0005	0.0059	0.775	< 0.0025
	11/8/2017	< 0.001	0.083	< 0.005	< 0.001	0.12	< 0.0005	< 0.005	0.343	< 0.0025
	5/17/2018	< 0.001	0.045	< 0.005	< 0.001	0.12	0.00068	< 0.005	< 0.396	< 0.0025
	8/8/2018	< 0.001	0.051	< 0.005	< 0.001	0.13	< 0.0005	< 0.005	0.579	< 0.0025
	4/30/2019	0.0014	0.039	< 0.005	< 0.001	0.17	0.0017	< 0.005	< 0.656	< 0.0025
	GWPS	**0.022**	**2.0**	**0.063**	**0.119**	**4.0**	**0.036**	**0.1**	**5.0**	**0.05**
	8/26/2019	< 0.001	0.053	< 0.005	< 0.001	0.13	< 0.0005	< 0.005	0.802	< 0.0025
	2/24/2020	< 0.001	0.044	< 0.005	< 0.001	0.21	0.00057	< 0.005	< 0.478	< 0.0025
	4/28/2020	< 0.001	0.051	< 0.005	< 0.001	0.19	< 0.0005	< 0.005	0.628	< 0.0025
MW-10 up-gradient	6/22/2017	0.0023	0.250	< 0.005	0.008	0.19	0.003	< 0.005	0.408	0.0042
	8/24/2017	0.0020	0.220	< 0.005	0.007	0.18	0.003	< 0.005	0.564	0.0044
	11/9/2017	< 0.0010	0.220	< 0.005	0.004	0.18	< 0.001	< 0.005	1.020	0.0034
	5/16/2018	0.0010	0.220	< 0.005	0.021	0.19	0.001	< 0.005	1.550	0.0050
	8/8/2018	0.0012	0.220	< 0.005	0.014	0.19	0.001	< 0.005	< 0.551	0.0062
	10/30/2018	0.0110	0.410	0.024	0.047	0.22	0.023	< 0.005	3.00	0.0046
	2/26/2019	0.0220	0.590	0.063	0.081	0.21	0.036	0.007	4.130	0.0041
	5/1/2019	0.0023	0.270	< 0.005	0.011	0.22	0.0028	< 0.005	1.330	0.0037
	GWPS	**0.022**	**2.0**	**0.063**	**0.119**	**4.0**	**0.036**	**0.1**	**5.0**	**0.05**
	8/26/2019	0.0017	0.190	< 0.005	0.007	0.19	0.0016	< 0.005	1.540	0.0050
	2/25/2020	0.0033	0.280	0.0086	0.011	0.23	0.0046	< 0.005	1.07	0.0058
	4/28/2020	0.0022	0.250	< 0.005	0.007	0.24	0.0017	< 0.005	0.639	0.0054
MW-02 down-gradient	6/20/2017	0.0012	0.075	< 0.005	< 0.001	0.19	< 0.0005	< 0.005	< 0.341	< 0.0025
	8/23/2017	< 0.001	0.062	< 0.005	< 0.001	0.19	< 0.0005	< 0.005	0.833	< 0.0025
	11/7/2017	0.0014	0.091	< 0.005	< 0.001	0.17	< 0.0005	< 0.005	< 0.309	0.0027
	5/15/2018	0.0013	0.065	< 0.005	< 0.001	0.23	< 0.0005	< 0.005	< 0.408	< 0.0025
	8/7/2018	0.0016	0.067	< 0.005	< 0.001	0.15	< 0.0005	< 0.005	0.622	< 0.0025
	10/30/2018	0.0015	0.067	< 0.005	< 0.001	0.17	< 0.0005	< 0.005	0.564	< 0.0025
	2/26/2019	0.0026	0.041	< 0.005	< 0.001	0.16	0.0013	< 0.005	< 0.425	< 0.0025
	4/30/2019	0.0013	0.048	< 0.005	< 0.001	0.16	< 0.0005	< 0.005	< 0.441	< 0.0025
	GWPS	**0.022**	**2.0**	**0.063**	**0.119**	**4.0**	**0.036**	**0.1**	**5.0**	**0.05**
	8/26/2019	0.0011	0.065	< 0.005	< 0.001	0.18	< 0.0005	< 0.005	1.180	< 0.0025
	2/24/2020	0.0011	0.061	< 0.005	< 0.001	0.20	< 0.0005	< 0.005	0.485	< 0.0025
	4/28/2020	0.0016	0.060	< 0.005	< 0.001	0.20	< 0.0005	< 0.005	< 0.54	< 0.0025
MW-03 down-gradient	6/20/2017	0.0013	0.066	< 0.005	< 0.001	0.29	< 0.0005	< 0.005	< 0.325	< 0.0025
	8/23/2017	0.0010	0.066	< 0.005	< 0.001	0.28	< 0.0005	< 0.005	1.200	< 0.0025
	11/7/2017	0.0013	0.068	< 0.005	< 0.001	0.26	< 0.0005	< 0.005	0.588	< 0.0025
	5/15/2018	0.0010	0.059	< 0.005	< 0.001	0.23	< 0.0005	< 0.005	< 0.489	< 0.0025
	8/7/2018	0.0015	0.067	< 0.005	< 0.001	0.22	< 0.0005	< 0.005	< 0.341	< 0.0025
	10/30/2018	0.0014	0.056	< 0.005	< 0.001	0.25	< 0.0005	< 0.005	< 0.354	< 0.0025
	2/26/2019	0.0013	0.054	< 0.005	< 0.001	0.24	0.0007	< 0.005	< 0.399	< 0.0025
	4/30/2019	< 0.001	0.060	< 0.005	< 0.001	0.22	< 0.0005	< 0.005	< 0.668	< 0.0025
	GWPS	**0.022**	**2.0**	**0.063**	**0.119**	**4.0**	**0.036**	**0.1**	**5.0**	**0.05**
	8/26/2019	0.0014	0.069	< 0.005	< 0.001	0.26	< 0.0005	< 0.005	< 0.444	< 0.0025
	2/24/2020	< 0.001	0.066	< 0.005	< 0.001	0.22	< 0.0005	< 0.005	< 0.400	< 0.0025
	4/28/2020	0.0013	0.066	< 0.005	< 0.001	0.22	< 0.0005	< 0.005	< 0.498	0.0036
MW-04 down-gradient	6/20/2017	< 0.001	0.0025	< 0.005	< 0.001	0.29	< 0.0005	< 0.005	< 0.343	< 0.0025
	8/28/2017	< 0.001	0.028	< 0.005	< 0.001	0.33	< 0.0005	0.013	< 0.246	< 0.0025
	11/7/2017	< 0.001	0.051	< 0.005	< 0.001	0.24	< 0.0005	< 0.005	< 0.332	0.0092
	5/15/2018	< 0.001	0.037	< 0.005	< 0.001	0.27	< 0.0005	< 0.005	0.661	< 0.0025
	8/7/2018	0.0011	0.031	< 0.005	< 0.001	0.32	< 0.0005	0.006	< 0.334	< 0.0025
	10/30/2018	< 0.001	0.049	< 0.005	< 0.001	0.24	< 0.0005	< 0.005	0.423	< 0.0025
	2/26/2019	0.0013	0.033	< 0.005	0.001	0.25	0.0012	< 0.005	0.366	< 0.0025
	4/30/2019	< 0.001	0.026	< 0.005	< 0.001	0.25	< 0.0005	< 0.005	< 0.684	< 0.0025
	GWPS	**0.022**	**2.0**	**0.063**	**0.119**	**4.0**	**0.036**	**0.1**	**5.0**	**0.05**
	8/26/2019	< 0.001	0.032	< 0.005	< 0.001	0.24	< 0.0005	0.008	1.090	< 0.0025
	2/24/2020	< 0.001	0.024	< 0.005	< 0.001	0.20	< 0.0005	< 0.005	0.595	< 0.0025
	4/28/2020	< 0.001	0.025	< 0.005	< 0.001	0.27	< 0.0005	< 0.005	< 0.465	< 0.0025
MW-05 down-gradient	5/17/2016	< 0.001	0.051	< 0.005	< 0.001	0.35	< 0.0005	< 0.005	< 0.373	< 0.0025
	8/16/2016	< 0.001	0.060	< 0.005	< 0.001	0.30	< 0.0005	< 0.005	< 0.452	< 0.0025
	11/15/2016	< 0.001	0.051	< 0.005	< 0.001	0.23	< 0.0005	< 0.005	0.449	< 0.0025
	2/14/2017	< 0.001	0.062	< 0.005	< 0.001	0.25	0.00091	< 0.005	< 0.359	< 0.0025
	5/1/2017	< 0.001	0.059	< 0.005	< 0.001	0.28	< 0.0005	0.0066	< 0.439	< 0.0025
	6/20/2017	< 0.001	0.048	< 0.005	< 0.001	0.28	< 0.0005	0.0061	< 0.365	< 0.0025
	8/28/2017	< 0.001	0.064	< 0.005	< 0.001	0.33	< 0.0005	0.0085	0.381	< 0.0025
	11/7/2017	< 0.001	0.058	< 0.005	< 0.001	0.31	< 0.0005	< 0.005	< 0.341	< 0.0025
	5/15/2018	< 0.001	0.062	< 0.005	< 0.001	0.29	< 0.0005	< 0.005	< 0.390	< 0.0025
	8/7/2018	< 0.001	0.054	< 0.005	< 0.001	0.32	< 0.0005	0.0069	0.523	< 0.0025
	4/30/2019	< 0.001	0.041	< 0.005	< 0.001	0.36	< 0.0005	0.0061	< 0.709	< 0.0025
	GWPS	**0.022**	**2.0**	**0.063**	**0.119**	**4.0**	**0.036**	**0.1**	**5.0**	**0.05**
	8/26/2019	< 0.001	0.050	< 0.005	< 0.001	0.29	< 0.0005	0.0067	0.651	< 0.0025
	2/24/2020	< 0.001	0.057	< 0.005	< 0.001	0.36	< 0.0005	0.0061	0.506	< 0.0025
	4/28/2020	0.001	0.052	< 0.005	< 0.001	0.37	< 0.0005	0.0074	0.508	< 0.0025

Notes:
All statistics use the detection limit for non-detect results.
All units are in mg/l except Radium is in pCi/L as noted.
State Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater.
Federal Maximum Contaminant Levels (MCLs) obtained from Code of Federal Regulations (CFR) Title 40, Chapter I, Subchapter D, Part 141.

F1 - MS and/or MSD Recovery outside of limits.
NS - No Standard
* - LCS or LCSD is outside acceptance limits.
^ - Denotes instrument related QC exceeds the control limits

APPENDIX C.4-1
Ash Surge Basin & Bypass Basin
Structural Stability & Safety Factor Assessments

APPENDIX C.4-2
Former Ash Basin
Structural Stability & Safety Factor Assessments

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STRUCTURAL STABILITY ASSESSMENT
FORMER ASH BASIN
POWERTON STATION
APRIL 2018

This report presents documentation of the initial periodic structural stability assessment for the Former Ash Basin (FAB) at the Powerton Station (Site) in Pekin, Illinois (Figure 1). This report addresses the initial structural stability assessment requirement for the Coal Combustion Residuals (CCR) regulations, Code of Federal Regulations Title 40, Part 257, Subpart D (referred to as the CCR Rule). These regulations were published in the Federal Register on 17 April 2015, became effective on 19 October 2015, and were amended on 05 August 2016. The Powerton Station is owned and operated by Midwest Generation, LLC (Midwest Generation). Based on the results provided in this report, the FAB does not meet the requirements of §257.73(d) of the CCR Rule.

This Report was prepared by Ms. Beth Pittaway and reviewed in accordance with Geosyntec's internal review policy by Mr. Michael Houlihan and Mr. Jesse Varsho, P.E., P.G. Mr. Varsho is a registered Professional Engineer in the State of Illinois.

1. Regulation Requirements - §257.73

Structural integrity criteria for inactive CCR surface impoundments is described in §257.73. The FAB meets the minimum size and capacity criteria under §257.73(b) and is therefore subject to the structural stability assessment requirements.

2. Site Conditions

Located to the east of the existing Ash Surge Basin, the FAB is an inactive CCR surface impoundment which was historically used for bottom ash disposal. It is estimated that the FAB stopped receiving CCRs by the 1970s. Originally a single pond, in 2010 the FAB was bisected into two areas by construction of a railroad embankment. The two bisected ponds are now designated as the North Pond and South Pond (Figure 2). Due to the duration of inactive use, both areas contain heavy vegetation. The volumes of apparent CCR in the North Pond and South Pond are estimated to be less than 300,000 and 200,000 cubic yards, respectively.

The FAB is irregularly shaped with maximum dimensions of approximately 1250 feet by 2150 feet with a total area of approximately 25 acres. The surface impoundment is surrounded by a gravel and soil perimeter road which allows access to monitoring wells.

3. Structural Stability Assessment

The following subsections address the components of §257.73(d)(1).

3.1 Foundations and Abutments – §257.73(d)(1)(i)

No formational materials provide lateral structural support for the embankments; therefore, the FAB does not include abutments. The remainder of this section addresses the foundation materials for the Basins.

Subsurface investigations performed at the Site for the installation of the railway, and exploratory sampling performed in 2016 indicate foundation materials underlying the embankments for the FAB consist of clay fills, clayey sand, and gravel with sand and clay. A loose clayey sand layer was observed from 8 to 18 ft-bgs on the North Pond. From 18 to 50 ft-bgs, poor-graded gravel with sand and clay is present consistent with river sediments. (Geosyntec, 2016a)

Elastic settlement of the clay and sand layers underlying the embankments likely occurred very soon after construction. Because of the age of the embankments, most consolidation and secondary compression settlement of the clay layer has likely already occurred. There are no proposed changes in operation which would increase loading conditions on the foundation materials; therefore, no significant settlement of the foundation materials underlying the embankments is anticipated to occur in the future. Further, the embankment was not constructed with abutments or separate engineered zones that would be most susceptible to the adverse effects of differential settlement. Therefore, potential settlement of the foundation is not anticipated to impact the integrity of the impoundment embankments.

3.2 Upstream Slope Protection – §257.73(d)(1)(ii)

The FAB interior basin slopes are protected from erosion, the effects of wave action, and potential effects of rapid drawdown by vegetation.

3.3 Dike Compaction – §257.73(d)(1)(iii)

The dike conditions are not highly controlled and inconsistent in height around the FAB. Documentation of as-built construction conditions for the FAB embankments was not available at the time of this report and no quantitative evaluation of the degree of compaction of the embankments was performed for the dikes in their current state. Therefore, it is unknown if the embankments are compacted to a density sufficient to withstand the range of loading conditions for the CCR unit.

3.4 Downstream Slope Vegetation – §257.73(d)(1)(iv)

The FAB embankment slopes and the surrounding areas are protected from erosion by vegetation.

3.5 Spillway – §257.73(d)(1)(v)

The FAB does not contain a single spillway or combination of spillways configured to the specifications of §257.73(d)(1)(v).

3.6 Structural Integrity of Hydraulic Structures – §257.73(d)(1)(vi)

Documentation of as-built or construction conditions for the FAB was not available at the time of this report due to the age of the FAB. An Ash Surge Basin Overflow Structure, shown on Figure 3, is known to pass through the embankments of the FAB on the west side of the South Pond. The spillway is constructed in the Ash Surge Basin with two box culverts, each approximately 4.5 feet in width and approximately 1.5 feet in height that extend beneath the Ash Surge Basin embankment crest into the FAB (Geosyntec, 2016b). A concrete apron is located east of the box culvert terminating in the FAB. Downstream of the concrete apron is rip rap. Calculations for the original design of the overflow structure were not available at the time of this report. The integrity or deficiencies of this structure that would negatively affect operation of the structure is not known at this time.

3.7 Downstream Slopes Adjacent to Water Bodies – §257.73(d)(1)(vii)

Since the FAB contains no outlet structures, there is no true downstream side. For the purpose of this section, we assume water inundation would occur from the Illinois River and impact the north side of the FAB. Because the type of construction and materials utilized on the FAB embankment are unknown, we cannot evaluate if they are designed and constructed to maintain structural stability during "low pool" and rapid drawdown conditions. Since the embankments of the FAB may not provide downstream inundation protection; the FAB will be closed as required by §257.101.

3.8 Structural Stability Assessment Deficiencies - §257.73(d)(2)

The initial structural stability assessment of the design, construction, operation, and maintenance of the FAB, cannot be accurately assessed due to the age of the impoundment and lack of information. To address the lack of information, the FAB will be closed as required by §257.101.

4. Limitations and Certification

This initial periodic structural stability assessment meets the requirements of §257.73(d) of the Code of Federal Regulations Title 40, Part 257, Subpart D, and was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of civil engineering. The contents of this report are based solely on the observations of the conditions observed by Geosyntec personnel and information provided to Geosyntec by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.

Jesse Varsho April 13, 2018

Jesse Varsho, P.E., P.G.
Illinois Professional Engineer No. 062.059069
Expiration Date: 11/30/2019

5. References

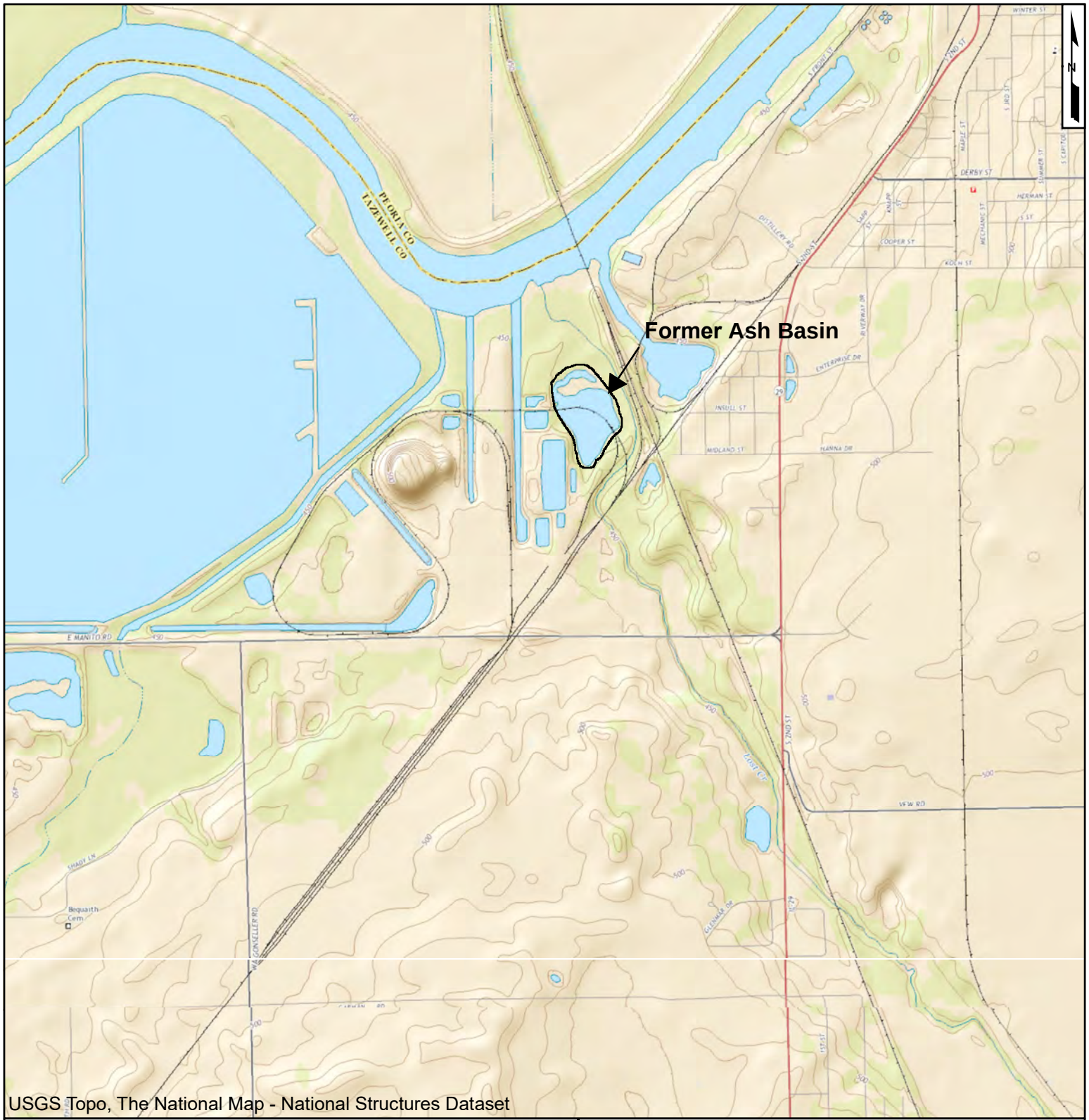
Geosyntec, 2016a. Geotechnical Report for Former Ash Basin (FAB) Closure, Powerton Station, April.

Geosyntec, 2016b. History of Construction Report, Ash Surge Basin and Bypass Basin, Powerton Station, October.

Attachments

Figure 1 – Site Location
Figure 2 – North and South Pond Detail
Figure 3 – Hydraulic Structure Locations

FIGURES



2,000 1,000 0 2,000 Feet

Site Location

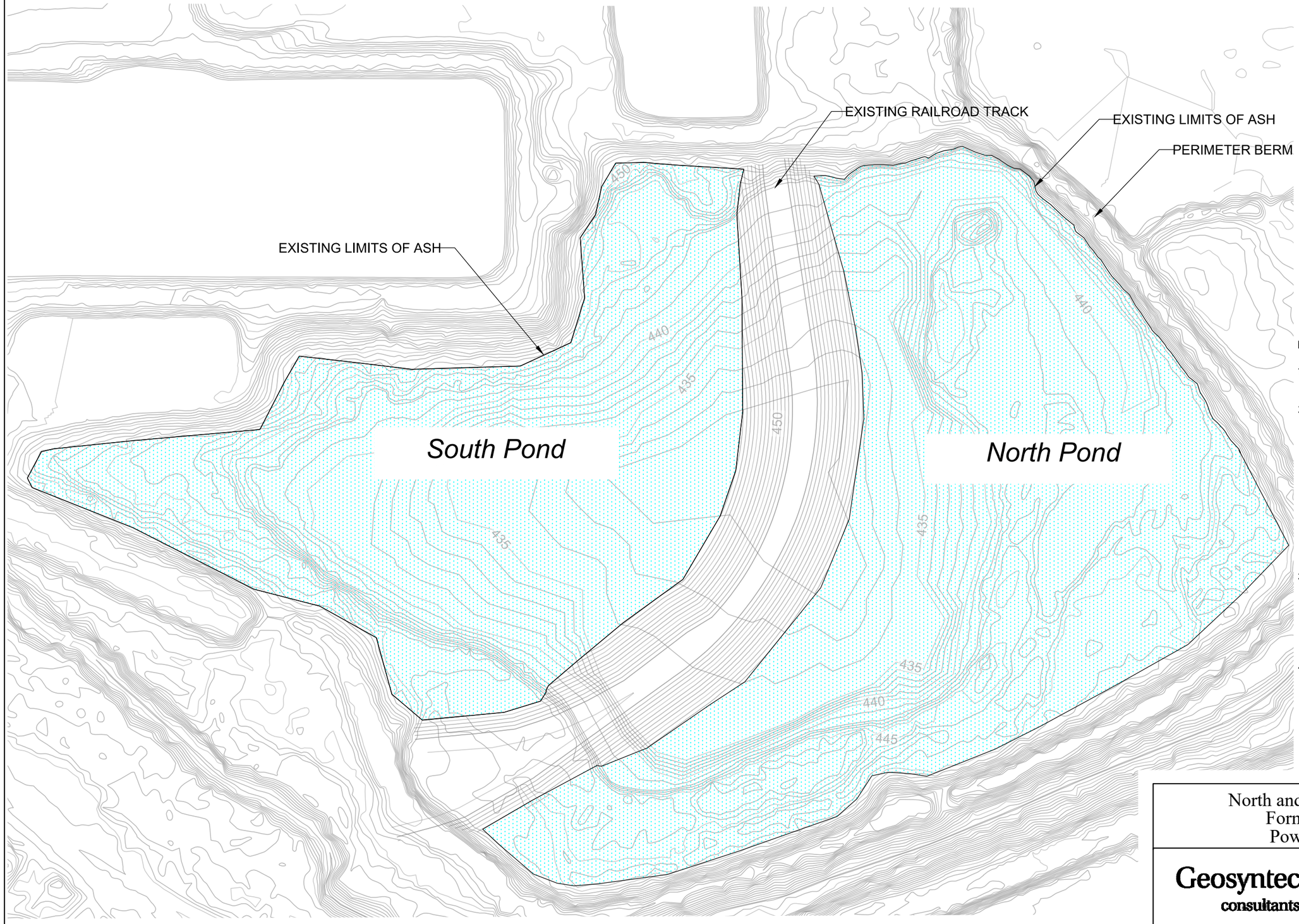
Former Ash Basin
Powerton Station
Pekin, IL

Geosyntec consultants

Columbia, MD | APRIL 2018

Figure 1

K:\GIS\PowertonSiteLocation.mxd Name



N

LEGEND

440 EXISTING CONTOUR

NOTES:

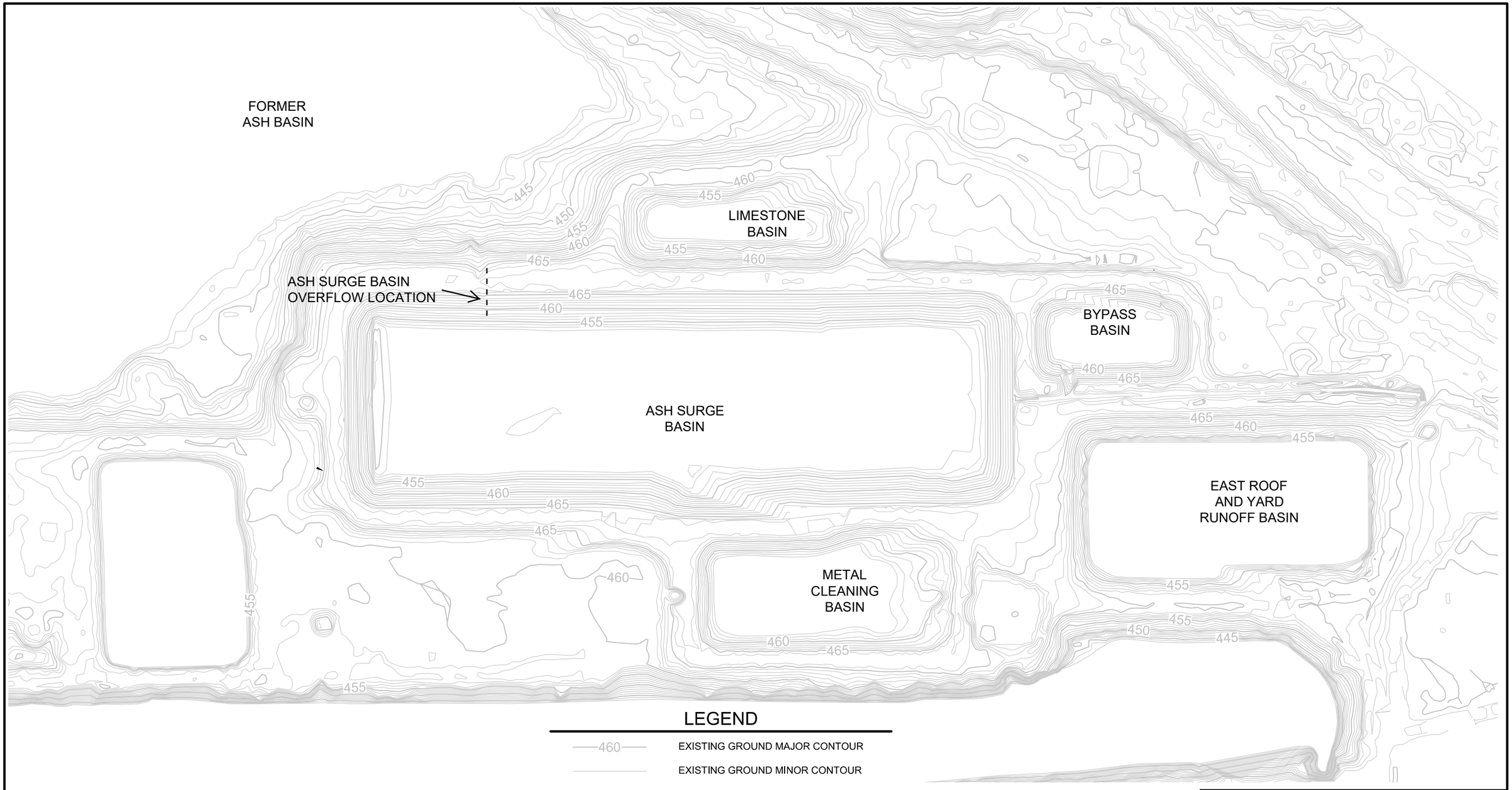
1. ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL.
2. CONTOURS BELOW ELEVATION 440 FT-MSL WERE OBTAINED FROM A DRAWING ENTITLED, "BORING LOCATIONS PLAN", BY PATRICK ENGINEERING INC., LISLE, ILLINOIS DATED 6 OCTOBER 2008. REMAINING SURVEY INFORMATION WAS OBTAINED FROM ELECTRONIC FILE OF AERIAL SURVEY BY AER-METRIC, INC. OF SHEBOYGAN, WISCONSIN; FLYOVER DATE 19 JUNE 2006.
3. RAILROAD EMBANKMENT WAS LOCATED USING SATELLITE INFORMATION OBTAINED FROM GOOGLE EARTH. TOP OF THE EMBANKMENT WAS ASSUMED TO BE ELEVATION 458 FT-MSL.
4. EXTENT OF ASH IS CONSIDERED TO BE AT THE TOE OF THE PERIMETER BERM.

0 150'
SCALE IN FEET

North and South Pond Detail
Former Ash Basin
Powerton Station

Geosyntec consultants
COLUMBIA, MARYLAND

DATE:	APRIL 2018
PROJECT NO.	ME1615
DOCUMENT NO.	
FILE NO.	f005
FIGURE NO.	2



LEGEND

460 — EXISTING GROUND MAJOR CONTOUR

EXISTING GROUND MINOR CONTOUR

SOURCE OF SURVEY:

TOPOGRAPHY WITHIN THE ASH SURGE AND BYPASS BASINS IS BASED ON TOP OF LINER TOPOGRAPHY FOR LINER REPLACEMENT PROJECTS (NRT, 2011 AND 2013). TOPOGRAPHY OUTSIDE THE LINER LIMIT OF THE BASINS IS AEROMETRIC, INC. PROJECT NUMBER 1080611, DATED 6-19-2008.

HORIZONTAL DATUM: NAD83 IL SPC WEST

VERTICAL DATUM: LOCAL PLANT DATUM

N

0 150' 300'

SCALE IN FEET

HYDRAULIC STRUCTURE LOCATIONS

FORMER ASH BASIN
POWERTON STATION
PEKIN, ILLINOIS

Geosyntec consultants

PROJECT NO: ME1615

APRIL 2018

FIGURE 3

Z:\CADD\FIGURES\POWERTON\SW0251-F02 HYDRAULIC STRUCTURES

Geosyntec consultants

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Columbia, MD 21044
Phone: 410.381.4333
www.geosyntec.com

SAFETY FACTOR ASSESSMENT
FORMER ASH BASIN
POWERTON STATION
APRIL 2018

This report presents documentation of the initial periodic safety factor assessment for the Former Ash Basin (FAB) at the Powerton Station (Site) in Pekin, Illinois (Figure 1). This report addresses the initial safety factor assessment requirement for the Coal Combustion Residuals (CCR) regulations, Code of Federal Regulations Title 40, Part 257, Subpart D (referred to as the CCR Rule). These regulations were published in the Federal Register on 17 April 2015, became effective on 19 October 2015, and were amended on 05 August 2016. The Powerton Station is owned and operated by Midwest Generation, LLC (Midwest Generation). Based on the results detailed in this report, it cannot be documented that the FAB achieves the minimum safety factors requirements of §257.73(e)(1)(i) through (iv) of the CCR Rule.

This Report was prepared by Ms. Beth Pittaway and reviewed in accordance with Geosyntec's internal review policy by Mr. Michael Houlihan and Mr. Jesse Varsho, P.E., P.G. Mr. Varsho is a licensed Professional Engineer in the State of Illinois.

1. Regulation Requirements - §257.73

Structural integrity criteria for inactive CCR surface impoundments is described in §257.73. The FAB meets the minimum size and capacity criteria under §257.73(b) and is therefore subject to the safety factor assessment requirements of §257.73(e).

2. Site Conditions

Located to the east of the existing Ash Surge Basin, the FAB is an inactive CCR surface impoundment which was historically used for bottom ash disposal. It is estimated that the FAB stopped receiving CCRs by the 1970s. Originally a single pond, in 2010 the FAB was bisected into two areas by construction of a railroad embankment. The two bisected ponds are now designated as the North Pond and South Pond (Figure 2). Due to the duration of inactive use, both areas contain heavy vegetation. Based on acreage and several soil borings performed in 2016, the volume of CCR in the North Pond and South Pond are estimated to be less than 300,000 and 200,000 cubic yards, respectively.

The FAB is irregularly shaped with maximum dimensions of approximately 1,250 feet by 2,150 feet with a total area of approximately 25 acres. The surface impoundment is surrounded by a gravel and soil perimeter road which allows access to groundwater monitoring wells. The berm height varies in height up to approximately 4 feet around the basin perimeter.

3. Safety Factor Assessment

The initial and periodic safety factory assessment required by §257.73(e)(1) of the CCR Rule is dependent on analyses performed on the critical cross section of the embankment. The critical cross section is defined as the cross section anticipated to be the most susceptible to structural failure based on appropriate engineering considerations, including loading conditions. The minimum safety factors of 1.5 (long-term, maximum storage pool loading conditions), 1.4 (maximum surcharge pool loading conditions) and 1.0 (seismic conditions) to be achieved are detailed in §257.73(e)(1)(i) through (iv).

At the time of this report, information was not available on the construction materials, strength of the berm, or cross-section details necessary to perform the required engineering evaluation. The required calculations for §257.73(e)(1)(i) through (iv) were not performed and it is anticipated that the results, if available, would not meet the minimum safety factor requirements.

An engineering analysis to calculate the safety factors could not be performed due to a lack of necessary information due to the construction age of the FAB. Since the minimum safety factors as required by §257.73(e) cannot be demonstrated, the FAB will be closed in accordance with §257.102 as referenced by §257.73(f)(4).

4. Limitations and Certification

This initial periodic safety factor assessment meets the requirements of §257.73(e) of the Code of Federal Regulations Title 40, Part 257, Subpart D, and was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of civil engineering. The contents of this report are based solely on the observations of the conditions observed by Geosyntec personnel and information provided to Geosyntec by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.

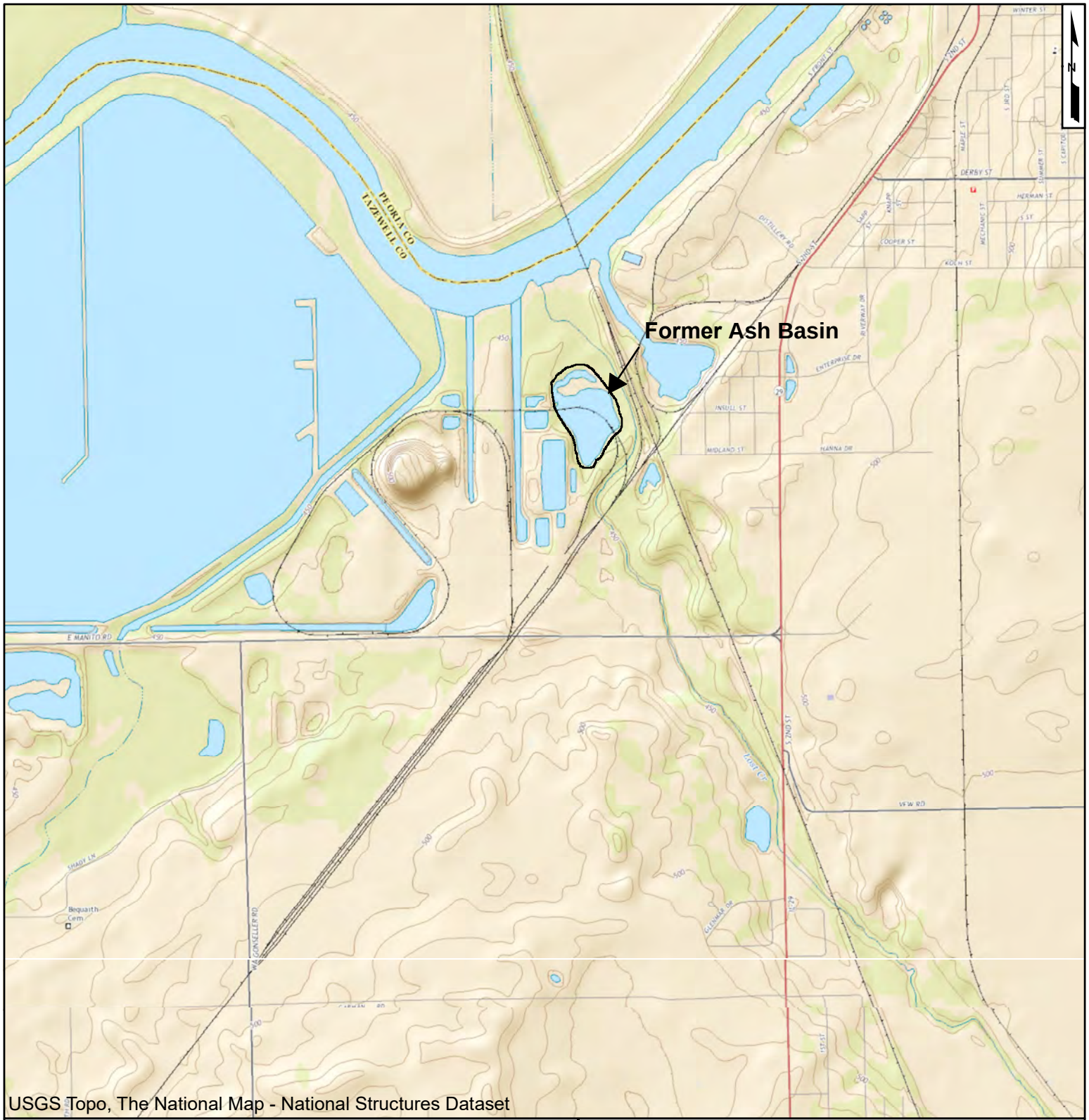
Jesse Varsho April 13, 2018

Jesse Varsho, P.E., P.G.
Illinois Professional Engineer No. 062.059069
Expiration Date: 11/30/2019

Attachments

Figure 1 – Site Location
Figure 2 – North and South Pond Detail

FIGURES



2,000 1,000 0 2,000 Feet

Site Location

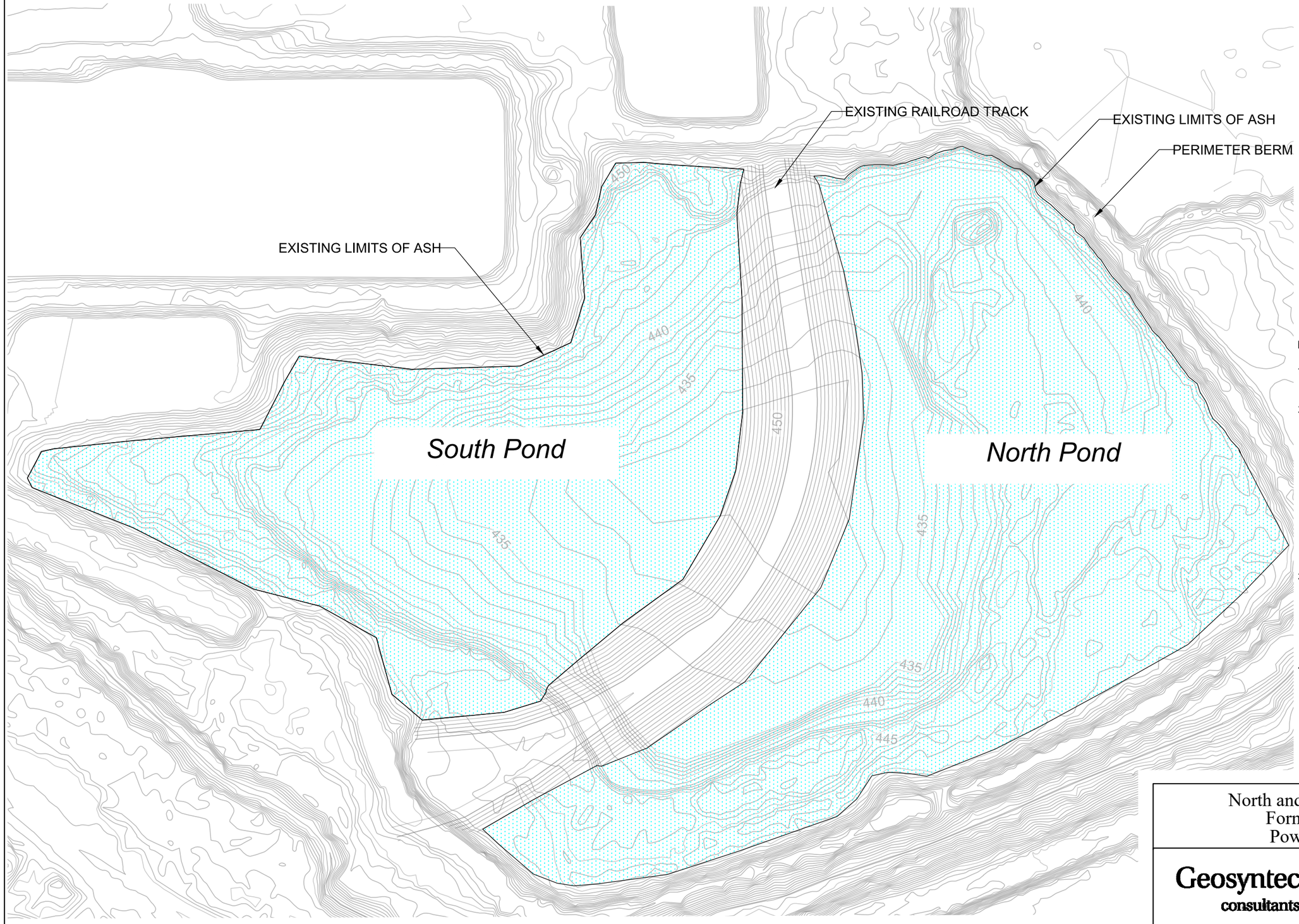
Former Ash Basin
Powerton Station
Pekin, IL

Geosyntec consultants

Columbia, MD | April 2018

Figure 1

K:\GIS\PowertonSiteLocation.mxd Name



N

LEGEND

440 EXISTING CONTOUR

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0 150'
SCALE IN FEET

North and South Pond Detail
Former Ash Basin
Powerton Station

Geosyntec consultants
COLUMBIA, MARYLAND

DATE:	April 2018
PROJECT NO.	ME1615
DOCUMENT NO.	
FILE NO.	f005
FIGURE NO.	2

APPENDIX D — PROPOSED ILLINOIS CCR RULE

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	)	

NOTICE OF FILING

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board a **NOTICE OF FILING**; **APPEARANCE**; **STATEMENT OF REASONS**; and **ATTACHMENTS: PROPOSED NEW 35 ILL. ADM. CODE PART 845**; and a **MOTION FOR ACCEPTANCE** on behalf of the Illinois Environmental Protection Agency, a copy of which is herewith served upon you.

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

SERVICE LIST

ILLINOIS POLLUTION CONTROL BOARD
Don Brown, Clerk
James R. Thompson Center
100 W. Randolph, Suite 11-500
Chicago, IL 60601

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
Office of Legal Services
One Natural Resources Way
Springfield IL 62702-1271

ILLINOIS ATTORNEY GENERAL
Matt Dunn, Division Chief Environmental
69 W. Washington, Suite 1800,
Chicago, IL 60602

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	)	

APPEARANCE

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

Respectfully submitted,

Dated: March 30, 2020

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,

Petitioner,

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

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

THIS FILING IS SUBMITTED ELECTRONICALLY

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 101-171[1], 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. Envtl. 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 a. 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 exits. 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 pubic 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 *et seq*. and 29 CFR 1926 *et seq*.
40 CFR 257 *et seq*. (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. Envtl. 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	*Util. Solid Waste Activities Group v. Envtl. Prot. Agency*, 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,

Petitioner,

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

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

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

SUBPART A: GENERAL PROVISIONS

Section:

SUBPART B: PERMITTING

Section

SUBPART C: LOCATION RESTRICTIONS

Section

SUBPART D: DESIGN CRITERIA

SUBPART E: OPERATING CRITERIA

SUBPART F: GROUNDWATER MONITORING AND CORRECTIVE ACTION

SUBPART G: CLOSURE AND POST-CLOSURE CARE

SUBPART H: RECORDKEEPING

SUBPART I: FINANCIAL ASSURANCE

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

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

SUBPART A: GENERAL PROVISIONS

Section 845.100 Scope and Purpose

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

b) This Part applies to owners and operators of new and existing CCR surface impoundments, including any lateral expansions of CCR surface impoundments that dispose or otherwise engage in solid waste management of CCR generated from the combustion of coal at electric utilities and independent power producers. Unless otherwise provided in this Part, these requirements also apply to CCR surface impoundments located off-site of the electric utility or independent power producer.

c) This Part also applies to inactive CCR surface impoundments at active and inactive electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.

d) Except as provided in Section 845.170, inactive CCR surface impoundments are subject to all the requirements of this Part applicable to existing CCR surface impoundments.

e) This Part does not apply to wastes, including fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated at facilities that are not part of an electric utility or independent power producer, such as manufacturing facilities, universities, and hospitals. This Part also does not apply to fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, generated primarily from the combustion of fuels (including other fossil fuels) other than coal, for the purpose of generating electricity unless the fuel burned consists of more than fifty percent (50%) coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal.

f) This Part does not apply to the beneficial use of CCR.

g) This Part does not apply to CCR placement at active or abandoned underground or surface coal mines.

h) This Part does not apply to landfills that receive CCR.

Section 845.110 Applicability of Other Regulations

a) Compliance with the requirements of this Part does not affect the need for the owner or operator of a CCR surface impoundment or lateral expansion of a CCR surface impoundment, to comply with all other applicable federal, state, tribal, or local laws or other requirements.

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

1) Floodplains:

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

B) As used in this subsection:

i) Base flood means a flood that has a 1 percent or greater chance of recurring in any year or a flood of a magnitude

equaled or exceeded once in 100 years on average over a significantly long period.

ii) Floodplain means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, which are inundated by the base flood.

iii) Washout means the carrying away of solid waste by waters of the base flood.

2) Illinois Endangered Species Protection Act, 520 ILCS 10, and 40 CFR 257.3-2.

3) Surface Water

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

B) A facility shall not cause a discharge of dredged material or fill material to waters of the United States that is in violation of the requirements under section 404 of the Clean Water Act, as amended.

C) A facility or practice shall not cause non-point source pollution of waters of the United States that violates applicable legal requirements implementing an areawide or Statewide water quality management plan that has been approved by USEPA under section 208 of the Clean Water Act, as amended.

D) Definitions of the terms Discharge of dredged material, Point source, Pollutant, and Waters of the United States can be found in the Clean Water Act, as amended, 33 U.S.C. 1251 et seq., and implementing regulations, specifically 33 CFR part 323 (42 FR 37122, July 19, 1977).

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

Section 845.120 Definitions

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

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

"Active facility" or "active electric utilities" or "independent power producers" means any facility subject to the requirements of this Part that is in operation on or after October 19, 2015. An electric utility or independent power producer is in operation if it is generating electricity that is provided to electric power transmission systems or to electric power distribution systems on or after October 19, 2015. An off-site CCR surface impoundment is in operation if it is accepting or managing CCR on or after October 19, 2015.

"Active life" or "in operation" means the period of operation beginning with the initial placement of CCR in the CCR surface impoundment and ending at completion of closure activities in accordance with Subpart G.

"Agency" means the Illinois Environmental Protection Agency.

"Aquifer" means a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells or springs.

"Area-capacity curves" means graphic curves which readily show the reservoir water surface area, in acres, at different elevations from the bottom of the reservoir to the maximum water surface, and the capacity or volume, in acre-feet, of the water contained in the reservoir at various elevations.

"Areas susceptible to mass movement" means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where, because of natural or human-induced events, the movement of earthen material at, beneath, or adjacent to the CCR surface impoundment may result in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.

"Beneficial use of CCR" means CCR that meets the definition of coal combustion by product in the Act and the definition of "beneficial use of CCR" pursuant to 40 C.F.R. 257.53.

"Board" means Illinois Pollution Control Board.

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

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

"*Coal combustion residuals*" or "*CCR*" *means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers*. [415 ILCS 5/3.142]

"CCR fugitive dust" means solid airborne particulate matter that contains or is derived from CCR, emitted from any source other than a stack or chimney.

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

"*CCR surface impoundment*" or "*impoundment*" *means a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the surface impoundment treats, stores, or disposes of CCR.* [415 ILCS 5/3.143]

"Dike" means an embankment, berm, or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

"Displacement" means the relative movement of any two sides of a fault measured in any direction.

"Disposal" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste as defined in section 1004(27) of the Resource Conservation and Recovery Act into or on any land or water or into any well so that such solid waste, or constituent thereof, may enter the environment or be emitted into the air or discharged into any waters, including groundwaters. For purposes of this Part, disposal does not include the beneficial use of CCR.

"Downstream toe" means the junction of the downstream slope or face of the CCR surface impoundment with the ground surface.

"Enclosed structure" means:

> (1) A completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support itself, the CCR, and any personnel and heavy equipment that operate within the structure, and to prevent failure due to settlement, compression, or uplift; climatic conditions; and the stresses of daily operation, including the movement of heavy equipment within the structure and contact of such equipment with containment walls;

(2) Has containment walls that are designed to be sufficiently durable to withstand any movement of personnel, CCR, and handling equipment within the structure;

(3) Is designed and operated to ensure containment and prevent fugitive dust emissions from openings, such as doors, windows and vents, and the tracking of CCR from the structure by personnel or equipment.

"Exceedance of the groundwater protection standard" means:

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

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

"Existing CCR surface impoundment" means a CCR surface impoundment in which CCR is placed both before and after October 19, 2015, or for which construction commenced prior to October 19, 2015 and in which CCR is placed on or after October 19, 2015. A CCR surface impoundment has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun prior to October 19, 2015.

"Facility" means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, disposing, or otherwise conducting solid waste management of CCR. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

"Factor of safety" or "Safety factor" means the ratio of the forces tending to resist the failure of a structure to the forces tending to cause such failure as determined by accepted engineering practice.

"Fault" means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

"Flood hydrograph" means a graph showing, for a given point on a stream, the discharge, height, or other characteristic of a flood as a function of time.

"Free liquids" means liquids that readily separate from the solid portion of a waste under ambient temperature and pressure.

"Groundwater" means water below the land surface in a zone of saturation.

"Hazard potential classification" means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of the diked CCR surface impoundment or mis-operation of the diked CCR surface impoundment or its appurtenances. The hazardous potential classifications include Class 1 and Class 2, which mean:

> Class 1 CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.
>
> Class 2 CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

"Height" means the vertical measurement from the downstream toe of the CCR surface impoundment at its lowest point to the lowest elevation of the crest of the CCR surface impoundment, not including spillways.

"Holocene" means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch, at 11,700 years before present, to present.

"Hydraulic conductivity" means the rate at which water can move through a permeable medium (i.e., the coefficient of permeability).

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

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

"Inactive facility" or "inactive electric utilities or independent power producers" means any facility that is not in operation on or after October 19, 2015.

"Incised CCR surface impoundment" means a CCR surface impoundment which is constructed by excavating entirely below the natural ground surface, holds an accumulation of CCR entirely below the adjacent natural ground surface, and does not consist of any constructed diked portion.

"Inflow design flood" means the flood hydrograph that is used in the design or modification of the CCR surface impoundments and its appurtenant works.

"In operation" means the same as "active life."

"Karst terrain" means an area where karst topography, with its characteristic erosional surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, dolines, collapse shafts (sinkholes), sinking streams, caves, seeps, large springs, and blind valleys.

"Lateral expansion" means a horizontal or vertical expansion of the waste boundaries of an existing CCR surface impoundment made after October 19, 2015.

"Liquefaction factor of safety" means the factor of safety (safety factor) determined using analysis under liquefaction conditions.

"Lithified earth material" means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

"Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration at the ground surface as depicted on a seismic hazard map, with a 98% or greater probability that the acceleration will not be exceeded in 50 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

"New CCR surface impoundment" means a CCR surface impoundment or lateral expansion of an existing or new CCR surface impoundment that first receives CCR or commences construction after October 19, 2015. A new CCR surface impoundment has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun after October 19, 2015.

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

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

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

"Poor foundation conditions" means those areas where features exist which indicate that a natural or human-induced event may result in inadequate foundation support for the structural components of an existing or new CCR surface impoundment. For example, failure to maintain static and seismic factors of safety as required in Section 845.460 would cause a poor foundation condition.

"Probable maximum flood" means the flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the drainage basin.

"Qualified person" means a person or persons trained to recognize specific appearances of structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR surface impoundment by visual observation and, if applicable, to monitor instrumentation.

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

"Recognized and generally accepted engineering practices" means engineering maintenance or operation activities based on established codes, widely accepted standards, published technical reports, or a practice widely recommended throughout the industry. Such practices generally detail approved ways to perform specific engineering, inspection, or mechanical integrity activities.

"Retrofit" means to remove all CCR and contaminated soils and sediments from the CCR surface impoundment, and to ensure the surface impoundment complies with the requirements in Section 845.410.

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

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

"Sand and gravel pit" or "quarry" means an excavation for the extraction of aggregate, minerals or metals. The term sand and gravel pit and/or quarry does not include subsurface or surface coal mines.

"Seismic factor of safety" means the factor of safety (safety factor) determined using analysis under earthquake conditions using the peak ground acceleration for a seismic event with a 2% probability of exceedance in 50 years, equivalent to a return period of approximately 2,500 years, based on the U.S. Geological Survey (USGS) seismic hazard

maps for seismic events with this return period for the region where the CCR surface impoundment is located.

"Seismic impact zone" means an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years.

"Slope protection" means engineered or non-engineered measures installed on the upstream or downstream slope of the CCR surface impoundment to protect the slope against wave action or erosion, including but not limited to rock riprap, wooden pile, concrete revetments, vegetated wave berms, concrete facing, gabions, geotextiles, or fascines.

"Solid waste management" or "management" means the systematic administration of the activities which provide for the collection, source separation, storage, transportation, processing, treatment, or disposal of solid waste.

"Static factor of safety" means the factor of safety (safety factor) determined using analysis under the long-term, maximum storage pool loading condition, the maximum surcharge pool loading condition, and under the end-of-construction loading condition.

"Structural components" means liners, leachate collection and removal systems, final covers, run-on and run-off systems, inflow design flood control systems, and any other component used in the construction and operation of the CCR surface impoundment that is necessary to ensure the integrity of the surface impoundment and that the contents of the surface impoundment are not released into the environment.

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

"Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity, including structural components of some or all of the CCR surface impoundment that are responsible for preventing releases from such surface impoundment. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.

"Uppermost aquifer" means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary. Upper limit is measured at a point nearest to the natural ground surface to which the aquifer rises during the wet season.

"Waste boundary" means a vertical surface located at the hydraulically downgradient limit of the CCR surface impoundment. The vertical surface extends down into the uppermost aquifer.

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

Section 845.130 Surface Impoundment Identification

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

Section 845.140 Right of Inspection

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

a) entering at reasonable times the facility where CCR surface impoundments are located or where any activity is to be conducted pursuant to a permit issued under this Part;

b) having access to and copying at reasonable times any records required to be kept under the terms and conditions of a permit or this Part;

c) inspecting at reasonable times, including during any hours of operation:

1) equipment constructed or operated under a permit issued under this Part;

2) equipment or monitoring methodology; or

3) equipment required to be kept, used, operated, calibrated and maintained under a permit issued under this Part;

d) obtaining and removing at reasonable times samples of any raw or finished water, discharge or emission of pollutants;

e) entering at reasonable times to use any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any raw or finished water, activity, discharge or emission authorized by a permit.

Section 845.150 Incorporations by Reference

a) The Board incorporates the following material by reference:

Association For the Advancement of Cost Engineering (AACE)

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

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

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA Publication No. SW-846, as amended by Updates I, II, IIA, IIB, III, IIIA, and IIIB (Doc. No. 955-001-00000-1) (available online at https://www.epa.gov/hw-sw846/sw-846-compendium).

b) This Section incorporates no later editions or amendments.

Section 845.160 Severability

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

Section 845.170 Inactive Closed CCR Surface Impoundments

a) Only the following provisions of this Part apply to inactive closed CCR surface impoundments:

1) all of Subpart A: General Provisions

2) the following Sections of Subpart B: Permitting

A) Section 845.200;

B) Section 845.210;

C) Section 845.220(a), (c), (f)(1);

D) Section 845.230(c) and (d)(4);

E) Section 845.250;

F) Section 845.270;

G) Section 845.280;

H) Section 845.290;

3) the following Section of Subpart G: Section 845.780(b), (d) and (e); and

4) all of Subpart I: Financial Assurance.

b) When a prior release from an inactive closed CCR surface impoundment has caused an exceedance of the groundwater quality standards in 35 Ill. Adm. Code Part 620, and the owner or operator has not completed remediation of the release before completing closure, the owner or operator must initiate or continue corrective action under an operating permit issued pursuant to this Part.

c) When a release from an inactive closed CCR surface impoundment causes an exceedance of the groundwater quality standards in 35 Ill. Adm. Code Part 620, and the Agency has not concurred with an alternative source demonstration, the owner or operator of an inactive closed CCR surface impoundment must initiate an assessment of corrective measures that prevents further releases, remediates any releases, and restores the affected area. The owner or operator of the inactive closed CCR surface impoundment shall develop a corrective action plan and obtain a construction permit consistent with subsection (a)(2) of this Section before performing any corrective action to remediate any releases and to restore the affected area, including, but not limited to the final cover system, groundwater monitoring system, groundwater collection trench, extraction wells, slurry walls, or any construction related to corrective action.

SUBPART B: PERMITTING

Section 845.200 Permit Requirements and Standards of Issuance

a) Permit Requirements

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

2) Except as provided in Section 845.230(d), no person shall operate a CCR surface impoundment without an operating permit issued by the Agency pursuant to this Part. For the purposes of this Part, a CCR surface impoundment commences operation upon initial receipt of CCR.

3) No person shall perform corrective action at a CCR surface impoundment without obtaining a construction permit for corrective action and modifying the facility's operating permit, or modifying the facility's operating permit when the approved corrective action does not require the modification of the CCR surface impoundment or the installation or modification of related treatment or mitigation facilities.

4) Except as provided in Section 22.59(e) of the Act, no person shall close a CCR surface impoundment without obtaining a construction permit for closure issued by the Agency pursuant to this Part.

5) A CCR surface impoundment must maintain an operating permit until:

A) the completion of post-closure care when the CCR surface impoundment is closed with a final cover system; or

B) the completion of groundwater monitoring pursuant to Section 845.740(b) when the CCR surface impoundment is closed by removal.

6) The Agency may issue a joint construction and operating permit.

b) Standards for Issuance

1) Except as provided in subsection (b)(2), the Agency shall not issue any construction or operating permit required by this Part unless the applicant submits adequate proof that the CCR surface impoundment will be constructed, modified or operated so as not to cause a violation of the Act or Board rules.

2) The existence of a violation of the Act, Board regulation, or Agency regulation will not prevent the issuance of a construction or operating permit under this Part if:

A) the applicant has been granted a variance or an adjusted standard from the regulation by the Board;

B) the permit application is for construction, installation, or operation of equipment to alleviate or correct a violation; or

C) the permit application is for construction, installation, or operation of equipment necessary to restore, protect or enhance the environment.

3) *In granting permits, the Agency shall impose conditions as may be necessary to accomplish the purpose of the Act and as are not inconsistent with this Part.* [415 ILCS 5/39(a)]

4) *In making its determinations on permit applications under this* Part*, the Agency may consider prior adjudications of noncompliance with this Act by the applicant that involved a release of a contaminant into the environment*. [415 ILCS 5/39(a)]

Section 845.210 General Provisions

a) All permit applications shall be made on such forms as are prescribed by the Agency and shall be mailed or delivered to the address designated by the Agency on the forms. The Agency shall provide a dated, signed receipt upon request. The Agency's record of the date of filing shall be deemed conclusive unless a contrary date is proved by a dated, signed receipt.

b) Required Signatures of Owners or Operators

1) All permit applications shall contain the name, address, email address and telephone number of the operator, or duly authorized agent, and the property owner to whom all inquiries and correspondence shall be addressed.

2) All permit applications shall be signed by the owner, operator or a duly authorized agent of the operator.

3) An application submitted by a corporation shall be signed by a principal executive officer of at least the level of vice president, or his or her duly authorized representative, if such representative is responsible for the overall operation of the facility described in the application form. In the case of a partnership or a sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively. In the case of a publicly owned facility, the application shall be signed by either the principal executive officer, ranking elected official, or other duly authorized employee.

c) Legal Description. All permit applications shall contain a legal description of the facility boundary and a description of the boundaries of all units included in the facility.

d) Previous Assessments, Investigations, Plans and Programs

1) The Agency may approve the use of any hydrogeologic site investigation or characterization, groundwater monitoring well or system, or groundwater monitoring plan completed prior to the effective date of these rules to satisfy the requirements of this Part.

2) For existing CCR surface impoundments, the owner or operator of the CCR surface impoundment may use a previously completed location restriction demonstration required by Section 845.300 (Placement Above The Uppermost Aquifer), Section 845.310 (Wetlands), Section 845.320 (Fault Areas), Section 845.330 (Seismic Impact Zones), and Section 845.340 (Unstable Areas) provided that the previously completed assessments meet the applicable requirements of those Sections.

3) For existing CCR surface impoundments, the owner or operator of the CCR surface impoundment may use a previously completed assessment to serve as the initial assessment required by Section 845.440 (Hazard Potential Classification Assessment), Section 845.450 (Structural Stability Assessment) and Section 845.460 (Safety Factor Assessment) provided that the previously completed assessment:

A) was not completed more than five years ago; and

B) meets the applicable requirements of those Sections.

4) For inactive closed CCR surface impoundments, the owner or operator of the CCR surface impoundment may use a post-closure care plan previously approved by the Agency.

e) The Agency shall mail all notices of final action by certified mail, post marked with a date stamp and with return receipt requested. Final action shall be deemed to have taken place on the post marked date that such notice is mailed.

f) Violation of any permit condition or failure to comply with the Act or regulations promulgated under the Act shall be grounds for enforcement action as provided in the Act, including revocation of a permit.

g) Issuance of a permit under this Part does not relieve the applicant of the obligation to obtain other permits required by law.

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

Section 845.220 Construction Permits

a) All construction permit applications must contain the following information and documents.

1) Design and Construction Plans

A) Identifying information

i) The name and address of the person(s) owning or operating the CCR surface impoundment;

ii) The name associated with the CCR surface impoundment; and

iii) The identification number of the CCR surface impoundment if one has been assigned by the Agency.

B) A statement of the purpose for which the CCR surface impoundment is being used, how long the CCR surface impoundment has been in operation, and the types of CCR that have been placed in the CCR surface impoundment.

C) The name and size in acres of the watershed within which the CCR surface impoundment is located.

D) A description of the physical and engineering properties of the foundation and abutment materials on which the CCR surface impoundment is constructed.

E) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR surface impoundment; the method of site preparation and construction of each zone of the CCR surface impoundment; and the approximate dates of construction of each successive stage of construction of the CCR surface impoundment.

F) At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR surface impoundment, detailed dimensional drawings of the CCR surface impoundment, including a plan view and cross sections of the length and width of the CCR surface impoundment, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR surface impoundment due to malfunction or mis-operation.

G) A description of the type, purpose, and location of existing instrumentation.

H) Area-capacity curves for the CCR surface impoundment.

I) A description of each spillway and diversion design features and capacities and calculations used in their determination.

J) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR surface impoundment.

K) Any record or knowledge of structural instability of the CCR surface impoundment.

2) Narrative Description of the Facility. The permit application shall contain a written description of the facility with supporting documentation describing the procedures and plans that will be used at the facility to comply with the requirements of this Part. Such descriptions shall include, but not be limited to, the following information:

A) The types of CCR expected in the CCR surface impoundment, including a chemical analysis of each type of expected CCR;

B) An estimate of the maximum capacity of each surface impoundment in gallons or cubic yards;

C) The rate at which CCR and non-CCR waste streams currently enter the CCR surface impoundment in gallons per day and dry tons;

D) The estimated length of time the CCR surface impoundment will receive CCR and non-CCR waste streams; and

E) An on-site transportation plan that includes all existing and planned roads in the facility that will be used during the operation of the CCR surface impoundment.

3) Site Location Map. All permit applications shall contain a site location map on the most recent United States Geological Survey (USGS) quadrangle of the area from the 7 ½ minute series (topographic), or on such other map whose scale clearly shows the following information:

A) the facility boundaries and all adjacent property, extending at least 1000 meters (3280 feet) beyond the boundary of the facility;

B) all surface waters;

C) the prevailing wind direction;

D) the limits of all 100-year floodplains;

E) all natural areas designated as a Dedicated Illinois Nature Preserve pursuant to the Illinois Natural Areas Preservation Act (525 ILCS 30/1 et seq.);

F) all historic and archaeological sites designated by the National Historic Preservation Act (16 U.S.C. 470 et seq.) and the Illinois Historic Sites Advisory Council Act (20 ILCS 3410/1 et seq.); and

G) all areas identified as critical habitat pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) and the Illinois Endangered Species Protection Act (520 ILCS 10/1 et seq.).

4) Site Plan Map. The application shall contain maps, including cross sectional maps of the site boundaries, showing the location of the facility. The following information shall be shown:

A) the entire facility, including any proposed and all existing CCR surface impoundment locations;

B) the boundaries, both above and below ground level, of the facility and all CCR surface impoundments or landfills containing CCR included in the facility;

C) all existing and proposed groundwater monitoring wells; and

D) all main service corridors, transportation routes, and access roads to the facility.

5) A narrative description of the proposed construction of or modification to a CCR surface impoundment and any projected changes in the volume or nature of the CCR or non-CCR waste streams.

6) Plans and specifications fully describing the design, nature, function and interrelationship of each individual component of the facility.

7) A new groundwater monitoring program or any modification to an existing groundwater monitoring program that includes but is not limited to the following information:

A) a hydrogeologic site investigation meeting the requirements of Section 845.620, if applicable;

B) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630; and

C) a proposed groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Sections 845.640 and 845.650.

8) The signature and seal of a qualified professional engineer.

9) Certification that the owner or operator of the CCR surface impoundment completed the public notification and public meetings required pursuant to Section 845.240, a summary of the issues raised by the public, and a list of interested persons in attendance who would like to be added to the Agency's listserv for the facility.

b) New Construction. In addition to the requirements in subsection (a), all construction permit applications to build a new CCR surface impoundment, lateral expansion of a CCR surface impoundment, or retrofit an existing CCR surface impoundment must also contain the following information and documents:

1) Plans and specifications that demonstrate the proposed CCR surface impoundment will not be:

A) placed less than five feet above the uppermost aquifer pursuant to Section 845.300;

B) located in wetlands pursuant to Section 845.310;

C) located in fault areas pursuant to Section 845.320;

D) located in a seismic impact zone pursuant to Section 845.330; and

E) located in an unstable area pursuant to Section 845.340.

2) Plans and specifications that demonstrate the proposed CCR surface impoundment will meet the following design criteria:

A) the CCR surface impoundment will have a liner meeting the liner requirements in Section 845.400(b) or (c);

B) the CCR surface impoundment will have a leachate collection system meeting the requirements of Section 845.420; and

C) the CCR surface impoundment, if not incised, will be constructed with slope protection, as required by Section 845.430.

3) CCR fugitive dust control plan, as specified in Section 845.500(b).

4) Preliminary written closure plan, as specified in Section 845.720(a).

5) Initial written post-closure care plan, as specified in Section 845.780(d), if applicable.

c) Corrective Action Construction. In addition to the requirements in subsection (a), all construction permit applications which include any corrective action performed pursuant to Subpart F must also contain the following information and documents:

1) Corrective Action plan, as specified in Section 845.670

2) Groundwater modeling, including:

A) the results of groundwater contaminant transport modeling and calculations showing how the corrective action will achieve compliance with the applicable groundwater standards;

B) all modeling inputs and assumptions;

C) description of the fate and transport of contaminants with the selected corrective action over time;

D) capture zone modeling, if applicable; and

E) provide the Agency any necessary licenses and software needed to review and access both the model and the data contained within the model.

3) Corrective action groundwater monitoring program, including identification of revisions to the groundwater monitoring system for corrective action; and

4) Any interim measures necessary to reduce the contaminants leaching from the CCR surface impoundment, and/or potential exposures to human or ecological receptors, including an analysis of the factors specified in Section 845.680(a)(3).

d) Closure Construction. In addition to the requirements in subsection (a), all construction permit applications for closure of the CCR surface impoundment pursuant to Subpart G must contain the following information and documents:

1) Closure prioritization category pursuant to Section 845.700(g), if applicable;

2) Final closure plan, as specified in Section 845.720(b), which includes the closure alternatives analysis required by Section 845.710.

3) Groundwater modeling, including

A) the results of groundwater contaminant transport modeling and calculations showing how the closure will achieve compliance with the applicable groundwater standards;

B) all modeling inputs and assumptions;

C) description of the fate and transport of contaminants with the selected closure over time;

D) capture zone modeling, if applicable; and

E) provide the Agency any necessary licenses and software needed to review and access both the model and the data contained within the model.

4) Proposed schedule to complete closure; and

5) Post-closure care plan as specified in Section 845.780(d), if applicable.

e) A single construction permit application may be submitted for new construction, corrective action, and closure if the construction is related to the same multi-phased project. The permit application for a project with multiple phases must contain all information required by subsections (a), (b), (c) and (d), as applicable.

f) Duration of Construction Permits

1) For any construction permit which is not for the closure or retrofit of the CCR surface impoundment, the construction permit shall be issued for fixed terms not to exceed 3 years.

2) For any construction permit for the closure or retrofit of a CCR surface impoundment, the construction permit shall be issued for an initial fixed term expiring within the timeframe approved by the Agency in the construction permit or five years, whichever is less. The Agency may renew a construction permit for closure or retrofit in two year increments pursuant to Section 845.760(b).

Section 845.230 Operating Permits

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

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

1) A demonstration that the CCR surface impoundment as built meets the location standards in the following sections:

A) Section 845.300 (Placement Above the Uppermost Aquifer);

B) Section 845.310 (Wetlands);

C) Section 845.320 (Fault Areas);

D) Section 845.330 (Seismic Impact Zones); and

E) Section 845.340 (Unstable Areas);

2) Certification from a qualified professional engineer that the composite liner or if applicable, the alternative composite liner has been constructed in accordance with the requirements of this Section 845.400(b) or (c);

3) Certification from a qualified professional engineer that the leachate collection system has been constructed in accordance with the requirements of Section 845.420, if applicable;

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

5) Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in Section 845.430;

6) Initial hazard potential classification assessment certification, required by Section 845.440(a)(2);

7) Initial Emergency Action Plan certification, required by Section 845.520(e);

8) Initial structural stability assessment certification, required by Section 845.450(c);

9) Initial safety factor assessment certification, required by Section 845.460(b);

10) Fugitive dust control plan certification, as required by Section 845.500(b)(7);

11) Initial inflow design flood control system plan certification, as required by Section 845.510(c)(3);

12) Proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 840.650(b);

13) Preliminary written closure plan, as specified in Section 845.720(a);

14) Initial written post-closure care plan, as specified in Section 845.780(d), if applicable;

15) An analysis of the chemical constituents found within the CCR to be placed in the CCR surface impoundment; and

16) An analysis of the chemical constituents of all waste streams, chemical additives and sorbent materials entering or contained in the CCR surface impoundment.

b) Renewal Operating Permit

1) Documentation that the CCR surface impoundment, if not incised, is being operated and maintained with one of the forms of slope protection specified in Section 845.430;

2) Emergency Action Plan certification if the plan was amended, as required by Section 845.520;

3) Fugitive dust control plan certification if the plan was amended, as required by Section 845.500(b)(7);

4) Any significant changes to the design and construction plans compiled under subsection (d)(2)(A) of this Section or Section 845.220(a)(1);

5) A statement that the groundwater monitoring has been conducted pursuant to an Agency approved groundwater monitoring program;

6) Written preliminary closure plan, if amended, as specified in Section 845.720(a); and

7) Written post-closure care plan, if amended, as specified in Section 845.780(d).

c) Post-Closure Care Operating Permit

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

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

1) The owner or operator of an existing, inactive or inactive closed CCR surface impoundment who has not completed post-closure care must submit an initial operating permit application to the Agency by September 30, 2021;

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

A) The history of construction specified in Section 845.220(a)(1);

B) An analysis of the chemical constituents found within the CCR to be placed in the CCR surface impoundment;

C) An analysis of the chemical constituents of all waste streams, chemical additives and sorbent materials entering or contained in the CCR surface impoundment;

D) A demonstration that the CCR surface impoundment as built meets or an explanation of how the CCR surface impoundments fails to meet the location standards in the following sections:

i) Section 845.300 (Placement Above the Uppermost Aquifer);

ii) Section 845.310 (Wetlands);

iii) Section 845.320 (Fault Areas);

iv) Section 845.330 (Seismic Impact Zones); and

v) Section 845.340 (Unstable Areas);

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

E) Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in Section 845.430;

F) Initial Emergency Action Plan certification, required by Section 845.520(e);

G) Fugitive dust control plan certification, as required by Section 845.500(b)(7);

H) Groundwater monitoring information:

i) a hydrogeologic site characterization meeting the requirements of Section 845.620;

ii) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630;

iii) a groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Section 845.640; and

iv) proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b);

I) Preliminary written closure plan, as specified in Section 845.720(a);

J) Initial written post-closure care plan, as specified in Section 845.780(d), if applicable;

K) A certification as specified in Section 845.400(h), or a statement that the CCR surface impoundment does not have a liner that meets the requirements of Section 845.400(b) or (c); and

L) History of known exceedances of the groundwater protection standards in Section 845.600, and any corrective action taken to remediate the groundwater.

3) The initial operating permit application for an existing CCR surface impoundment where an Agency approved closure has been completed prior to July 30, 2021, and where the impoundment is not an inactive closed CCR surface impoundment, must contain the following information and documents on forms prescribed by the Agency:

A) The history of construction specified in Section 845.220(a)(1);

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

C) Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in Section 845.430;

D) Emergency Action Plan certification, required by Section 845.520(e);

E) Groundwater monitoring information:

i) a hydrogeologic site characterization meeting the requirements of Section 845.620;

ii) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630;

iii) a groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Section 845.640; and

iv) proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b);

F) Written post-closure care plan, as specified in Section 845.780(d), if applicable;

G) History of known exceedances of the groundwater protection standards in Section 845.600, and any corrective action plan taken to remediate the groundwater.

4) The initial operating permit application for inactive closed CCR surface impoundments must contain the following information:

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

B) Groundwater monitoring program;

C) Written post-closure care plan, as specified in Section 845.780(d); and

D) History of known exceedances of the groundwater quality standards in 35 Ill. Adm. Code 620, whether the owner or operator has obtained a groundwater management zone, and any corrective action taken to remediate the groundwater.

e) Operating permits shall be issued for fixed terms not to exceed five years.

Section 845.240 Pre-Application Public Notification and Public Meeting

a) At least 30 days before the submission of a construction permit application, the owner or operator of the CCR surface impoundment must hold at least two public meetings to discuss the proposed construction, where at least one meeting is held after 5:00 p.m. in the evening. Any public meeting held under this Section must be located at a venue that is accessible to persons with disabilities, and the owner or operator must provide reasonable accommodations upon request.

b) The owner or operator must prepare and circulate a notice explaining the proposed construction project and any related activities and the time and place of the public meeting. The owner or operator of the CCR surface impoundment must:

1) mail or hand-deliver the notice to the Agency and all residents within a one-mile radius from the facility boundary;

2) post the notice on all of the owner or operator's social media outlets; and

3) post the notice in conspicuous locations throughout villages, towns, or cities within 10 miles of the facility, or use appropriate broadcast media (such as radio or television).

c) When a proposed construction project or any related activity is located in an area with a significant proportion of non-English speaking residents, the notification must be circulated, or broadcast, in both English and the appropriate non-English language.

d) The owner or operator of the CCR surface impoundment must prepare documentation recording the public meeting and place the documentation in the facility's operating record, as required by Section 845.800(d)(2).

e) At least 14 days prior to a public meeting, the owner or operator of the CCR surface impoundment must post on the owner or operator's publicly accessible internet site all documentation relied upon in making their tentative construction permit application.

f) At the public meeting, the owner or operator of the CCR surface impoundment must outline its decision-making process for the construction permit application,

including, where applicable, the corrective action alternatives and the closure alternatives considered.

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

Section 845.250 Tentative Determination and Draft Permit

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

a) The tentative determination shall include at least the following:

1) A statement regarding whether the permit is to be issued or denied; and

2) If the determination is to issue the permit, a draft permit and a brief description of any conditions contained therein.

b) Upon tentative determination to issue or deny the permit:

1) If the determination is to issue the permit, the Agency shall notify the applicant in writing of the content of the tentative determination and draft permit and of its intent to circulate public notice of issuance in accordance with Section 845.260;

2) If the determination is to deny the permit, the Agency shall notify the applicant in writing of the tentative determination and of its intent to circulate public notice of denial, in accordance with Section 845.260. In the case of denial, notice to the applicant shall include a statement of the reasons for denial, as required by Section 39(a) of the Act.

c) The documents supporting the Agency's tentative decision to issue or deny a permit shall be made part of the Agency's record.

Section 845.260 Draft Permit Public Notice and Participation

a) The Agency shall post a notification that it has received a permit application on the Agency's webpage and shall email the notice to the Agency's listserv for the applicant's facility.

b) Public Notice of Draft Permit

1) Not earlier than 15 days following the Agency's notification to the applicant of its tentative decision pursuant to Section 845.250 to issue or deny the permit application, the Agency shall circulate public notice of the completed application for the permit in a manner designed to inform

interested and potentially interested persons of the construction, modification, operation or closure of a CCR surface impoundment and of the proposed determination to issue or deny the permit.

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

A) Name, address, and telephone number of the Agency;

B) Name and address of the applicant;

C) Brief description of the applicant's activities or operations which result in the construction, operation, modification or closure of a CCR surface impoundment;

D) A statement of the tentative determination to issue or deny the permit;

E) A brief description of the procedures for the formulation of final determinations, including the procedures for submitting comments and expiration date of the comment period; and

F) Address and telephone number of Agency premises at which interested persons may obtain further information, request a copy of the permit application and related documents.

3) Procedures for the circulation of public notice required pursuant to this Section shall include at least the following concurrent actions:

A) Posting on the Agency's webpage and all of the Agency's social media outlets;

B) Mailing the notice to the clerk of the nearest city, town or village requesting further posting in conspicuous locations throughout the city, town or village;

C) Requiring the applicant to post the notice near the entrance to the applicant's premises; and

D) Emailing the notice to the Agency's listserv for the facility.

c) Public Comment Period

1) The Agency shall accept written comments from interested persons on the draft permit determination for 30 days following the circulation of the public notice pursuant to subsection (b).

2) All comments shall be submitted to the Agency and to the applicant.

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

4) The period for comment may be extended at the discretion of the Agency.

5) The Agency shall consider all timely submitted comments.

d) Public Hearing

1) The Agency may hold a public hearing on the issuance or denial of a draft permit whenever the Agency determines that there exists a significant degree of public interest in the proposed permit.

2) Within the 30-day public comment period, any person, including the applicant, may submit to the Agency a request for a public hearing which must include the reasons why a hearing is warranted.

3) Hearings held pursuant to this Section shall be held in the geographical area in which the CCR surface impoundment is located. When determining the hearing location, consideration shall be given to facilitating attendance of interested or affected persons and organizations and to accessibility of hearing sites to public transportation.

e) Notice of Public Hearing

1) The Agency shall issue notice of a public hearing not less than 30 days prior to the date of such hearing pursuant to the procedures for the circulation of public notice in subsection (b)(3).

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

A) Name, address, and telephone number of the Agency;

B) Name and address of each applicant whose application will be considered at the hearing;

C) Brief description of the applicant's activities or operations which result in the construction, operation, modification or closure of a CCR surface impoundment;

D) Information regarding the time and location of the hearing;

E) The purpose of the hearing;

F) A concise statement of the issues to be considered at the hearing;

G) Address and telephone number of premises at which interested persons may obtain further information, request a copy of the draft permit and related documents; and

H) A statement that the hearing will be conducted in accordance with this Section.

f) When the Agency holds a public hearing pursuant to this Section, the Agency shall prepare a responsiveness summary which includes:

1) An identification of the public participation activity conducted;

2) Description of the matter on which the public was consulted;

3) An estimate of the number of persons present at the hearing;

4) A summary of all significant comments, criticisms, and suggestions, whether written or oral, submitted at the hearing or during the time the hearing record was open;

5) The Agency's response to all significant comments, criticisms, and suggestions; and

6) A statement of Agency action, including when applicable the issuance or denial of the permit.

Section 845.270 Final Permit Determination and Appeal

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

b) After the consideration of any comments which may have been received, the Agency may either issue or deny the permit.

c) The Agency shall provide a notice of the issuance or denial of the permit to the applicant, to any person who provides comments or an email address to the Agency during the public notice period or a public hearing, and to any person on the Agency' listserv for the facility. Such notice shall briefly indicate any significant changes which were made from terms and conditions set forth in the draft permit.

d) In the case of denial, the Agency shall inform the applicant of the reasons for denial, as required by Section 39(a) of the Act.

e) Appeal

1) If the Agency refuses to grant or grants with conditions a permit under this Part, the applicant may petition the Board to appeal the Agency's final decision pursuant to Section 40 of the Act.

2) *If the Agency grants or denies a permit under this Part, a third party, other than the permit applicant or Agency, may appeal the Agency's decision as provided under federal law for CCR surface impoundment permits.* 415 ILCS 5/40(g).

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

Section 845.280 Transfer, Modification and Renewal

a) No permit is transferable from one person to another except as approved by the Agency. Approval shall be granted only if a new owner or operator seeking transfer of a permit can demonstrate the ability to comply with all applicable financial requirements of Subpart I of this Part.

b) Agency Initiated Modification. The Agency may modify a permit under the following conditions:

1) Discovery of a typographical or calculation error;

2) Discovery that a determination or condition was based upon false or misleading information;

3) An order of the Board issued in an action brought pursuant to Title VII, VIII, IX or X of the Act; or

4) Promulgation of new statutes or regulations affecting the permit.

c) The owner or operator of a CCR surface impoundment may initiate modification to its permit by submitting an application to the Agency at any time after the permit is approved and before the permit expires.

d) The Agency may make minor modifications to a permit without following the public notice procedures of Section 845.260. Minor modifications may only:

1) Correct typographical errors;

2) Require more frequent monitoring or reporting by the permittee, including the installation of additional groundwater monitoring wells;

3) Allow for a change in ownership or operational control of a facility where the Agency determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Agency;

4) Change the construction schedule which does not impact the scheduled date of completion; or

5) Require electronic reporting requirements.

e) An application for renewal of a permit shall be filed with the Agency at least 180 days prior to the expiration date of the existing permit unless the Agency grants a waiver of this requirement. The Agency may grant a waiver of the 180-day requirement only if:

1) the permittee submits a written request to the Agency at least 60 days before the expiration of the permit;

2) the permittee's written request includes the reasonably justifiable causes for not meeting the 180-day requirement in subsection (e); and

3) the permittee's written request includes a date by which the permittee will submit the renewal application.

f) Any Agency decision to deny a waiver request must be made within 21 days after receipt of the waiver request in subsection (e)(1).

g) The terms and conditions of an expiring permit remain effective and enforceable against the permittee until the Agency takes final action on the pending permit renewal application, only if the permittee has submitted a timely application pursuant to subsection (e) and the Agency, through no fault of the permittee, does not issue a new permit on or before the expiration date of the previous permit.

Section 845.290 Construction Quality Assurance Program

a) The following must be constructed according to a Construction Quality Assurance (CQA) program:

1) the construction of a new CCR surface impoundment, or the lateral expansion of an existing CCR surface impoundment;

2) the retrofit of an existing CCR surface impoundment;

3) installation of a groundwater collection system and discharge system;

4) installation of the groundwater monitoring system; and

5) installation of the final cover system.

b) The CQA program must meet the following requirements:

1) The owner or operator of the CCR surface impoundment must designate a CQA officer who is a qualified professional engineer.

2) At the end of each week of construction until construction is complete, a summary report must be prepared either by the CQA officer or under the supervision of the CQA officer. The report must include descriptions of the weather, locations where construction occurred during the previous week, materials used, results of testing, inspection reports, and procedures used to perform the inspections. The CQA officer must review and approve the report. The owner or operator of the CCR surface impoundment shall place the weekly reports in the facility's operating record, as required by Section 845.800(d)(3).

3) The CQA officer must certify the following, when applicable:

A) the bedding material contains no undesirable objects;

B) the final closure plan or corrective action plan approved by the construction permit has been followed;

C) the anchor trench and backfill are constructed to prevent damage to a geosynthetic membrane;

D) all tears, rips, punctures, and other damage are repaired;

E) all geosynthetic membrane seams are properly constructed and tested in accordance with the manufacturer's specifications;

F) any groundwater collection system is constructed to intersect the water table;

G) any groundwater collection system is properly constructed to slope toward extraction points, and the extraction equipment is properly designed and installed;

H) appropriate operation and maintenance plans for the groundwater collection system and extraction and discharge equipment are provided;

I) proper filter material consisting of uniform granular fill, to avoid clogging, is used in construction;

J) the filter material as placed possesses structural strength adequate to support the maximum loads imposed by the overlying materials and equipment used at the facility;

K) CCR stabilization; and

L) site restoration, if any.

4) The CQA officer must supervise and be responsible for all inspections, testing and other activities required to be implemented as part of the CQA program under this Section.

5) The CQA officer must be present to provide supervision and assume responsibility for performing all inspections of the following activities, when applicable:

A) compaction of the subgrade and foundation to design parameters;

B) application of final cover, including installation of the geomembrane; and

C) installation of the groundwater collection system and discharge system.

6) If the CQA officer is unable to be present as required by subsection (b)(5) of this Section, the CQA officer must provide the following in writing:

A) the reasons for his or her absence;

B) a designation of a person who must exercise professional judgment in carrying out the duties of the CQA officer-in-absentia; and

C) and a signed statement that the CQA officer assumes full responsibility for all inspections performed and reports prepared by the designated CQA officer-in-absentia during the absence of the CQA officer.

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

SUBPART C: LOCATION RESTICTIONS

Section 845.300 Placement Above The Uppermost Aquifer

a) Existing and new CCR surface impoundments, and all lateral expansions of CCR surface impoundments must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR surface impoundment and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table).

b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.

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

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

Section 845.310 Wetlands

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

1) Where applicable under Section 404 of the Clean Water Act, Interagency Wetlands Policy Act of 1989 (20 ILCS 830 et seq.) and Rivers, Lakes, and Streams Act (615 ILCS 5/4.9 et seq.), or other applicable state wetlands laws, a clear and objective rebuttal of the presumption that an alternative to the CCR surface impoundment is reasonably available that does not involve wetlands.

2) The construction and operation of the CCR surface impoundment will not cause or contribute to any of the following:

A) A violation of any applicable state or federal water quality standard;

B) A violation of any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;

C) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) and the Illinois Endangered Species Protection Act (520 ILCS 10/1 et seq.); and

D) A violation of any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1431 and 33 U.S.C. 1401) for the protection of a marine sanctuary.

3) The CCR surface impoundment will not cause or contribute to significant degradation of wetlands by addressing all of the following factors:

A) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the CCR surface impoundment;

B) Erosion, stability, and migration potential of dredged and fill materials used to support the CCR surface impoundment;

C) The volume and chemical nature of the CCR;

D) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCR;

E) The potential effects of catastrophic release of CCR to the wetland and the resulting impacts on the environment; and

F) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

4) To the extent required under Section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent reasonable as required by subsections (a)(1) through (3) of this Section, then minimizing unavoidable impacts to the maximum extent reasonable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and reasonable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

5) Sufficient information is available to make a reasoned determination with respect to the demonstrations in subsections (a)(1) through (4) of this Section.

b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.

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

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

Section 845.320 Fault Areas

a) Existing and new CCR surface impoundments, and all lateral expansions of CCR surface impoundments must not be located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time unless the owner or operator demonstrates that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR surface impoundment.

b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.

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

d) The owner or operator of a new CCR surface impoundment or a lateral expansion of a CCR surface impoundment must submit plans and specifications in a construction permit application that demonstrate the CCR surface impoundment will be constructed pursuant to subsection (a) of this Section. Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the CCR surface impoundment or lateral expansion was constructed in accordance with the requirements in subsection (a) of this Section

and submit the certification to the Agency in the facility's initial operating permit application.

Section 845.330 Seismic Impact Zones

a) Existing and new CCR surface impoundments, and all lateral expansions of CCR surface impoundments must not be located in seismic impact zones unless the owner or operator demonstrates that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.

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

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

Section 845.340 Unstable Areas

a) An existing or new CCR surface impoundment, or any lateral expansion of a CCR surface impoundment must not be located in an unstable area unless the owner or operator demonstrates that recognized and generally accepted engineering practices have been incorporated into the design of the CCR surface impoundment to ensure that the integrity of the structural components of the CCR surface impoundment will not be disrupted.

b) The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable:

1) On-site or local soil conditions, including but not limited to liquefaction, that may result in significant differential settling;

2) On-site or local geologic or geomorphologic features; and

3) On-site or local human-made features or events (both surface and subsurface).

c) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of subsection (a) of this Section.

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

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

Section 845.350 Failure to Meet Location Standards

a) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of this Subpart is subject to the requirements of Section 845.700.

b) An owner or operator of a new CCR surface impoundment, or any lateral expansion of a CCR surface impoundment who fails to make the demonstration showing compliance with the requirements of this Subpart is prohibited from placing CCR in the CCR surface impoundment.

SUBPART D: DESIGN CRITERIA

Section 845.400 Liner Design Criteria For Existing CCR Surface Impoundments

a) An existing CCR surface impoundment is considered to be an existing lined surface impoundment if it has been constructed with either a composite liner that meets the requirements of subsection (b) of this Section or an alternative composite liner that meets the requirements of subsection (c) of this Section.

b) Composite Liner

1) A composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, and the lower

component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second (cm/sec). The geomembrane liner components consisting of high-density polyethylene (HDPE) must be at least 60-mil. The geomembrane liner or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component.

2) The composite liner must be:

A) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the CCR or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

B) Constructed of materials that provide appropriate shear resistance of the upper and lower component interface to prevent sliding of the upper component including on slopes;

C) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

D) Installed to cover all surrounding earth likely to be in contact with the CCR or leachate.

c) Alternative Composite Liner

1) An alternative composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, and a lower component, that is not a geomembrane, with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. The geomembrane liner components consisting of high density polyethylene (HDPE) must be at least 60-mil. If the lower component of the alternative liner is compacted soil, the geomembrane liner must be installed in direct and uniform contact with the compacted soil.

2) The liquid flow rate through the lower component of the alternative composite liner shall be no greater than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of 1×10^{-7} cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than 1×10^{-7} cm/sec. The hydraulic

conductivity of any alternative to the two feet of compacted soil must be determined using recognized and generally accepted methods.

3) The liquid flow rate comparison must be made using the following equation, which is derived from Darcy's Law for gravity flow through porous media.

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

Where:
Q = flow rate (cubic centimeters/second)
A = Surface are of the liner (squared centimeters)
Q = flow rate per unit area (cubic centimeters/ second/squared centimeter)
k = hydraulic conductivity of the liner (centimeters /second)
h = hydraulic head above the liner (centimeters); and
t = thickness of the liner (centimeters)

4) The alternative composite liner must meet the requirements specified in subsection (b) of this Section.

d) The hydraulic conductivity of the compacted soil must be determined using recognized and generally accepted methods.

e) The owner or operator of an existing CCR surface impoundment that has not completed an Agency approved closure prior to July 30, 2021, must submit an initial operating permit application pursuant to Section 845.230 that demonstrates whether or not the CCR surface impoundment was constructed with either of the following:

1) A composite liner that meets the requirements of subsection (b); or

2) An alternative composite liner that meets the requirements of subsection (c).

f) A CCR surface impoundment is considered to be an unlined CCR surface impoundment if either:

1) The owner or operator of the CCR surface impoundment determines that the CCR surface impoundment is not constructed with a liner that meets the requirements of subsections (b) or (c) of this Section; or

2) The owner or operator of the CCR surface impoundment fails to document whether the CCR surface impoundment was constructed with a liner that meets the requirements of subsections (b) or (c) of this Section.

g) All unlined CCR surface impoundments are subject to the requirements of Section 845.700.

h) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer attesting that the CCR surface impoundment meets the requirements of subsection (a) of this Section and submit the certification to the Agency in the facility's initial operating permit application.

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

a) New CCR surface impoundments and lateral expansions of existing and new CCR surface impoundments must be designed, constructed, operated, and maintained with either a composite liner or an alternative composite liner that meets the requirements of Section 845.400(b) or (c).

b) Any liner specified in this Section must be installed to cover all surrounding earth likely to be in contact with CCR. Dikes shall not be constructed so as to damage the composite liner.

c) Prior to construction, the owner or operator must obtain certification from a qualified professional engineer that the design of the composite liner or, if applicable, the design of an alternative composite liner complies with the requirements of this Section and submit this certification to the Agency in the facility's construction permit application.

d) Upon completion of construction, the owner or operator must obtain a certification from a qualified professional engineer that the composite liner or if applicable, the alternative composite liner has been constructed in accordance with the requirements of this Section and submit this certification to the Agency in the facility's initial operating permit application.

Section 845.420 Leachate Collection and Removal System

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

a) The leachate collection and removal system must:

1) be placed above the liner required by Section 845.400 or Section 845.410;

2) have placed above it a filter layer that has a hydraulic conductivity of no less than $1x10^{-5}$ cm/sec;

3) have a bottom slope of three percent or more towards the collection pipes;

4) be constructed of granular drainage materials with a hydraulic conductivity of 1×10^{-1} cm/sec or more and a thickness of 24 inches or more above the crown of the collection pipe; or constructed of synthetic drainage materials with a transmissivity of 6×10^{-4} m^2/sec or more;

5) be constructed of materials that are chemically resistant to CCR and any non-CCR waste managed in the CCR surface impoundment and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying waste and any waste cover materials and equipment used at the CCR surface impoundment;

6) be designed, constructed and operated with collection pipes at the base of the granular material, to prevent clogging with fines during the active life and post-closure care period;

7) have collection pipes

A) designed such that leachate is collected at a sump and is pumped or flows out of the CCR surface impoundment;

B) with slopes that allow flow from all points within the CCR surface impoundment to the sump or drain outlet; and

C) large enough to conduct periodic cleaning;

8) have a protective layer or other means of deflecting the force of CCR pumped into the CCR surface impoundment; and

9) be designed and operated to minimize clogging during the active life and post-closure care period.

b) The owner or operator must obtain certification from a qualified professional engineer that the design of the leachate collection system complies with the requirements of this Section and submit this certification to the Agency in the facility's construction permit application.

c) Upon completion, the owner or operator must obtain a certification from a qualified professional engineer that the leachate collection system has been constructed in accordance with the requirements of this Section and submit this certification to the Agency in the facility's initial operating permit application.

Section 845.430 Slope Maintenance

The slopes and pertinent surrounding areas of the CCR surface impoundment must be designed, constructed, operated, and maintained with one of the forms of slope protection specified in

subsection (a) of this Section that meets all of the performance standards of subsection (b) of this Section.

a) Slope protection must consist of one of the following:

1) A vegetative cover consisting of grassy vegetation;

2) An engineered cover consisting of a single form or combination of forms of engineered slope protection measures; or

3) A combination of the forms of cover specified in subsections (a)(1) or (a)(2) of this Section.

b) Any form of cover for slope protection must meet the following performance standards:

1) The cover must be installed and maintained on the slopes and pertinent surrounding areas of the CCR surface impoundment;

2) The cover must provide protection against surface erosion, wave action, and adverse effects of rapid drawdown;

3) The cover must be maintained to allow for the observation of and access to the slopes and pertinent surrounding areas during routine and emergency events;

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

5) The height of vegetation must not exceed 12 inches.

Section 845.440 Hazard Potential Classification Assessment

a) Hazard potential classification assessments

1) The owner or operator of the CCR surface impoundment must conduct an initial and annual hazard potential classification assessment of the CCR surface impoundment. The owner or operator must document the hazard

potential classification of each CCR surface impoundment as either a Class 1 or Class 2 CCR surface impoundment. The owner or operator must also document the basis for each hazard potential classification.

2) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the initial hazard potential classification and each annual classification was conducted in accordance with the requirements of this Section.

3) Timeframe for submission of the Hazard Potential Classification Assessments and Certifications

A) The owner or operator of a new CCR surface impoundment must submit the initial hazard potential classification assessment certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.

B) The owner or operator of an existing CCR surface impoundment must submit the initial hazard potential classification assessment certification with its first annual inspection report required by Section 845.540(b).

C) The owner or operator of a CCR surface impoundment must submit the annual hazard potential classification assessment certification each year with the annual inspection required by Section 845.540(b).

D) The owner or operator of a CCR surface impoundment must place each hazard potential classification assessment in the facility's operating record, as required by Section 845.800(d)(4).

b) The requirements of this Section apply to all CCR surface impoundments, except for those CCR surface impoundments that are incised CCR surface impoundments. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR surface impoundment no longer meets the definition of an incised CCR surface impoundment, the CCR surface impoundment is subject to the requirements of this Section.

Section 845.450 Structural Stability Assessment

a) The owner or operator of a CCR surface impoundment must conduct initial and annual structural stability assessments and document whether the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein.

The assessment must, at a minimum, document whether the CCR surface impoundment has been designed, constructed, operated, and maintained with:

1) Stable foundations and abutments;

2) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;

3) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR surface impoundment;

4) Slope protection consistent with Section 845.430;

5) A single spillway or a combination of spillways configured as specified in subsection (a)(5)(A) of this Section. The combined capacity of all spillways must be designed, constructed, operated, and maintained to adequately manage flow during and following the peak discharge from the event specified in subsection (a)(5)(B) of this Section.

   A) All spillways must be either:

      i) Of non-erodible construction and designed to carry sustained flows; or

      ii) Earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.

   B) The combined capacity of all spillways must adequately manage flow during and following the peak discharge from a:

      i) Probable maximum flood for a Class 1 CCR surface impoundment; or

      ii) 1000-year flood for a Class 2 CCR surface impoundment.

6) Hydraulic structures underlying the base of the CCR surface impoundment or passing through the dike of the CCR surface impoundment that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the CCR surface impoundment; and

7) For CCR surface impoundments with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body.

b) The annual assessment described in this Section must identify any structural stability deficiencies associated with the CCR surface impoundment in addition to recommending corrective measures. If a deficiency or a release is identified during the periodic assessment, the owner or operator of the surface impoundment must submit to the Agency a construction permit application including documentation detailing proposed corrective measures and must obtain any necessary permits from the Agency as soon as feasible.

c) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the initial structural stability assessments and each annual assessment thereafter was conducted in accordance with the requirements of this Section.

d) Timeframe for submission of structural stability assessment

1) The owner or operator of a new CCR surface impoundment must submit the initial structural stability assessment certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.

2) The owner or operator of an existing CCR surface impoundment must submit the initial structural stability assessment certification with its first annual inspection report required by Section 845.540(b).

3) The owner or operator of a CCR surface impoundment must submit the annual structural stability assessment certification each year with the annual inspection required by Section 845.540(b).

4) The owner or operator of a CCR surface impoundment must place each structural stability assessment in the facility's operating record, as required by Section 845.800(d)(5).

f) The requirements of this Section apply to all CCR surface impoundments, except for those CCR surface impoundments that are incised CCR surface impoundments. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR surface impoundment no longer meets the definition of an incised CCR surface impoundment, the CCR surface impoundment is subject to the requirements of this Section.

Section 845.460 Safety Factor Assessment

a) The owner or operator of a CCR surface impoundment must conduct an initial and annual safety factor assessments for each CCR surface impoundment and document whether the calculated factors of safety for each CCR surface impoundment achieve the minimum safety factors specified in this Section for the critical cross section of

the embankment. The critical cross section is the cross section anticipated to be the most susceptible of all cross sections to structural failure based on appropriate engineering considerations, including loading conditions. The safety factor assessments must be supported by appropriate engineering calculations.

1) For new CCR surface impoundments, the calculated static factor of safety under the end-of-construction loading condition must equal or exceed 1.30. The assessment of this loading condition is only required for the initial safety factor assessment and is not required for subsequent assessments.

2) The calculated static factor of safety under the long-term, maximum storage pool loading condition must equal or exceed 1.50.

3) The calculated static factor of safety under the maximum surcharge pool loading condition must equal or exceed 1.40.

4) The calculated seismic factor of safety must equal or exceed 1.00.

5) For dikes constructed of soils that have susceptibility to liquefaction, the calculated liquefaction factor of safety must equal or exceed 1.20.

b) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the initial safety factor assessment and each annual assessment thereafter was conducted in accordance with the requirements of this Section.

c) Timeframe for submission of the safety factor assessment

1) The owner or operator of a new CCR surface impoundment must submit the initial safety factor assessment certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.

2) The owner or operator of an existing CCR surface impoundment must submit the initial safety factor assessment certification with its first annual inspection report required by Section 845.540(b).

3) The owner or operator of a CCR surface impoundment must submit the annual safety factor assessment certification each year with the annual inspection required by Section 845.540(b).

4) The owner or operator of a new CCR surface impoundment must place each safety factor assessment in the facility's operating record as required by Section 845.800(d)(6).

d) Failure to document minimum safety factors.

1) For new CCR surface impoundments, until the date an owner or operator of a CCR surface impoundment documents that the calculated factors of safety achieve the minimum safety factors specified in this section, the owner or operator is prohibited from placing CCR in such CCR surface impoundment.

2) An owner or operator of the CCR surface impoundment who either fails to complete a timely safety factor assessment or fails to demonstrate minimum safety factors as required by this Section is subject to the requirements of Section 845.700.

e) The requirements of this Section apply to all CCR surface impoundments, except for those CCR surface impoundments that are incised CCR surface impoundments. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR surface impoundment no longer meets the definition of an incised CCR surface impoundment, the CCR surface impoundment is subject to the requirements of this Section.

SUBPART E: OPERATING CRITERIA

Section 845.500 Air Criteria

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

b) CCR fugitive dust control plan. The owner or operator of the CCR surface impoundment must prepare and operate in accordance with a CCR fugitive dust control plan as specified in subsections (b)(1) through (7) of this Section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act, including but not limited to 29 CFR 1910.1018, 29 CFR 1910.1024, 29 CFR 1910.1025, 29 CFR 1910.1027, and 1910.1053, or any other State or federal law.

1) The CCR fugitive dust control plan must identify and describe the CCR fugitive dust control measures the owner or operator will use to minimize CCR from becoming airborne at the facility. The owner or operator must select, and include in the CCR fugitive dust control plan, the CCR fugitive dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions. Examples of control measures that may be appropriate include: locating CCR inside an enclosure or partial enclosure; operating a water spray or fogging system; reducing fall distances at material drop points; using wind barriers, compaction, or vegetative covers;

establishing and enforcing reduced vehicle speed limits; paving and sweeping roads; covering trucks transporting CCR; reducing or halting operations during high wind events; or applying a daily cover.

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

3) The CCR fugitive dust control plan must include a description of the procedures the owner or operator will follow to periodically assess the effectiveness of the control plan.

4) The owner or operator of a CCR surface impoundment must prepare an initial CCR fugitive dust control plan for the facility no later than September 30, 2021, or by initial receipt of CCR in any CCR surface impoundment at the facility if the owner or operator becomes subject to this Part after September 30, 2021.

5) Amendment of the plan. The owner or operator of a CCR surface impoundment subject to the requirements of this Section may amend the written CCR fugitive dust control plan at any time provided the revised plan is submitted to the Agency. The owner or operator must amend the written plan whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR surface impoundment.

6) The owner or operator must place the initial and any amendments to the fugitive dust control plan in the facility's operating record as required by Section 845.800(d)(7).

7) The owner or operator must obtain a certification from a qualified professional engineer that the initial CCR fugitive dust control plan, or any subsequent amendment of it, meets the requirements of this Section.

c) Annual CCR fugitive dust control report. The owner or operator of a CCR surface impoundment must prepare an annual CCR fugitive dust control report that includes a description of the actions taken by the owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The annual CCR fugitive dust control report must be submitted as a part of the annual consolidated report required by Section 845.550.

Section 845.510 Hydrologic and Hydraulic Capacity Requirements for CCR Surface Impoundments

a) The owner or operator of an existing or new CCR surface impoundment or any lateral expansion of a CCR surface impoundment must design, construct, operate,

and maintain an inflow design flood control system as specified in subsections (a)(1) and (2) of this Section.

1) The inflow design flood control system must adequately manage flow into the CCR surface impoundment during and following the peak discharge of the inflow design flood specified in subsection (a)(3) of this Section.

2) The inflow design flood control system must adequately manage flow from the CCR surface impoundment to collect and control the peak discharge resulting from the inflow design flood specified in subsection (a)(3) of this Section.

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

A) For a Class 1 CCR surface impoundment, as determined under Section 845.440(a), the probable maximum flood;

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

C) For an incised CCR surface impoundment, the 25-year flood.

b) Discharge from the CCR surface impoundment must be handled in accordance with the surface water requirements in Section 845.110(b)(3) and 35 Ill. Adm. Code Subtitle C.

c) Inflow design flood control system plan

1) Content of the plan. The owner or operator must prepare initial and annual inflow design flood control system plans for the CCR surface impoundment. These plans must document how the inflow design flood control system has been designed and constructed to meet the requirements of this Section. Each plan must be supported by appropriate engineering calculations.

2) Amendment of the plan. The owner or operator of the CCR surface impoundment may amend the written inflow design flood control system plan at any time. The owner or operator must amend the written inflow design flood control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.

3) The owner or operator must obtain a certification from a qualified professional engineer stating that the initial and periodic inflow design flood control system plans meet the requirements of this Section

4) Timeframe for plan submission

A) The owner or operator of a new CCR surface impoundment must submit to the Agency the initial inflow design flood control system plan certification with the initial operating permit application prior to the initial receipt of CCR in the surface impoundment.

B) The owner or operator of an existing CCR surface impoundment must submit the initial inflow design flood control system plan certification with its first annual inspection report required by Section 845.540(b).

C) The owner or operator of a CCR surface impoundment must submit the annual inflow design flood control system plan certification each year with the annual inspection required by Section 845.540(b).

D) The owner or operator of a new CCR surface impoundment must place each inflow design flood control system plan in the facility's operating record, as required by Section 845.800(d)(8).

Section 845.520 Emergency Action Plan

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

b) At a minimum, the EAP must:

1) Define the events or circumstances involving the CCR surface impoundment that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;

2) Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR surface impoundment;

3) Provide contact information of emergency responders;

4) Include a map which delineates the downstream area which would be affected in the event of a CCR surface impoundment failure and a physical description of the CCR surface impoundment; and

5) Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR surface impoundment and the local emergency responders.

c) The owner or operator of a CCR surface impoundment must prepare an initial Emergency Action Plan for the facility no later than September 30, 2021, or by initial receipt of CCR in any CCR surface impoundment at the facility if the owner or operator becomes subject to this Part after September 30, 2021.

d) Amendment of the plan

1) The owner or operator of a CCR surface impoundment may amend the written EAP at any time.

2) The owner or operator must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect.

3) The written EAP must be evaluated, at a minimum, every five years to ensure the information required in this Section is accurate.

e) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the written EAP, and any subsequent amendment of the EAP, meets the requirements of this Section.

f) Activation of the EAP. The EAP must be implemented once events or circumstances involving the CCR surface impoundment that represent a safety emergency are detected, including conditions identified during any structural stability assessments, annual inspections, and inspections by a qualified person. The owner or operator of the CCR surface impoundment must submit records documenting all activations of the EAP to the Agency and place the documentation in the facility's operating record as required by Section 845.800(d)(10).

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

Section 845.530 Safety and Health Plan

a) The owner or operator of the CCR surface impoundment shall develop a Safety and Health Plan and ensure that employees, contract workers, and third-party contractors are informed regarding the Safety and Health Plan. The owner or operator shall conduct ongoing worker hazard analyses and ensure employees, contract workers, and third-party contractors are aware of said analyses. The plan shall be updated as needed based on the worker hazard analyses, but at least annually. The plan and all amendments to the plan, shall be placed in the facility's

operating record as required by Section 845.800(d)(12), and on the owner or operator's publicly accessible internet site.

b) For worker exposure safety, in addition to all other applicable local, state and federal requirements, the owner or operator of the CCR surface impoundment, for all chemical constituents identified in the CCR pursuant to Sections 845.230(a)(15) and 845.230(d)(2)(C), must:

1) consider the recommendations in the most recent "NIOSH Pocket Guide to Chemical Hazards", Department of Human Health and Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health;

2) implement the Occupational Safety and Health Administration regulations in Chapter 17 of Title 29 of the Code of Federal Regulations for all hazards not otherwise classified as defined in 29 CFR 1910.1200(c); and

3) provide safety data sheets (Globally Harmonized System of Classification and Labeling of Chemicals adopted by OSHA) or create a facility-specific safety data sheet pursuant to 29 CFR 1910.1200(g).

c) The Safety and Health Plan must include a personnel training program that meets the following minimum requirements:

1) Employees, contract workers, and third-party contractors must successfully complete a training program that informs them of the hazards at the facility to ensure compliance with the requirements of this Part. The facility must maintain an outline of the training program used (or to be used) at the facility and a brief description of training program updates.

2) At a minimum, the training program must be designed to ensure that employees, contract workers, and third-party contractors understand and are able to respond effectively to the following:

A) procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

B) communications or alarm systems;

C) response to fires or explosions;

D) response to a spill or release of CCR;

E) the training pursuant to the Occupational Safety and Health Standards in 29 CFR 1910.120, 29 CFR 1926.65, and the OSHA 10-hour or 30-hour construction safety training;

F) information about chemical hazards and hazardous materials identified in subsection (b) of this Section; and

G) the use of engineering controls, administrative controls, and personal protective equipment.

d) Employees, contract workers, and third-party contractors must successfully complete the program required in subsection (c) of this Section prior to undertaking any activity to construct, operate or close a CCR surface impoundment.

e) Employees, contract workers, and third-party contractors must take part in an annual review of the initial training required in subsection (c) of this Section.

f) The owner or operator of the CCR surface impoundment must perform, at a minimum, the following hazard communication activities:

1) post signs at the facility identifying the hazards of CCR, including dust inhalation when handling CCR;

2) post signs at the facility identifying unstable CCR areas which may make operation of heavy equipment hazardous; and

3) post signs at the facility where the CCR surface impoundment is located identifying safety measures and necessary precautions, including the proper use of personal protective equipment.

Section 845.540 Inspection Requirements for CCR Surface Impoundments

a) Inspections by a qualified person.

1) All CCR surface impoundments and any lateral expansion of a CCR surface impoundment must be examined by a qualified person as follows:

A) At intervals not exceeding seven days and after each 25-year, 24-hour storm, inspect for the following:

i) any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR surface impoundment;

ii) deterioration, malfunctions or improper operation of overtopping control systems where present;

iii) sudden drops in the level of the CCR surface impoundment's contents;

iv) erosion that creates rills, gullies, or crevices six inches or deeper, other signs of deterioration including failed or eroded vegetation in excess of 100 square feet, or cracks in dikes or other containment devices; and

v) any visible releases.

B) At intervals not exceeding seven days, inspect the discharge of all outlets of hydraulic structures which pass underneath the base of the CCR surface impoundment or through the dike of the CCR surface impoundment for abnormal discoloration, flow or discharge of debris or sediment;

C) At intervals not exceeding 30 days, monitor all CCR surface impoundment instrumentation; and

D) The owner or operator shall prepare a report for each inspection which includes the date of the inspection, condition of the CCR surface impoundment, any repairs made to the CCR surface impoundment and the date of the repair. The results of the inspection by a qualified person must be recorded in the facility's operating record as required by Section 845.800(d)(13).

2) The owner or operator of a CCR surface impoundment must initiate the inspections required under subsection (a) no later than March 30, 2021, or by initial receipt of CCR in an CCR surface impoundment if the owner or operator becomes subject to this Part after March 30, 2021. The inspections required under subsection (a) must continue until the completion of closure by removal or the completion of post-closure care.

b) Annual inspections by a qualified professional engineer.

1) The CCR surface impoundment must be inspected on an annual basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted engineering standards. The inspection must, at a minimum, include:

A) A review of available information regarding the status and condition of the CCR surface impoundment, including, but not limited to, files available in the operating record (e.g., CCR surface impoundment design and construction information required by Sections 845.220(a)(1) and 845.230(d)(2)(A), previous structural stability

assessments required under Section 845.450, the results of inspections by a qualified person, and results of previous annual inspections);

B) A visual inspection of the CCR surface impoundment to identify signs of distress or malfunction of the CCR surface impoundment and appurtenant structures;

C) A visual inspection of any hydraulic structures underlying the base of the CCR surface impoundment or passing through the dike of the CCR surface impoundment for structural integrity and continued safe and reliable operation;

D) The annual hazard potential classification certification, required by Section 845.440, if applicable;

E) The annual structural stability assessment certification, required by Section 845.450, if applicable;

F) The annual safety factor assessment certification, required by Section 845.460, if applicable; and

G) The inflow design flood control system plan certification, required by Section 845.510(c).

2) Inspection report. The qualified professional engineer must prepare a report following each inspection that addresses the following:

A) Any changes in geometry of the impounding structure since the previous annual inspection;

B) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;

C) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;

D) The storage capacity of the impounding structure at the time of the inspection;

E) The approximate volume of the impounded water and CCR at the time of the inspection;

F) Any appearances of an actual or potential structural weakness of the CCR surface impoundment, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR surface impoundment and appurtenant structures; and

G) Any other changes which may have affected the stability or operation of the impounding structure since the previous annual inspection.

3) By January 31 of each year, the inspection report must be completed and submitted with the annual consolidated report required by Section 845.550.

4) Frequency of inspections. The owner or operator of the CCR surface impoundment must conduct the inspection required by subsections (b)(1) and (2) of this Section on an annual basis. The deadline for conducting a subsequent inspection is based on the date of conducting the previous inspection.

5) If a deficiency or release is identified during an inspection, the owner or operator must submit to the Agency documentation detailing proposed corrective measures and obtain any necessary permits from the Agency.

Section 845.550 Annual Consolidated Report

a) No later than January 31 of each year, the owner or operator of the CCR surface impoundment must prepare an annual consolidated report for the preceding calendar year that includes the following:

1) Annual CCR fugitive dust control report, required by Section 845.500(c);

2) Annual inspection report, required by Section 845.540(b), including

A) annual hazard potential classification certification, required by Section 845.440, if applicable;

B) annual structural stability assessment certification, required by Section 845.450, if applicable;

C) annual safety factor assessment certification, required by Section 845.460, if applicable; and

D) inflow design flood control system plan certification, required by Section 845.510(c).

3) Annual Groundwater Monitoring and Corrective Action Report, required by Section 845.610(e).

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

SUBPART F: GROUNDWATER MONITORING AND CORRECTIVE ACTION

Section 845.600 Groundwater Protection Standards

a) For existing CCR surface impoundments and for inactive CCR surface impoundments

1) The groundwater protection standards at the waste boundary shall be:

A) Antimony: 0.006 mg/L

B) Arsenic: 0.010 mg/L

C) Barium: 2.0 mg/L

D) Beryllium: 0.004 mg/L

E) Boron: 2 mg/L

F) Cadmium: 0.005 mg/L

G) Chloride: 200 mg/L

H) Chromium: 0.1 mg/L

I) Cobalt: 0.006 mg/L

J) Fluoride: 4.0 mg/L

K) Lead: 0.0075 mg/L

L) Lithium: 0.04 mg/L

M) Mercury: 0.002 mg/L

N) Molybdenum: 0.1 mg/L

O) pH: 6.5-9.0 units

P) Selenium: 0.05 mg/L

Q) Sulfate: 400 mg/L

R) Thallium: 0.002 mg/L

S) Total Dissolved Solids: 1200 mg/L

T) Radium 226 and 228 combined: 5 pCi/L

2) For constituents with a background concentration higher than the levels identified under subsection (a)(1) of this Section, the background concentration shall be the groundwater protection standard.

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

c) The owner or operator of a CCR surface impoundment may not obtain alternative groundwater quality standards in 35 Ill. Adm. Code 620.450(a)(4) for the constituents in subsections (a) and (b) before the end of post-closure care pursuant to Section 845.780, when closing with a final cover system, or before the end of groundwater monitoring pursuant to Section 845.740(b), when closing by removal.

Section 845.610 General Requirements

a) All CCR surface impoundments and lateral expansions of CCR surface impoundments are subject to the groundwater monitoring and corrective action requirements under this Subpart.

b) Required submissions and Agency approvals for groundwater monitoring

1) Existing CCR surface impoundments. The owner or operator of an existing CCR surface impoundment must submit the following to the Agency in an initial operating permit application:

A) a hydrogeologic site characterization meeting the requirements of Section 845.620;

B) design and construction plans of a groundwater monitoring system meeting the requirements of Section 845.630;

C) a groundwater sampling and analysis program that includes selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by Section 845.640; and

D) a monitoring program that includes a minimum of eight independent samples for each background and downgradient well as required by Section 845.650(b).

2) New CCR surface impoundments. The owner or operator of a new CCR surface impoundment and all lateral expansions of a CCR surface impoundment must submit the information required in subsection (b)(1)(A)-(C) in a construction permit application, and the information required in subsection (b)(1)(D) in an operating permit application.

3) All owners and operators of CCR surface impoundments must:

A) conduct groundwater monitoring pursuant to a monitoring program approved by the Agency under this Subpart;

B) evaluate the groundwater monitoring data for statistically significant levels over background levels for the constituents listed in Section 845.600 after each sampling event;

C) determine compliance with the groundwater protection standards in Section 845.600 after each sampling event; and

D) submit all groundwater monitoring data to the Agency and any analysis performed under subsection (b)(3)(B) and (b)(3)(C) within 60 days after completion of sampling, and place the groundwater monitoring data in the facility's operating record as required by Section 845.800(d)(15).

c) Once the groundwater monitoring system and the groundwater monitoring program have been established at the CCR surface impoundment as required by this Subpart, the owner or operator must conduct groundwater monitoring and, if necessary, corrective action throughout the active life and post-closure care period of the CCR surface impoundment or the time period specified in Section 845.740(b) when closure is by removal.

d) In the event of a release from a CCR surface impoundment, the owner or operator must immediately take all necessary measures to control all sources of the release so as to reduce or eliminate, to the maximum extent feasible, further releases of contaminants into the environment. The owner or operator of the CCR surface impoundment must comply with all applicable requirements in Sections 845.660, 845.670, 845.680.

e) Annual Groundwater Monitoring and Corrective Action Report

1) The owner or operator of the CCR surface impoundment must prepare and submit to the Agency an annual groundwater monitoring and corrective

action report as a part of the annual consolidated report required by Section 845.550.

2) For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action plan for the CCR surface impoundment, summarize key actions completed, including but not limited to the status of permit applications and Agency approvals, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.

3) At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

   A) A map, aerial image, or diagram showing the CCR surface impoundment, all background (or upgradient) and downgradient monitoring wells, including the well identification numbers, that are part of the groundwater monitoring program for the CCR surface impoundment, and a visual delineation of any exceedances of the groundwater protection standards;

   B) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

   C) A potentiometric surface map for each groundwater elevation sampling event required by Section 845.650(b)(2);

   D) In addition to all the monitoring data obtained under this Subpart, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, and the dates the samples were collected;

   E) A narrative discussion of any statistically significant increases over background levels for the constituents listed in Section 845.600; and

   F) Other information required to be included in the annual report as specified in this Subpart.

4) A section at the beginning of the annual report must provide an overview of the current status of groundwater monitoring program and corrective action plan for the CCR surface impoundment. At a minimum, the summary must:

   A) specify whether groundwater monitoring data shows a statistically significant increase over background concentrations for one or more constituents listed in Section 845.600;

B) identify those constituents having a statistically significant increase over background concentrations and the names of the monitoring wells associated with such an increase;

C) specify whether there have been any exceedances of the groundwater protection standards for one or more constituents listed in Section 845.600;

D) identify those constituents with exceedances of the groundwater protection standards in Section 845.600 and the names of the monitoring wells associated with such an exceedance;

E) provide the date when the assessment of corrective measures was initiated for the CCR surface impoundment;

F) provide the date when the assessment of corrective measures was completed for the CCR surface impoundment;

G) specify whether a remedy was selected pursuant to Section 845.670 during the current annual reporting period, and if so, the date of remedy selection; and

H) specify whether remedial activities were initiated or are ongoing pursuant to Section 845.780 during the current annual reporting period.

Section 845.620 Hydrogeologic Site Characterization

a) The owner or operator of the CCR surface impoundment must design and implement a hydrogeologic site characterization.

b) The hydrogeologic site characterization shall include but not be limited to the following:

1) Geologic well logs/boring logs;

2) Climatic aspects of the site, including seasonal and temporal fluctuations in groundwater flow;

3) Identification of nearby surface water bodies and drinking water intakes;

4) Identification of nearby pumping wells and associated uses of the groundwater;

5) Identification of nearby dedicated nature preserves;

6) Geologic setting;

7) Structural characteristics;

8) Geologic cross-sections;

9) Soil characteristics;

10) Identification of confining layers;

11) Identification of potential migration pathways;

12) Groundwater quality data;

13) Vertical and horizontal extent of the geologic layers to a minimum depth of 100 feet below land surface, including lithology and stratigraphy;

14) A map displaying any known underground mines beneath a CCR surface impoundment;

15) Chemical and physical properties of the geologic layers to a minimum depth of 100 feet below land surface;

16) Hydraulic characteristics of the geologic layers identified as migration pathways and geologic layers that limit migration, including:

A) water table depth;

B) hydraulic conductivities;

C) effective and total porosities;

D) direction and velocity of groundwater flow; and

E) map of the potentiometric surface;

17) groundwater classification pursuant to 35 Ill. Adm. Code 620; and

18) Any other information requested by the Agency.

Section 845.630 Groundwater Monitoring Systems

a) Performance standard. The owner or operator of a CCR surface impoundment must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples that:

1) Accurately represent the quality of background groundwater that has not been affected by leakage from a landfill containing CCR or CCR surface impoundment. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the CCR management area where:

A) Hydrogeologic conditions do not allow the owner or operator of the CCR surface impoundment to determine what wells are hydraulically upgradient; or

B) Sampling at other wells will provide an indication of background groundwater quality that is demonstratively as representative or more representative than that provided by the upgradient wells; and

2) Accurately represent the quality of groundwater passing the waste boundary of the CCR surface impoundment. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination. All potential contaminant pathways must be monitored.

b) The number, spacing, and depths of monitoring system wells shall be determined based upon site-specific technical information identified in the hydrogeologic site characterization conducted under Section 845.620.

c) The groundwater monitoring system must include a sufficient number of monitoring wells necessary to meet the performance standards specified in subsection (a) of this Section based on the site-specific information specified in subsection (b) of this Section. The groundwater monitoring system must contain:

1) a minimum of one upgradient and three downgradient monitoring wells; and

2) additional monitoring wells as necessary to accurately represent the quality of background groundwater that has not been affected by leakage from the CCR surface impoundment and the quality of groundwater passing the waste boundary of the CCR surface impoundment.

d) Multiunit groundwater monitoring system

1) The owner or operator of multiple CCR surface impoundments may install a multiunit groundwater monitoring system instead of separate groundwater monitoring systems for each CCR surface impoundment.

2) The multiunit groundwater monitoring system must be equally as capable of detecting monitored constituents at the waste boundary of the CCR surface impoundment as the individual groundwater monitoring system

specified in subsections (a) through (c) of this Section for each CCR surface impoundment based on the following factors:

A) number, spacing, and orientation of each CCR surface impoundment;

B) hydrogeologic setting;

C) site history; and

D) engineering design of the CCR surface impoundment.

e) Monitoring wells must be properly constructed in a manner consistent with the standards of 77 Ill. Adm. Code 920.170.

1) The owner or operator must document and include in the facility's operating record the design, installation, development, and decommissioning of any monitoring wells, piezometers and other measurement, sampling, and analytical devices. The qualified professional engineer must be given access to this documentation when completing the groundwater monitoring system certification required under subsection (g) of this Section.

2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to the design specifications throughout the life of the monitoring program.

f) The owner or operator of a new CCR surface impoundment must submit a construction permit application containing documentation showing that the groundwater monitoring system is designed to meet the requirements of this Section. The owner or operator of all CCR surface impoundments must submit an operating permit application containing documentation showing that the groundwater monitoring system has been constructed to meet the requirements of this Section.

g) The owner or operator must obtain a certification from a qualified professional engineer stating that the groundwater monitoring system has been designed and constructed to meet the requirements of this Section. If the groundwater monitoring system includes the minimum number of monitoring wells specified in subsection (c)(1) of this Section, the certification must document the basis supporting this determination. The certification must be submitted to the Agency with the appropriate permit application.

Section 845.640 Groundwater Sampling and Analysis Requirements

a) The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an

accurate representation of groundwater quality at the background and downgradient wells required by Section 845.630. The owner or operator of the CCR surface impoundment must develop a sampling and analysis program that includes procedures and techniques for:

1) Sample collection;

2) Sample preservation and shipment;

3) Analytical procedures;

4) Chain of custody control; and

5) Quality assurance and quality control.

b) The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure constituents and other monitoring parameters in groundwater samples. For purposes of this Subpart, the term constituent refers to both constituents and other monitoring parameters listed in Section 845.600.

c) Groundwater elevations must be measured in each well prior to purging, each time groundwater is sampled. The owner or operator of the CCR surface impoundment must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same CCR management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

d) The owner or operator of the CCR surface impoundment must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the constituents listed in Section 845.600. Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR surface impoundment if it meets the requirements of Section 845.630(a)(1).

e) The number of samples collected when conducting monitoring (for both downgradient and background wells) must be consistent with the statistical procedures chosen under subsection (f) of this Section and the performance standards under subsection (g) of this Section. The sampling procedures shall be those specified under Section 845.650(a) through (c).

f) The owner or operator of the CCR surface impoundment must select one of the statistical methods specified in subsections (f)(1) through (5) of this Section to be used in evaluating groundwater monitoring data for each specified constituent. The statistical test chosen shall be conducted separately for each constituent in each monitoring well.

1) A parametric analysis of variance followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

2) An analysis of variance based on ranks followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

3) A tolerance or prediction interval procedure, in which an interval for each constituent is established from the distribution of the background data and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

4) A control chart approach that gives control limits for each constituent.

5) Another statistical test method that meets the performance standards of subsection (g) of this Section.

6) The owner or operator of the CCR surface impoundment must obtain a certification from a qualified professional engineer stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR surface impoundment. The certification must include a narrative description of the statistical method selected to evaluate the groundwater monitoring data. The certification must be submitted to the Agency with the appropriate permit application.

7) The owner or operator of the CCR surface impoundment must submit the following to the Agency in an operating permit application:

   A) documentation of the statistical method chosen; and

   B) the qualified professional engineer certification required under subsection (f)(6).

g) Any statistical method chosen under subsection (f) of this Section shall comply with the following performance standards, as appropriate, based on the statistical test method used:

1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of constituents. Normal distributions of data values shall use parametric methods. Non-normal distributions shall

use non-parametric methods. If the distribution of the constituents is shown by the owner or operator of the CCR surface impoundment to be inappropriate for a normal theory test, then the data must be transformed or a distribution-free (non-parametric) theory test must be used. If the distributions for the constituents differ, more than one statistical method may be needed.

2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparison procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated constituent values shall be such that this approach is at least as effective as any other approach in this Section for evaluating groundwater data. The constituent values shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

4) If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be such that this approach is at least as effective as any other approach in this Section for evaluating groundwater data. These constituents shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

5) The statistical method must account for data below the limit of detection with one or more statistical procedures at least as effective as any other approach in this Section for evaluating groundwater data. Any practical quantitation limit that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility. For the constituents identified in Section 845.600(a)(1), the practical quantitation limit must be less than the groundwater protection standards.

6) If necessary, the statistical method must include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

h) The owner or operator of the CCR surface impoundment must determine whether or not there is a statistically significant increase over background values for each constituent in Section 845.600.

1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the groundwater quality of each constituent at each monitoring well designated pursuant to Section 845.630(a)(2) or (d)(1) to the background value of that constituent, according to the statistical procedures and performance standards specified under subsections (f) and (g) of this Section.

2) Within 60 days after completing sampling and analysis, the owner or operator must determine whether there has been a statistically significant increase over background for any constituent at each monitoring well.

i) The owner or operator must measure total recoverable metals concentrations in measuring groundwater quality. Measurement of total recoverable metals captures both the particulate fraction and dissolved fraction of metals in natural waters. Groundwater samples shall not be field-filtered prior to analysis.

j) All groundwater samples taken pursuant to this Subpart must be analyzed by a certified laboratory using Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, incorporated by reference in Section 845.150.

Section 845.650 Groundwater Monitoring Program

a) The owner or operator of a CCR surface impoundment must conduct groundwater monitoring consistent with this Section. At a minimum, groundwater monitoring must include groundwater monitoring for all constituents with a groundwater protection standard in Section 845.600 and Calcium. The owner or operator of the CCR surface impoundment must submit a groundwater monitoring plan to the Agency with its operating permit application.

b) Monitoring Frequency

1) The monitoring frequency for all constituents with a groundwater protection standard in Section 845.600 and Calcium shall be at least quarterly during the active life of the CCR surface impoundment and the post-closure care period or period specified in Section 845.740(b) when closure is by removal.

A) For existing CCR surface impoundments, a minimum of eight independent samples from each background and downgradient well must be collected and analyzed for all constituents with a groundwater protection standard listed in Section 845.600(a) and Calcium no later than 180 days after the effective date of this Part.

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

2) The groundwater elevation monitoring frequency shall be monthly.

c) The number of samples collected and analyzed for each background well and downgradient well during subsequent quarterly sampling events must be consistent with Section 845.640, and must account for any unique characteristics of the site, but must include at least one sample from each background and downgradient well.

d) If one or more constituents are detected, and confirmed by an immediate resample, in exceedance of the groundwater protection standards in Section 845.600 in any sampling event, the owner or operator must notify the Agency which constituent exceeded the groundwater protection standard and place the notification in the facility's operating record as required by Section 845.800(d)(16). The owner or operator of the CCR surface impoundment also must:

1) Characterize the nature and extent of the release and any relevant site conditions that may affect the remedy ultimately selected. The characterization must be sufficient to support a complete and accurate assessment of the corrective measures necessary to effectively clean up all releases from the CCR surface impoundment pursuant to Section 845.660. The owner or operator of the CCR surface impoundment must submit the characterization to the Agency and place the characterization in the facility's operating record as required by Section 845.800(d)(16). Characterization of the release includes the following minimum measures:

A) Install additional monitoring wells necessary to define the contaminant plume(s);

B) Collect data on the nature and estimated quantity of material released including specific information on the constituents listed in Section 845.600 and the levels at which they are present in the material released;

C) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with subsection (a) and (b) of this Section; and

D) Sample all wells in accordance with subsection (a) and (b) of this Section to characterize the nature and extent of the release.

2) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site as indicated by sampling of wells in accordance with subsection (d)(1) of this Section. The owner or operator must send notifications made pursuant to this subsection (d)(2) to the Agency and place the notifications in the facility's operating record as required by Section 845.800(d)(16).

3) Except as provided in subsection (d)(4), within 90 days of the detected exceedance of the groundwater protection standard, initiate an assessment of corrective measures as required by Section 845.660.

4) Alternative Source Demonstration. The owner or operator of a CCR surface impoundment may, within 60 days of the detected exceedance of the groundwater protection standard, submit a demonstration to the Agency that a source other than the CCR surface impoundment caused the contamination and the CCR surface impoundment did not contribute to the contamination, or that the exceedance of the groundwater protection standard resulted from error in sampling, analysis, statistical evaluation, natural variation in groundwater quality, or a change in the potentiometric surface and groundwater flow direction. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer.

A) The Agency shall provide a written response either concurring or not concurring with the demonstration within 30 days.

B) If the Agency concurs with the demonstration, the owner or operator must continue monitoring in accordance with this Section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by Section 845.610(e), in addition to the certification by a qualified professional engineer.

C) If the Agency does not concur with the written demonstration made pursuant to subsection (d)(4) of this Section, the owner or operator of the CCR surface impoundment must initiate the assessment of corrective measures requirements under Section 845.660.

Section 845.660 Assessment of Corrective Measures

a) Unless the Agency has concurred with an alternative source demonstration made pursuant to Section 845.650(d)(4), the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore the affected area.

1) The assessment of corrective measures must be initiated within 90 days of finding that any constituent listed in Section 845.600 has been detected in exceedance of the groundwater protection standards in Section 845.600, or immediately upon detection of a release from a CCR surface impoundment.

2) The assessment of corrective measures must be completed and submitted to the Agency within 90 days of initiation of assessment of corrective measures, unless the owner or operator demonstrates to the Agency the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must submit this demonstration along with a certification from a qualified professional engineer attesting that the demonstration is accurate to the Agency within 60 days of initiating an assessment of corrective measures. The Agency shall either approve or disapprove the demonstration within 30 days. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The owner or operator must also include the Agency approved demonstration in the annual groundwater monitoring and corrective action report required by Section 845.610(e), in addition to the certification by a qualified professional engineer.

b) The owner or operator of the CCR surface impoundment must continue to monitor groundwater in accordance with the monitoring program as specified in Section 845.650.

c) The assessment under subsection (a) of this Section must include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the corrective action plan as described under Section 845.670 addressing at least the following:

1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

2) The time required to begin and complete the corrective action plan; and

3) The institutional requirements, such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the corrective action plan.

d) The owner or operator of the CCR surface impoundment must discuss the results of the corrective measures assessment at least 30 days prior to the selection of remedy in a public meeting with interested and affected parties as required by Section 845.240.

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

Section 845.670 Corrective Action Plan

a) The owner or operator must prepare a semi-annual report describing the progress in selecting a remedy and developing a corrective action plan. The semi-annual report must be submitted to the Agency and placed in the operating record as required by Section 845.800(d)(17).

b) Within one year of completing the assessment of corrective measures as specified in Section 845.660, and after completion of the public meeting in Section 845.660(d), the owner or operator of the CCR surface impoundment must submit a corrective action plan, which identifies the selected remedy, in a construction permit application to the Agency. This requirement applies in addition to, not in place of, any applicable standards under any other State or federal law.

c) The corrective action plan must meet the following requirements:

1) be based on the results of the corrective measures assessment conducted under Section 845.660;

2) identify a selected remedy, which at a minimum, meets the standards listed in subsection (d) of this Section;

3) contain the corrective action alternatives analysis specified in subsection (e); and

4) contain proposed schedules for implementation, including an analysis of the factors in subsection (f);

d) The selected remedy in the corrective action plan must:

1) Be protective of human health and the environment;

2) Attain the groundwater protection standards as specified in Section 845.600;

3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents in Section 845.600 of this Part into the environment;

4) Remove from the environment as much of the contaminated material that was released from the CCR surface impoundment as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems; and

5) Comply with standards for management of wastes as specified in Section 845.680(d).

e) Corrective Action Alternatives Analysis. In selecting a remedy that meets the standards of subsection (d) of this Section, the owner or operator of the CCR surface impoundment shall consider the following evaluation factors:

1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

A) Magnitude of reduction of existing risks;

B) Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy;

C) The type and degree of long-term management required, including monitoring, operation, and maintenance;

D) Short-term risks that might be posed to the community or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal of contaminants;

E) Time until groundwater protection standards in Section 845.600 are achieved;

F) The potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, containment or changes in groundwater flow;

G) The long-term reliability of the engineering and institutional controls, including an analysis of any off-site, nearby destabilizing activities; and

H) Potential need for replacement of the remedy.

2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

A) The extent to which containment practices will reduce further releases; and

B) The extent to which treatment technologies may be used.

3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

A) Degree of difficulty associated with constructing the technology;

B) Expected operational reliability of the technologies;

C) Need to coordinate with and obtain necessary approvals and permits from other agencies;

D) Availability of necessary equipment and specialists; and

E) Available capacity and location of needed treatment, storage, and disposal services.

4) The degree to which community concerns are addressed by a potential remedy(s).

f) The owner or operator must specify, as part of the corrective action plan, a schedule for implementing and completing remedial activities. Such a schedule must require the completion of remedial activities within a reasonable period of time taking into consideration the factors set forth in subsections (f)(1) through (6) of this Section. The owner or operator of the CCR surface impoundment must consider the following factors in determining the schedule of remedial activities:

1) Extent and nature of contamination, as determined by the characterization required under Section 845.650(d);

2) Reasonable probabilities of remedial technologies in achieving compliance with the groundwater protection standards established under Section 845.600 and other objectives of the remedy;

3) Availability of treatment or disposal capacity for CCR managed during implementation of the remedy;

4) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

5) Resource value of the aquifer including:

A) Current and future uses, including but not limited to potential, residential, agricultural, commercial industrial and ecological uses;

B) Proximity and withdrawal rate of users;

C) Groundwater quantity and quality;

D) The potential impact to the subsurface ecosystem, wildlife, other natural resources, crops, vegetation, and physical structures caused by exposure to CCR constituents;

E) The hydrogeologic characteristic of the facility and surrounding land; and

F) The availability of alternative water supplies; and

6) Other relevant factors.

Section 845.680 Implementation of the Corrective Action Plan

a) Within 90 days of the Agency's approval of the corrective action plan submitted under Section 845.670, the owner or operator must initiate corrective action. Based on the schedule approved by the Agency for implementation and completion of corrective action, the owner or operator must:

1) Establish and implement a corrective action groundwater monitoring program that:

A) At a minimum, meets the requirements of the monitoring program under Section 845.650;

B) Documents the effectiveness of the corrective action remedy; and

C) Demonstrates compliance with the groundwater protection standard pursuant to subsection (c) of this Section.

2) Implement the corrective action remedy approved by the Agency under Section 845.670; and

3) Take any interim measures necessary to reduce the contaminants leaching from the CCR surface impoundment, and/or potential exposures to human or ecological receptors. Interim measures must, to the greatest extent feasible, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to Section 845.670. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

A) Time required to develop and implement a final remedy;

B) Actual or potential exposure of nearby populations or environmental receptors to any of the constituents listed in Section 845.600 of this Part;

C) Actual or potential contamination of sensitive ecosystems or current or potential drinking water supplies;

D) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

E) Weather conditions that may cause any of the constituents listed in Section 845.600 of this Part to migrate or be released;

F) Potential for exposure to any of the constituents listed in Section 845.600 of this Part as a result of an accident or failure of a container or handling system; and

G) Other situations that may pose threats to human health and the environment.

b) If the Agency or an owner or operator of the CCR surface impoundment, determines, at any time, that compliance with the requirements of Section 845.670(d) is not being achieved through the remedy selected, the owner or operator must implement other methods or techniques that could feasibly achieve compliance with the requirements. These methods or techniques must receive approval by the Agency before implementation.

c) Corrective action shall be considered complete when:

1) The owner or operator of the CCR surface impoundment demonstrates compliance with the groundwater protection standards established under Section 845.600 has been achieved at all points within the plume of contamination that lie beyond the waste boundary;

2) Compliance with the groundwater protection standards has been achieved by demonstrating that concentrations of constituents listed in Section 845.600 of this Part have not exceeded the groundwater protection standards for a period of three consecutive years using the statistical procedures and performance standards in Section 845.640(f) and (g); and

3) All actions required to complete the remedy have been satisfied.

d) All CCR managed pursuant to a remedy approved by the Agency under Section 845.670, or an interim measure required under subsection (a)(3) of this Section, shall be managed in a manner that complies with this Part.

e) Upon completion of the corrective action plan, the owner or operator must submit to the Agency a corrective action completion report and certification.

1) The corrective action completion report must contain supporting documentation, including, but not limited to:

A) Any engineering and hydrogeology reports, including, but not limited to, monitoring well completion reports and boring logs, all CQA reports, certifications, and designations of CQA officers-in-absentia required by Section 845.290 of this Part;

B) A written summary of the implementation of the corrective action plan as set forth in the construction permit and this Part;

C) Groundwater monitoring data demonstrating compliance with Section 845.680(c);

D) Any remedial actions completed pursuant to Section 845.680(d);

E) Documentation showing compliance with the selected remedy requirements of Section 845.670(b); and

F) Any other information relied upon by the qualified professional engineer in making the closure certification.

2) The corrective action completion certification must include a statement from a qualified professional engineer attesting that the corrective action plan has been completed in compliance with the requirements of subsection (c) of this Section.

3) The owner or operator must place the corrective action completion report and certification in the facility's operating record as required by Section 845.800(d)(18).

SUBPART G: CLOSURE AND POST-CLOSURE CARE

Section 845.700 Required Closure or Retrofit of CCR Surface Impoundments

a) Required closure. The owner or operator of the following CCR surface impoundments must cease placing CCR or non-CCR waste streams in the CCR surface impoundment and must initiate closure of the CCR surface impoundment:

1) an existing CCR surface impoundment that has not demonstrated compliance with any of the following location restrictions:

A) uppermost aquifer location as specified in Section 845.300;

B) wetlands, as specified in Section 845.310;

C) fault areas, as specified in Section 845.320;

D) seismic impact zones, as specified in Section 845.330; or

E) unstable areas, as specified in Section 845.340.

2) The owner or operator of any CCR surface impoundment that has failed to complete the initial or any subsequent annual safety factor assessment required by Section 845.460 or that has failed to document the calculated factors of safety for the CCR surface impoundment to achieve the minimum safety factors specified in Section 845.460(a)(1) through (5).

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

c) Beginning on the effective date of this Part, the owner or operator of the CCR surface impoundment required to close under subsection (a) or electing to close under subsection (b) must immediately take steps to categorize the CCR surface impoundment pursuant to subsection (g) of this Section and to comply with the closure alternatives analysis requirements in Section 845.710. No later than 30 days after the effective date of this Part, the owner or operator must send the category designation, including a justification for the category designation, for each CCR surface impoundment to the Agency for review. The owner or operator of the CCR surface impoundment must submit a construction permit application containing a final closure plan pursuant to the schedule in subsection (h) of this Section.

d) Timeframes for Closure

1) Except as provided in subsection (d)(2), the owner or operator must cease placing CCR and non-CCR waste streams in the impoundment and initiate closure within six months of failing to complete any of the demonstrations listed in subsection (a).

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

A) If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has not satisfied an alternative closure requirement of 40 CFR 257.103 that allows for the continued receipt of CCR or non-CCR waste streams, the owner or operator must not place CCR or non-CCR waste streams into the CCR surface impoundment after the effective date of this Part.

B) If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has demonstrated that alternative disposal capacity is infeasible under 40 CFR 257.103, the owner or operator must cease placing CCR or non-CCR waste streams into the CCR surface impoundment by the end of the initial time extension approved under 40 CFR 257.103 or once alternative capacity becomes available, whichever is sooner. In no case may the owner or operator of the CCR surface impoundment place CCR or non-CCR waste streams into the CCR surface impoundment after October 15, 2023.

C) If, on the effective date of this Part, the owner or operator of a CCR surface impoundment has demonstrated permanent cessation of coal-fired power boiler(s) by a certain date under 40 CFR 257.103, the owner or operator must:

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

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

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

E) The owner or operator of the CCR surface impoundment will not be given extensions of the timeframes for closure.

e) Semi-Annual Reports. The owner or operator of a CCR surface impoundment closing under the time frames in subsection (d)(2)(B) and (d)(2)(C) shall prepare semi-annual reports consistent with the requirements in 40 CFR 257.103 until the owner or operator has initiated closure.

f) An owner or operator of a CCR surface impoundment required to close pursuant to this Section must prepare the notification required under Section 845.730(d) that the CCR surface impoundment is closing under this Section.

g) Closure Prioritization

1) The owner or operator of a CCR surface impoundment required to close under this Section must assign the CCR surface impoundment to one of the following categories. Category 1 has the highest priority for closure. Category 7 has the lowest priority category for closure.

A) Category 1 includes CCR surface impoundments that have impacted an existing potable water supply well or that have impacted groundwater quality within the setback of an existing potable water supply well.

B) Category 2 includes CCR surface impoundments that are an imminent threat to human health or the environment as determined by the Agency pursuant to subsection (g)(5).

C) Category 3 includes CCR surface impoundments located in areas of environmental justice concern as determined by the Agency pursuant to subsection (g)(6).

D) Category 4 includes inactive CCR surface impoundments that have an exceedance of the groundwater protection standards in Section 845.600.

E) Category 5 includes existing CCR surface impoundments that have exceedances of the groundwater protection standards in Section 845.600.

F) Category 6 includes inactive CCR surface impoundments that are in compliance with the groundwater protection standards in Section 845.600.

G) Category 7 includes existing CCR surface impoundments that are in compliance with the groundwater protection standards in Section 845.600.

2) If a CCR surface impoundment can be categorized in more than one category, the owner or operator of the CCR surface impoundment must assign the CCR surface impoundment the highest priority category.

3) Whenever an owner or operator of a CCR surface impoundment has more than one CCR surface impoundment that must close under this Section, the owner or operator shall close the CCR surface impoundments in order of priority.

4) If the CCR surface impoundment meets the criteria for Category 1, the owner or operator must take immediate steps to mitigate the impact to any existing potable water supply. The owner or operator of the CCR surface impoundment shall act to replace the water supply with a supply of equal or better quality and quantity within 30 days of notice that such impact has occurred.

5) The Agency may designate a CCR surface impoundment as a Category 2 surface impoundment when:

A) the CCR surface impoundment has failed to document that the calculated factors of safety for the CCR surface impoundment achieve the minimum safety factors specified in Section 845.460(a)(1) through (5);

B) the CCR surface impoundment has not demonstrated compliance with the location restrictions in Subpart C of this Part;

C) the owner or operator has been enjoined pursuant to 415 ILCS 5/43;

D) an exceedance of the groundwater protection standards in Section 845.600 has migrated off-site; or

E) the Agency finds that an emergency condition exists creating an immediate danger to public health or welfare, or the environment.

6) For the purposes of this Part and only this Part, areas of environmental justice concern are identified as any area that meets either of the following:

A) any area within one-mile of a census block group where the number of low-income persons is twice the statewide average, where low income means the number or percent of a census block group's

population in households where the household income is less than or equal to twice the federal poverty level; or

B) any area within one-mile of a census block group where the number of minority persons is twice the statewide average, where minority means the number or percent of individuals in a census block group who list their racial status as a race other than white alone or list their ethnicity as Hispanic or Latino.

7) For purposes of subsection (6), if any part of a facility falls within one-mile of the census block group, the entire facility, including all of its CCR surface impoundments, shall be considered an area of environmental justice concern.

8) The Agency may designate a CCR surface impoundment as another Category when site-specific conditions contradict the designations provided by the owner or operator in Section 845.700(c) and the categories in Sections 845.700(g)(1)(A) through 845.700(g)(1)(G).

h) Application Schedule

1) Category 1, Category 2, Category 3, and Category 4 CCR surface impoundment owners or operators must submit either a construction permit application containing a final closure plan or submit a construction permit application to retrofit the CCR surface impoundment in accordance with the requirements of this Part no later than January 1, 2022.

2) Category 5 CCR surface impoundment owners or operators must submit either a construction permit application containing a final closure plan or submit a construction permit application to retrofit the CCR surface impoundment in accordance with the requirements of this Part no later than July 1, 2022.

3) Category 6 and Category 7 CCR surface impoundment owners or operators must submit either a construction permit application containing a final closure plan or submit a construction permit application to retrofit the CCR surface impoundment in accordance with the requirements of this Part no later than July 1, 2023.

4) Owners or operators consolidating one or more CCR surface impoundments for closure must meet the application schedule of the highest priority CCR surface impoundment.

5) If the Agency denies a construction permit application submitted pursuant to this Section, the owner and operator must submit a revised construction permit application addressing all deficiencies identified by the Agency. The

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

Section 845.710 Closure Alternatives

a) Closure of a CCR surface impoundment, or any lateral expansion of a CCR surface impoundment, must be completed either by leaving the CCR in place and installing a final cover system or through removal of the CCR and decontamination of the CCR surface impoundment, as described in Sections 845.720 through 845.760.

b) Before selecting a closure method, the owner or operator of each CCR surface impoundment must complete a closure alternatives analysis. The closure alternatives analysis must examine the following for each closure alternative:

1) the long- and short-term effectiveness and protectiveness of the closure method, including identification and analyses of the following factors:

A) the magnitude of reduction of existing risks;

B) the magnitude of residual risks in terms of likelihood of future releases of CCR;

C) the type and degree of long-term management required, including monitoring, operation, and maintenance;

D) the short-term risks that might be posed to the community or the environment during implementation of such a closure, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal of contaminants;

E) the time until closure and post-closure care or the completion of groundwater monitoring pursuant to Section 845.740(b) is completed;

F) the potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, containment or changes in groundwater flow;

G) the long-term reliability of the engineering and institutional controls, including an analysis of any off-site, nearby destabilizing activities; and

H) potential need for future corrective action of the closure alternative.

2) the effectiveness of the closure method in controlling future releases based on analyses of the following factors:

A) the extent to which containment practices will reduce further releases; and

B) the extent to which treatment technologies may be used.

3) the ease or difficulty of implementing a potential closure method based on analyses of the following types of factors:

A) degree of difficulty associated with constructing the technology;

B) expected operational reliability of the technologies;

C) need to coordinate with and obtain necessary approvals and permits from other agencies;

D) availability of necessary equipment and specialists; and

E) available capacity and location of needed treatment, storage, and disposal services.

4) the degree to which the concerns of the residents living within communities where the CCR will be handled, transported and disposed are addressed by the closure method.

c) The owner or operator of the CCR surface impoundment must analyze complete removal of the CCR as one closure alternative in the closure alternatives analysis. The closure alternative analysis must identify whether the facility has an onsite landfill with remaining capacity, which can legally accept CCR, and, if not, whether constructing an onsite landfill is possible. The owner and operator of the CCR surface impoundment must include any other closure method in the alternatives analysis if requested by the Agency.

d) The analysis for each alternative completed pursuant to this Section must:

1) meet or exceed a class 4 estimate under the AACE Classification Standard, incorporated by reference in Section 845.150, or a comparable classification practice as provided in the AACE Classification Standard;

2) contain the results of groundwater contaminant transport modeling and calculations showing how the closure alternative will achieve compliance with the applicable groundwater protection standards;

3) include a description of the fate and transport of contaminants with the closure alternative over time including consideration of seasonal variations; and

4) assess impacts to waters in the state.

e) At least 30 days before submission of a construction permit application for closure, the owner or operator of the CCR surface impoundment must discuss the results of the closure alternatives analysis in a public meeting with interested and affected parties as required by Section 845.240.

f) After completion of the public meeting pursuant to subsection (e), the owner or operator of a CCR surface impoundment must select a closure method and submit a final closure plan to the Agency pursuant to Section 845.720(b). All materials demonstrating completion of the closure alternatives analysis specified in this Section must be submitted with the final closure plan.

g) The selected closure method must meet the requirements and standards of this Part, ensure the protection of human health and the environment, and achieve compliance with the groundwater protection standards in Section 845.600.

Section 845.720 Closure Plan

a) Preliminary written closure plan

1) Content of the preliminary closure plan. The owner or operator of a new CCR surface impoundment or an existing CCR surface impoundment not required to close under Section 845.700 must prepare a preliminary written closure plan that describes the steps necessary to close the CCR surface impoundment at any point during the active life of the CCR surface impoundment consistent with recognized and generally accepted engineering practices. The preliminary written closure plan must include, at a minimum, the information specified in subsections (a)(1)(A) through (F) of this Section.

A) A narrative description of how the CCR surface impoundment will be closed in accordance with this Part.

B) If closure of the CCR surface impoundment will be accomplished through removal of CCR from the CCR surface impoundment, a

description of the procedures to remove the CCR and decontaminate the CCR surface impoundment in accordance with Section 845.740.

C) If closure of the CCR surface impoundment will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with Section 845.750, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in Section 845.750.

D) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR surface impoundment.

E) An estimate of the largest area of the CCR surface impoundment ever requiring a final cover as required by Section 845.750 at any time during the CCR surface impoundment's active life.

F) A schedule for completing all activities necessary to satisfy the closure criteria in this Section, including an estimate of the year in which all closure activities for the CCR surface impoundment will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR surface impoundment, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR surface impoundment closure. When preparing the preliminary written closure plan, if the owner or operator of a CCR surface impoundment estimates that the time required to complete closure will exceed the timeframes specified in Section 845.760(a), the preliminary written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under Section 845.760(b).

2) The owner or operator of the CCR surface impoundment must submit the preliminary written closure plan to the Agency with its initial operating permit application. The owner or operator of the CCR surface impoundment must submit the most recently amended preliminary closure plan to the Agency with each operating permit renewal application. The owner or operator must place preliminary and amended preliminary written closure plans in the facility's operating record as required by Section 845.800(d)(19).

3) Amendment of a preliminary written closure plan.

A) The owner or operator may amend the preliminary written closure plan at any time.

B) The owner or operator must amend the preliminary written closure plan whenever:

i) There is a change in the operation of the CCR surface impoundment that would substantially affect the written closure plan in effect; or

ii) Before closure activities have commenced, unanticipated events necessitate a revision of the written closure plan.

C) The owner or operator must amend the closure plan at least 60 days prior to a planned change in the operation of the facility or CCR surface impoundment, or no later than 60 days after an unanticipated event requires the need to revise an existing written closure plan.

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

b) Final Closure Plan

1) The owner or operator of a CCR surface impoundment must submit, as a part of a construction permit application for closure, a final closure plan to the Agency before the installation of a final cover system or removal of CCR from the surface impoundment for the purpose of closure.

2) Except as otherwise provided in Section 22.59 of the Act, the owner or operator of a CCR surface impoundment must not close a CCR surface impoundment without a construction permit issued pursuant to this Part.

3) The final closure plan must identify the proposed selected closure method, and include the information required in subsection (a)(1) of this Section and the closure alternatives analysis as specified in Section 845.710.

4) If a final written closure plan revision is necessary after closure activities have commenced for a CCR surface impoundment, the owner or operator must submit a request to modify the construction permit no later than 60 days following the triggering event.

5) The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer that the final written closure plan meets the requirements of this Part.

Section 845.730 Initiation of Closure

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

a) Known Final Receipt. The owner or operator must initiate closure of the CCR surface impoundment no later than 30 days after the date on which the CCR surface impoundment either:

1) Receives the known final placement of waste, either CCR or any non-CCR waste stream; or

2) Removes the known final volume of CCR from the CCR surface impoundment for the purpose of beneficial use of CCR.

b) Temporarily Idled CCR Surface Impoundments.

1) Except as provided by subsection (b)(2) of this Section, the owner or operator must initiate closure of a CCR surface impoundment that has not received CCR or any non-CCR waste stream or is no longer removing CCR for the purpose of beneficial use within two years of the last receipt of waste or within two years of the last removal of CCR material for the purpose of beneficial use.

2) Notwithstanding subsection (b)(1) of this Section, the owner or operator of the CCR surface impoundment may secure an additional two years to initiate closure of the idle surface impoundment if the Agency approves the owner or operator's written demonstration that the CCR surface impoundment will continue to accept wastes or will start removing CCR for the purpose of beneficial use. The documentation must be supported by, at a minimum, the information specified in subsections (b)(2)(A) and (B) of this Section. The owner or operator may obtain two-year extensions provided the owner or operator continues to be able to demonstrate that there is reasonable likelihood that the CCR surface impoundment will accept wastes in the foreseeable future or will remove CCR from the surface impoundment for the purpose of beneficial use. The owner or operator must place each Agency approved demonstration, if more than one time extension is sought, in the facility's operating record as required by Section 845.800(d)(20) prior to the end of any two-year period.

A) Information documenting that the CCR surface impoundment has remaining storage or disposal capacity or that the CCR surface impoundment can have CCR removed for the purpose of beneficial use; and

B) Information demonstrating that that there is a reasonable likelihood that the CCR surface impoundment will resume receiving CCR or non-CCR waste streams in the foreseeable future or that CCR can be removed for the purpose of beneficial use. The narrative must include a best estimate as to when the CCR surface impoundment will resume receiving CCR or non-CCR waste streams. The situations listed in subsections (b)(2)(B)(i) through (iv) of this Section are examples of situations that would support a determination that the CCR surface impoundment will resume receiving CCR or non-CCR waste streams in the foreseeable future.

i) Normal plant operations include periods during which the CCR surface impoundment does not receive CCR or non-CCR waste streams, such as the alternating use of two or more CCR surface impoundments whereby at any point in time one CCR surface impoundment is receiving CCR while CCR is being removed from a second CCR surface impoundment after its dewatering.

ii) The CCR surface impoundment is dedicated to a coal-fired boiler surface impoundment that is temporarily idled (e.g., CCR is not being generated) and there is a reasonable likelihood that the coal-fired boiler will resume operations in the future.

iii) The CCR surface impoundment is dedicated to an operating coal-fired boiler (i.e., CCR is being generated); however, no CCR are being placed in the CCR surface impoundment because the CCR is being entirely diverted to beneficial uses, but there is a reasonable likelihood that the CCR surface impoundment will again be used in the foreseeable future.

iv) The CCR surface impoundment currently receives only non-CCR waste streams and those non-CCR waste streams are not generated for an extended period of time, but there is a reasonable likelihood that the CCR surface impoundment will again receive non-CCR waste streams in the future.

3) In order to obtain additional time extension(s) to initiate closure of a CCR surface impoundment beyond the two years provided by subsection (b)(1) of this Section, the owner or operator of the CCR surface impoundment

must submit the demonstration required by subsection (b)(2) of this Section to the Agency for review and approval. The written documentation must include the following statement signed by the owner or operator or an authorized representative:

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DEMONSTRATION AND ALL ATTACHED DOCUMENTS, AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

c) The timeframes specified in subsections (a) and (b) of this Section do not apply to an owner or operator of a CCR surface impoundment closing the CCR surface impoundment as required by Section 845.700:

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

Section 845.740 Closure by Removal

a) Closure by removal of CCR. An owner or operator may elect to close a CCR surface impoundment by removing and decontaminating all areas affected by releases from the CCR surface impoundment. CCR removal and decontamination of the CCR surface impoundment are complete when the CCR in the surface impoundment and any areas affected by releases from the CCR surface impoundment have been removed.

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

c) The owner or operator of a CCR surface impoundment removing CCR during closure must responsibly handle and transport the CCR consistent with this subsection.

1) Transportation

A) Manifests

i) When transporting CCR off-site by motor vehicle, manifests must be carried as specified in 35 Ill. Adm. Code 809. For purposes of this Part, coal combustion fly ash that is removed from a CCR surface impoundment is not exempt from the manifest requirement.

ii) When transporting CCR off-site by any other mode or method, including but not limited to trains or barges, manifests must be carried specifying, at a minimum, the following information: the volume of the CCR; the location from which the CCR was loaded onto the mode of transportation and the date the loading took place; and the location where the CCR is being taken and the date it will be delivered.

B) The owner or operator of a CCR surface impoundment from which CCR is removed and transported off-site shall develop a CCR transportation plan, which shall include:

i) identification of the transportation method selected, including whether a combination of transportation methods will be used;

ii) the frequency, time of day, and routes of CCR transportation;

iii) any measures to minimize noise, traffic, and safety concerns caused by the transportation of the CCR;

iv) measures to limit fugitive dust from any transportation of CCR;

v) installation and use of a vehicle washing station;

vi) a means of covering the CCR for any mode of CCR transportation, including conveyor belts; and

vii) a requirement that, for transport by motor vehicle, the CCR is transported by a permitted special waste hauler pursuant to 35 Ill. Adm. Code 809.201.

2) The owner or operator of a CCR surface impoundment must develop and implement onsite dust controls, which must include:

A) A water spray or other commercial dust suppressant to suppress dust in CCR handling areas and haul roads; and

B) CCR must be handled to minimize airborne particulates and offsite particulate movement during any weather event or condition.

3) The owner or operator of a CCR surface impoundment must provide the following public notices:

A) signage must be posted at the property entrance warning of the hazards of CCR dust inhalation; and

B) when CCR is transported off-site, a written notice explaining the hazards of CCR dust inhalation, the transportation plan and tentative transportation schedule must be provided to units of local government through which the CCR will be transported.

4) The owner or operator of the surface impoundment must take measures to prevent contamination of surface water, groundwater, soil and sediments from the removal of CCR, including but not limited to the following:

A) CCR removed from the surface impoundment may only be temporarily stored, and must be stored in a lined landfill, CCR surface impoundment, enclosed structure or a CCR storage pile.

B) CCR storage piles shall

i) be tarped or constructed with wind barriers to suppress dust and to limit stormwater contact with storage piles;

ii) be periodically wetted or have periodic application of dust suppressants;

iii) have a storage pad, or a geomembrane liner, with a hydraulic conductivity no greater than 1×10^{-7} cm/sec, that is properly sloped to allow appropriate drainage;

iv) be tarped over the edge of the storage pad where possible;

v) be constructed with fixed and mobile berms where appropriate to reduce run-on and run-off of stormwater to and from the storage pile, and minimize stormwater-CCR contact; and

vi) have a groundwater monitoring system that is consistent with the requirements of Section 845.630 and approved by the Agency.

C) The owner or operator of the CCR surface impoundment shall incorporate general housekeeping procedures such as daily cleanup of CCR, tarping of trucks, maintaining the pad and equipment, and good practices during unloading and loading.

D) The owner or operator of the CCR must minimize the amount of time the CCR is exposed to precipitation and wind.

E) The discharge of stormwater runoff which has come in contact with CCR must be covered by an individual National Pollutant Discharge Elimination System (NPDES) permit. The owner or operator shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) in addition to any other requirements of the facility's NPDES permit. Any construction permit application for closure must include a copy of the SWPPP.

d) At the end of each month where CCR is being removed from a CCR surface impoundment, the owner or operator must prepare a report that describes the weather, precipitation amounts, the amount of CCR removed from the CCR surface impoundment, the amount and location of CCR being stored on-site, the amount of CCR transported offsite, the implementation of good housekeeping procedures required by Section 845.740(c)(4)(C), the implementation of dust control measures, and documents worker safety measures implemented. The owner or operator of the CCR surface impoundment must place the monthly report in the facility's operating record as required by Section 845.800(d)(22).

e) Upon completion of CCR removal and decontamination of the CCR surface impoundment pursuant to subsection (a) of this Section, the owner or operator of the CCR surface impoundment must submit to the Agency a completion of CCR removal and decontamination report and a certification from a qualified professional engineer that CCR removal and decontamination of the CCR surface impoundment has been completed in accordance with this Section. The owner or operator must place the CCR removal and decontamination report and certification in the facility's operating record as required by Section 845.800(d)(30).

f) Upon completion of groundwater monitoring required pursuant to subsection (b) of this Section, the owner or operator of the CCR surface impoundment must submit to the Agency a completion of groundwater monitoring report and a certification from a qualified professional engineer that groundwater monitoring has been completed in accordance with this Section. The owner or operator must place the groundwater monitoring report and certification in the facility's operating record as required by Section 845.800(d)(23).

Section 845.750 Closure with a Final Cover System

Closure performance standard when leaving CCR in place:

a) The owner or operator of a CCR surface impoundment must ensure that, at a minimum, the CCR surface impoundment is closed in a manner that will:

1) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;

2) Preclude the probability of future impoundment of water, sediment, or slurry;

3) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;

4) Minimize the need for further maintenance of the CCR surface impoundment; and

5) Be completed in the shortest amount of time consistent with recognized and generally accepted engineering practices.

b) Drainage and stabilization of CCR surface impoundments. The owner or operator of a CCR surface impoundment or any lateral expansion of a CCR surface impoundment must meet the requirements of subsection (b) of this Section prior to installing the final cover system required under subsection (c) of this Section.

1) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.

2) Remaining wastes must be stabilized sufficient to support the final cover system.

c) Final cover system. If a CCR surface impoundment is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of this subsection (c) of this Section. The final cover system must consist of a low permeability layer and a final protective layer. The design of the final cover system must be included in the preliminary and final written closure plans required by Section 845.720 and the construction permit application for closure submitted to the Agency.

1) Standards for the low permeability layer. The low permeability layer must have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a hydraulic conductivity no greater than 1×10^{-7} cm/sec, whichever is less. The low permeability layer must be constructed in accordance with the following standards in either subsections (c)(1)(A) or (c)(1)(B) of this Section, unless the owner or operator demonstrates that another low permeability layer construction technique or material provides equivalent or superior performance to the requirements of either subsections (c)(1)(A) or (c)(1)(B) of this Section and is approved by the Agency.

   A) A compacted earth layer constructed in accordance with the following standards:

      i) The minimum allowable thickness must be 0.91 meter (3 feet); and

      ii) The layer must be compacted to achieve a hydraulic conductivity of 1 x 10^{-7} cm/sec or less and minimize void spaces.

   B) A geomembrane constructed in accordance with the following standards:

      i) The geosynthetic membrane must have a minimum thickness of 40 mil (0.04 inches) and, in terms of hydraulic flux, be equivalent or superior to a 3 foot layer of soil with a hydraulic conductivity of 1 x 10^{-7} cm/sec;

      ii) The geomembrane must have strength to withstand the normal stresses imposed by the waste stabilization process; and

      iii) The geomembrane must be placed over a prepared base free from sharp objects and other materials that may cause damage.

2) Standards for the final protective layer. The final protective layer must meet the following requirements, unless the owner or operator demonstrates that another final protective layer construction technique or material provides equivalent or superior performance to the requirements of subsection (c)(2) of this Section and is approved by the Agency.

   A) Cover the entire low permeability layer;

B) Be at least 3 feet thick and must be sufficient to protect the low permeability layer from freezing and minimize root penetration of the low permeability layer;

C) Consist of soil material capable of supporting vegetation;

D) Be placed as soon as possible after placement of the low permeability layer; and

E) Be covered with vegetation to minimize wind and water erosion.

3) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

4) The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of this Section.

d) This subsection specifies the allowable uses of CCR in the closure of CCR surface impoundments closing pursuant Section 845.700. Notwithstanding the prohibition on further placement in Section 845.700, CCR may be placed in such surface impoundments, but only for the purposes of grading and contouring in the design and construction of the final cover system if:

1) The CCR placed must have been generated at the facility and be located at the facility at the time closure was initiated;

2) CCR must be placed entirely above the elevation of CCR in the surface impoundment, following dewatering and stabilization as required in subsection (b);

3) The CCR must be placed entirely within the perimeter berms of the CCR surface impoundment; and

4) The final cover system must be constructed with either:

A) A slope not steeper than 5% grade after allowance for settlement; or

B) At a steeper grade, if the Agency determines that the steeper slope is necessary based on conditions at the site, to facilitate run-off and minimize erosion, and that side slopes are evaluated for erosion potential based on a stability analysis to evaluate possible erosion potential. The stability analysis, at a minimum, must evaluate the site geology; characterize soil shear strength; construct a slope stability model; establish groundwater and seepage conditions, if

any; select loading conditions; locate critical failure surface; and iterate until minimum factor of safety is achieved.

Section 845.760 Completion of Closure Activities

a) Except as provided for in subsection (b) of this Section, the owner or operator must complete closure of existing and new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, within the timeframe approved by the Agency in the final closure plan, or within five years of obtaining a construction permit for closure, whichever is less.

b) Extensions of closure timeframes.

1) The timeframes for completing closure of a CCR surface impoundment specified under subsection (a) of this Section may be extended if the owner or operator has demonstrated to the Agency that it was not feasible to complete closure of the CCR surface impoundment within the required timeframes due to factors beyond the facility's control.

2) The demonstration must include a narrative discussion explaining the basis for additional time.

3) The owner or operator must submit the demonstration to the Agency with a renewal construction permit application for closure.

4) Factors that may support such a demonstration include:

A) Complications stemming from the climate and weather, such as unusual amounts of precipitation or a significantly shortened construction season;

B) Time required to dewater a surface impoundment due to the volume of CCR contained in the CCR surface impoundment or the characteristics of the CCR in the surface impoundment;

C) The geology and terrain surrounding the CCR surface impoundment will affect the amount of material needed to close the CCR surface impoundment; or

D) Time required or delays caused by the need to coordinate with and obtain necessary approvals and permits from the Agency or other agencies.

c) Maximum time extensions.

1) CCR surface impoundments of 40 acres or smaller that are not closing by removal may extend the time to complete closure by no longer than two years.

2) CCR surface impoundments larger than 40 acres that are not closing by removal may extend the timeframe to complete closure of the CCR surface impoundment multiple times, in two-year increments. For each two-year extension sought, the owner or operator must substantiate the factual circumstances demonstrating the need for the extension. No more than a total of five two-year extensions may be obtained for any CCR surface impoundment.

3) CCR surface impoundments that are closing by removal may extend the time to complete closure multiple times, in two-year increments. For each two-year extension sought, the owner or operator must substantiate the factual circumstances demonstrating the need for the extension.

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

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DEMONSTRATION AND ALL ATTACHED DOCUMENTS, AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

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

1) The closure report must contain supporting documentation, including, but not limited to:

A) Engineering and hydrogeology reports, including, but not limited to, monitoring well completion reports and boring logs, all CQA reports, certifications, and designations of CQA officers-in-absentia required by Section 845.290 of this Part;

B) Photographs including time, date and location information of the photograph of the final cover system and groundwater collection system, if applicable, and any other photographs relied upon to document construction activities;

C) A written summary of closure requirements and completed activities as set forth in the closure plan and this Part; and

D) Any other information relied upon by the qualified professional engineer in making the closure certification.

2) The closure certification must include a statement from a qualified professional engineer that closure has been completed in accordance with the Agency-approved final closure plan and the requirements of this Section.

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

f) Within 30 days of the Agency's approval of the closure report and closure certification submitted pursuant to subsection (e) of this Section, the owner or operator must prepare a notification of closure of the CCR surface impoundment. The notification must include the certification by a qualified professional engineer as required by subsection (e)(2) of this Section. The owner or operator must place the notification in the facility's operating record as required by Section 845.800(d)(24).

g) If an owner or operator of a CCR surface impoundment has completed closure of the CCR surface impoundment before the effective date of this Part, the owner or operator must notify the Agency of the completed closure by September 30, 2021 if such notification has not previously been submitted.

h) Deed notations.

1) Following closure of a CCR surface impoundment, the owner or operator must record a notation on the deed to the property, or some other instrument that is normally examined during title search.

2) The notation on the deed must in perpetuity notify any potential purchaser of the property that:

A) The land has been used as a CCR surface impoundment; and

B) Its use is restricted under the post-closure care requirements as provided by Section 845.780(d)(1)(C) or groundwater monitoring requirements in Section 845.740(b).

3) Within 30 days of recording a notation on the deed to the property, the owner or operator must submit to the Agency a notification stating that the notation has been recorded. The owner or operator must place the notification in the facility's operating record as required by 845.800(d)(25).

Section 845.770 Retrofitting

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

a) To retrofit an existing CCR surface impoundment, the owner or operator must:

1) First remove all CCR, including any liners, as necessary, and contaminated soils and sediments from the CCR surface impoundment; and

2) Comply with the requirements in Sections 845.410 and 845.420.

b) A CCR surface impoundment undergoing a retrofit remains subject to all other requirements of this Part, including the requirement to conduct any necessary corrective action.

c) Written retrofit plan

1) Content of the plan. The owner or operator must prepare a written retrofit plan that describes the steps necessary to retrofit the CCR surface impoundment consistent with recognized and generally accepted engineering practices. The written retrofit plan must include, at a minimum, all of the following information:

A) A narrative description of the specific measures that will be taken to retrofit the CCR surface impoundment in accordance with this section.

B) A description of the procedures to remove all CCR, liners as necessary, and contaminated soils and sediments from the CCR surface impoundment.

C) An estimate of the maximum amount of CCR and other contaminated materials that will be removed as part of the retrofit operation.

D) An estimate of the largest area of the CCR surface impoundment that will be affected by the retrofit operation.

E) A schedule for completing all activities necessary to satisfy the retrofit criteria in this Section, including an estimate of the year in which retrofit activities of the CCR surface impoundment will be completed.

2) The owner or operator must submit the written retrofit plan with the construction permit application and must obtain a construction permit before retrofitting a CCR surface impoundment.

3) Amendment of a written retrofit plan.

A) The owner or operator may submit a permit modification application to amend the initial or any subsequent written retrofit plan at any time.

B) The owner or operator must seek to amend the written retrofit plan whenever:

i) There is a change in the operation of the CCR surface impoundment that would substantially affect the written retrofit plan in effect; or

ii) unanticipated events necessitate a revision of the written retrofit plan either before or after retrofit activities have commenced.

C) The owner or operator must seek to amend the retrofit plan at least 60 days prior to a planned change in the operation of the facility or CCR surface impoundment, or no later than 60 days after an unanticipated event requires the revision of an existing written retrofit plan. If a written retrofit plan needs to be revised after retrofit activities have commenced for a CCR surface impoundment, the owner or operator must submit a request to modify the construction permit no later than 60 days following the triggering event.

4) The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer that the activities outlined in the written retrofit plan, including any amendment of the plan, meet the requirements of this Section.

d) No later than the date the owner or operator submits a construction permit application to the Agency to retrofit a CCR surface impoundment, the owner or operator must prepare a notification of intent to retrofit a CCR surface impoundment. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by Section 845.800(d)(26).

e) When activities related to retrofitting the CCR surface impoundment include the removal of CCR from the surface impoundment, the handling and removal of CCR must be performed in a manner consistent with the requirements in Section 845.740.

f) Deadline for completion of activities related to the retrofit of a CCR surface impoundment. Any CCR surface impoundment that is being retrofitted must complete all retrofit activities within the timeframe approved by the Agency in the retrofit plan, or within five years of obtaining a construction permit, whichever is less. The same procedures specified for the extension closure timeframes in Section 845.760(b) apply to extension of retrofit timeframes.

g) Upon completion of all retrofit activities required by this Part and approved by the Agency in a construction permit, the owner or operator of the CCR surface impoundment must submit to the Agency a retrofit completion report and certification.

1) The retrofit completion report must contain supporting documentation, including, but not limited to:

A) Engineering and hydrogeology reports, including, but not limited to, monitoring well completion reports and boring logs, all CQA reports, certifications, and designations of CQA officers-in-absentia required by Section 845.290 of this Part;

B) Photographs including time, date and location information of the photograph of the liner system and leachate collection system, and any other photographs relied upon to document construction activities;

C) A written summary of retrofit requirements and completed activities as set forth in the construction permit and this Part; and

D) Any other information relied upon by the qualified professional engineer in making the closure certification.

2) The retrofit certification must include a statement from a qualified professional engineer that retrofit has been completed in accordance with the retrofit plan specified in subsection (b) of this Section and the requirements of this Part.

3) The owner or operator must place the retrofit completion report and certification in the facility's operating record as required by Section 845.800(d)(27).

h) Within 30 days of the Agency's approval of the retrofit completion report and certification submitted pursuant to subsection (f) of this Section, the owner or operator must prepare a notification of completion of retrofit activities. The notification must include the certification by a qualified professional engineer as required by subsection (g)(2) of this Section. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by Section 845.800(d)(28).

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

Section 845.780 Post-Closure Care Requirements

a) Applicability

1) Except as provided by subsection (a)(2) of this Section, this Section applies to the owners or operators of CCR surface impoundments who have completed an Agency approved closure.

2) An owner or operator of a CCR surface impoundment that elects to close a CCR surface impoundment by removing CCR as provided by Section 845.740 is not subject to the post-closure care criteria under this Section.

b) Post-closure care maintenance requirements. Following closure of the CCR surface impoundment, the owner or operator must conduct post-closure care for the CCR surface impoundment, which must consist of at least the following:

1) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

2) If the CCR surface impoundment is subject to the design criteria under Section 845.420, maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of Section 845.420; and

3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of Subpart F.

c) Post-closure care period.

1) Except as provided by subsection (c)(2) of this Section, the owner or operator of the CCR surface impoundment must conduct post-closure care for 30 years.

2) At the end of the 30-year post-closure care period, the owner or operator of the CCR surface impoundment must continue to conduct post-closure care until the groundwater monitoring data shows the concentrations are:

A) below the groundwater protections standards in Section 845.600; and

B) not increasing for those constituents over background, using the statistical procedures and performance standards in Section 845.640(f) and (g), provided that:

i) concentrations have been reduced to the maximum extent feasible; and

ii) concentrations are protective of human health and the environment.

d) Written post-closure care plan

1) Content of the plan. The owner or operator of a CCR surface impoundment must prepare a written post-closure care plan that includes, at a minimum, the information specified in subsections (d)(1)(A) through (C) of this Section.

A) A description of the monitoring and maintenance activities required in subsection (b) of this Section for the CCR surface impoundment and the frequency at which these activities will be performed;

B) The name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period; and

C) A description of the planned uses of the property during the post-closure care period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this Part. Any other disturbance is allowed if the owner or operator of the CCR surface impoundment demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be

certified by a qualified professional engineer and must be submitted to the Agency.

2) Deadline to prepare the initial written post-closure care plan. The owner or operator of a CCR surface impoundment must submit to the Agency an initial written post-closure care plan consistent with the requirements specified in subsection (d)(1) of this Section with its initial operating permit application.

3) Amendment of a written post-closure care plan.

A) The owner or operator may submit an operating permit modification application to amend the initial or any subsequent written post-closure care plan developed pursuant to subsection (d)(1) of this Section at any time.

B) The owner or operator must seek to amend the written closure care plan whenever:

i) There is a change in the operation of the CCR surface impoundment that would substantially affect the written post-closure care plan in effect; or

ii) unanticipated events necessitate a revision of the written post-closure care plan, after post-closure activities have commenced.

C) The owner or operator must seek to amend the written post-closure care plan at least 60 days prior to a planned change in the operation of the facility or CCR surface impoundment, or no later than 60 days after an unanticipated event requires the need to revise an existing written post-closure care plan. If a written post-closure care plan is revised after post-closure activities have commenced for a CCR surface impoundment, the owner or operator must submit a request to modify the operating permit no later than 30 days following the triggering event.

4) The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written post-closure care plan meets the requirements of this Section.

e) Upon the completion of the post-closure care period, the owner or operator of the CCR surface impoundment must submit a request to the Agency to terminate post-closure care. The request must include a certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with

the post-closure care plan specified in subsection (d) of this Section and the requirements of this Section.

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

SUBPART H: RECORDKEEPING

Section 845.800 Facility Operating Record

a) Each owner or operator of a CCR surface impoundment subject to the requirements of this Part must maintain files of all information required by this Section in a written operating record at the facility.

b) Unless specified otherwise, each file must be retained for at least three years past the date the Agency approved the owner or operator's request to terminate post-closure care, when closure is with a final cover system, or the completion of groundwater monitoring pursuant to Section 845.740(b), when closure is by removal.

c) An owner or operator of more than one CCR surface impoundment subject to the provisions of this Part may comply with the requirements of this Section in one recordkeeping system provided the system identifies each file by the name and identification number of each CCR surface impoundment. The files may be maintained on microfilm, on a computer, on computer disks, on a storage system accessible by a computer, on magnetic tape disks, or on microfiche.

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

1) copies of all permit applications and permits issued under this Part;

2) documentation recording the public meetings held pursuant to Section 845.240;

3) weekly CQA reports Section 845.290(b);

4) hazard potential classification assessments for CCR surface impoundments, as required by Section 845.440(a)(3)(D);

5) structural stability assessments for CCR surface impoundments, as required by Section 845.450(d)(4);

6) safety factor assessments for CCR surface impoundments, as required by Section 845.460(c)(4);

7) the CCR fugitive dust control plan and any subsequent amendment of the plan, as required by Section 845.500(b)(6), except that only the most recent fugitive dust control plan must be maintained in the facility's operating record irrespective of the time requirement specified in subsection (b) of this Section;

8) inflow design flood control system plans for CCR surface impoundments, as required by Section 845.510(c)(4)(D);

9) Emergency Action Plan, as required by Section 845.520(a), except that only the most recent EAP must be maintained in the facility's operating record irrespective of the time requirement specified in subsection (b) of this Section;

10) documentation prepared by the owner or operator recording all activations of the EAP as required Section 845.520(f);

11) documentation prepared by the owner or operator recording the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR surface impoundment and the local emergency responders as required by Section 845.520(g);

12) Safety and Health Plan, as required by Section 845.530(a);

13) documentation recording the results of each inspection and instrumentation monitoring by a qualified person as required by Section 845.540(a)(1)(D);

14) annual consolidated report, as required by Section 845.550, which contains the following:

A) the annual CCR fugitive dust control report required by 845.500(c);

B) the annual inspection report as required by Section 845.540(b)(3); and

C) the annual groundwater monitoring and corrective action report as required by Section 845.610(e).

15) all groundwater monitoring data submitted to the Agency and any analysis performed, as required by Section 845.610(b)(3)(D);

16) within 30 days of detecting one or more monitored constituents above the groundwater protection standard, the notifications as required by Section 845.650(d);

17) the semi-annual report describing the progress in selecting and designing the remedy as required by Section 845.670(a);

18) within 30 days of completing the corrective action plan, the notification as required by Section 845.680(e);

19) the preliminary written closure plan, and any amendment of the plan, as required by Section 845.720(a), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in subsection (b) of this Section;

20) the written demonstration(s), including the certification required by Section 845.730(b)(3), for a time extension for initiating closure as required by Section 845.730(b)(2);

21) the notification of intent to close a CCR surface impoundment as required by Section 845.730(d);

22) the monthly reports for closure by removal, as required by Section 845.740(d);

23) the closure report and certification, as required by Section 845.760(e)(3), or completion of groundwater monitoring report and certification, as required by Section 845.740(f);

24) the notification of completion of closure of a CCR surface impoundment as required by Section 845.760(f);

25) the notification recording a notation on the deed as required by Section 845.760(h);

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

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

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

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

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

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

Section 845.810 Publicly Accessible Internet Site Requirements

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

b) An owner or operator of more than one CCR surface impoundment subject to the provisions of this Part may comply with the requirements of this Section by using the same Internet site for multiple CCR surface impoundments provided the CCR website clearly delineates information by the name and identification number of each CCR surface impoundment.

c) Unless otherwise required in this Section, the information required to be posted to the CCR website must be made available to the public on the CCR website until 3 years after post-closure care (where closure is with a final cover system) or the completion of groundwater monitoring pursuant to Section 845.740(b) (where closure is by removal).

d) Unless otherwise required in this Section, the information must be posted to the CCR website within 30 days of placing the pertinent information required by Section 845.800 in the operating record.

e) The owner or operator of a CCR surface impoundment subject to this Part must place all the information specified under Section 845.800(d) on the owner or operator's CCR website.

f) The owner or operator of a CCR surface impoundment subject to this Part must place all the information specified under Section 845.240(e) on the owner or operator's CCR website at least 14 days prior to the public meeting.

g) The owner or operator of a CCR surface impoundment subject to this Part must notify the Agency of the web address of the publicly accessible Internet site, including any change to the web address. The Agency must maintain a list of these web addresses on the Agency's website.

SUBPART I: FINANCIAL ASSURANCE

Section 845.900 General Provisions

a) This Subpart provides procedures by which the owner or operator of a CCR surface impoundment, subject to this Part, provides financial assurance satisfying the requirements of Section 22.59(f) of the Act.

b) The owner or operator must provide financial assurance to ensure the following:

1) completion of closure;

2) completion of post-closure care, if applicable; and

3) remediation of releases from a CCR surface impoundment.

c) The owner or operator shall maintain financial assurance equal to or greater than the current cost estimates calculated pursuant to Section 845.930 at all times, except as otherwise provided by Section 845.910.

d) Financial assurance shall be provided, as specified in Section 845.950, by a trust agreement, a surety bond guaranteeing payment, a surety bond guaranteeing payment or performance, or an irrevocable letter of credit. The owner or operator shall provide financial assurance to the Agency within the timeframe(s) set forth in Section 845.950(c).

e) This Subpart does not apply to the State of Illinois, its agencies and institutions, to any unit of local government, or to any not-for-profit electric cooperative as defined in Section 3.4 of the Electric Supplier Act [220 ILCS 30].

f) The Agency is authorized to enter into such contracts and agreements as it may deem necessary to carry out the purposes of this Subpart and of Section 22.59(f) of the Act. Neither the State, nor the Director of the Illinois Environmental Protection Agency, nor any State employee shall be liable for any damages or injuries arising out of or resulting from any action taken under this Part.

g) The Agency may sue in any court of competent jurisdiction to enforce its rights under financial instruments. The filing of an enforcement action before the Board is not a condition precedent to such an Agency action, except when this Subpart or the terms of the instrument provide otherwise.

h) The Agency shall have the authority to approve or disapprove any financial assurance mechanism posted or submitted pursuant to this Subpart.

i) The following Agency actions may be appealed to the Board as a permit denial pursuant to Section 845.270(e) and Section 22.59(f)(3) of the Act:

1) A refusal to accept financial assurance tendered by the owner or operator;

2) A refusal to release the owner or operator from the requirement to maintain

financial assurance;

3) A refusal to release excess funds from a trust;

4) A refusal to approve a reduction in the penal sum of a bond; and

5) A refusal to approve a reduction in the amount of a letter of credit.

j) An owner or operator must notify the Agency by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 of the United States Code (Bankruptcy) naming any of the owners or operators as debtor, within 10 days after commencement of the proceeding.

k) An owner or operator that fulfills the requirements of Sections 845.960, 845.970, 845.980, or 845.990 by obtaining a trust fund, surety bond, or letter of credit will be deemed to be without the required financial assurance in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond or letter of credit to issue such instruments. The owner or operator must establish alternative financial assurance within 60 days after such an event.

Section 845.910 Upgrading Financial Assurance

a) The owner or operator shall increase the total amount of financial assurance so as to equal or exceed the current cost estimate within 60 days after either of the following occurrences:

1) An increase in the current cost estimate; or

2) A decrease in the value of a trust fund.

b) The owner or operator of a CCR surface impoundment shall annually make adjustments for inflation if required pursuant to Sections 845.930 or 845.940.

Section 845.920 Release of Financial Institution and Owner or Operator

a) The Agency shall release a trustee, surety, or other financial institution when:

1) An owner or operator substitutes alternative financial assurance such that the total financial assurance for the CCR surface impoundment is equal to or greater than the current cost estimate, without counting the amounts to be released; or

2) The Agency releases the owner or operator from the requirements of this Subpart pursuant to subsection (b).

b) The Agency will release an owner or operator of a CCR surface impoundment from the requirements of this Subpart under the following circumstances:

1) Completed Closure. In the Agency's approval of the closure report and certification pursuant to Section 845.760, the Agency will notify the owner or operator in writing that it is no longer required by this Subpart to maintain financial assurance for closure of the CCR surface impoundment.

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

3) Completed Corrective Action. In the Agency's approval of the corrective action completion report and certification pursuant to Section 845.680, the Agency will notify the owner or operator in writing that it is no longer required by this Subpart to maintain financial assurance for corrective action.

Section 845.930 Cost Estimates

a) The owner or operator shall prepare cost estimates for:

1) the total costs for closure and post-closure care;

2) preliminary corrective action costs; and

3) the total costs of the correction action plan for remediation of any releases from a CCR surface impoundment.

b) Written cost estimate for closure and post-closure

1) The owner or operator must have a detailed written estimate, in current dollars, of the cost of closing the CCR surface impoundment in accordance with this Part and providing post-closure care on an annual basis, when required, in accordance with this Part. The cost estimate is the total cost for closure and post-closure care.

2) The cost estimate must equal the cost of final closure and post-closure care at the point in the CCR surface impoundment's active life when the extent and manner of its operation would make closure and post-closure care the most expensive.

3) The cost estimate must be based on the assumption that the Agency will contract with a third party at the appropriate prevailing wage(s), pursuant to

the Prevailing Wage Act, 820 ILCS 130, if applicable, to implement the closure and post-closure care plans. A third party is a party who is neither a parent nor a subsidiary of the owner or operator.

4) The cost estimate may not be reduced by allowance for the salvage value of facility structures or equipment, for the resale value of land, for the sale of CCR or its beneficial reuse if permitted by the Agency pursuant to this Part, or for other assets associated with the facility at the time of partial or final closure.

5) The owner or operator must not incorporate a zero cost for CCR, if permitted by the Agency pursuant to this Part, that might have economic value.

6) The cost estimate must, at a minimum, include all costs for all activities necessary to close the CCR surface impoundment and provide post-closure care in accordance with all requirements of this Part.

7) The post-closure care portion of the cost estimate must, at a minimum, be based on the following elements:

A) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

B) If the CCR surface impoundment is subject to the design criteria under Section 845.420, maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of Section 845.420; and

C) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of this Part.

c) Cost Estimate for Corrective Action

1) Preliminary Corrective Action Cost Estimate. An owner or operator of a CCR surface impoundment with a release that has caused an exceedance of the groundwater protection standard in Section 845.600 or groundwater quality standard in 35 Ill. Adm. Code 620, must provide a preliminary corrective action cost estimate that is equal to 25% of the costs calculated pursuant subsection (b).

2) Corrective Action Cost Estimate. The owner or operator must provide to the Agency a detailed written estimate, in current dollars, of the cost of hiring a third party at the appropriate prevailing wage(s), pursuant to the Prevailing Wage Act, 820 ILCS 130, if applicable, to implement the approved corrective action plan in accordance with this Part. The corrective action cost estimate must account for the total costs of corrective action activities as described in the approved corrective action plan for the entire corrective action period.

3) The owner or operator must annually adjust the cost estimates in this subsection for inflation (see Section 845.940(a)) until the approved corrective action plan is completed.

4) The owner or operator must increase the corrective action cost estimates in this subsection and the amount of financial assurance provided if changes in the corrective action plan or CCR surface impoundment conditions increase the maximum costs of corrective action.

5) The owner or operator may reduce the amount of the corrective action cost estimate, upon Agency approval, if the cost estimate exceeds the maximum remaining costs of corrective action.

Section 845.940 Revision of Cost Estimates

a) During the active life of the CCR surface impoundment, the owner or operator shall adjust the cost estimates of closure, post-closure care, and corrective action for inflation on an annual basis. Such adjustments shall occur within 60 days prior to the anniversary date of the establishment of the financial instruments used to comply with Section 845.950. The adjustment may be made by recalculating the maximum costs of closure, post-closure care, or corrective action in current dollars, or by using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product (Deflator) as published by the U.S. Department of Commerce in its Survey of Current Business (Table 1.1.9), as specified in subsections (a)(1) and (a)(2). The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year.

1) The first adjustment is made by multiplying the cost estimate by the inflation factor. The result is the adjusted cost estimate.

2) Subsequent adjustments are made by multiplying the latest adjusted cost estimate by the latest inflation factor.

b) During the active life of the CCR surface impoundment, the owner or operator must revise the cost estimate no later than 30 days after the Agency has approved a request to modify the corrective action plan, closure plan or post-closure care plan, if the change in the modified plan increases the cost of corrective action, closure or

post-closure care. The revised cost estimate must be adjusted for inflation, as specified in subsection (a).

c) At least 60 days prior to submitting any closure plan to the Agency, the owner or operator must revise the cost estimate if the selected closure method increases the estimated closure or post-closure care costs.

d) The owner or operator must keep the most current cost estimates in the facility's operating record during the operating life of the CCR surface impoundment.

Section 845.950 Mechanisms for Financial Assurance

a) The owner or operator of a CCR surface impoundment shall utilize any of the mechanisms listed in subsections (a)(1) through (a)(4) to provide financial assurance for closure and post-closure care, and for corrective action at a CCR surface impoundment. An owner or operator of a CCR surface impoundment shall also meet the requirements of subsections (b), (c), and (d). The mechanisms are as follows:

1) A trust fund (see Section 845.960);

2) A surety bond guaranteeing payment (see Section 845.970);

3) A surety bond guaranteeing performance (see Section 845.980); or

4) An irrevocable letter of credit (see Section 845.990).

b) The owner or operator of a CCR surface impoundment shall ensure that the language of the mechanisms listed in subsection (a), when used for providing financial assurance for closure, post-closure, and corrective action, is consistent with the forms prescribed by the Agency and satisfies the following:

1) The amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action; and

2) The funds will be available in a timely fashion when needed.

c) The owner or operator of a CCR surface impoundment shall provide financial assurance utilizing one or more of the mechanisms listed in subsection (a) within the following timeframes:

1) An owner or operator of an existing CCR surface impoundment shall provide financial assurance to the Agency for closure and post-closure care within 60 days from the effective date of this Part;

2) An owner or operator of a new CCR surface impoundment shall provide

financial assurance to the Agency for closure and post-closure care at least 60 days before the date of initial receipt of CCR in the CCR surface impoundment.

3) In the case of corrective action required pursuant to this Part, the owner or operator of the CCR surface impoundment shall provide preliminary financial assurance for corrective action no later than when the owner or operator initiates an assessment of corrective measures pursuant to Section 845.650(d)(3). The preliminary financial assurance for corrective action must be maintained until replaced with financial assurance based on the cost estimate of the corrective action. The owner or operator of the CCR surface impoundment shall provide financial assurance based on the approved corrective action plan to the Agency no later than 60 days after the Agency's approval or the effective date of this Part, whichever is later.

d) The owner or operator shall provide continuous financial assurance coverage until the owner or operator is released from the financial assurance requirements of this Subpart pursuant to Section 845.920(b).

e) Use of Multiple Financial Assurance Mechanisms. An owner or operator may satisfy the requirements of this Subpart by establishing more than one financial mechanism per CCR surface impoundment. These mechanisms are limited to trust funds, surety bonds guaranteeing payment, and letters of credit. The mechanisms must be as specified in Sections 845.960, 845.970, and 845.990, as applicable, except that it is the combination of mechanisms, rather than the single mechanism, that must provide financial assurance for an aggregate amount at least equal to the current cost estimate for closure, post-closure care, and corrective action, except that mechanisms guaranteeing performance, rather than payment, may not be combined with other instruments. The owner or operator may use any or all of the mechanisms to provide financial assurance for corrective action, closure and post-closure care.

f) Use of a Financial Assurance Mechanism for Multiple CCR Surface Impoundments in Illinois. An owner or operator may use a financial assurance mechanism specified in this Subpart to meet the requirements of this Subpart for more than one CCR surface impoundment located in Illinois. Evidence of financial assurance submitted to the Agency must include a list showing, for each CCR surface impoundment, the identification number (see Section 845.130), name, address and the amount of funds assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each CCR surface impoundment. The amount of funds available to the Agency must be sufficient to close and provide post-closure care for all of the owner or operator's CCR surface impoundments. In directing funds available through a single mechanism for the closure and post-closure care of any single CCR surface impoundment covered by that mechanism, the Agency shall direct only that amount

of funds designated for that CCR surface impoundment, unless the owner or operator agrees to the use of additional funds available under that mechanism.

Section 845.960 Trust Fund

a) An owner or operator may satisfy the requirements of this Subpart by establishing a fully funded trust fund that conforms to the requirements of this Section and submitting an original signed duplicate of the trust agreement to the Agency.

b) The trustee must be an entity that has the authority to act as a trustee and of whom either of the following is true:

1) It is an entity whose trust operations are examined by the Illinois Department of Financial and Professional Regulation pursuant to the Illinois Banking Act [205 ILCS 5]; or

2) It is an entity that complies with the Corporate Fiduciary Act [205 ILCS 620].

c) The trust agreement must be on forms prescribed by the Agency. The trust agreement must be updated within 60 days after a change in the amount of the current closure, post-closure, and corrective action cost estimates covered by the agreement.

d) The trust fund must be fully funded from the date that the trust agreement becomes effective.

e) The trustee must evaluate the trust fund annually, as of the day the trust was created or on such earlier date as may be provided in the agreement. The trustee must notify the owner or operator and the Agency of the value within 30 days after the evaluation date.

f) If the owner or operator of a CCR surface impoundment establishes a trust fund after having used one or more alternative mechanisms specified in this Subpart, the trust fund must be fully funded and established according to the specifications of this Section.

g) Release of excess funds.

1) If the value of the financial assurance is greater than the total amount of the current cost estimate, the owner or operator may submit a written request to the Agency for a release of the amount in excess of the current cost estimate.

2) Within 60 days after receiving a request from the owner or operator for a release of funds, the Agency must instruct the trustee to release to the owner or operator such funds as the Agency specifies in writing to be in excess of

the current cost estimate.

h) Reimbursement for closure, post-closure care, and corrective action expenses.

1) After initiating corrective action, closure, or post-closure care an owner or operator, or any other person authorized to perform corrective action, closure, or post-closure care, may request reimbursement for closure, post-closure care, or corrective action expenditures, by submitting itemized bills to the Agency.

2) Within 60 days after receiving the itemized bills for closure, post-closure care, or correction action activities, the Agency must determine whether the expenditures are in accordance with the closure, post-closure care, or corrective action plan. The Agency must instruct the trustee to make reimbursement in such amounts as the Agency specifies in writing as expenditures in accordance with the closure, post-closure care, or corrective action plan.

3) If the Agency determines, based on such information as is available to it, that the cost of closure and post-closure care or corrective action will be greater than the value of the trust fund, it must withhold reimbursement of such amounts as it determines are necessary to preserve the fund in order to accomplish closure and post-closure care or corrective action until it determines that the owner or operator is no longer required to maintain financial assurance for closure and post-closure care or corrective action. In the event the fund is inadequate to pay all claims, the Agency must pay claims according to the following priorities:

A) Persons with whom the Agency has contracted to perform closure, post-closure care, or corrective action activities (first priority);

B) Persons who have completed closure, post-closure care, or corrective action authorized by the Agency (second priority);

C) Persons who have completed work that furthered the closure, post-closure care, or corrective action (third priority);

D) The owner or operator and related business entities (last priority).

Section 845.970 Surety Bond Guaranteeing Payment

a) An owner or operator may satisfy the requirements of this Subpart by obtaining a surety bond which conforms to the requirements of this Section and submitting the bond to the Agency.

b) The surety company issuing the bond must, at a minimum, be among those listed

as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. Circular 570 is available on the Internet from the following website: https://fiscal.treasury.gov/surety-bonds/circular-570.html

c) The surety bond must be on forms prescribed by the Agency.

d) Any payments drawn from or made under the bond will be placed in the Coal Combustion Residual Surface Impoundment Financial Assurance Fund within the State Treasury.

e) Conditions:

1) The bond must guarantee that the owner or operator will:

A) Provide closure and post-closure care in accordance with the approved closure and post-closure care plans and, if the bond is a corrective action bond, provide corrective action in accordance with this Part; and

B) Provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the surety that the bond will not be renewed for another term.

2) The surety will become liable on the bond obligation when, during the term of the bond, the owner or operator fails to perform as guaranteed by the bond. The owner or operator fails to perform when the owner or operator:

A) Abandons the CCR surface impoundment;

B) Is adjudicated bankrupt;

C) Fails to initiate closure of the CCR surface impoundment or post-closure care or corrective action when ordered to do so by the Board pursuant to Title VIII of the Act, or when ordered to do so by a court of competent jurisdiction;

D) Notifies the Agency that it has initiated closure or corrective action, or initiates closure or corrective action, but fails to close the CCR surface impoundment or provide post-closure care or corrective action in accordance with the Agency-approved closure and post-closure care or corrective action plans;

E) For a corrective action bond, fails to implement or complete corrective action at a CCR surface impoundment in accordance with

Section 845.670; or

F) Fails to provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the surety that the bond will not be renewed for another term.

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

f) Penal sum:

1) The penal sum of the bond must be in an amount at least equal to the current cost estimate.

2) Whenever the current cost estimate decreases, the penal sum may be reduced to the amount of the current cost estimate following written approval by the Agency.

3) Whenever the current cost estimate increases to an amount greater than the penal sum, the owner or operator, within 90 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current cost estimate and submit evidence of that increase to the Agency or obtain other financial assurance, as specified in this Subpart, to cover the increase and submit evidence of the alternative financial assurance to the Agency.

g) Term:

1) The bond must be issued for a term of at least one year and must not be cancelable during that term.

2) The surety bond must provide that, on the current expiration date and on each successive expiration date, the term of the surety bond will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the surety notifies both the owner or operator and the Agency by certified mail of a decision not to renew the bond. Under the terms of the surety bond, the 120 days will begin on the

date when both the owner or operator and the Agency have received the notice, as evidenced by the return receipts.

3) The Agency shall release the surety by providing written authorization for termination of the bond to the owner or operator and the surety when either of the following occurs:

A) An owner or operator substitutes alternative financial assurance, as specified in this Subpart; or

B) The Agency releases the owner or operator from the requirements of this Subpart in accordance with Section 845.920(b).

h) Cure of default and refunds:

1) The Agency shall release the surety if, after the surety becomes liable on the bond, the owner or operator or another person provides financial assurance for closure and post-closure care of the CCR surface impoundment or corrective action at a CCR surface impoundment; unless the Agency determines that the closure, post-closure care, or corrective action plan, or the amount of substituted financial assurance, is inadequate to provide closure and post-closure care or implement corrective action in compliance with this Part.

2) After closure and post-closure care have been completed in accordance with the plans and requirements of this Part or after the completion of corrective action at a CCR surface impoundment in accordance with this Part, the Agency shall refund any unspent money which was paid into the Coal Combustion Residual Surface Impoundment Financial Assurance Fund by the surety, subject to appropriation of funds by the Illinois General Assembly.

Section 845.980 Surety Bond Guaranteeing Performance

a) An owner or operator may satisfy the requirements of this Subpart by obtaining a surety bond which conforms to the requirements of this Section and submitting the bond to the Agency.

b) The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. Circular 570 is available on the Internet from the following website: https://fiscal.treasury.gov/surety-bonds/circular-570.html

c) The surety bond must be on forms prescribed by the Agency.

d) Any payments made under the bond will be placed in the Coal Combustion Residual Surface Impoundment Financial Assurance Fund within the State Treasury.

e) Conditions:

1) The bond must guarantee that the owner or operator will:

A) Provide closure and post-closure care in accordance with the approved closure and post-closure care plans and, if the bond is a corrective action bond, provide corrective action in accordance with this Part; and

B) Provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the surety that the bond will not be renewed for another term.

2) The surety will become liable on the bond obligation when, during the term of the bond, the owner or operator fails to perform as guaranteed by the bond. The owner or operator fails to perform when the owner or operator:

A) Abandons the CCR surface impoundment;

B) Is adjudicated bankrupt;

C) Fails to initiate closure of the CCR surface impoundment or post-closure care or corrective action when ordered to do so by the Board pursuant to Title VIII of the Act, or when ordered to do so by a court of competent jurisdiction;

D) Notifies the Agency that it has initiated closure or corrective action, or initiates closure or corrective action, but fails to close the CCR surface impoundment or provide post-closure care or corrective action in accordance with the Agency-approved closure and post-closure care or corrective action plans;

E) For a corrective action bond, fails to implement or complete corrective action at a CCR surface impoundment in accordance with Section 845.670; or

F) Fails to provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator

and the Agency of a notice from the surety that the bond will not be renewed for another term.

3) Upon failure of the owner or operator to perform as guaranteed by the bond, the surety shall have the option of:

A) providing closure and post-closure care in accordance with the approved closure and post-closure care plans; or

B) carrying out corrective action in accordance with the corrective action plan; or

C) paying the penal sum.

f) Penal sum:

1) The penal sum of the bond must be in an amount at least equal to the current cost estimate.

2) Whenever the current cost estimate decreases, the penal sum may be reduced to the amount of the current cost estimate following written approval by the Agency.

3) Whenever the current cost estimate increases to an amount greater than the penal sum, the owner or operator, within 90 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current cost estimate and submit evidence of that increase to the Agency or obtain other financial assurance, as specified in this Subpart, and submit evidence of the alternative financial assurance to the Agency.

g) Term:

1) The bond must be issued for a term of at least one year and must not be cancelable during that term.

2) The surety bond must provide that, on the current expiration date and on each successive expiration date, the term of the surety bond will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the surety notifies both the owner or operator and the Agency by certified mail of a decision not to renew the bond. Under the terms of the surety bond, the 120 days will begin on the date when both the owner or operator and the Agency have received the notice, as evidenced by the return receipts.

3) The Agency shall release the surety by providing written authorization for termination of the bond to the owner or operator and the surety when either of the following occurs:

A) An owner or operator substitutes alternative financial assurance, as specified in this Subpart; or

B) The Agency releases the owner or operator from the requirements of this Subpart in accordance with Section 845.920(b).

h) Cure of default and refunds:

1) The Agency shall release the surety if, after the surety becomes liable on the bond, the owner or operator or another person provides financial assurance for closure and post-closure care of the CCR surface impoundment or corrective action at a CCR surface impoundment; unless the Agency determines that the closure, post-closure care, or corrective action plan, or the amount of substituted financial assurance, is inadequate to provide closure and post-closure care or implement corrective action in compliance with this Part.

2) After closure and post-closure care have been completed in accordance with the plans and requirements of this Part or after the completion of corrective action at a CCR surface impoundment in accordance with this Part, the Agency shall refund any unspent money which was paid into the Coal Combustion Residual Surface Impoundment Financial Assurance Fund by the surety, subject to appropriation of funds by the Illinois General Assembly.

i) The surety will not be liable for deficiencies in the performance of closure, post-closure care, or corrective action by the owner or operator after the Agency releases the owner or operator from the requirements of this Subpart.

Section 845.990 Letter of Credit

a) An owner or operator may satisfy the requirements of this Subpart by obtaining an irrevocable standby letter of credit which conforms to the requirements of this Section and submitting the letter to the Agency.

b) The issuing institution shall be an entity that has the authority to issue letters of credit and:

1) Whose letter of credit operations are regulated by the Illinois Department of Financial and Professional Regulation pursuant to the Illinois Banking Act [205 ILCS 5]; or

2) Whose deposits are insured by the Federal Deposit Insurance Corporation.

c) Forms:

1) The letter of credit must be on forms prescribed by the Agency.

2) The letter of credit must be accompanied by a letter from the owner or operator, referring to the letter of credit by number, the name and address of the issuing institution, and the effective date of the letter, and providing the following information: the name and address of the CCR surface impoundment, the identification number (see Section 845.130), and the amount of funds assured by the letter of credit for closure and post-closure care of the CCR surface impoundment, or for corrective action at the CCR surface impoundment.

d) Any amounts drawn by the Agency pursuant to the letter of credit will be deposited in the Coal Combustion Residual Surface Impoundment Financial Assurance Fund within the State Treasury.

e) Conditions on which the Agency shall draw on the letter of credit:

1) The Agency shall draw on the letter of credit if the owner or operator fails to perform closure or post-closure care in accordance with the approved closure and post-closure care plans, or fails to perform corrective action at a CCR surface impoundment in accordance with this Part.

2) The Agency shall draw on the letter of credit if the owner or operator:

A) Abandons the CCR surface impoundment;

B) Is adjudicated bankrupt;

C) Fails to initiate closure of the CCR surface impoundment or post-closure care or corrective action when ordered to do so by the Board pursuant to Title VIII of the Act, or when ordered to do so by a court of competent jurisdiction;

D) Notifies the Agency that it has initiated closure or corrective action, or initiates closure or corrective action, but fails to provide closure and post-closure care or corrective action in accordance with the Agency-approved closure and post-closure care or corrective action plans;

E) For a corrective action letter of credit, fails to implement or complete corrective action at a CCR surface impoundment in accordance with Section 845.670; or

F) Fails to provide alternative financial assurance, as specified in this Subpart, and obtain the Agency's written approval of the assurance provided within 90 days after receipt by both the owner or operator and the Agency of a notice from the issuing institution that the letter of credit will not be extended for another term.

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

f) Amount:

1) The letter of credit must be issued in an amount at least equal to the current cost estimate.

2) Whenever the current cost estimate decreases, the amount of credit may be reduced to the amount of the current cost estimate following written approval by the Agency.

3) Whenever the current cost estimate increases to an amount greater than the amount of the credit, the owner or operator, within 90 days after the increase, must either cause the amount of the credit to be increased to an amount at least equal to the current cost estimate and submit evidence of that increase to the Agency or obtain other financial assurance, as specified in this Subpart, to cover the increase and submit evidence of the alternative financial assurance to the Agency.

g) Term:

1) The letter of credit must be issued for a term of at least one year and must be irrevocable during that term.

2) The letter of credit must provide that, on the current expiration date and on each successive expiration date, the letter of credit will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the Agency by certified mail of a decision not to extend the letter of credit for another term. Under the terms of the letter of credit, the 120 days will begin on the date when both the owner or operator and the

Agency have received the notice, as evidenced by the return receipts.

3) The Agency must return the letter of credit to the issuing institution for termination when either of the following occurs:

A) An owner or operator substitutes alternative financial assurance, as specified in this Subpart; or

B) The Agency releases the owner or operator from the requirements of this Subpart in accordance with Section 845.920(b).

h) Cure of default and refunds:

1) The Agency shall release the financial institution if, after the Agency is allowed to draw on the letter of credit, the owner or operator or another person provides financial assurance for closure and post-closure care of the CCR surface impoundment or corrective action at a CCR surface impoundment; unless the Agency determines that the closure, post-closure care, or corrective action plan, or the amount of substituted financial assurance, is inadequate to provide closure and post-closure care or implement corrective action in compliance with this Part.

2) After closure and post-closure care have been completed in accordance with the plans and requirements of this Part or after the completion of corrective action at a CCR surface impoundment in accordance with this Part, the Agency shall refund any unspent money which was drawn and paid into the Coal Combustion Residual Surface Impoundment Financial Assurance Fund by the financial institution, subject to appropriation of funds by the Illinois General Assembly.

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	)	

MOTION FOR ACCEPTANCE

NOW COMES the Illinois Environmental Protection Agency ("Illinois EPA"), by and through its attorneys, and pursuant to 35 Ill. Adm. Code 102.106, 102.200, and 102.202, moves that the Illinois Pollution Control Board accept for hearing the Illinois EPA's proposal for the adoption of a new 35 Ill. Adm. Code Part 845. This regulatory proposal includes (1) Notice of Filing; (2) Appearance; (3) Statement of Reasons; (4) Attachments to the Statement of Reasons: (5) Proposed New 35 Ill. Adm. Code Part 845; (6) Certificate of Service; and (7) a computer disc containing the Proposed Regulations and attachments.

Respectfully submitted,

Dated: March 30, 2020

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,

Petitioner,

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

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

THIS FILING IS SUBMITTED ELECTRONICALLY

CERTIFICATE OF SERVICE

I, the undersigned, on affirmation state the following:

That I have served the attached **NOTICE OF FILING**; **APPEARANCE**; **STATEMENT OF REASONS**; and **ATTACHMENTS: PROPOSED NEW 35 ILL. ADM. CODE PART 845**; and **MOTION FOR ACCEPTANCE** by e-mail upon Don Brown at the e-mail address of don.brown@illinois.gov.

That I have served the attached **NOTICE OF FILING**; **APPEARANCE**; **STATEMENT OF REASONS**; and **ATTACHMENTS: PROPOSED NEW 35 ILL. ADM. CODE PART 845**; and **MOTION FOR ACCEPTANCE** upon any other persons, if any, listed on the Service List, by placing a true copy in an envelope duly address bearing proper first class postage in the United States mail at Springfield, Illinois on March 30, 2020.

That my e-mail address is Rex.Gradeless@Illinois.gov.

That the number of pages in the e-mail transmission is one hundred eighty-three (183).

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

/s/ Rex L. Gradeless
March 30, 2020

Attachment A1

Copyright Waiver from AACE International (not filed on COOL)

Attachment 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)

Attachment B

March 9, 2020, USEPA, Region 5 Letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAR 0 9 2020

REPLY TO THE ATTENTION OF
LM-17J

Mr. Rex L. Gradeless
Assistant Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Dear Mr. Gradeless:

This letter concludes the series of conference calls that U.S. EPA and Illinois EPA had from July 2019 to March 2020 to discuss IEPA's questions about the federal Coal Combustion Residual program. Thank you for the opportunity to comment on the draft rule during your rulemaking process. We understand that the draft rule is expected to be filed with the Illinois Pollution Control Board by the end of March 2020. Please let the Board know that we are available if questions arise regarding the federal Coal Combustion Residual program. After the Board issues a ruling, IEPA can formally submit to U.S. EPA an application for approval of its Coal Combustion Residuals permitting program.

Sincerely,

Susan Mooney
Chief, RCRA C&D Section
Land, Chemicals, and Redevelopment Division

cc: Ian Cecala, EPA ORC, via email

Attachment C

Util. Solid Waste Activities Group v. Envtl. Prot. Agency, 901 F.3d 414 (D.C. Cir. 2018)

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued November 20, 2017 Decided August 21, 2018

No. 15-1219

UTILITY SOLID WASTE ACTIVITIES GROUP, ET AL.,
PETITIONERS

v.

ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENT

WATERKEEPER ALLIANCE, ET AL.,
INTERVENORS

Consolidated with 15-1221, 15-1222, 15-1223, 15-1227, 15-1228, 15-1229

On Petitions for Review of Administrative Action of the United States Environmental Protection Agency

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Douglas H. Green and *Paul J. Zidlicky* argued the causes for Industry petitioners. With them on the joint briefs were *John F. Cooney*, *Margaret K. Kuhn*, *Samuel B. Boxerman*, *Eric Murdock*, *Makram B. Jaber*, *Joshua R. More*, *Raghav Murali*, *Richard G. Stoll*, *Lori A. Rubin*, and *Thomas J. Grever*. *Stephen J. Bonebrake*, *Brian H. Potts*, and *Aaron J. Wallisch* entered appearances.

Thomas Cmar argued the cause for Environmental petitioners. With him on the briefs were *Matthew E. Gerhart*, *Mary M. Whittle*, and *Lisa Evans*.

Perry M. Rosen, Attorney, U.S. Department of Justice, argued the cause for respondents. With him on the briefs were *Jeffrey H. Wood*, Acting Assistant Attorney General, *Jonathan Skinner-Thompson*, Attorney, and *Laurel Celeste*, Attorney, U.S. Environmental Protection Agency.

Douglas H. Green, *John F. Cooney*, and *Margaret K. Kuhn* were on the brief for Industry intervenor-respondents.

Matthew E. Gerhart, *Mary M. Whittle*, and *Lisa Evans* were on the brief for Environmental intervenor-respondents.

Before: HENDERSON, MILLETT and PILLARD, *Circuit Judges*.

Opinion filed *PER CURIAM*.

Opinion concurring in part and concurring in the judgment in part filed by *Circuit Judge* HENDERSON.

PER CURIAM: These consolidated petitions challenge the Environmental Protection Agency's 2015 Final Rule governing the disposal of coal combustion residuals ("Coal Residuals") produced by electric utilities and independent power plants. *See* Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities ("Final Rule"), 80 Fed. Reg. 21,302 (April 17, 2015). Coal Residuals make up "one of the largest industrial waste streams generated in the U.S." *Id.* at 21,303. Coal-fired power plants in the United States burned upwards of 800 million tons of coal in 2012 alone and produced approximately

110 million tons of solid waste as Coal Residuals. *Id.* That waste contains myriad carcinogens and neurotoxins. *See* Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities ("Proposed Rule"), 75 Fed. Reg. 35,128, 35,153, 35,168 (June 21, 2010). Power plants generally store it on site in aging piles or pools that are at varying degrees of risk of protracted leakage and catastrophic structural failure. *See* 80 Fed. Reg. 21,327–21,328. The Final Rule sets criteria designed to ensure that human health and the environment face "no reasonable probability" of harm from Coal Residuals spilling, leaking, or seeping from their storage units and harming humans and the environment. *Id.* at 21,338–21,339; 42 U.S.C. § 6944(a).

The statutory framework calling for regulation of solid waste generation, storage, and disposal has been in place since 1976, when Congress enacted the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6901 *et seq.*, but regulations implementing RCRA have been long in the making. The EPA has long studied the Coal Residuals disposal problem and struggled over how to address its scale, complexity, and gravity. The agency has been goaded by public outrage over catastrophic failures at sites storing toxic Coal Residuals, *see* 75 Fed. Reg. at 35,132, 35,137, and was directed by a federal court to devise a schedule to comply with its obligation to regulate under RCRA, *see Appalachian Voices v. McCarthy*, 989 F. Supp. 2d 30, 56 (D.D.C. 2013). Nearly four decades after Congress enacted RCRA, the EPA finally promulgated its first Final Rule regulating Coal Residuals in 2015.

These consolidated petitions—one on behalf of environmental organizations ("Environmental Petitioners") and several others (collectively, "Industry Petition") for a

consortium of power companies and their trade associations ("Industry Petitioners")—challenge various provisions of that Final Rule under the Administrative Procedure Act and RCRA. RCRA Subtitle D calls on the EPA to promulgate criteria distinguishing "sanitary landfills," which are permissible under the statute, from "open dumps," which are prohibited. 42 U.S.C. § 6944(a); *see id.* § 6903(14), (28). The statutory baseline for the EPA's criteria for sanitary landfills is that, at a minimum, they "shall provide that a facility may be classified as a sanitary landfill and not an open dump only if there is no reasonable probability of adverse effects on health or the environment from disposal of solid waste at such facility." *Id.* § 6944(a). Each claim here relates to what a utility operating one or more Coal Residuals disposal site(s) must do to qualify such site as a sanitary landfill that may lawfully operate under RCRA.

Shortly before oral argument, the EPA announced its intent to reconsider the Final Rule, and moved to hold all proceedings in abeyance. We asked for clarification on the exact provisions of the Rule that would be subject to reconsideration. The EPA then filed a separate motion to remand six specific provisions.

For the reasons that follow, we deny the EPA's abeyance motion, and partially grant its remand motion. We also grant in part the Environmental Petition and deny the Industry Petition.

I. Background

A.

"Coal Residuals" is a catch-all term for the byproducts of coal combustion that occurs at power plants. It includes "fly

ash," "bottom ash," "boiler slag," and "flue gas desulfurization materials." *See* 75 Fed. Reg. at 35,137. These residuals vary in their size and texture, but all contain "contaminants of * * * environmental concern." *Id.* at 35,138. According to the EPA, Coal Residuals contain carcinogens and neurotoxins, including arsenic, boron, cadmium, hexavalent chromium, lead, lithium, mercury, molybdenum, selenium, and thallium. 80 Fed. Reg. at 21,449. The risks to humans associated with exposure to the identified contaminants include elevated probabilities of "cancer in the skin, liver, bladder, and lungs," as well as non-cancer risks such as "neurological and psychiatric effects," "cardiovascular effects," "damage to blood vessels," and "anemia." *Id.* at 21,451. Both cancer and non-cancer risks to infants "tend[] to be higher than other childhood cohorts, and also higher than risks to adults." *Id.* at 21,466. The risks to plant and animal wildlife include "elevated selenium levels in migratory birds, wetland vegetative damage, fish kills, amphibian deformities, * * * [and] plant toxicity." 75 Fed. Reg. at 35,172.

In developing the Final Rule, the EPA collected data on coal-fired units and their environs, identified hazards for evaluation, and specified benchmarks of toxicity that it determined "generally will be considered to pose a substantial present or potential hazard to human health and the environment and generally will be regulated." Final Rule, 80 Fed. Reg. at 21,449, 21,451. The EPA analyzed potential pathways of contamination to determine those most likely to pose a reasonable probability of adverse effects on humans or the environment. *Id.* at 21,450–21,451. The EPA concluded that current management practices for Coal Residuals posed risks to human health and the environment at levels justifying uniform national guidelines. *Id.* at 21,303. The main exposure pathways the EPA found were through waste that escapes landfills and surface impoundments and then

contaminates groundwater tapped as drinking water, and contaminates surface water that comes in direct contact with fish and other ecological receptors. *Id.*

Under most circumstances, the operators of coal-fired power plants dispose of the waste either by dumping it in dry landfills or by mixing it with water to channel it to wet surface impoundments. 80 Fed. Reg. at 21,303. These disposal sites are massive. On average, landfills span more than 120 acres and are more than 40 feet deep. *Id.* Surface impoundments average more than 50 acres in size with an average depth of 20 feet. *Id.* As of 2012, there were at least 310 landfills and 735 surface impoundments in the United States currently receiving coal ash. *Id.* The EPA identified at least 111 surface impoundments that are no longer receiving coal ash, but are not fully closed. *See* EPA, Regulatory Impact Analysis: EPA's 2015 RCRA Final Rule Regulating Coal Combustion Residual (CCR) Landfills and Surface Impoundments at Coal-Fired Utility Power Plants, 2–3 (2014), Joint App'x (J.A.) 1096. The record does not specify the number of inactive landfills. *See id*. The Rule also addresses circumstances under which Coal Residuals safely may be "beneficially used"—*e.g.*, to make cement—thereby reducing the total volume that must be managed as waste. *See* 75 Fed. Reg. at 35,212.

Landfills and surface impoundments both pose threats to human health and the environment. 80 Fed. Reg. at 21,327–21,328. The risks generally stem from the fact that "thousands, if not millions, of tons [of coal ash are] placed in a single concentrated location." *Id.* These disposal sites are at risk of structural failure, particularly where they are located in unstable areas such as wetlands or seismic impact zones. *Id.* at 21,304. The sheer volume of Coal Residuals at these sites, moreover, can force contaminants into the underlying soil and groundwater, threatening sources of drinking water. *Id.* at

21,304–21,305. Surface water bodies—*i.e.*, rivers, lakes, and streams, *see* 75 Fed. Reg. at 35,131—are also at risk of contamination through harmful constituents that migrate through groundwater, or flow into surface waters as run-off or wastewater discharge, any of which can lead to environmental harms such as "wetland vegetative damage, fish kills, amphibian deformities, * * * [and] plant toxicity." *See id.* at 35,172.

Groundwater contamination is more likely to occur at sites that are unlined or lack adequate lining between the coal ash and the soil beneath it. *See id.*; *see also* Regulatory Impact Analysis, 5-22. However, most existing coal ash disposal sites—70% of landfills and 65% of surface impoundments—have no liner at all. *See* Regulatory Impact Analysis, 3-4 nn.104–105, J.A. 1108. And while most new landfills and surface impoundments are constructed with liners, *see* 80 Fed. Reg. at 21,324, not all liners are alike. Composite lining, which includes a plastic geomembrane and several feet of compacted soil to act as a buffer, effectively eliminates the risk of groundwater contamination. *See* EPA, Human & Ecological Risk Assessment of Coal Combustion Residuals (Risk Assessment), 4-8 to 4-9, J.A. 1110–1111. But many impoundments are lined only with compacted soil and are therefore far less protective. *See* Regulatory Impact Analysis, 5-22, J.A. 1112. The EPA has acknowledged that it "will not always be possible" to restore groundwater or surface water to background conditions after a contamination event. *See* Response to Comments 50, J.A. 1301.

Structural failures of surface impoundments pose additional risks that are more episodic but potentially more catastrophic than harm from liner leakage. Impoundment dam ruptures can result in "significant coal slurry releases, causing fish kills and other ecologic damage, and in some instances

damage to infrastructure." 80 Fed. Reg. at 21,457 (footnote omitted). The EPA is aware of at least 50 surface impoundments that are a "high" hazard, *see* EPA, Coal Combustion Residuals Impoundment Assessment Reports, J.A. 446–469, which the Rule defines to mean that "failure or mis-operation will probably cause loss of human life" in addition to other harms, 40 C.F.R. § 257.53. The EPA has tagged another 250 impoundments as posing a "significant" hazard, *see* Impoundment Assessment Reports, J.A. 446–469, where failure or mis-operation is unlikely to kill people, but would "probably cause economic loss, environmental damage, or disruption of lifeline facilities, or impact other concerns." 40 C.F.R. § 257.53. Structural risk is exacerbated at sites located in geologically unstable areas, such as those with poor foundation conditions, areas susceptible to earthquakes or other mass movements, or those with karst terrains. *See id.*; 80 Fed. Reg. at 21,365–21,367.

Risks from inactive surface impoundments at inactive power plants, which the parties refer to as "legacy ponds," are also apparent in the record. As with surface impoundments at active plants, groundwater contamination or catastrophic structural failure of a legacy pond threatens human health and the environment. But legacy ponds, which by their nature are older than most surface impoundments, are "generally unlined" and unmonitored, and so are shown to be more likely to leak than units at utilities still in operation. 80 Fed. Reg. at 21,343–21,344. Without an on-site operator to monitor and maintain such a unit, consequences of leakage or structural failure may be amplified. *Cf. id.* at 21,394 (requiring qualified personnel to conduct weekly inspections at active surface impoundments).

The EPA record reports on the many cases in which damage has already occurred. "EPA has confirmed a total of

157 cases * * * in which [Coal Residual] mismanagement has caused damage to human health and the environment." 80 Fed. Reg. at 21,325. The EPA recounts that public pressure to regulate Coal Residuals escalated after an unlined surface impoundment in Kingston, Tennessee suffered a "catastrophic" structural failure on December 22, 2008. *See* 75 Fed. Reg. at 35,132. The impoundment released approximately 5.4 million cubic yards of Coal Residual sludge across 300 acres of land and into the nearby Emory River. *See* EPA, Damage Case Compendium: Technical Support Document, Volume I: Proven Damage Cases, 143 (2014), J.A. 1192. According to the EPA, the spill was one of the "largest volume industrial spill[s] in U.S. history." *Id.* at 143 n.612, J.A. 1192. The Coal Residual sludge ruptured a natural gas line, disrupted power in the area, damaged or destroyed dozens of homes, and resulted in elevated levels of arsenic and lead in the Emory River. *Id.* The resulting river contamination "completely destroyed" more than 80 acres of aquatic ecosystems. *Id.* at 144, J.A. 1193. More than a year after the spill, the majority of fish collected from the river contained toxins that rendered them unsafe for human consumption. *Id.* The disaster forced the closure of the Emory River for almost two years. The Tennessee Valley Authority took four years and spent more than $1.2 billion to remove Coal Residuals and contaminated sediment from the river and adjoining areas, to monitor and repair associated damage, and to construct a new disposal unit. *Id.* at 148, J.A. 1197.

B.

Two years after the Kingston disaster, the EPA promulgated the Proposed Rule announcing its intent to regulate Coal Residuals under RCRA. *See* 75 Fed. Reg. at 35,128.[1]

A key question for the EPA had long been whether to regulate Coal Residuals as hazardous waste under the cradle-to-grave federal hazardous waste management authority conferred by RCRA Subtitle C, 42 U.S.C. §§ 6921–6939g, or to treat it as nonhazardous solid waste subject to national guidelines under Subtitle D, *id.* §§ 6941–6949a. A waste is "hazardous" and subject to regulation under Subtitle C only if it exhibits one of four hazard characteristics: ignitability, corrosivity, reactivity, or toxicity. *See id.* § 6921; 40 C.F.R. §§ 261.11, 261.20–261.24. Under Subtitle C, the EPA directly regulates all stages of production and disposition of hazardous wastes, and has administrative enforcement power as well as authority to initiate or recommend civil and criminal actions in court. *See* 42 U.S.C. §§ 6922–6928. Subtitle D, in contrast, envisions that states are primarily responsible for regulating disposal of nonhazardous wastes in landfills and dumps. The EPA's principal role under Subtitle D is to announce federal guidelines for state management of nonhazardous wastes; Subtitle D leaves it up to the states to "use federal financial and technical assistance to develop solid waste management plans in accordance with [the] federal guidelines." *Environmental Def. Fund v. EPA*, 852 F.2d 1309, 1310 (D.C. Cir. 1988).

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[1] On several previous occasions, the EPA considered, but decided against, regulating Coal Residuals under RCRA Subtitle C. For background on the EPA's previous determinations on Coal Residuals, see 75 Fed. Reg. at 35,136–35,137.

Substantively, Subtitle D prohibits the disposal of solid waste in "open dumps," 42 U.S.C. § 6945(a), and calls on the EPA to promulgate criteria for determining whether a waste facility constitutes an open dump—criteria that, if followed, will ensure "no reasonable probability of adverse effects on health or the environment from disposal of solid waste at such facility," *id.* § 6944(a). Subtitle D neither grants the EPA direct enforcement authority nor requires states to adopt or implement its requirements. *See id.* § 6941. Enforcement is left to states' own policy decisions and to the initiative of people bringing citizen suits to enforce the federal standards. *See id.* §§ 6946–6947, 6972. *But see infra* Part II.A. (discussing recent amendments to RCRA).

The EPA initially published two alternative proposed rules to govern Coal Residuals, one under each Subtitle, basing the Subtitle C proposal on the toxicity of Coal Residuals. *See* 75 Fed. Reg. at 35,146. The proposals drew 450,000 public comments, the vast bulk of which spoke to the threshold question of which RCRA Subtitle to use, and the majority of which supported regulation under Subtitle C. 80 Fed. Reg. at 21,319. Most of the commenters were individuals and environmental groups pressing for stronger regulation "because state programs have failed to adequately regulate the disposal of [Coal Residuals] and because the risks associated with the management of these wastes are significant." *Id.* Only a handful of states, for example, required any groundwater monitoring around units holding Coal Residuals, *id.* at 21,323–21,324, including only one of the eight states with the biggest volumes of Coal Residuals, Regulatory Impact Analysis, G-6, J.A. 1121. On the other hand, the enormous volume of waste permeated with relatively low concentrations of toxins posed practical difficulties for any Subtitle C regulation. *See* 80 Fed. Reg. at 21,321.

Based on many years of analysis, the EPA found "a compelling need for a uniform system of requirements to address the[] risks [from Coal Residuals]," and decided to move forward with a Final Rule. 80 Fed. Reg. at 21,327. The EPA opted to proceed under the less muscular Subtitle D even as it continued to study factors potentially supporting regulating Coal Residuals as hazardous waste under RCRA Subtitle C. *See id.* at 21,319–21,327. The EPA thus formally deferred deciding whether Subtitle C regulation is warranted, and used its Subtitle D authority to set forth guidelines on where and how disposal sites for Coal Residuals are to be built, maintained, and monitored. *See* 80 Fed. Reg. at 21,302.

The Final Rule sets minimum criteria for the disposal of Coal Residuals in landfills and surface impoundments. Among the provisions of the Final Rule at issue here are location restrictions on landfills and surface impoundments, requirements pertaining to lining, structural integrity, and groundwater monitoring, and criteria for recycling Coal Residuals for beneficial uses, such as substituting for cement in road construction, in lieu of keeping it in disposal units. *See* 40 C.F.R. §§ 257.60–257.74. The Final Rule also sets compliance deadlines, procedures for closing non-complying landfills and surface impoundments, and requirements that operators of these disposal sites make records of their compliance with the Final Rule publicly available. *See id.* §§ 257.100–257.07. We discuss the relevant criteria in more detail in addressing the merits of the consolidated petitions.

C.

Two groups of petitioners sought review of the Final Rule. Environmental Petitioners are an assortment of environmental groups that includes the Environmental Integrity Project, Sierra Club, and Hoosier Environmental Council. They generally claim that EPA did not go far enough to protect the public and the environment from the harms of Coal Residual disposal. Specifically, they claim that the Final Rule unlawfully countenances significant risks of harmful leakage by allowing unlined impoundments as well as impoundments lined only with a layer of compacted soil to continue receiving Coal Residuals. Environmental Petitioners also contend that the EPA acted arbitrarily and capriciously by exempting from regulation so-called "legacy ponds"—inactive surface impoundments at shuttered power plants—given evidence that legacy ponds are at risk of unmonitored leaks and catastrophic structural failures. They also make a claim, not raised during rulemaking, that the EPA violated RCRA's citizen-suit provision by failing to require the operators of Coal Residual disposal sites to timely and publicly disclose records reflecting their compliance with the Final Rule.

Industry Petitioners are a collection of industry trade associations and utilities including the Utility Solid Waste Activities Group, AES Puerto Rico, LP, the Edison Electric Institute, the National Rural Electric Cooperative Association, and the American Public Power Association. They first assert that the EPA exceeded its statutory authority under RCRA to set guidelines for facilities where waste "is disposed of," 42 U.S.C. § 6903(14), by regulating surface impoundments that no longer actively receive Coal Residuals. They further claim that the Rule's restriction on placement of new units and expansions of existing units near aquifers, 40 C.F.R. § 257.60 (aquifer location restriction), was inadequately noticed, and

that the Rule's provision for nonconforming units to continue in operation if no alternative disposal capacity is available, *id.* § 257.103 (alternative closure provision), arbitrarily and capriciously excludes cost considerations from its definition of "available." Industry Petitioners also challenge the Rule's location restrictions and structural integrity criteria governing units in seismic impact zones. *See id.* §§ 257.63, 257.73–257.74. They contend that the deadline for existing impoundments' compliance with those provisions was arbitrarily shortened from the timeframe in the Proposed Rule, that the Rule arbitrarily applied the location restrictions to new but not existing landfills, and that EPA failed to explain the strict design criteria it adopted for new landfills and impoundments.

Environmental Petitioners intervened in Industry's petition for review, and vice versa. We consolidated the petitions. The case has been pending in this court since 2015, but several procedural matters delayed resolution until now. In June 2016, we granted the EPA's unopposed motion to remand to itself several provisions of the Final Rule not at issue here that the EPA had decided to vacate. *See* Per Curiam Order, *Utility Solid Waste Activities Grp. v. EPA*, No. 15-1219 (D.C. Cir. June 14, 2016). In doing so, we held all proceedings in abeyance while the EPA revised portions of the Rule affected by the vacatur. *See id.* We then set oral argument for October 17, 2017.

Less than a month before oral argument, the EPA announced that it had granted the petition of several industry groups to reconsider the Final Rule, and moved us to hold all proceedings in abeyance. The EPA pointed to Congress's recent enactment of the Water Infrastructure Improvements for the Nation Act ("WIIN Act"), Pub. L. No. 114-322, 130 Stat. 1628 (2016) (codified at 42 U.S.C. § 6945(d)), in December

2016 that, among other things, amended RCRA Subtitle D to allow the EPA to approve State permitting programs "to operate in lieu of [EPA] regulation of coal combustion residuals units in the State," provided those programs are at least as environmentally protective as the existing (or successor) EPA regulations. 42 U.S.C. § 6945(d)(1)(A). When we asked EPA to specify which provisions it planned to reconsider, the EPA filed another motion. That motion sought to remand provisions of the Rule relating to the beneficial use of Coal Residuals, alternative compliance provisions, legacy ponds, and the EPA's statutory authority to regulate inactive surface impoundments. We deferred a ruling on both motions until now.

On July 30, 2018, the EPA promulgated an amendment to the Final Rule (i) allowing a state or the EPA, when acting as a permitting authority, to use alternate groundwater performance standards, (ii) revising the groundwater performance standards for certain constituents, and (iii) extending the timeframe for facilities to cease receiving Coal Residuals once they are required to close. *See* Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria, 83 Fed. Reg. 36,435, 36,436 (July 30, 2018).

II. Request for Abeyance

A. WIIN Act

At the outset, the EPA requests that this case be held in abeyance while it considers potential regulatory changes in response to Congress's enactment of the WIIN Act, 42 U.S.C. § 6945(d). The WIIN Act amended RCRA's Subtitle D State permitting scheme. As relevant here, Section 6945(d)

provides that the Administrator may approve qualified State "permit program[s] or other system[s] of prior approval and conditions under State law for regulation by the State of coal combustion residuals units" to "operate in lieu of [EPA] regulation of coal combustion residuals units in the State * * *." 42 U.S.C. § 6945(d)(1)(A).

But the Administrator may only approve a state plan if its standards "are at least as protective as the criteria" set by the EPA in its corresponding RCRA regulations, specifically including Coal Residuals regulation, 40 C.F.R. pt. 257. 42 U.S.C. § 6945(d)(1)(C); *see id*. § 6945(d)(1)(B)(i). The WIIN Act also provides that a Coal Residuals disposal site can only qualify as a "sanitary landfill" if it is in full compliance with, among other things, the EPA's extant (or successor) regulations governing Coal Residuals waste sites. 42 U.S.C. § 6945(d)(6).

The EPA argues that the WIIN Act has afforded it new regulatory options and makes "fundamental changes to RCRA Subtitle D as applied specifically to [Coal Residuals]." EPA WIIN Br. 4, 6, 8. On that basis, the EPA asks us to hold the case in abeyance while it decides whether or not "to alter some of its regulatory choices[.]" EPA WIIN Br. at 2, 6.

We decline to exercise our discretion to hold the case in abeyance. We leave it open for the EPA to address on remand the relevance of the WIIN Act, the Act's express incorporation of the EPA regulations published at 40 C.F.R. Part 257, and its definition of "sanitary landfill."

III. Environmental Petitioners' Challenges

A. Unlined Surface Impoundments

Environmental Petitioners challenge the Final Rule's provision that existing, unlined surface impoundments may continue to operate until they cause groundwater contamination. 40 C.F.R. § 257.101(a)(1). They contend that the EPA failed to show how continued operation of unlined impoundments meets RCRA's baseline requirement that any solid waste disposal site pose "no reasonable probability of adverse effects on health or the environment." 42 U.S.C. § 6944(a).

The EPA found that unlined impoundments are dangerous: It concluded that, among the studied disposal methods, putting Coal Residuals "in unlined surface impoundments and landfills presents the greatest risks to human health and the environment." 80 Fed. Reg. at 21,451. The Rule accordingly requires that all new surface impoundments be constructed with composite lining that effectively secures against leakage. *See* 40 C.F.R. § 257.72(a). But it allows existing unlined impoundments to continue to receive Coal Residuals indefinitely, until their operators detect that they are leaking. *Id.* § 257.101(a). Only once a leak is found must the operator of an unlined impoundment begin either retrofitting the unit with a composite liner, or closing it down—a process that the Rule contemplates may take upwards of fifteen years. *Id.* § 257.102(f). In view of the record evidence that led the EPA to conclude that composite liners are needed to ensure that new impoundments meet RCRA Subtitle D's "no reasonable probability" standard, Environmental Petitioners claim that the Rule's allowance for continued operation of existing, unlined

surface impoundments is arbitrary and capricious and contrary to RCRA.

The EPA and Industry Intervenors assert that the composite lining required for new units is not needed for existing units because most unlined impoundments do not leak, and an unlined impoundment that is not leaking is not dangerous. Industry Intervenors emphasize that the record suggests that "almost two-thirds of unlined impoundments *do not* leak," and they assert that "appropriate controls on impoundments that do leak" suffice to meet RCRA's "no reasonable probability" standard. Industry Intervenor Br. 6–7. The EPA underscores that it made no finding of any "reasonable probability that *each and every* unlined impoundment will, in fact, result in adverse effects on health and the environment." Resp't Br. 82. It insists that RCRA's "no reasonable probability" standard is met by the Rule's provisions for "extensive monitoring of groundwater to detect constituent leaking," *id.* at 83, and "immediate action to stop that leak," "redress that leak," and to close the site as soon as a harmful leak is detected. Oral Arg. Tr. 100:20–100:25.

The record shows, however, that the vast majority of existing impoundments are unlined, *see* Regulatory Impact Analysis 3-4, J.A. 1108, that unlined impoundments have a 36.2 to 57 per cent chance of leakage at a harmfully contaminating level during their foreseeable use, *see id.* at 4-9, 5-22, J.A. 1111–1112, and that the threat of contamination from unlined units exceeds the EPA's cancer risk criteria and thus "generally will be considered to pose a substantial present or potential hazard to human health and the environment," 80 Fed. Reg. at 21,449–21,450; *see* Risk Assessment 5-5, J.A. 1041. It is inadequate under RCRA for the EPA to conclude that a major category of impoundments that the agency's own data show are prone to leak pose "no reasonable probability of

adverse effects on health or the environment," 42 U.S.C. § 6944(a), simply because they do not already leak.

The number of unlined impoundments is large. The EPA identified 735 existing active surface impoundments throughout the country. Of the 504 sites for which the EPA was able to collect liner data, approximately 65 per cent were completely unlined, with most of the rest lined only with compacted soil or other partial or high-permeability liners. *See* Regulatory Impact Analysis 3-4 n.105, J.A. 1108. Only 17 per cent of surface impoundments for which the EPA has liner data had composite liners—the sole liner type that the EPA found to be effective in reducing the risk of toxic chemical leakage to the level that the Agency found acceptable.

Those hundreds of unlined impoundments are at significant risk of harmful leakage. Of 157 sites where the EPA confirmed that Coal Residuals have already caused damage to human health and the environment, the damage cases "were primarily associated with unlined units." 80 Fed. Reg. at 21,452. The record evidence shows that an impoundment with composite lining, which the Rule requires of all new impoundments, has a 0.1 per cent chance of contaminating groundwater at drinking-water wells a mile distant from the impoundment perimeter over the course of a 100-year period. Regulatory Impact Analysis 5-22, J.A. 1112. An unlined impoundment, in contrast, has a 36.2 per cent chance of contaminating groundwater at such a distance. *See id*. And the probability of contamination is higher at distances closer to the impoundment site, *id.*, J.A. 1112; measured one meter from the impoundment's perimeter, the contamination risk jumps to 57 per cent, *id.*, J.A. 1111. *See* Risk Assessment ES-4, J.A. 1083–1084 ("In many of the potential damages cases, groundwater exceedances were discovered near the boundary" of the impoundment). According to the

administrative record, then, a significant portion of the 575 identified unlined surface impoundments are likely to contaminate groundwater.

Impoundment leakages pose substantial risks to humans and the environment. The EPA studied a wide range of toxins present in Coal Residuals, *see* Risk Assessment ES–4, J.A. 1010, and considered various forms of potential human and environmental exposures. The EPA uses risk benchmarks in assessing the propriety of regulatory action. For example, it treats a cancer risk in excess of 1×10^{4}, or 1 in 10,000, as one that "generally will be considered to pose a substantial present or potential hazard to human health and the environment[.]" 80 Fed. Reg. at 21,449. For non-cancer risks, the EPA determined that a Hazard Quotient—defined as the "ratio of the estimated exposure to the exposure at which it is likely that there would be no adverse health effects," 75 Fed. Reg. at 35,168—gives rise to such a threat when it is greater than or equal to 1. *See* 80 Fed. Reg. at 21,449. Using those benchmarks and the data it collected from the Risk Assessment, the EPA found that material human exposures derive from ingestion of contaminated groundwater or the consumption of contaminated fish. *Id.* at 21,450–21,451.[2] The plant and animal exposures the EPA identified as material derive from contact with contaminated surface water. *See id.*; Risk Assessment 5-8, J.A. 1044. The EPA also expressed concern about the contamination of groundwater that is not currently used as a source of drinking water because "[s]ources of drinking water are finite, and future users' interests must

[2] The EPA's Risk Assessment found that unlined impoundments created an unacceptable human cancer risk as a result of exposure to two different arsenics, and an unacceptable non-cancer risk as a result of exposure to one type of arsenic, as well as lithium, molybdenum, and thallium. *See* Risk Assessment 5-5, J.A. 1041.

also be protected." 80 Fed. Reg. at 21,452. In view of the record's limitation of the risk calculus associated with leakage to the subset of toxins and exposures that the EPA deemed to present a substantial risk to human health or the environment, the EPA's assertion in its brief that, even where it occurs, leakage "will not necessarily result in contamination of groundwater, either above allowable regulatory thresholds, or at all," is at best a red herring. Resp't Br. at 85. Every leakage the EPA record treated as material exceeded regulatory thresholds. In defending the Rule here, the EPA looks at too narrow a subset of risk information and applies the wrong legal test.

The Final Rule's approach of relying on leak detection followed by closure is arbitrary and contrary to RCRA. This approach does not address the identified health and environmental harms documented in the record, as RCRA requires. Moreover, the EPA has not shown that harmful leaks will be promptly detected; that, once detected, they will be promptly stopped; or that contamination, once it occurs, can be remedied.

On its own terms, the Rule does not contemplate that contamination will be detected as soon as it appears in groundwater. The EPA and Industry defend the rule as RCRA-compliant principally because, they say, it provides for retrofit with a composite liner or closure of an unlined impoundment "[o]n the *first* indication that an unlined unit is leaking[.]" Industry Intervenor Br. 6. But the required groundwater sampling need only occur "at least semiannual[ly]," or perhaps less frequently under certain geological conditions. 40 C.F.R. § 257.94(b), (d); *id.* § 257.95(c). The Rule thus contemplates that leaks will often go undetected for many months.

By the time groundwater contamination from an unlined impoundment has been detected, more damage will have been done than had the impoundment been lined: Leakage from unlined impoundments is typically quicker, more pervasive, and at larger volumes than from lined impoundments. *See* 80 Fed. Reg. at 21,406. Unlike lined impoundments, in which leaks are "usually caused by some localized or specific defect in the liner system that can more readily be identified and corrected," leakage from unlined impoundments is more pervasive and less amenable to any quick, localized fix. *Id.* at 21,371. When an unlined impoundment begins to leak, Coal Residual sludge "will flow through the unit and into the environment unrestrained," such that retrofit or closure of the unit are typically "the only corrective action strateg[ies] that [the] EPA can determine will be effective[.]" *See id.*

Neither retrofitting nor closure occurs immediately under the Rule; the timeline contemplates a process that takes from five to fifteen years. *See* 40 C.F.R. § 257.102. The EPA understates the harm its own record evidences by emphasizing that "leaking unlined impoundments must cease receiving [Coal Residuals] and initiate closure or retrofit activities within six months." Resp't Br. at 81; *see* 40 C.F.R. § 257.101(a)(1). What it neglects to account for is that the Rule gives the operator a further five years to complete retrofitting or closure activities. *Id*. §§ 257.102(f)(1)(ii), 257.102(k)(3). The Rule also allows the operators of surface impoundments to extend that window, by up to two years for smaller units and, for units larger than 40 acres—which most are, *see* 80 Fed. Reg. at 21,303—for up to ten years, *see* 40 C.F.R. § 257.102(f)(2)(ii).

The Rule addresses neither the risks to public health and to the environment before leakage is detected, nor the harms from continued leakage during the years before leakage is ultimately halted by retrofit or closure. *See generally* 40

C.F.R. §§ 257.90–257.104. In defending the Rule as compliant with RCRA, the EPA did not even consider harms during the retrofit or closure process. *See* Resp't Br. 80–86; 80 Fed. Reg. at 21,403–21,406; *cf.* Oral Arg. Tr. 102–105 (EPA counsel unable to identify record evidence regarding how quickly leaks can be detected or how quickly and thoroughly responsive action can occur, but referring generally to a practice of immediate "pump and treat," which the Rule does not appear to require). An agency's failure to consider an important aspect of the problem is one of the hallmarks of arbitrary and capricious reasoning. *See United States Sugar Corp. v. EPA*, 830 F.3d 579, 606 (D.C. Cir. 2016) (per curiam) (citing *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)).

The EPA's position suffers additional flaws. The EPA determined that contaminated surface waters, such as rivers, streams, and lakes, are the principal pathway of harm to environmental receptors, but the Final Rule requires only monitoring of groundwater, and only for levels of contamination that would harm human health. *See* 40 C.F.R. §§ 257.90–257.95 (calling for groundwater monitoring systems); 75 Fed. Reg. at 35,130 (defining maximum contaminant level in terms of drinking water safety). Surface water contamination poses environmental risks from "[e]levated selenium levels in migratory birds, wetland vegetative damage, fish kills, amphibian deformities, * * * [and] plant toxicity," 75 Fed. Reg. at 35,172, and to humans through the possible consumption of contaminated fish, 80 Fed. Reg. at 21,444. These risks exceed the EPA's risk criteria for ecological receptors. *See* Risk Assessment 5–8, J.A. 1044. And some contamination levels that do not meet the risk threshold for humans may exceed thresholds for ecological receptors. *See, e.g.*, *id.* (noting a risk exceedance unique to ecological receptors from cadmium). Yet the record

does not explain how the Rule's provisions for groundwater monitoring, followed by corrective action only when human exposure benchmarks are exceeded, will mitigate these risks. RCRA requires the EPA to set minimum criteria for sanitary landfills that prevent harm to either "health *or* the environment." 42 U.S.C. § 6944(a) (emphasis added). The EPA's criteria for unlined surface impoundments, limited as they are to groundwater monitoring for contaminant levels keyed to human health, only partially address the first half of the statutory requirement.

For these reasons, we vacate 40 C.F.R. § 257.101, which allows for the continued operation of unlined impoundments, and remand for additional consideration consistent with this opinion.

B. Liner Type Criteria

Environmental Petitioners next challenge the Final Rule's regulation of so-called "clay-lined" surface impoundments. A clay liner consists of at least two feet of compacted soil to act as a buffer between the Coal Residual sludge and the local soil. *See* Risk Assessment 4-8; J.A. 1024. Even as the Rule requires all newly constructed surface impoundments to be built with composite lining, disapproving any new impoundments lined only with compacted soil, it treats existing impoundments constructed with the same compacted soil and no geomembrane as if they were "lined." *See* 40 C.F.R. §§ 257.71(a)(1)(i), 257.96–257.98. The upshot is that such clay-lined impoundments may stay open and keep accepting Coal Residuals, subject to groundwater monitoring for leakage, *see* 40 C.F.R. § 257.101, but, unlike existing unlined impoundments—which must begin closure when they leak, *id.* § 257.71(a)(1)—clay-lined impoundments need not begin closure when they are discovered to be leaking. Rather, their

operators may attempt to repair them first. *Id*. §§ 257.96–257.98. Only if repair is unsuccessful must they then begin the protracted process to either retrofit with a composite liner or close.

The EPA contends that, by requiring the operators of clay-lined impoundments to fix leaks when they occur, the Rule comports with RCRA's mandate to ensure "no reasonable probability of adverse effects on health or the environment." 42 U.S.C. § 6944(a); *see* Resp't Br. 88–89. For their part, Environmental Petitioners point to record evidence that clay-lined units are likely to leak, and contend that the EPA's approach "authorizes an endless cycle of spills and clean-ups" in violation of RCRA. *See* Envtl. Pet'r Br. 30.

Clay-lined units are dangerous: "clay-lined units tended to have lower risks than unlined units" but, the record evidence showed, they were "still above the criteria" that the EPA set as the threshold level requiring regulation. 75 Fed. Reg. at 35,144. Clay-lined surface impoundments have a 9.1 per cent chance of causing groundwater contamination at drinking water wells at a one-mile distance from the impoundment perimeter. *See* Regulatory Impact Analysis 5-22, J.A. 1112. And, as with unlined impoundments, the EPA acknowledges that the risk of contamination from leaking clay-lined impoundments is much higher closer to the impoundment perimeter. *See* Risk Assessment 5-39 to 5-40, J.A. 1075–1076 ("[A]rsenic concentrations fall dramatically as the distance from the [waste management units] increases."); *id.* at 5-47 to 5-48, J.A. 1083–1084 ("In many of the potential damage cases, ground water exceedances were discovered near the boundary

of the W[aste] M[anagement] U[nit].").[3] Leaks from clay-lined units, the EPA found, present cancer and non-cancer risks that exceed the EPA's risk criteria. *See* Risk Assessment 5-5, 5-30, J.A 1041, 1066.

The EPA's regulation of clay-lined impoundments suffers from the same lack of support as its regulation of unlined impoundments. *See supra* part III.A. Just as the EPA did not explain how the Rule's contemplated detection and response could assure "no reasonable probability of adverse effects to health or the environment" at unlined impoundments, it likewise failed regarding existing impoundments lined with nothing more than compacted soil. The EPA insists that the Rule's criteria ensure that leaks from these clay-lined units will be "promptly" addressed, thereby satisfying RCRA. Resp't Br. 91.

But here, too, the EPA has failed to show how unstaunched leakage while a response is pending comports with the "no reasonable probability" standard. The problem is compounded by the Rule's unsupported supposition that leaking clay liners, unlike leaking unlined impoundments, can be repaired. The Rule thus allows an operator of a leaking clay-lined impoundment time to explore repair even before the five-to-fifteen year retrofit-or-close clock starts to run. For starters, the Rule allows operators of lined impoundments up to five months to complete an assessment of possible corrective measures, 40 C.F.R. § 257.96(a), and—given the numerous, complicated steps involved in doing so—allows an additional, indefinite amount of time to actually select a remedy. *See id.* § 257.97; 80 Fed. Reg. at 21,407–21,408. Once an operator

[3] The administrative record does not show the exact probability of contamination from clay-lined units at a one-meter distance. *See* Regulatory Impact Analysis, 4-9 to 5-22, J.A. 1111–1112.

settles on a remedy, it has another three months to initiate remedial activities. *Id*. at § 257.98(a). If it turns out that no effective repair is feasible, or if an attempted repair proves unsuccessful, only then does the Rule contemplate the impoundment's operator will begin the protracted process—discussed above in connection with the closure of existing, unlined impoundments—of retrofitting the site with a composite liner or closing it. There is no evidence in the record supporting the EPA's assumption that clay liners are reasonably susceptible of repair, nor any explanation or account of how the risks of harm during the lengthy response periods the Rule allows comport with the "no reasonable probability" standard.

Just as with the EPA's regulation of unlined impoundments, the Rule's treatment of clay-lined impoundments does not capture the full range of health and environmental harms they pose, as RCRA requires. By responding only to risks from leakage contaminating groundwater a mile from the perimeter of the studied impoundments, and accordingly setting minimum criteria that focus solely on harms to humans through drinking water contamination, the EPA has failed to ensure "no reasonable probability" of adverse effects to the environment, as RCRA requires. 42 U.S.C. § 6944(a).

For these reasons, we vacate the Rule insofar as it treats "clay-lined" units as if they were lined. *See* 40 C.F.R. § 257.71(a)(1)(i).

C. Legacy Ponds

The EPA exempted inactive impoundments at *inactive* facilities, which are commonly referred to as "legacy ponds," from the same preventative regulation applied to all other

inactive impoundments under the Rule. 40 C.F.R. § 257.50(e). The EPA considered it sufficient instead just (i) to wait to intervene until a substantial environmental or human harm is "imminent," 42 U.S.C. § 6973, or (ii) to attempt to remediate the damage after contamination has occurred. 80 Fed. Reg. at 21,311 n.1; *id.* at 21,312 n.2. Environmental Petitioners argue that, because legacy ponds pose at least the same risks of adverse effects as all other inactive impoundments, the EPA failed to articulate a rational explanation for their dissimilar treatment.

The EPA does not dispute the dangers posed by the unregulated legacy ponds, but asserts that the difficulties in identifying the party responsible for legacy ponds justify its reactive approach. Because the EPA's own record plainly contravenes that rationale, and the Rule pays scant attention to the substantial risk of harm to human health and the environment posed by legacy ponds, we reject the legacy pond exemption as arbitrary and capricious.

1.

Legacy ponds are a particular subset of inactive impoundments. Like all inactive impoundments, they contain a toxic "slurry" of Coal Residuals mixed with water, but legacy ponds are not receiving new deposits. 80 Fed. Reg. at 21,457 n.219. What distinguishes legacy ponds from other inactive impoundments, then, is their location. Legacy ponds are found at power plants that are no longer engaged in energy production. In other words, legacy ponds are inactive impoundments at inactive facilities.

As a result, legacy ponds present a unique confluence of risks: They pose the same substantial threats to human health and the environment as the riskiest Coal Residuals disposal

methods, compounded by diminished preventative and remediation oversight due to the absence of an onsite owner and daily monitoring. *See* 80 Fed. Reg. at 21,343–21,344 (finding that the greatest disposal risks are "primarily driven by the older existing units, which are generally unlined"). Notably, this very Rule was prompted by a catastrophic legacy pond failure that resulted in a "massive" spill of 39,000 tons of coal ash and 27 million gallons of wastewater into North Carolina's Dan River. *Id.* at 21,394; *id*. at 21,393.

Nevertheless, the EPA chose to leave legacy ponds on the regulatory sidelines. 40 C.F.R. § 257.50(e). Unlike all the other inactive impoundments, EPA adopted a largely hands-off approach, choosing (i) to respond only after "imminent" leakage is detected and reported, 42 U.S.C. § 6973(a) (RCRA's "imminent and substantial endangerment" provision), or to (ii) attempt an after-the-spill clean up under the Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as the "Superfund" statute), 42 U.S.C. § 9601 *et seq*. *See* 80 Fed. Reg. at 21,312 n.2 (citing 42 U.S.C. § 9608(b)).

The EPA's rationale for allowing legacy ponds, in effect, one free leak was its supposed inability to identify the owners of legacy ponds. In the absence of an identified owner or other responsible party, the EPA reasoned, enforcing the Coal Residuals regime would be difficult with no operator onsite to generate compliance certifications, conduct inspections, or otherwise implement the Rule's substantive requirements. *See* 80 Fed. Reg. at 21,344.

The EPA's decision was arbitrary and capricious. To begin with, there is no gainsaying the dangers that unregulated legacy ponds present. The EPA itself acknowledges the vital importance of regulating inactive impoundments at active

facilities. That is because, if not properly closed, those impoundments will "significant[ly]" threaten "human health and the environment through catastrophic failure" for many years to come. 75 Fed. Reg. at 35,177; *see also* 80 Fed. Reg. at 21,344 n.40.

The risks posed by legacy ponds are at least as substantial as inactive impoundments at active facilities. *See* 80 Fed. Reg. at 21,342–21,344 (finding "no[] measurabl[e] differen[ce]" in risk of catastrophic events between active and inactive impoundments). And the threat is very real. Legacy ponds caused multiple human-health and environmental disasters in the years leading up to the Rule's promulgation. *See* 75 Fed. Reg. at 35,147 (proposed rule discusses multiple serious incidents). For example, a pipe break at a legacy pond at the Widows Creek plant in Alabama caused 6.1 million gallons of toxic slurry to deluge local waterways. *Id*. Another legacy pond in Gambrills, Maryland caused the heavy metal contamination of local drinking water. *Id*. And the preamble to the Rule itself specifically points to the catastrophic spill at the Dan River legacy pond in North Carolina. 80 Fed. Reg. at 21,393–21,394. Simply hoping that somehow there will be last-minute warnings about imminent dangers at sites that are not monitored, or relying on cleaning up the spills after great damage is done and the harm inflicted does not sensibly address those dangers. Certainly it does not fulfill the EPA's statutory duty to ensure "no reasonable probability of adverse effects" to environmental and human well-being. 42 U.S.C. § 6944(a).

Confronted by those considerable dangers, the EPA's decision to shrug off preventative regulation makes no sense. The asserted difficulty in locating the owners or operators responsible for legacy ponds does not hold water. The record shows that the EPA knows where existing legacy ponds are

and, with that and other information, the EPA already is aware of or can feasibly identify the responsible parties. After all, the owners and operators of the Dan River, Widows Creek, and Gambrills, Maryland disasters were all known. *See* 80 Fed Reg. at 21,393–21,394; 75 Fed. Reg. at 35,147.

Also, the EPA has been compiling and maintaining a database for nearly a decade that identifies legacy ponds and their owners with specificity. *See* Regulatory Impact Analysis for EPA's Proposed RCRA Regulation of Coal Combustion Residues, *Information Request Responses from Electric Utilities* (April 30, 2010), *available at* https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/xlsx/survey_database_041212.xlsx. The Final Rule's Regulatory Impact Analysis named more than thirty other owners and operators of recently, or soon-to-be, retired power plants where more than 100 legacy ponds are located. This included a State-by-State list detailing the number of already-inactive impoundments, and the utility responsible for each one. *See id.*; *see also* J.A. 1104, 1119. The database further identified 83 power plants that were scheduled to "fully close all coal-fired" facilities by the time the Rule went into effect, over 75% of which would house a legacy pond upon closure. J.A. 1116.

In sum, the EPA acknowledges that (i) it has the authority to regulate inactive units, (ii) it is regulating inactive units at active facilities, (iii) the risks posed by legacy ponds are at least as severe as the other inactive-impoundment dangers that the "[R]ule specifically seeks to address, and [(iv)] there is no logical basis for distinguishing between units that present the same risks." 80 Fed. Reg. at 21,343. The EPA also considers it "quite clear" that older, unlined impoundments, Oral Arg. Tr. at 94:22—which are primarily legacy ponds—pose "the greatest risks to human health and the environment," 80 Fed.

Reg. at 21,451. Because the administrative record belies the EPA's stated reason for its reactive, rather than preventative, approach—the inability to identify the responsible parties—the Rule's legacy ponds exemption is unreasoned, arbitrary, and capricious.

D. Inadequate Notice by Owners and Operators

Because of RCRA's reliance on citizen enforcement, the statute requires the EPA to "develop and publish minimum guidelines for public participation" in the "development, revision, implementation, and enforcement" of any RCRA regulation. 42 U.S.C. § 6974(b)(1). The EPA implements that statutory requirement, as relevant here, by requiring the owners of Coal Residuals units to "maintain a publicly accessible Internet site" on which they timely disclose specified information about their compliance with RCRA regulations. 40 C.F.R. § 257.107(a).

The Environmental Petitioners wage several assaults on the Rule's Internet notice requirements, arguing that they do not provide adequate or timely notice to permit the public to participate in monitoring compliance with the Rule. For example, the Environmental Petitioners object that the Rule does not require owners or operators of new Coal Residual impoundments to post a design certification—an engineer's certification that the impoundment's liner meets the EPA's criteria—until sixty days after construction begins. 40 C.F.R. § 257.107(f)(1); *see* 40 C.F.R. § 257.70. That is too late, the Environmental Petitioners argue, to put the public on effective notice of any potential design problems. They also object that the Rule does not require timely public notification about the design or liner compliance of impoundment expansions, the structural integrity of facilities, protections against airborne

coal dust, run-off control, hydraulic capacity requirements, or the nature of groundwater monitoring efforts.

The problem for Environmental Petitioners is that, although they participated in the notice-and-comment rulemaking process, they never voiced objections to the Rule's notice provisions that they now challenge. Having stood silent during the rulemaking, the Environmental Petitioners may not now raise their complaints for the first time in their petition for judicial review. *See Military Toxics Project v. EPA*, 146 F.3d 948, 956 (D.C. Cir. 1998); *see also City of Portland v. EPA*, 507 F.3d 706, 710 (D.C. Cir. 2007) ("Because [no] party raised this argument before the [EPA] during the rulemaking process, however, it is waived, and we will not consider it."). The sanction does not exist as a procedural trap; the notice-and-comment process is in place so that the agency can consider and—if necessary—revise its proposed rule in light of public comments. *United States v. L.A. Tucker Truck Lines, Inc.*, 344 U.S. 33, 37 (1952) ("[O]rderly procedure and good administration require that objections to the proceedings of an administrative agency be made while it has opportunity for correction in order to raise issues reviewable by the courts."). The EPA reasonably focuses its resources on consideration and/or modification of challenged portions of a proposed rule rather than unchallenged and apparently uncontroversial portions thereof. *See Interstate Nat. Gas Ass'n of Am. v. FERC*, 494 F.3d 1092, 1096 (D.C. Cir. 2007) (agency must respond to material comments only). Accordingly, we will not address this claim.

IV. Industry Petitioners' Challenges

Industry Petitioners bring a host of their own challenges to the Rule. As noted, these claims have dwindled over the course of this litigation. At the start, Industry Petitioners

challenged eighteen provisions of the Final Rule and questioned the EPA's statutory authority to regulate inactive surface impoundments.[4] In response, the EPA filed an unopposed motion to sever and remand two aspects of the Final Rule (regarding five regulatory provisions). On June 14, 2016, we granted the motion. Industry Petitioners continued to challenge the thirteen remaining substantive provisions as well as to attack the EPA's statutory authority. In the parties' proposed oral argument structure, however, Industry Petitioners moved to dismiss two additional challenges (regarding three regulatory provisions). We granted that motion as well.

Accounting for these interim trims, Industry Petitioners now assert that the EPA (i) lacks authority to regulate inactive impoundments; (ii) failed to provide sufficient notice of its intention to apply the aquifer location criteria to existing impoundments, to regulate Coal Residual piles of 12,400 or more tons, and to regulate the temporary storage of Coal

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[4] Industry Petitioners' initial brief challenged portions of the following regulations: 40 C.F.R. §§ 257.50(c), 257.100 (inactive impoundments); 40 C.F.R. § 257.53 (definition of "beneficial use" and regulation of CCR "pile"); 40 C.F.R. § 257.60 (aquifer location restrictions); 40 C.F.R. §§ 257.73(e), (f)(1), 257.74(e) (minimum safety factors); 40 C.F.R. §§ 257.90(d), 257.96(a) ("release" response); 40 C.F.R. §§ 257.73(a)(4), 257.74(a)(4) (dike requirements); 40 C.F.R. § 257.103(a)(1)(i), (b)(1)(i) (prohibition on considering cost and inconvenience); 40 C.F.R. § 257.63(a) (seismic impact zone landfill requirements); 40 C.F.R. § 257.63(c)(1) (seismic impact zone deadline); 40 C.F.R. § 257.103 (inclusion of non-Coal Residuals waste streams in alternative closure provision); 40 C.F.R. §§ 257.95(h)(2), 257.97 (exclusion of risk-based compliance alternatives).

Residuals destined for beneficial use; and (iii) acted arbitrarily in regulating residual piles of 12,400 or more tons, in regulating on-site Coal Residuals destined for beneficial use, in eliminating the risk-based compliance alternatives, in issuing location requirements based on seismic impact zones, and in imposing temporary closure procedures.[5]

The EPA, now supported in part by Industry Petitioners, requests a remand of several of those issues, namely whether (i) the EPA has statutory authority to regulate inactive impoundments, (ii) the EPA arbitrarily regulated Coal Residuals piles of 12,400 or more tons, (iii) the EPA arbitrarily regulated on-site Coal Residuals destined for beneficial use, and (iv) the EPA arbitrarily eliminated risk-based compliance alternatives.

We grant the request for voluntary remand of the Coal Residuals pile-size and beneficial-use issues, and we dismiss as moot both the claim regarding risk-based compliance alternatives and the accompanying notice challenges. As to all remaining issues, we deny remand, and we deny the Industry Petitioners' petition for review.

A. EPA's Motion for Voluntary Remand

We have broad discretion to grant or deny an agency's motion to remand. *See Limnia, Inc. v. Department of Energy*, 857 F.3d 379, 381, 386 (D.C. Cir. 2017). We generally grant an agency's motion to remand so long as "the agency intends

[5] These challenges encompass the following regulations (or portions thereof): 40 C.F.R. §§ 257.50(c), 257.100 (inactive impoundments); 40 C.F.R. § 257.103(a)(1)(i), (b)(1)(i) (alternative closure requirements); 40 C.F.R. § 257.63(a), (c)(1) (seismic impact zone requirements).

to take further action with respect to the original agency decision on review." *Id.* (emphasis omitted). Remand has the benefit of allowing "agencies to cure their own mistakes rather than wasting the courts' and the parties' resources reviewing a record that both sides acknowledge to be incorrect or incomplete." *Ethyl Corp. v. Browner*, 989 F.2d 522, 524 (D.C. Cir. 1993). Remand may also be appropriate if the agency's motion is made in response to "intervening events outside of the agency's control, for example, a new legal decision or the passage of new legislation." *SKF USA Inc. v. United States*, 254 F.3d 1022, 1028 (Fed. Cir. 2001) (discussing *National Fuel Gas Supply Corp. v. FERC*, 899 F.2d 1244, 1249 (D.C. Cir. 1990) (per curiam)). Alternatively, "even if there are no intervening events, the agency may request a remand (without confessing error) in order to reconsider its previous position." *Id.* at 1029.

In deciding a motion to remand, we consider whether remand would unduly prejudice the non-moving party. *See FBME Bank Ltd. v. Lew*, 142 F. Supp. 3d 70, 73 (D.D.C. 2015). Additionally, if the agency's request appears to be frivolous or made in bad faith, it is appropriate to deny remand. *See SKF USA*, 254 F.3d at 1029; *see also Lutheran Church-Missouri Synod v. FCC*, 141 F.3d 344, 349 (D.C. Cir. 1998) (denying FCC's "novel, last second motion to remand" because it was based on agency's non-binding prospective policy statement).

To start, we decline the EPA's request to remand the challenge to the agency's authority to regulate inactive impoundments so that it can reconsider its interpretation of the statute, for two reasons. First, the EPA's statutory authority over inactive sites necessarily implicates the Environmental Petitioners' claim regarding legacy ponds. So, even if Industry Petitioners are willing to go along with a remand, Environmental Petitioners are not and remand would prejudice

the vindication of their own claim. Second, this claim involves a question—the scope of the EPA's statutory authority—that is intertwined with any exercise of agency discretion going forward. Given that, the EPA has not met its burden of justifying its last-minute request for a remand in this case, and we proceed to the merits on this issue.

The EPA also initially requested a remand of its decision to exclude certain risk-based compliance measures. On July 30, 2018, however, the EPA promulgated amendments to the Final Rule. *See* Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Amendments to the National Minimum Criteria (Phase One, Part One) ("Final Rule Amendments"), 83 Fed. Reg. 36,435 (July 30, 2018). The Final Rule Amendments provide certain risk-based compliance measures and site-specific engineering certifications. Accordingly, we dismiss as moot Industry Petitioners' challenge to 40 C.F.R. §§ 257.95(h) and 257.97. *See National Min. Ass'n v. Department of Interior*, 251 F.3d 1007, 1011 (D.C. Cir. 2001) (dismissing challenges as moot due to "substantial changes" in regulations and declaring "[a]ny opinion regarding the former rules would be merely advisory").

For the remaining requests—(i) the regulation of Coal Residuals piles; (ii) the Proposed Rule's notice of the Coal Residuals pile regulation; and (iii) the 12,400-ton threshold for beneficial use (and notice thereof)—we grant the EPA's motion to remand.[6] First and foremost, the EPA has explained that it plans to reconsider these provisions and has submitted a

[6] Specifically, we remand without vacating 40 C.F.R § 257.53 (definition of "beneficial use" and regulation of Coal Residuals "pile").

proposed timeline to the court, thereby satisfying the requirement for remand that it "take further action with respect to the original agency decision on review." *Limnia*, 857 F.3d at 386 (emphasis omitted). Second, although the WIIN Act does not affect the validity of the Rule itself, it does provide the EPA with new tools to pursue its regulatory goals. *See* 42 U.S.C. § 6945(d)(4) (incorporating enforcement provisions of Sections 6927 and 6928).[7]

The EPA has explained that the Final Rule was promulgated with the understanding that there would be no regulatory "overseer," and therefore the Final Rule itself should "account for and be protective of all sites, including those that are highly vulnerable." 80 Fed. Reg. at 21,311; *id.* (explaining how "the requirement to establish national criteria and the absence of any requirement for direct regulatory oversight" influenced the Final Rule). Although a one-size-fits-all national standard might have been necessary for the self-implementing Final Rule, more precise risk-based standards are both feasible and enforceable under the individualized permitting programs and direct monitoring provisions authorized by the WIIN Act. *See* Oral Arg. Tr. 37:12–37:14 (counsel for EPA explaining that certain provisions of the Final Rule "cry out for site specific enforcement"). Thus, the regulatory tools authorized by the WIIN Act support the EPA's request to reconsider certain provisions of the Rule. *See SKF USA*, 254 F.3d at 1028.

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[7] On March 23, 2018, the Consolidated Appropriations Act of 2018 was signed into law. Pub. L. No. 115-141, 132 Stat. 348. It allocates funds to the EPA to "implement[] a coal combustion residual permit program under" the WIIN Act. *Id.* at Division G, Title II. Accordingly, with its recently acquired funding, the EPA is to "implement a permit program" in non-participating states. 42 U.S.C. § 6945(d)(2)(B).

Moreover, the provisions we now remand stand unchallenged on their merits; accordingly, no party will suffer prejudice from remand without vacatur. *See FBME Bank*, 142 F. Supp. 3d at 73. Indeed, at this stage in the litigation, all parties *agree* that the "beneficial use" and "Coal Residuals pile" provisions should stay in effect—at least until a new rule is promulgated. *See* EPA Remand Mot. 2 ("EPA seeks remand of these provisions without vacatur, and thus they remain in place and fully applicable[.]"). Moreover, the only parties that object to remand—Environmental Petitioners—did not challenge any of the relevant provisions in their petition; rather they *defended* the provisions as Intervenors. *See generally* Envtl. Intervenor-Resp't Br. 14–22. Accordingly, any opinion we issue regarding these provisions would be wholly advisory; it would resolve no active case or controversy and would award no relief. *See Chafin v. Chafin*, 568 U.S. 165, 172 (2013) (case is non-justiciable if court is unable to grant concrete relief to any party).

We conclude that there is no reason to opine on the "beneficial use" and "Coal Residuals pile" provisions that the EPA wants remanded. At oral argument, the court pressed Industry counsel as to why Industry Petitioners did not simply dismiss their petition rather than acquiescing in the EPA's motion. Oral Arg. Tr. 49–52. Industry counsel did not provide a clear answer. But he did make two concessions: First, he declared that Industry does not oppose remand. *Id.* at 50:16–50:23. Second, he acknowledged, "on a remand * * * the petition * * * *is dismissed as a practical matter*." *Id.* at 51:6–51:10 (emphasis added). Counsel is correct in one respect. When combined with the statutory provision requiring any challenge to be brought within 90 days of the Rule's promulgation, the legal effect of remand without vacatur is simple: The Rule remains in force and Industry Petitioners cannot bring another challenge until and unless the

EPA takes additional regulatory action. 42 U.S.C. § 6976(a)(1) (petition for review "shall be filed within ninety days from the date of * * * promulgation"). In effect, Industry Petitioners have withdrawn their petition with respect to the provisions for which it does not oppose remand.

Accordingly, we deny the EPA's motion to remand to itself Industry Petitioners' challenge to the EPA's regulation of inactive impoundments and Environmental Petitioner's challenge to the non-regulation of legacy ponds. We otherwise grant the motion to remand without vacatur.

B. Substantive Challenges

After deciding the issue of remand, we are left with Industry Petitioners' statutory argument and its three APA challenges to the Final Rule.

1. Authority to Regulate Inactive Impoundments

Industry Petitioners first challenge the EPA's regulatory authority to set any standards at all for inactive impoundments. That claim is without merit. Because those inactive sites house waste in "open dumps," 42 U.S.C. § 6944, RCRA's plain text unambiguously confers regulatory authority on the EPA.

By its terms, RCRA empowers the EPA generally to define "which facilities shall be classified as sanitary landfills and which shall be classified as open dumps[.]" 42 U.S.C. § 6944. Section 6943 of RCRA, in turn, incorporates those classification standards into minimum criteria for State regulatory plans. *Id.* § 6943. Those statutory minimums both require States to "provide for the closing or upgrading of all existing open dumps" and prohibit "the establishment of

new open dumps[.]" *Id*. § 6943(a)(2), (3). The statute also provides that, "[a]t a minimum," the EPA must define sanitary landfills to include only facilities where "there is no reasonable probability of adverse effects on health or the environment from disposal of solid waste[.]" 42 U.S.C. § 6944(a).[8] In this way, the statute creates a binary world: A facility is a permissible sanitary landfill, or it is an impermissible open dump. The EPA regulates both.

While the statute allows the EPA to establish criteria for distinguishing between "open dumps" and "sanitary landfills," it also offers some definitions of its own. RCRA defines "open dump" as "any facility or site where solid waste is disposed of which is not a sanitary landfill" or a site regulated under RCRA Subtitle C's more rigorous hazardous waste provisions. 42 U.S.C. § 6903(14). The statute likewise defines "sanitary landfill" as "a facility for the disposal of solid waste [that] meets the criteria published under section 6944," *id.* § 6903(26), and that operates in accordance with the "applicable criteria for coal combustion residuals units under" 40 C.F.R. Part 257 or its successor regulations, *id*. § 6945(d)(6).

Finally, RCRA defines "disposal" as "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water" in a manner by which "such solid waste or hazardous waste or any constituent thereof may enter the environment[.]" 42 U.S.C. § 6903(3).

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[8] As noted earlier, *supra*, Part II, we leave open on remand the definitional and substantive impact on the EPA's discretion of the WIIN Act's express incorporation of the extant or successor EPA regulations under 40 C.F.R. Part 257 into the statutory definition of "sanitary landfill."

Notwithstanding that broad assignment of regulatory authority, *see* 42 U.S.C. § 6912, Industry Petitioners argue that "inactive" impoundments—sites that contain, but no longer receive new, solid waste—cannot be "open dumps" within the EPA's regulatory ambit. Seizing on the phrase "is disposed of" in the definition of an "open dump," *id.* § 6903(14), they contend that the site must actively receive new waste to come within the statutory definition of a regulable waste disposal dump. Industry Petitioners also argue that the words used to define "disposal"—"discharge, deposit, injection, dumping, spilling, leaking, or placing," *id.* § 6903(3)—all require present and ongoing activity.

RCRA's reach, however, is not so narrow as Industry Petitioners suppose. Rather, a straightforward reading of the statute's language allows for the regulation of inactive sites.

We start by recognizing that, in RCRA, Congress delegated to the EPA "very broad" regulatory authority over waste disposal. *In re Consolidated Land Disposal Regulation Litig.*, 938 F.2d 1386, 1388 (D.C. Cir. 1991). We therefore review the Industry Petitioners' challenge under the two-step *Chevron* framework. Under this rubric, if RCRA is unambiguous, its text controls. *See Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842–843 (1984); *see also City of Arlington v. FCC*, 569 U.S. 290, 297 (2013) (holding that an agency's interpretation of the "jurisdictional" reach of its governing statute merits *Chevron* deference). If, on the other hand, the statute is silent or equivocal, we ask only whether the agency has offered a reasonable interpretation of the statute. *Chevron*, 467 U.S. at 843.

Resolution of this issue begins and ends with RCRA's plain text. The definition of "open dump," which is the key

term at issue, does not use the word "disposal." It uses the phrase "is disposed of": An "open dump" is "any facility or site where solid waste *is disposed of*[.]" 42 U.S.C. § 6903(14) (emphasis added). To divine its proper meaning, we must interpret the operative phrase "is disposed of" as a whole. Importantly, while the "is" retains its active present tense, the "disposal" takes the form of a past participle ("disposed"). In this way, the disposal itself can exist (it "is"), even if the act of disposal took place at some prior time. *See Florida Dep't of Revenue v. Piccadilly Cafeterias, Inc.*, 554 U.S. 33, 39 (2008) (describing a past participle as a "verb form" that reaches "past or completed action") (quoting AMERICAN HERITAGE DICTIONARY 1287 (4th ed. 2000)); *Sherley v. Sebelius*, 644 F.3d 388, 403 n.4 (D.C. Cir. 2011) (Henderson, J., dissenting) (noting that the statute at issue "combine[d] the present tense 'are' with the past participle 'destroyed'" to "signify conduct that ha[d] already occurred") (citations omitted).[9]

Properly translated then, an open dump includes any facility (other than a sanitary landfill or hazardous waste disposal facility), where solid waste still "is deposited," "is

[9] The concurring opinion notes that *Piccadilly Cafeterias* was ultimately resolved as a *Chevron* step two case. Concur Op. 4 n.1. True enough. But before the Court got to the *Chevron* step two stage of its analysis, it first endorsed, as the "more natural reading" of the relevant text, Florida's construction of the past participle as "unambiguously limit[ing]" certain tax exemptions in bankruptcy proceedings. 554 U.S. at 39, 41. Only then did the Court, for argument's sake, "assum[e]" that the relevant text were "ambiguous," and hold that any ambiguity would fall in Florida's favor. *Id.* at 41. The Court, in short, never found any ambiguity in the past participle's coverage of "past or completed action[s]," and in fact embraced that more natural meaning. *Id.* at 39. We too give Congress's adjectival past participle "is disposed of" its natural meaning.

dumped," "is spilled," "is leaked," or "is placed," regardless of when it might have originally been dropped off. *See* 42 U.S.C. § 6903(3), (14). In other words, the waste in inactive impoundments "is disposed of" at a site no longer receiving new waste in just the same way that it "is disposed of" in at a site that is still operating.

Tellingly, not even Industry Petitioners embrace the full import of their interpretation. They agree that previously deposited waste "is disposed of" at an impoundment site, so long as the site is actively accepting new waste. But if EPA's authority reaches only active disposal, it stands to reason that its authority over the site extends only to that newly deposited (or actively leaking) waste. But Industry Petitioners do not push this point—probably because, as a practical reality, waste is no less "disposed of" at a site the day after operations cease than it was the day before. That is, the waste previously dumped is still currently "placed" or "deposited" there. 42 U.S.C. § 6903(3), (14). In other words, the pile of Coal Residuals retains its regulated status whether or not anyone adds to the pile.

Think of it this way: If a kindergarten teacher tells her students that they must clean up any drink that "is spilled" in the room, that would most logically be understood to mean that a student must clean up her spilled drink even if the spill is already completed and nothing more is leaking out of the carton. A student who refused to clean up that completed spill (as Industry Petitioners would have it) might well find himself on time out.

What's more, the Industry Petitioners' reading butts up against the binary world created by the statute. RCRA creates two categories for Subtitle D waste: open dumps and sanitary landfills. Industry Petitioners offer no explanation of where

"inactive" sites fit into their understanding of that landscape. Nor do they explain why, once the last person turns off the lights, Congress's concern for the substantial health and environmental dangers posed by that pile of toxic waste would completely evaporate. As our concurring colleague aptly notes, "the disposal of [Coal Residuals] in an impoundment is not a discrete act. If it were, the EPA would regulate only the transfer of [Coal Residuals] from a power facility into an impoundment, at which point the 'disposal' would end." Concur Op. at 8.

The concurring opinion spies ambiguity only by splitting the operative verb "is disposed" into two distinctly analyzed parts: "is" and "disposed." Concur Op. 2–4. But just as courts must not "construe statutory phrases in isolation," we surely must read a single verb "as a whole" and not in pieces. *United States v. Morton*, 467 U.S. 822, 828 (1984). Even more so, we must give effect to the whole adjectival phrase "is disposed of." A site where garbage "is disposed of" is the place where garbage is dumped and left. The status of that site does not depend on whether or not more garbage is later piled on top. A garbage dump is a garbage dump until the deposited garbage is gone.

In short, as facilities "where solid waste is disposed of," 42 U.S.C. § 6903(14), inactive impoundments *are* "open dumps," unless they fall into one of two statutory exceptions—neither of which the Industry Petitioners claim applies to their inactive impoundments.[10] And no one denies that the EPA has authority to regulate (and to prohibit) "open dumps."

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[10] The two exceptions, which Industry Petitioners do not contend apply here, are for "sanitary landfills," as defined by the

Instead, the Industry Petitioners point to cases interpreting the term "disposal" in the Superfund statute, 42 U.S.C. § 9601 *et seq.*, to apply only to ongoing disposals. True enough. But those cases turned on the Superfund statute's different language, which is "at the time of disposal," not the RCRA phrase "is disposed of." *See id.* § 9607(a) (responsible persons subject to recovery costs under the Superfund statute include "any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of"). The specific signification of that language lies at the heart of those court rulings. *See Carson Harbor Vill., Ltd. v. Unocal Corp.*, 270 F.3d 863, 871 (9th Cir. 2001) ("We must decide in this case whether the Partnership Defendants * * * owned the contaminated property 'at the time of disposal of any hazardous substance.'") (citing 42 U.S.C. § 9607(a)(2)).[11]

The Superfund statute also contains an "innocent landowner" defense by which a person can avoid liability if "the disposal or placement of the hazardous substance" occurred prior to that party's acquisition of the property. 42 U.S.C. § 9601(35)(A). That strengthens the notion that "at the time of disposal," as used in the Superfund statute, is time-

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EPA, 42 U.S.C. § 6944, and sites housing "hazardous" waste regulated separately under RCRA Subtitle C, *id.* § 6921 *et seq.*

[11] *See also ABB Indus. Sys., Inc. v. Prime Tech., Inc.*, 120 F.3d 351, 356 (2d Cir. 1997) ("Under [the Superfund statute], a prior owner or operator is a responsible party if it controlled the site 'at the time of disposal' of a hazardous substance."); *United States v. CDMG Realty Co.*, 96 F.3d 706, 712–713 (3d Cir. 1996) ("HMAT contends that Dowel is liable as a person who owned or operated the facility 'at the time of disposal' of a hazardous substance."); *Joslyn Mfg. Co. v. Koppers Co.*, 40 F.3d 750, 760 (5th Cir. 1994) (similar).

dependent and refers to the act of placing the waste in the holding site. *See Carson Harbor Vill.*, 270 F.3d at 882. RCRA's distinct language comes with no such limiting textual indicia.

In short, the fundamental flaw in the Industry Petitioners' effort to limit EPA regulation to active impoundments is that they focus on the wrong text. For all their efforts to explain the meaning of the single word "disposal," they fail to grapple with the full phrase "is disposed of." RCRA is explicit that inactive sites may qualify as open dumps if they are facilities where waste "is disposed of," regardless of whether they are also facilities where more "disposal" continues to occur. As is often true in statutory interpretation, the words make all the difference.

Even if the text were ambiguous, the EPA's interpretation is eminently reasonable under *Chevron* step two. First, the same reasons supporting our interpretation of the plain statutory text demonstrate with even greater force the reasonableness of the EPA's interpretation.

Second, the EPA's interpretation directly advances RCRA's stated regulatory purpose. RCRA directs the EPA to develop standards that limit permissible waste sites "[a]t a minimum" to those with "no reasonable probability of adverse effects on health or the environment from disposal of solid waste[.]" 42 U.S.C. § 6944(a). No one denies that inactive impoundments can have significant adverse environmental and health effects. In fact, the EPA persuasively explains that inactive sites often pose even greater health risks given their age and accompanying deterioration. 80 Fed. Reg. at 21,343 (indicating that "the risks are primarily driven by the older existing units"); *see also id.* (noting that leaks into the Dan

River from an inactive impoundment occasioned publication of this very Rule).

The EPA's construction of the text is thus consistent with a straightforward reading of statutory text and RCRA's central purpose. *See In re Consolidated Consol. Land Disposal Regulation Litig.*, 938 F.2d at 1389 (EPA's reading of the term "disposal" in RCRA's Subtitle C, 42 U.S.C. § 6924, to include "the continuing presence of waste" was reasonable under *Chevron* step two).

For all of those reasons, the Industry Petitioners' attempt to confine the EPA's authority to only active impoundments fails.

2. Notice Challenge to Aquifer Requirements

Under 5 U.S.C. § 553, an agency is required to give notice of a proposed rule and allow interested parties to comment on the rule before it is promulgated. Although the final rule need not be identical to the proposed rule, it must be the "logical outgrowth" thereof. *Shell Oil Co. v. EPA*, 950 F.2d 741, 747 (D.C. Cir. 1991) (per curiam). "A rule is deemed a logical outgrowth if interested parties 'should have anticipated' that the change was possible, and thus reasonably should have filed their comments on the subject during the notice-and-comment period." *Northeast Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936, 952 (D.C. Cir. 2004) (per curiam) (citing *City of Waukesha v. EPA*, 320 F.3d 228, 245 (D.C. Cir. 2003)).

The Final Rule requires that all surface impoundments be located no fewer than five feet above the uppermost aquifer or, alternatively, that the owner or operator of the impoundment demonstrate that the impoundment will not be subject to a hydraulic connection with the groundwater supply as

groundwater levels fluctuate over the course of the year.[12] 40 C.F.R. § 257.60(a); *see* 80 Fed. Reg. at 21,361. Industry Petitioners argue that the EPA did not give adequate notice that this provision would apply to *existing* surface impoundments because the proposed regulation applied only to "[n]ew [Coal Residuals] landfills and new [Coal Residuals] surface impoundments[.]" 75 Fed. Reg. at 35,241.[13]

The Industry Petitioners' argument ignores the plain language of the preamble to the Proposed Rule, which declares: "[b]y contrast [to landfills] * * * the proposed regulations would apply all of the location restrictions to *existing* surface impoundments." 75 Fed. Reg. at 35,198 (emphasis added). This is exactly what the Final Rule prescribes. *See* 40 C.F.R. § 257.60. Indeed, the Rule is not only the "logical outgrowth" of the Proposed Rule; it faithfully tracks the goals set forth in the preamble. *See Shell Oil Co.*, 950 F.2d at 747. The preamble—and the Proposed Rule as a whole—advised the

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[12] A "hydraulic connection" means a connection between the [Coal Residuals] unit and the underground water table. 80 Fed. Reg. at 21,362. The EPA received comments explaining that "fluctuations in groundwater levels in many geological settings can exceed ten feet over the course of the year." *Id.* at 21,361. To account for this change in aquifer levels, the EPA revised its definition of "uppermost aquifer" to "specify that the measurement of the upper limit of the aquifer must be made at a point nearest to the natural ground surface to which the aquifer rises during the wet season." *Id.* at 21,362.

[13] In the preamble to the Final Rule, the EPA acknowledged that, "[i]n the proposed rule, the regulatory language should have included 'all surface impoundments' as opposed to only 'new surface impoundments.'" 80 Fed. Reg. at 21,360.

public that the EPA was at least *considering* applying the aquifer restrictions to existing impoundments, thereby inviting Industry's comments on the topic. *Id.*[14]

3. Seismic Impact Zone Criteria

The Final Rule contains two seismic impact requirements. First, the Rule imposes safety assessment criteria on surface impoundments over a specific size. 40 C.F.R. § 257.73(e). These criteria had an implementation deadline of October 17, 2016. *Id.* § 257.73(f). Because the compliance deadline lapsed before oral argument, Industry Petitioners voluntarily dismissed this challenge. *See* Sept. 27, 2017 Per Curiam Order Granting Motion to Dismiss.

Second, every new Coal Residual landfill and landfill expansion, as well as any new and existing surface

[14] Although the EPA may not "bootstrap notice from a comment," the sheer volume of Industry Petitioners' comments on this very provision confirms that notice was adequate. *Fertilizer Inst. v. EPA*, 935 F.2d 1303, 1312 (D.C. Cir. 1991) (internal quotation marks omitted). The EPA explains: "Overwhelmingly, the issue receiving the most comment was EPA's intention to subject existing [Coal Residuals] surface impoundments to all of the new location criteria." 80 Fed. Reg. at 21,360. Industry Petitioners' comments confronted the aquifer location restrictions, including their applicability to existing surface impoundments, head-on. *See, e.g.*, Comments of the Utility Solid Waste Activities Group on Proposal, Nov. 19, 2010, J.A. 775 ("EPA states in the preamble to the proposal that it intends to subject existing surface impoundments to all of these new location restrictions * * * .") (emphasis omitted). When combined with the clarity of the preamble, Industry Petitioners' comments illustrate that it was both aware of, and troubled by, the aquifer restrictions.

impoundment, is subject to location restrictions that prohibit operation in a "seismic impact zone"[15] unless the facility demonstrates that it has the appropriate structural components, including liners, leachate collection and removal systems and surface water control systems. 40 C.F.R. § 257.63(a). For existing surface impoundments, the deadline for demonstrating compliance with the Rule is October 17, 2018—four and one-half years after the Rule was promulgated. *Id.* § 257.63(c)(1).

Industry Petitioners attack the seismic impact zone requirements on three fronts; they argue that the EPA was arbitrary and capricious in: (i) shortening the operating life for existing impoundments from five years to four years; (ii) applying the seismic impact zone location restriction to new Coal Residual landfills and landfill expansions; and (iii) regulating the structure of Coal Residual landfills based on a 2,500-year seismic event. The parties brief these three issues separately, and we likewise address—but reject—each of Industry Petitioners' challenges in turn.

a. Operating Expiration

Industry Petitioners argue that, although the Proposed Rule had a five-year operating expiration for impoundments, the Final Rule arbitrarily reduced that window to four years. Industry Pet'rs' Br. 45. As a corollary, Industry Petitioners argue that four years is not enough time for impoundment owners and operators to switch from wet to dry Coal Residuals disposal. Industry Pet'rs' Reply Br. 21–22.

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[15] "Seismic impact zone means an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years." 40 C.F.R. § 257.53.

Industry Petitioners' arguments misconstrue both the Proposed Rule and the Final Rule. The section of the Proposed Rule that Industry Petitioners cite for the five-year deadline (proposed 40 C.F.R. § 257.65(a)) *does not apply* to the seismic impact zones; instead, it applies to "unstable areas." *See* 75 Fed. Reg. at 35,242–35,243. Indeed, the Proposed Rule does not prescribe an explicit operating deadline for seismic impact zones at all.

Moreover, even assuming the proposed five-year deadline for "unstable areas" applies to seismic impact zones, the Proposed Rule reads: "Existing [Coal Residuals] landfills and surface impoundments that cannot make the demonstration * * * must close by [date five years after the effective date of the final rule]." 75 Fed. Reg. at 35,242 (brackets in original). The "must close by" language in the Proposed Rule is different from the language of the Final Rule, which demands only that the regulated facility "complete the demonstration [that the site has met the relevant structural requirements] no later than October 17, 2018." 40 C.F.R. § 257.63(c)(1). Contrary to Industry Petitioners' representation, then, the Final Rule gives the disposal sites four years before they must demonstrate compliance. *See id.* Only if they *fail* in that demonstration must they begin the closure process. *Id.* And once the closure process begins, they have at least five years to complete it. *See id.* § 257.102(f)(1)(ii).[16]

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[16] Manifesting additional flexibility, the Final Rule's closure timeframe may be extended up to ten years (in consecutive two-year periods) "if the owner or operator can demonstrate that it was not feasible to complete closure of the [Coal Residuals] unit within the required timeframes due to factors beyond the facility's control." *Id.* § 257.102(f)(2)(i)–(2)(ii)(B). Accordingly, in some circumstances the impoundment need not complete the closure process until *19 years* after the Rule's enactment date.

Once the Rule's timeline is correctly understood, there is nothing in the record to suggest the Rule's operating deadline is arbitrary and capricious. Indeed, Industry's comments confirm that the Rule's timeline will provide a sufficient period for a non-compliant facility to close (within nine years, and more if it meets the extension requirements). *See, e.g.*, Comments of American Elec. Power Co. on Proposal at 5, J.A. 581 ("[A]t some locations, it will take at least four years from the time the new [Coal Residuals] rule becomes effective to accomplish the wet-to-dry conversion and to accomplish the switch to dry."); Comments of SCANA Corp. on Proposal at 7, J.A. 579 ("The time frame required to site, design, permit, and construct a landfill in today's regulatory environment is at least 5 to 10 years."). The EPA's conclusions are consistent with Industry Petitioners' comments. *See* 75 Fed. Reg. at 35,202 ("[Under Subtitle C,] EPA believes that five years will, in most cases, be adequate time to complete proper and effective facility closure and to arrange for alternative waste management * * * . EPA is aware of no reason that the time frames would need to differ under subtitle D * * * ."). In sum, we conclude that the EPA's operating timeline is not arbitrary and capricious.

b. Seismic Restrictions for New Landfills

The seismic location restrictions apply to impoundments as well as new landfills and landfill expansions, but they do not apply to existing landfills. 40 C.F.R. § 257.63(a). This distinction reflects, *inter alia*, the EPA's determination that "the risks associated with [Coal Residuals] surface impoundments are substantially higher than the risks associated with [Coal Residuals] landfills, by approximately an order of magnitude." 80 Fed. Reg. at 21,360. Industry Petitioners argue that, if landfills are universally less dangerous

than surface impoundments, they should not be subject to the same seismic standard as surface impoundments. In other words, the argument goes, if it is acceptable to exempt existing landfills from the seismic location restrictions, it is acceptable to exempt new landfills as well. Because Industry Petitioners failed to make this argument before the EPA, however, we reject it.[17]

"Under ordinary principles of administrative law a reviewing court will not consider arguments that a party failed to raise in timely fashion before an administrative agency." *Sims v. Apfel*, 530 U.S. 103, 114 (2000) (Breyer, J., dissenting); *accord Natural Resource Def. Council, Inc. v. EPA*, 25 F.3d 1063, 1073 (D.C. Cir. 1994) ("We do not reach the merits of this challenge because petitioners failed to raise this question of statutory and regulatory construction before the agency during the notice and comment period. They have therefore waived their opportunity to press this argument in court."); *see* discussion, *supra*, at 33.

This fundamental principle of administrative law applies squarely to Industry Petitioners' challenge. *Natural Resource Def. Council*, 25 F.3d at 1073. In the Proposed Rule, the EPA explained that, because many Coal Residuals disposal sites are within seismic impact zones, it was "concerned that such facilities would be unable to meet the requirements, because retrofitting would be prohibitively expensive and technically very difficult in most cases, and [they] would therefore be forced to close." 75 Fed. Reg. at 35,198. Accordingly, the EPA sought comments on "the number of existing [Coal Residuals] landfills located in these sensitive areas" and the

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[17] The EPA makes it failure-to-exhaust argument in its opening brief. Rep't Br. 71–72. Industry's reply brief offers no rebuttal. *See generally* Industry Pet'r's Reply Br.

corresponding effect their closure would have on the national disposal capacity. 80 Fed. Reg. at 21,360. In spite of the invitation to comment, Industry Petitioners cannot point to any record evidence that they questioned the application of the Rule to new Coal Residuals landfills.[18]

Put differently, the EPA did not address the argument that new Coal Residuals landfills or landfill expansions should be exempted because the public comments gave no reason to question the position it announced in the Proposed Rule. "Indeed, the notion that a yet-to-be built landfill need *not* comply with basic seismic location restrictions that are designed to avoid the potentially catastrophic events identified in the record, borders on irrational." Resp't Br. 73. In light of Industry Petitioners' failure to alert the EPA to the issue while the latter was promulgating the Final Rule, we decline reach it.

c. The 2,500-Year Standard

Both the seismic location restrictions and the seismic safety assessment criteria incorporate a 2,500-year standard. 80 Fed. Reg. at 21,384. This means a disposal site in a seismic impact area must be designed to withstand the maximum expected impact of a 2,500-year earthquake. *Id.* In establishing the 2,500-year standard, the EPA considered multiple engineering sources, including (i) *Federal Guidelines for Dam Safety: Earthquake Analyses and Design of Dams*,

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[18] Instead, comments focused on the non-regulation of *existing* landfills, responding to the Proposed Rule's conclusion that applying the seismic location restrictions to existing Coal Residuals landfills could cause "disposal capacity shortfalls * * * [that] raise greater environmental and public health concerns than the potential failure of the [Coal Residuals] landfills in these locales." 80 Fed. Reg. at 21,360.

issued by the Federal Emergency Management Agency (FEMA), and (ii) *Minimum Design Loads for Buildings and Other Structures*, International Building Code, a publication of the American Society of Civil Engineers (ASCE). 80 Fed. Reg. at 21,384; *id.* at 21,384–21,385 nn.98–99. The EPA also consulted geological sources, including the criteria of the National Earthquake Hazards Reduction Program (NEHRP) of the U.S. Geological Survey. 75 Fed. Reg. at 35,201. Further, the Final Rule's 2,500-year standard precisely mirrors the EPA's regulations governing municipal solid waste management. 75 Fed. Reg. at 35,193 (referencing 40 C.F.R. § 258.18).

In light of the engineering, geological and regulatory sources informing and supporting the 2,500-year standard, Industry Petitioners face an uphill battle. They nonetheless challenge the application of the seismic location restrictions to landfills—as opposed to impoundments—because landfills pose comparatively fewer risks than impoundments. Thus, although FEMA's dam safety guidelines are applicable to dam-like impoundments structures, ASCE's International Building Code is applicable to buildings, and EPA's municipal landfill regulations are applicable to urban landfills, Industry Petitioners argue that Coal Residuals landfills are different and should be subject to a less demanding standard. In short, it asserts that the rule is overprotective and therefore arbitrary and capricious. We disagree.

Industry Petitioners' argument rests on the assumption that the EPA adopted the 2,500-year standard "without explanation." Industry Pet'rs' Br. 48. To the contrary, the EPA first examined the structures of municipal landfills and concluded that they were "very similar to those found at [Coal Residuals] disposal facilities, and the regulations applicable to such units would be expected to address the risks presented by

the constituents in [Coal Residuals] wastes." 75 Fed. Reg. at 35,193 (referencing 40 C.F.R. § 258.18). It then cross-referenced the 2,500-year standard with the criteria adopted by the U.S. Geological Survey and other engineering experts before adopting the Final Rule. *Id.* at 35,201. Indeed, some Industry members conceded that "the NEHRP/USGS 2%PE/50y [2,500-year] standard provides a sufficient margin of safety." Comments of the Southern Company at 34, J.A. 481. Industry Petitioners may disagree, but the EPA's reasoning was fully explained and is supported by the record.

Conversely, Industry Petitioners have not cited any record evidence that either challenges or provides an alternative to the 2,500-year standard. The best they can do is highlight comments stating generally that the rule is "overly protective."[19] Industry Pet'rs' Br. 47–48. This broad stroke

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[19] Industry Petitioners claim that one commenter suggested a 250-year standard. *See* Comments of FirstEnergy Corp. at 11, J.A. 598. Again, Industry Petitioners misread the record. FirstEnergy's comment declares:

> EPA intends to incorporate seismic performance in section 257.63 of the proposed rule. One alternative suggested by EPA is the use of seismic impact zones. A second alternative suggests adopting criteria of the National Earthquake Hazards Reduction Program (NEHRP) of the U.S. Geological Survey, which was used to develop national seismic hazard maps. It appears the horizontal acceleration expressed as 0.01g in 250 years in the agency's first approach closely matches the 2% ground motion probability in 50 years that the seismic maps are based upon.

does not carry their argument very far. Once the EPA selected the Subtitle D rather than the Subtitle C regulatory path, it was charged with developing uniform national standards rather than implementing a site-specific permit program. *See generally* 42 U.S.C. § 6944(a) (requiring EPA to develop minimum criteria for all disposal sites). Consistent with that mandate, the EPA developed criteria for all climates and conditions within seismic impact zones. Accordingly, it is of no moment that the criteria might be "overprotective" for a western landfill located miles from any water source. *See* Comments of Electric Power Research Institute on Proposal at 89, J.A. 596 (explaining that "cap and liners" may not be necessary in "western areas where * * * the total rainfall is less than 10 inches per year"). Congress demanded national minimum standards that ensure "no reasonable probability of adverse effects on health or the environment." 42 U.S.C. § 6944(a). The 2,500-year standard does just that.

4. The Alternative Closure Option

RCRA states in plain terms that the "open dumping of solid waste * * * is prohibited." 42 U.S.C. § 6945(a). Thus, if a disposal site is classified as an open dump, it must either retrofit or close. *See id.* The Final Rule stays true to the statutory mandate. Under the Final Rule, certain events—such as groundwater sampling that reveals an excess of Coal Residuals constituents in the water table—establish the disposal site as an "open dump," which triggers the Rule's closure requirements. 40 C.F.R. § 257.101. If the closure

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Id. Thus, the "250 years" corresponds to the horizontal acceleration rate rather than a "ground motion probability" calculation such as the one upon which the 2,500-year model is based (2% in 50 years = 100% in 2,500 years). It is not a free-standing 250-year standard. That is, FirstEnergy does not appear to offer an alternative standard.

requirements are triggered, the surface impoundment or landfill ordinarily has six months to either retrofit its facility or to stop receiving Coal Residuals and to begin the closure process. *Id.* § 257.101(a)(2), (4). In other words, the statutory (and regulatory) presumption is that a non-compliant disposal site—one that is polluting the groundwater—will close. *Id.*

Notwithstanding this presumption, the Rule includes an "alternative closure" exemption that allows a non-compliant Coal Residuals disposal site (an "open dump") to receive Coal Residuals for an additional five years before it ceases operations. 40 C.F.R. § 257.103. In order to qualify for the alternative closure exception, the owner or operator must certify that, *inter alia*: "No alternative disposal capacity is available on-site or off-site." *Id.* § 257.103(a)(1)(i). In making the certification, "[a]n increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section." *Id.*

Describing the rationale for its alternative closure exemption, the EPA explained that it did not want to force facilities to close and create power shortages "because there is no place in which to dispose of the resulting waste." 80 Fed. Reg. at 21,423. The preamble includes an example: "[W]hile it is possible to transport dry ash off-site to [an] alternate disposal facility[,] that simply is not feasible for wet-generated [Coal Residuals]. Nor can facilities immediately convert to dry handling systems. As noted previously, the law cannot compel actions that are physically impossible." *Id.*

Industry Petitioners argue that ignoring costs and inconvenience in the alternative disposal criteria is arbitrary and capricious because it effectively renders the exemption a nullity: "If costs or inconvenience cannot be evaluated, off-

site disposal capacity—no matter where it is located or how much it will cost to send [Coal Residuals] there—will always be 'available' somewhere." Industry Pet'rs' Br. 38–39. At oral argument, Industry Petitioners lamented that they might be required to hire a fleet of 1,000 vacuum trucks in order to transfer wet Coal Residuals to an off-site disposal facility. Oral Arg. Tr. 23:22–23:23. This result, it argues, would make nonsense of the alternative closure requirements.

Industry Petitioners' hyperbole faces a roadblock. As the United States Supreme Court has explained, if the Congress directs the EPA to "regulate on the basis of a factor that on its face does not include cost, the Act normally should not be read as implicitly allowing the agency to consider cost anyway." *Michigan v. EPA*, 135 S. Ct. 2699, 2709 (2015) (citing *Whitman v. American Trucking Ass'ns*, 531 U.S. 457, 469–472 (2001)). Applying this rule, the Court held that the EPA is prohibited from considering costs when developing its primary ambient air quality standards under the Clean Air Act because the statute does not mention costs but instead demands standards "requisite * * * to protect the public health with an adequate margin of safety." *American Trucking*, 531 U.S. at 475–476 (quoting 42 U.S.C. § 7409(b)(1)). Thus, "public health" provided the statutory measuring stick in that instance, notwithstanding flexible words such as "requisite" and "adequate" that the trucking industry suggested might allow the agency to consider costs. *Id.* at 468.

Simply put, "to prevail in their present challenge, [Industry] must show a textual commitment of authority to the EPA to consider costs." *American Trucking*, 531 U.S. at 468. Under any reasonable reading of RCRA, there is no textual commitment of authority to the EPA to consider costs in the

open-dump standards.[20] RCRA's statutory language instructs the EPA to classify a disposal site as a sanitary landfill and not an open dump only "if there is no reasonable probability of *adverse effects on health or the environment* from disposal of solid waste at such facility." 42 U.S.C. § 6944(a) (emphasis added). There is no explicit mention of costs in section 6944; nor is there any flexible language such as "appropriate and necessary" that might allow the EPA to consider costs in its rulemaking. *See Michigan v. EPA*, 135 S. Ct. at 2709. This stands in stark contrast with other sections of Title 42—such as the Bevill Amendment—where the Congress expressly required the EPA to consider, *inter alia*, "the costs of * * * alternatives" in determining whether Coal Residuals should be classified as hazardous waste. *See* 42 U.S.C. § 6982(n)(6).

With *Michigan v. EPA* and *American Trucking*, then, it is far from clear that the EPA could consider costs even if it wanted to. *See Michigan v. EPA*, 135 S. Ct. at 2707 (explaining that "appropriate and necessary" language could require consideration of costs in some contexts but not others). In any case, there is no statutory support for the assertion that EPA was *required* to consider costs in developing its alternative closure plan. Excluding consideration of costs and convenience may narrow the alternative closure exemption but *including* cost and convenience would appear to violate RCRA's statutory mandate and run afoul of Supreme Court precedent. The EPA was neither arbitrary nor capricious in its decision to avoid testing that legal limit.

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[20] At oral argument, neither Industry Petitioners nor the EPA could identify a statutory provision that allows the EPA to consider costs. Oral Arg. Tr. 83:15–83:23; 116:02–116:10.

V. Conclusion

In sum, we deny the EPA's motion for us to hold these petitions in abeyance. We grant in part the EPA's motion for a voluntary remand, remanding to the EPA the provisions in the Final Rule pertaining to (i) the definition of "Coal Residuals Piles," *see* 40 C.F.R. § 257.53; (ii) the 12,400-ton beneficial use threshold, *see id.*; and (iii) the alternative groundwater protection standards, *see id.* § 257.95(h)(2). We deny the EPA's motion to remand the provisions in the Final Rule pertaining to inactive surface impoundments and landfills at active power plants, *see id.* §§ 257.50(c), 257.100, and inactive surface impoundments at inactive power plants, *see id.* § 257.50(e).

On the claims raised by Environmental Petitioners, we hold that the EPA acted arbitrarily and capriciously and contrary to RCRA in failing to require the closure of unlined surface impoundments, in classifying so-called "clay-lined" impoundments as lined, and in exempting inactive surface impoundments at inactive power plants from regulation. We therefore vacate and remand the provisions of the Final Rule that permit unlined impoundments to continue receiving coal ash unless they leak, *see id.* § 257.101(a), classify "clay-lined" impoundments as lined, *see* 40 C.F.R. § 257.71(a)(1)(i), and exempt from regulation inactive impoundments at inactive facilities, *see* 40 C.F.R. § 257.50(e). We reject as forfeited Environmental Petitioners' challenges to the Final Rule's public notice provisions.

Regarding the Industry Petitioners' claims, we hold that (i) the EPA has statutory authority to regulate inactive impoundments; (ii) the EPA provided sufficient notice of its intention to apply the aquifer location criteria to existing impoundments; (iii) the EPA did not arbitrarily issue location

requirements based on seismic impact zones; and finally (iv) the EPA did not arbitrarily impose temporary closure procedures. As to the regulation of Coal Residuals piles of 12,400 tons or more and the regulation of Coal Residuals destined for beneficial use, we remand to the agency as requested. We dismiss as moot the two accompanying notice challenges and the issue of risk-based compliance alternatives.

So ordered.

KAREN LECRAFT HENDERSON, *Circuit Judge*, concurring in part and concurring in the judgment in part: A central question before us is whether the EPA exceeded its statutory authority under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 *et seq.*, by applying its Final Rule, 80 Fed. Reg. 21,302 (Apr. 17, 2015), to an impoundment that no longer receives coal combustion residuals (CCR) after the effective date of the Rule and thus becomes "inactive." The answer to this question turns on our interpretation of the statutory phrase "is disposed of." My colleagues conclude that the verb "to be," when conjugated in the present tense ("is"), *unambiguously* applies to disposal that occurred entirely in the past. I disagree and accordingly concur in the judgment with respect to Section IV.B.1 of the opinion. I join all other sections of the *per curiam* opinion in full.

I.

I believe there are three tiers to the statutory question. First, RCRA directs the EPA to promulgate regulations that draw a dividing line between "sanitary landfills" and "open dumps." 42 U.S.C. §§ 6944-45. Generally speaking, a sanitary landfill is a disposal site that complies with the EPA's regulations and presents "no reasonable probability of adverse effects on health or the environment." *Id.* § 6944(a). By contrast, "any solid waste management practice or disposal of solid waste . . . which constitutes the open dumping of solid waste or hazardous waste is prohibited." *Id.* § 6945(a). Second, RCRA defines an "open dump" as "any facility or site where solid waste *is disposed of* which is not a sanitary landfill which meets the criteria promulgated under [§ 6944]." *Id.* § 6903(14) (emphasis added). Third, RCRA defines "disposal" as

> the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste

> or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

Id. § 6903(3).

To interpret RCRA's text, we turn to the familiar two-step framework of *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). Thus, we begin with the statutory language and ask whether the Congress "has directly spoken to the precise question at issue." *Id.* at 842. If the language is plain, our inquiry ends, as we must "give effect to the unambiguously expressed intent of Congress." *Id.* at 843. If "the statute is silent or ambiguous with respect to the specific issue," however, we defer to the EPA's interpretation so long as it is "based on a permissible construction of the statute." *Id.*

We do not alter our analytical framework when the case presents a question of an agency's "jurisdiction" or core statutory authority. *City of Arlington v. FCC*, 569 U.S. 290, 297 (2013) ("[T]he distinction between 'jurisdictional' and 'nonjurisdictional' interpretations is a mirage."). If "the reality is that [the statute] is ambiguous," it is our duty to declare it so and proceed to the second step of the *Chevron* analysis. *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 395 (1999).

II.

I believe the text—and more precisely, the grammatical structure—of RCRA's definition of "open dump" is temporally ambiguous. *See United States v. Wilson*, 503 U.S. 329, 333

(1992) ("Congress' use of a verb tense is significant in construing statutes."). Under RCRA, an "open dump" is a site where solid waste "is disposed of." 42 U.S.C. § 6903(14). The operative verb is the present tense of the infinitive "to be" ("is"). The Dictionary Act tells us that "unless the context indicates otherwise . . . words used in the present tense include the future as well as the present." 1 U.S.C. § 1. By implication, therefore, the Dictionary Act "instructs that the present tense generally does not include the past." *Carr v. United States*, 560 U.S. 438, 448 (2010). It is plain, therefore, that "is" does not mean "was."

The verb's present tense formation takes on additional meaning because the "Congress could have phrased its requirement in language that looked to the past . . . but it did not choose this readily available option." *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 57 (1987). It could have conjugated the infinitive "to be" in any number of ways to unambiguously include past disposal: "is or was disposed of"; "had been disposed of"; or "has been disposed of." *See* CHICAGO MANUAL OF STYLE ONLINE §§ 5.118-35 (17th ed. 2017), available at www.chicagomanualofstyle.org//home.html (explaining tenses generally). The Congress could also have included unambiguous temporal phrases such as: "ever"; "at any time"; "past or present"; or "beginning on a date certain." It did not do so. The present tense of section 6903(14) therefore suggests that an "open dump" does not include any impoundment where solid waste "*was* disposed of."

Significantly, the Congress used temporally unambiguous language in other RCRA provisions. For example, RCRA's "substantial endangerment" provision plainly applies to past actions; it allows a state or individual to bring suit against "any person . . . *who has contributed or who is contributing* to the

past or present . . . disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment." 42 U.S.C. § 6972(a)(1)(B) (emphases added). RCRA Subtitle C provides that the EPA must conduct "corrective action for all releases of hazardous waste or constituents from any solid waste management unit . . . *regardless of the time at which waste was placed in such unit*." *Id.* § 6924(u) (emphasis added). I believe there can be no reasonable dispute that these provisions apply to past as well as present and future actions. By itself, therefore, "is" at least suggests that the EPA is *precluded* from including past acts of disposal in the definition of an "open dump."

The ambiguity comes from the second part of the phrase: "disposed of." A past participle like "disposed" is not singular in its purpose; it is defined as "[a] verb form indicating past or completed action or time that is used as a verbal adjective in phrases such as baked beans and finished work." *Fla. Dep't of Revenue v. Piccadilly Cafeterias, Inc.*, 554 U.S. 33, 39 (2008) (quoting AMERICAN HERITAGE DICTIONARY 1287 (4th ed. 2000) (emphasis removed)). In other words, a past participle can serve either as a verb (*i.e.*, the pecans *were covered* in chocolate) or as an adjective (*i.e.*, the chocolate-*covered* pecans). Moreover, in verb form, a past participle can indicate past (*i.e.*, the pecans *were* covered in chocolate), present (*i.e.*, the pecans *are* covered in chocolate) or future action (*i.e.*, the pecans *will be* covered in chocolate). In short, there is nothing unambiguous about a past participle, at least when construed without context.[21]

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[21] My colleagues cite two authorities for their conclusion that a statutory past participle *unambiguously* signifies retroactive effect. Neither authority decides the issue. First, in *Florida Department of Revenue v. Piccadilly Cafeterias, Inc.*, 554 U.S. 33, 41 (2008), the

I believe "disposed of" must be read in conjunction with RCRA's definition of "disposal," which includes the "discharge, deposit, injection, dumping, spilling, leaking, or placing" of solid waste into certain areas. 42 U.S.C. § 6903(3). Circuit courts disagree about whether "disposal" includes the "passive migration" of contaminants, such as a slow leak from an inactive CCR impoundment. *Compare Carson Harbor Vill., Ltd. v. Unocal Corp.*, 270 F.3d 863, 867 (9th Cir. 2001) (en banc) (concluding that "the migration of contaminants on the property does not fall within the statutory definition of 'disposal'"), *with Nurad, Inc. v. William E. Hooper & Sons Co.*, 966 F.2d 837, 846 (4th Cir. 1992) (holding past owners liable for "disposal" of hazardous wastes that

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Supreme Court assumed the statute at issue was temporally ambiguous and resolved the interpretive question at *Chevron*'s second step. Moreover, in *Sherley v. Sebelius*, the majority found ambiguity in a statute that prohibited funding for "research in which a human embryo or embryos *are destroyed*." 644 F.3d 388, 390 (D.C. Cir. 2011) (emphasis added) (internal quotation marks omitted). It did so in spite of applicable regulations defining research as "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge." *Id.* at 394 n.* (quoting 45 C.F.R. § 46.102(d)). Notwithstanding this temporally broad definition, the majority declared that the "definition of research is flexible enough to describe either a discrete project or an extended process." *Id.* at 394. I dissented, challenging the majority's interpretive fallacy that "research" can be dissected into "free-standing pieces" rather than read as a "systematic [and ongoing] investigation." *Id.* at 402-04 (Henderson, J., dissenting). Thus, I did not find the phrase "are destroyed" unambiguous standing alone; in my view, the explicit connection to research funding—and the correct definition of "research"—clarified the temporal scope of the statute to include past conduct. *Id.*

leaked from underground storage tank notwithstanding they were not owners "at the time of disposal"). Because these cases arise in a different statutory context,[22] they are not precisely on point regarding the question of the EPA's authority to regulate inactive impoundments. Nonetheless, they illustrate the ambiguity in the statutory definition of the word "disposal"; if courts disagree about the meaning of "disposal," that disagreement strongly suggests there is ambiguity in the words "disposed of." *See* Final Rule, 80 Fed. Reg. at 21,346 (surveying caselaw interpreting "disposal").

Although there is some temporal tension between the present tense "is" and the past participle "disposed," it can be explained by statutory context. *See Brown v. Gardner*, 513 U.S. 115, 118 (1994) ("Ambiguity is a creature not of definitional possibilities but of statutory context."). Industry's entire argument hinges on three words—"is disposed of"—in the definition of "open dump." 42 U.S.C. § 6903(14). But "open dump" is also defined by what it is not: a "sanitary landfill." *Id.* The statutory categorization is binary: a disposal site is either a sanitary landfill or an open dump and the EPA is directed to promulgate regulations that distinguish between the two. *Id.* § 6944. Thus, as the EPA promulgates new regulations that may shift the contours of what constitutes a "sanitary landfill," *see* 42 U.S.C. § 6912(b) (RCRA regulations "shall be reviewed and, where necessary, revised not less frequently than every three years"), the definition of "open dump" will morph as well, *see Appalachian Voices v. McCarthy*, 989 F. Supp. 2d 30, 56 (D.D.C. 2013) ("requir[ing] the EPA to submit a proposed scheduling order setting forth a proposed deadline by which it will comply with

[22] The cited cases interpret the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), which incorporates RCRA's definition of "disposal." 42 U.S.C. § 9601(29) (incorporating 42 U.S.C. § 6903(14)).

its statutory obligations" under RCRA). Although not every interpretation of "open dump" may be reasonable, *see Michigan v. EPA*, 135 S. Ct. 2699, 2708 (2015) ("*Chevron* allows agencies to choose among competing reasonable interpretations of a statute; it does not license interpretive gerrymanders[.]"), RCRA's mandated flexibility contemplates that the regulatory meaning of "open dump" can change over time and thus fits the definition of "ambiguity." *See Ambiguity,* WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 66 (3d ed. 1993) ("admitting of two or more meanings").

III.

Although I believe the statute is temporally ambiguous, I nonetheless agree that the EPA reasonably concluded that it has the authority to regulate inactive impoundments. *See Chevron*, 467 U.S. at 843 (deference to agency's interpretation required so long as it is "based on a permissible construction of the statute"). In reviewing the reasonableness of an agency's interpretation, we look to the statute's structure and purpose as well as to precedent, *Nat'l Ass'n of Home Builders v. Defs. of Wildlife*, 551 U.S. 644, 666 (2007), keeping in mind that *Chevron* "does not require the best interpretation [of the statute], only a reasonable one," *Van Hollen, Jr. v. FEC*, 811 F.3d 486, 492 (D.C. Cir. 2016) (internal quotation marks omitted).

First, regarding the definition of "disposal," we have *rejected* a similar "linguistic point that '[d]isposal . . . is not a continuing activity but occurs anew each time waste is placed into or on land.'" *In re Consol. Land Disposal Regulation Litig.*, 938 F.2d 1386, 1389 (D.C. Cir. 1991). In doing so, we noted that RCRA's "equation of 'disposal' with 'leaking,' which is a continuous phenomenon rather than a discrete event,

is enough to blunt the sting of the petitioners' point." *Id.* In that case, we concluded that the petitioners' suggested interpretation was, "at most an alternative reading of the statute, not an argument as to why the EPA's reading of the statute is unreasonable." *Id.* Thus, we upheld as reasonable the EPA's interpretation of "disposal" to include "continuous" leaking; we can apply a similar reading today. Indeed, the record "demonstrates that unlined surface impoundments typically operate for 20 years before they begin to leak." *See* 80 Fed. Reg. at 21326-27; *see also* 40 C.F.R. §§ 257.70-72 (imposing liner requirements to prevent leaking). As discussed in Section IV.B.1 of the *per curiam* opinion, the risk of leaking does not decrease in an inactive impoundment—indeed, it can increase. Because "disposal" includes "leaking"—and because "leaking" does not necessarily cease upon an impoundment's closure—the EPA reasonably concluded that CCR continues to be "disposed of" even after an impoundment stops receiving CCR. *See* 75 Fed. Reg. 35,128, 35,159 (June 21, 2010) ("historical or legacy sites" pose leaking risk).

Second, an impoundment where CCR "is disposed of" is different from an impoundment that is actively receiving additional CCR. 42 U.S.C. § 6903(14). As the EPA suggests, if an individual were to stand on an impoundment dam looking out over thousands of tons of wet CCR and ask "is this an impoundment where 'solid waste is disposed of,'" the answer would be "yes." EPA Br. 22. Put differently, the disposal of CCR in an impoundment is not a discrete act. If it were, the EPA would regulate only the transfer of CCR from a power facility into an impoundment, at which point the "disposal" would end. Of course, the reality is that CCR disposal and its resulting health hazards occur over long periods of time. *See* 80 Fed. Reg. at 21,309 ("estimated time to peak potential exposures of CCR through groundwater

migration to drinking water wells is 75 years" and estimated CCR unit lifespan is 40 to 80 years). CCR is not like a bag of trash that a homeowner places on the curb to be picked up. The homeowner releases control of the bag once he deposits it and the garbage truck makes its rounds. In contrast—and by definition—an impoundment owner or utility operator does not relinquish control of the CCR once it is impounded. *See* 40 C.F.R. § 257.53 (defining "owner" and "operator"); *see also id.* § 257.50(b) (Rule applies to "disposal units located off-site of the electric utility or independent power producer"). Moreover, the impoundment's purpose is to "dispose of" CCR and, accordingly, the disposal *process* continues so long as the CCR remains in the pond. *Id.* § 257.53 ("CCR impoundment" is 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" (emphasis added)).[23]

For the foregoing reasons, and regarding Section IV.B.1 only, I concur in the judgment. Otherwise, I fully concur in the *per curiam* opinion.

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[23] The EPA's regulatory definition of "impoundment" is consistent with the dictionary definition of the verb "impound," which manifests continuing action. *See Impound*, WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1136 (3d ed. 1993) ("[T]o confine or store (water)[.]").

Attachment D

Public Act 101-171, eff. 7-30-19

AN ACT concerning coal ash.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 5. The Environmental Protection Act is amended by changing Sections 3.140, 21, 39, and 40 and by adding Sections 3.142, 3.143, and 22.59 as follows:

(415 ILCS 5/3.140) (was 415 ILCS 5/3.76)

Sec. 3.140. Coal combustion waste. "Coal combustion waste" means any CCR or any fly ash, bottom ash, slag, or flue gas or fluid bed boiler desulfurization by-products generated as a result of the combustion of:

(1) coal, or

(2) coal in combination with: (i) fuel grade petroleum coke, (ii) other fossil fuel, or (iii) both fuel grade petroleum coke and other fossil fuel, or

(3) coal (with or without: (i) fuel grade petroleum coke, (ii) other fossil fuel, or (iii) both fuel grade petroleum coke and other fossil fuel) in combination with no more than 20% of tire derived fuel or wood or other materials by weight of the materials combusted; provided that the coal is burned with other materials, the Agency has made a written determination that the storage or disposal of the resultant wastes in accordance with the provisions of item (r) of Section 21 would

result in no environmental impact greater than that of wastes generated as a result of the combustion of coal alone, and the storage disposal of the resultant wastes would not violate applicable federal law.

(Source: P.A. 92-574, eff. 6-26-02.)

(415 ILCS 5/3.142 new)

Sec. 3.142. Coal combustion residual; CCR. "Coal combustion residual" or "CCR" means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

(415 ILCS 5/3.143 new)

Sec. 3.143. CCR surface impoundment. "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 unit treats, stores, or disposes of CCR.

(415 ILCS 5/21) (from Ch. 111 1/2, par. 1021)

Sec. 21. Prohibited acts. No person shall:

(a) Cause or allow the open dumping of any waste.

(b) Abandon, dump, or deposit any waste upon the public highways or other public property, except in a sanitary landfill approved by the Agency pursuant to regulations adopted

by the Board.

(c) Abandon any vehicle in violation of the "Abandoned Vehicles Amendment to the Illinois Vehicle Code", as enacted by the 76th General Assembly.

(d) Conduct any waste-storage, waste-treatment, or waste-disposal operation:

(1) without a permit granted by the Agency or in violation of any conditions imposed by such permit, including periodic reports and full access to adequate records and the inspection of facilities, as may be necessary to assure compliance with this Act and with regulations and standards adopted thereunder; provided, however, that, except for municipal solid waste landfill units that receive waste on or after October 9, 1993, and CCR surface impoundments, no permit shall be required for (i) any person conducting a waste-storage, waste-treatment, or waste-disposal operation for wastes generated by such person's own activities which are stored, treated, or disposed within the site where such wastes are generated, or (ii) a facility located in a county with a population over 700,000 as of January 1, 2000, operated and located in accordance with Section 22.38 of this Act, and used exclusively for the transfer, storage, or treatment of general construction or demolition debris, provided that the facility was receiving construction or demolition debris on the effective date of this amendatory Act of the

96th General Assembly;

(2) in violation of any regulations or standards adopted by the Board under this Act; or

(3) which receives waste after August 31, 1988, does not have a permit issued by the Agency, and is (i) a landfill used exclusively for the disposal of waste generated at the site, (ii) a surface impoundment receiving special waste not listed in an NPDES permit, (iii) a waste pile in which the total volume of waste is greater than 100 cubic yards or the waste is stored for over one year, or (iv) a land treatment facility receiving special waste generated at the site; without giving notice of the operation to the Agency by January 1, 1989, or 30 days after the date on which the operation commences, whichever is later, and every 3 years thereafter. The form for such notification shall be specified by the Agency, and shall be limited to information regarding: the name and address of the location of the operation; the type of operation; the types and amounts of waste stored, treated or disposed of on an annual basis; the remaining capacity of the operation; and the remaining expected life of the operation.

Item (3) of this subsection (d) shall not apply to any person engaged in agricultural activity who is disposing of a substance that constitutes solid waste, if the substance was acquired for use by that person on his own property, and the

substance is disposed of on his own property in accordance with regulations or standards adopted by the Board.

This subsection (d) shall not apply to hazardous waste.

(e) Dispose, treat, store or abandon any waste, or transport any waste into this State for disposal, treatment, storage or abandonment, except at a site or facility which meets the requirements of this Act and of regulations and standards thereunder.

(f) Conduct any hazardous waste-storage, hazardous waste-treatment or hazardous waste-disposal operation:

(1) without a RCRA permit for the site issued by the Agency under subsection (d) of Section 39 of this Act, or in violation of any condition imposed by such permit, including periodic reports and full access to adequate records and the inspection of facilities, as may be necessary to assure compliance with this Act and with regulations and standards adopted thereunder; or

(2) in violation of any regulations or standards adopted by the Board under this Act; or

(3) in violation of any RCRA permit filing requirement established under standards adopted by the Board under this Act; or

(4) in violation of any order adopted by the Board under this Act.

Notwithstanding the above, no RCRA permit shall be required under this subsection or subsection (d) of Section 39 of this

Act for any person engaged in agricultural activity who is disposing of a substance which has been identified as a hazardous waste, and which has been designated by Board regulations as being subject to this exception, if the substance was acquired for use by that person on his own property and the substance is disposed of on his own property in accordance with regulations or standards adopted by the Board.

(g) Conduct any hazardous waste-transportation operation:

(1) without registering with and obtaining a special waste hauling permit from the Agency in accordance with the regulations adopted by the Board under this Act; or

(2) in violation of any regulations or standards adopted by the Board under this Act.

(h) Conduct any hazardous waste-recycling or hazardous waste-reclamation or hazardous waste-reuse operation in violation of any regulations, standards or permit requirements adopted by the Board under this Act.

(i) Conduct any process or engage in any act which produces hazardous waste in violation of any regulations or standards adopted by the Board under subsections (a) and (c) of Section 22.4 of this Act.

(j) Conduct any special waste transportation operation in violation of any regulations, standards or permit requirements adopted by the Board under this Act. However, sludge from a water or sewage treatment plant owned and operated by a unit of

local government which (1) is subject to a sludge management plan approved by the Agency or a permit granted by the Agency, and (2) has been tested and determined not to be a hazardous waste as required by applicable State and federal laws and regulations, may be transported in this State without a special waste hauling permit, and the preparation and carrying of a manifest shall not be required for such sludge under the rules of the Pollution Control Board. The unit of local government which operates the treatment plant producing such sludge shall file an annual report with the Agency identifying the volume of such sludge transported during the reporting period, the hauler of the sludge, and the disposal sites to which it was transported. This subsection (j) shall not apply to hazardous waste.

(k) Fail or refuse to pay any fee imposed under this Act.

(l) Locate a hazardous waste disposal site above an active or inactive shaft or tunneled mine or within 2 miles of an active fault in the earth's crust. In counties of population less than 225,000 no hazardous waste disposal site shall be located (1) within 1 1/2 miles of the corporate limits as defined on June 30, 1978, of any municipality without the approval of the governing body of the municipality in an official action; or (2) within 1000 feet of an existing private well or the existing source of a public water supply measured from the boundary of the actual active permitted site and excluding existing private wells on the property of the permit

applicant. The provisions of this subsection do not apply to publicly-owned sewage works or the disposal or utilization of sludge from publicly-owned sewage works.

(m) Transfer interest in any land which has been used as a hazardous waste disposal site without written notification to the Agency of the transfer and to the transferee of the conditions imposed by the Agency upon its use under subsection (g) of Section 39.

(n) Use any land which has been used as a hazardous waste disposal site except in compliance with conditions imposed by the Agency under subsection (g) of Section 39.

(o) Conduct a sanitary landfill operation which is required to have a permit under subsection (d) of this Section, in a manner which results in any of the following conditions:

(1) refuse in standing or flowing waters;

(2) leachate flows entering waters of the State;

(3) leachate flows exiting the landfill confines (as determined by the boundaries established for the landfill by a permit issued by the Agency);

(4) open burning of refuse in violation of Section 9 of this Act;

(5) uncovered refuse remaining from any previous operating day or at the conclusion of any operating day, unless authorized by permit;

(6) failure to provide final cover within time limits established by Board regulations;

(7) acceptance of wastes without necessary permits;

(8) scavenging as defined by Board regulations;

(9) deposition of refuse in any unpermitted portion of the landfill;

(10) acceptance of a special waste without a required manifest;

(11) failure to submit reports required by permits or Board regulations;

(12) failure to collect and contain litter from the site by the end of each operating day;

(13) failure to submit any cost estimate for the site or any performance bond or other security for the site as required by this Act or Board rules.

The prohibitions specified in this subsection (o) shall be enforceable by the Agency either by administrative citation under Section 31.1 of this Act or as otherwise provided by this Act. The specific prohibitions in this subsection do not limit the power of the Board to establish regulations or standards applicable to sanitary landfills.

(p) In violation of subdivision (a) of this Section, cause or allow the open dumping of any waste in a manner which results in any of the following occurrences at the dump site:

(1) litter;

(2) scavenging;

(3) open burning;

(4) deposition of waste in standing or flowing waters;

(5) proliferation of disease vectors;

(6) standing or flowing liquid discharge from the dump site;

(7) deposition of:

(i) general construction or demolition debris as defined in Section 3.160(a) of this Act; or

(ii) clean construction or demolition debris as defined in Section 3.160(b) of this Act.

The prohibitions specified in this subsection (p) shall be enforceable by the Agency either by administrative citation under Section 31.1 of this Act or as otherwise provided by this Act. The specific prohibitions in this subsection do not limit the power of the Board to establish regulations or standards applicable to open dumping.

(q) Conduct a landscape waste composting operation without an Agency permit, provided, however, that no permit shall be required for any person:

(1) conducting a landscape waste composting operation for landscape wastes generated by such person's own activities which are stored, treated, or disposed of within the site where such wastes are generated; or

(1.5) conducting a landscape waste composting operation that (i) has no more than 25 cubic yards of landscape waste, composting additives, composting material, or end-product compost on-site at any one time and (ii) is not engaging in commercial activity; or

(2) applying landscape waste or composted landscape waste at agronomic rates; or

(2.5) operating a landscape waste composting facility at a site having 10 or more occupied non-farm residences within 1/2 mile of its boundaries, if the facility meets all of the following criteria:

(A) the composting facility is operated by the farmer on property on which the composting material is utilized, and the composting facility constitutes no more than 2% of the site's total acreage;

(A-5) any composting additives that the composting facility accepts and uses at the facility are necessary to provide proper conditions for composting and do not exceed 10% of the total composting material at the facility at any one time;

(B) the property on which the composting facility is located, and any associated property on which the compost is used, is principally and diligently devoted to the production of agricultural crops and is not owned, leased, or otherwise controlled by any waste hauler or generator of nonagricultural compost materials, and the operator of the composting facility is not an employee, partner, shareholder, or in any way connected with or controlled by any such waste hauler or generator;

(C) all compost generated by the composting

facility is applied at agronomic rates and used as mulch, fertilizer, or soil conditioner on land actually farmed by the person operating the composting facility, and the finished compost is not stored at the composting site for a period longer than 18 months prior to its application as mulch, fertilizer, or soil conditioner;

(D) no fee is charged for the acceptance of materials to be composted at the facility; and

(E) the owner or operator, by January 1, 2014 (or the January 1 following commencement of operation, whichever is later) and January 1 of each year thereafter, registers the site with the Agency, (ii) reports to the Agency on the volume of composting material received and used at the site; (iii) certifies to the Agency that the site complies with the requirements set forth in subparagraphs (A), (A-5), (B), (C), and (D) of this paragraph (2.5); and (iv) certifies to the Agency that all composting material was placed more than 200 feet from the nearest potable water supply well, was placed outside the boundary of the 10-year floodplain or on a part of the site that is floodproofed, was placed at least 1/4 mile from the nearest residence (other than a residence located on the same property as the facility) or a lesser distance from the nearest residence (other than a residence

located on the same property as the facility) if the municipality in which the facility is located has by ordinance approved a lesser distance than 1/4 mile, and was placed more than 5 feet above the water table; any ordinance approving a residential setback of less than 1/4 mile that is used to meet the requirements of this subparagraph (E) of paragraph (2.5) of this subsection must specifically reference this paragraph; or

(3) operating a landscape waste composting facility on a farm, if the facility meets all of the following criteria:

(A) the composting facility is operated by the farmer on property on which the composting material is utilized, and the composting facility constitutes no more than 2% of the property's total acreage, except that the Board may allow a higher percentage for individual sites where the owner or operator has demonstrated to the Board that the site's soil characteristics or crop needs require a higher rate;

(A-1) the composting facility accepts from other agricultural operations for composting with landscape waste no materials other than uncontaminated and source-separated (i) crop residue and other agricultural plant residue generated from the production and harvesting of crops and other customary farm practices, including, but not limited to, stalks,

leaves, seed pods, husks, bagasse, and roots and (ii) plant-derived animal bedding, such as straw or sawdust, that is free of manure and was not made from painted or treated wood;

(A-2) any composting additives that the composting facility accepts and uses at the facility are necessary to provide proper conditions for composting and do not exceed 10% of the total composting material at the facility at any one time;

(B) the property on which the composting facility is located, and any associated property on which the compost is used, is principally and diligently devoted to the production of agricultural crops and is not owned, leased or otherwise controlled by any waste hauler or generator of nonagricultural compost materials, and the operator of the composting facility is not an employee, partner, shareholder, or in any way connected with or controlled by any such waste hauler or generator;

(C) all compost generated by the composting facility is applied at agronomic rates and used as mulch, fertilizer or soil conditioner on land actually farmed by the person operating the composting facility, and the finished compost is not stored at the composting site for a period longer than 18 months prior to its application as mulch, fertilizer, or soil

conditioner;

(D) the owner or operator, by January 1 of each year, (i) registers the site with the Agency, (ii) reports to the Agency on the volume of composting material received and used at the site, (iii) certifies to the Agency that the site complies with the requirements set forth in subparagraphs (A), (A-1), (A-2), (B), and (C) of this paragraph (q)(3), and (iv) certifies to the Agency that all composting material:

(I) was placed more than 200 feet from the nearest potable water supply well;

(II) was placed outside the boundary of the 10-year floodplain or on a part of the site that is floodproofed;

(III) was placed either (aa) at least 1/4 mile from the nearest residence (other than a residence located on the same property as the facility) and there are not more than 10 occupied non-farm residences within 1/2 mile of the boundaries of the site on the date of application or (bb) a lesser distance from the nearest residence (other than a residence located on the same property as the facility) provided that the municipality or county in which the facility is located has by ordinance approved a lesser distance than 1/4 mile and there are not more than 10 occupied non-farm residences

within 1/2 mile of the boundaries of the site on the date of application; and

(IV) was placed more than 5 feet above the water table.

Any ordinance approving a residential setback of less than 1/4 mile that is used to meet the requirements of this subparagraph (D) must specifically reference this subparagraph.

For the purposes of this subsection (q), "agronomic rates" means the application of not more than 20 tons per acre per year, except that the Board may allow a higher rate for individual sites where the owner or operator has demonstrated to the Board that the site's soil characteristics or crop needs require a higher rate.

(r) Cause or allow the storage or disposal of coal combustion waste unless:

(1) such waste is stored or disposed of at a site or facility for which a permit has been obtained or is not otherwise required under subsection (d) of this Section; or

(2) such waste is stored or disposed of as a part of the design and reclamation of a site or facility which is an abandoned mine site in accordance with the Abandoned Mined Lands and Water Reclamation Act; or

(3) such waste is stored or disposed of at a site or facility which is operating under NPDES and Subtitle D permits issued by the Agency pursuant to regulations

adopted by the Board for mine-related water pollution and permits issued pursuant to the Federal Surface Mining Control and Reclamation Act of 1977 (P.L. 95-87) or the rules and regulations thereunder or any law or rule or regulation adopted by the State of Illinois pursuant thereto, and the owner or operator of the facility agrees to accept the waste; and either

(i) such waste is stored or disposed of in accordance with requirements applicable to refuse disposal under regulations adopted by the Board for mine-related water pollution and pursuant to NPDES and Subtitle D permits issued by the Agency under such regulations; or

(ii) the owner or operator of the facility demonstrates all of the following to the Agency, and the facility is operated in accordance with the demonstration as approved by the Agency: (1) the disposal area will be covered in a manner that will support continuous vegetation, (2) the facility will be adequately protected from wind and water erosion, (3) the pH will be maintained so as to prevent excessive leaching of metal ions, and (4) adequate containment or other measures will be provided to protect surface water and groundwater from contamination at levels prohibited by this Act, the Illinois Groundwater Protection Act, or regulations

adopted pursuant thereto.

Notwithstanding any other provision of this Title, the disposal of coal combustion waste pursuant to item (2) or (3) of this subdivision (r) shall be exempt from the other provisions of this Title V, and notwithstanding the provisions of Title X of this Act, the Agency is authorized to grant experimental permits which include provision for the disposal of wastes from the combustion of coal and other materials pursuant to items (2) and (3) of this subdivision (r).

(s) After April 1, 1989, offer for transportation, transport, deliver, receive or accept special waste for which a manifest is required, unless the manifest indicates that the fee required under Section 22.8 of this Act has been paid.

(t) Cause or allow a lateral expansion of a municipal solid waste landfill unit on or after October 9, 1993, without a permit modification, granted by the Agency, that authorizes the lateral expansion.

(u) Conduct any vegetable by-product treatment, storage, disposal or transportation operation in violation of any regulation, standards or permit requirements adopted by the Board under this Act. However, no permit shall be required under this Title V for the land application of vegetable by-products conducted pursuant to Agency permit issued under Title III of this Act to the generator of the vegetable by-products. In addition, vegetable by-products may be transported in this State without a special waste hauling

permit, and without the preparation and carrying of a manifest.

(v) (Blank).

(w) Conduct any generation, transportation, or recycling of construction or demolition debris, clean or general, or uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures, and roads that is not commingled with any waste, without the maintenance of documentation identifying the hauler, generator, place of origin of the debris or soil, the weight or volume of the debris or soil, and the location, owner, and operator of the facility where the debris or soil was transferred, disposed, recycled, or treated. This documentation must be maintained by the generator, transporter, or recycler for 3 years. This subsection (w) shall not apply to (1) a permitted pollution control facility that transfers or accepts construction or demolition debris, clean or general, or uncontaminated soil for final disposal, recycling, or treatment, (2) a public utility (as that term is defined in the Public Utilities Act) or a municipal utility, (3) the Illinois Department of Transportation, or (4) a municipality or a county highway department, with the exception of any municipality or county highway department located within a county having a population of over 3,000,000 inhabitants or located in a county that is contiguous to a county having a population of over 3,000,000 inhabitants; but it shall apply to an entity that contracts with a public utility, a municipal utility, the Illinois

Department of Transportation, or a municipality or a county highway department. The terms "generation" and "recycling" as used in this subsection do not apply to clean construction or demolition debris when (i) used as fill material below grade outside of a setback zone if covered by sufficient uncontaminated soil to support vegetation within 30 days of the completion of filling or if covered by a road or structure, (ii) solely broken concrete without protruding metal bars is used for erosion control, or (iii) milled asphalt or crushed concrete is used as aggregate in construction of the shoulder of a roadway. The terms "generation" and "recycling", as used in this subsection, do not apply to uncontaminated soil that is not commingled with any waste when (i) used as fill material below grade or contoured to grade, or (ii) used at the site of generation.

(Source: P.A. 100-103, eff. 8-11-17.)

(415 ILCS 5/22.59 new)

Sec. 22.59. CCR surface impoundments.

(a) The General Assembly finds that:

(1) the State of Illinois has a long-standing policy to restore, protect, and enhance the environment, including the purity of the air, land, and waters, including groundwaters, of this State;

(2) a clean environment is essential to the growth and well-being of this State;

(3) CCR generated by the electric generating industry has caused groundwater contamination and other forms of pollution at active and inactive plants throughout this State;

(4) environmental laws should be supplemented to ensure consistent, responsible regulation of all existing CCR surface impoundments; and

(5) meaningful participation of State residents, especially vulnerable populations who may be affected by regulatory actions, is critical to ensure that environmental justice considerations are incorporated in the development of, decision-making related to, and implementation of environmental laws and rulemaking that protects and improves the well-being of communities in this State that bear disproportionate burdens imposed by environmental pollution.

Therefore, the purpose of this Section is to promote a healthful environment, including clean water, air, and land, meaningful public involvement, and the responsible disposal and storage of coal combustion residuals, so as to protect public health and to prevent pollution of the environment of this State.

The provisions of this Section shall be liberally construed to carry out the purposes of this Section.

(b) No person shall:

(1) cause or allow the discharge of any contaminants

from a CCR surface impoundment into the environment so as to cause, directly or indirectly, a violation of this Section or any regulations or standards adopted by the Board under this Section, either alone or in combination with contaminants from other sources;

(2) construct, install, modify, operate, or close any CCR surface impoundment without a permit granted by the Agency, or so as to violate any conditions imposed by such permit, any provision of this Section or any regulations or standards adopted by the Board under this Section; or

(3) cause or allow, directly or indirectly, the discharge, deposit, injection, dumping, spilling, leaking, or placing of any CCR upon the land in a place and manner so as to cause or tend to cause a violation this Section or any regulations or standards adopted by the Board under this Section.

(c) For purposes of this Section, a permit issued by the Administrator of the United States Environmental Protection Agency under Section 4005 of the federal Resource Conservation and Recovery Act, shall be deemed to be a permit under this Section and subsection (y) of Section 39.

(d) Before commencing closure of a CCR surface impoundment, in accordance with Board rules, the owner of a CCR surface impoundment must submit to the Agency for approval a closure alternatives analysis that analyzes all closure methods being considered and that otherwise satisfies all closure

requirements adopted by the Board under this Act. Complete removal of CCR, as specified by the Board's rules, from the CCR surface impoundment must be considered and analyzed. Section 3.405 does not apply to the Board's rules specifying complete removal of CCR. The selected closure method must ensure compliance with regulations adopted by the Board pursuant to this Section.

(e) Owners or operators of CCR surface impoundments who have submitted a closure plan to the Agency before May 1, 2019, and who have completed closure prior to 24 months after the effective date of this amendatory Act of the 101st General Assembly shall not be required to obtain a construction permit for the surface impoundment closure under this Section.

(f) Except for the State, its agencies and institutions, a unit of local government, or not-for-profit electric cooperative as defined in Section 3.4 of the Electric Supplier Act, any person who owns or operates a CCR surface impoundment in this State shall post with the Agency a performance bond or other security for the purpose of: (i) ensuring closure of the CCR surface impoundment and post-closure care in accordance with this Act and its rules; and (ii) insuring remediation of releases from the CCR surface impoundment. The only acceptable forms of financial assurance are: a trust fund, a surety bond guaranteeing payment, a surety bond guaranteeing performance, or an irrevocable letter of credit.

(1) The cost estimate for the post-closure care of a

CCR surface impoundment shall be calculated using a 30-year post-closure care period or such longer period as may be approved by the Agency under Board or federal rules.

(2) The Agency is authorized to enter into such contracts and agreements as it may deem necessary to carry out the purposes of this Section. Neither the State, nor the Director, nor any State employee shall be liable for any damages or injuries arising out of or resulting from any action taken under this Section.

(3) The Agency shall have the authority to approve or disapprove any performance bond or other security posted under this subsection. Any person whose performance bond or other security is disapproved by the Agency may contest the disapproval as a permit denial appeal pursuant to Section 40.

(g) The Board shall 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. Not later than 8 months after the effective date of this amendatory Act of the 101st General Assembly the Agency shall propose, and not later than one year after receipt of the Agency's proposal the Board shall adopt, rules under this Section. The rules must, at a minimum:

(1) be at least as protective and comprehensive as the federal regulations or amendments thereto promulgated by

the Administrator of the United States Environmental Protection Agency in Subpart D of 40 CFR 257 governing CCR surface impoundments;

(2) specify the minimum contents of CCR surface impoundment construction and operating permit applications, including the closure alternatives analysis required under subsection (d);

(3) specify which types of permits include requirements for closure, post-closure, remediation and all other requirements applicable to CCR surface impoundments;

(4) specify when permit applications for existing CCR surface impoundments must be submitted, taking into consideration whether the CCR surface impoundment must close under the RCRA;

(5) specify standards for review and approval by the Agency of CCR surface impoundment permit applications;

(6) specify meaningful public participation procedures for the issuance of CCR surface impoundment construction and operating permits, including, but not limited to, public notice of the submission of permit applications, an opportunity for the submission of public comments, an opportunity for a public hearing prior to permit issuance, and a summary and response of the comments prepared by the Agency;

(7) prescribe the type and amount of the performance

bonds or other securities required under subsection (f), and the conditions under which the State is entitled to collect moneys from such performance bonds or other securities;

(8) specify a procedure to identify areas of environmental justice concern in relation to CCR surface impoundments;

(9) specify a method to prioritize CCR surface impoundments required to close under RCRA if not otherwise specified by the United States Environmental Protection Agency, so that the CCR surface impoundments with the highest risk to public health and the environment, and areas of environmental justice concern are given first priority;

(10) define when complete removal of CCR is achieved and specify the standards for responsible removal of CCR from CCR surface impoundments, including, but not limited to, dust controls and the protection of adjacent surface water and groundwater; and

(11) describe the process and standards for identifying a specific alternative source of groundwater pollution when the owner or operator of the CCR surface impoundment believes that groundwater contamination on the site is not from the CCR surface impoundment.

(h) Any owner of a CCR surface impoundment that generates CCR and sells or otherwise provides coal combustion byproducts

pursuant to Section 3.135 shall, every 12 months, post on its publicly available website a report specifying the volume or weight of CCR, in cubic yards or tons, that it sold or provided during the past 12 months.

(i) The owner of a CCR surface impoundment shall post all closure plans, permit applications, and supporting documentation, as well as any Agency approval of the plans or applications on its publicly available website.

(j) The owner or operator of a CCR surface impoundment shall pay the following fees:

(1) An initial fee to the Agency within 6 months after the effective date of this amendatory Act of the 101st General Assembly of:

$50,000 for each closed CCR surface impoundment; and

$75,000 for each CCR surface impoundment that have not completed closure.

(2) Annual fees to the Agency, beginning on July 1, 2020, of:

$25,000 for each CCR surface impoundment that has not completed closure; and

$15,000 for each CCR surface impoundment that has completed closure, but has not completed post-closure care.

(k) All fees collected by the Agency under subsection (j) shall be deposited into the Environmental Protection Permit and

Inspection Fund.

(l) The Coal Combustion Residual Surface Impoundment Financial Assurance Fund is created as a special fund in the State treasury. Any moneys forfeited to the State of Illinois from any performance bond or other security required under this Section shall be placed in the Coal Combustion Residual Surface Impoundment Financial Assurance Fund and shall, upon approval by the Governor and the Director, be used by the Agency for the purposes for which such performance bond or other security was issued. The Coal Combustion Residual Surface Impoundment Financial Assurance Fund is not subject to the provisions of subsection (c) of Section 5 of the State Finance Act.

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

(415 ILCS 5/39) (from Ch. 111 1/2, par. 1039)

Sec. 39. Issuance of permits; procedures.

(a) When the Board has by regulation required a permit for the construction, installation, or operation of any type of facility, equipment, vehicle, vessel, or aircraft, the applicant shall apply to the Agency for such permit and it shall be the duty of the Agency to issue such a permit upon

proof by the applicant that the facility, equipment, vehicle, vessel, or aircraft will not cause a violation of this Act or of regulations hereunder. The Agency shall adopt such procedures as are necessary to carry out its duties under this Section. In making its determinations on permit applications under this Section the Agency may consider prior adjudications of noncompliance with this Act by the applicant that involved a release of a contaminant into the environment. In granting permits, the Agency may impose reasonable conditions specifically related to the applicant's past compliance history with this Act as necessary to correct, detect, or prevent noncompliance. The Agency may impose such other conditions as may be necessary to accomplish the purposes of this Act, and as are not inconsistent with the regulations promulgated by the Board hereunder. Except as otherwise provided in this Act, a bond or other security shall not be required as a condition for the issuance of a permit. If the Agency denies any permit under this Section, the Agency shall transmit to the applicant within the time limitations of this Section specific, detailed statements as to the reasons the permit application was denied. Such statements shall include, but not be limited to the following:

(i) the Sections of this Act which may be violated if the permit were granted;

(ii) the provision of the regulations, promulgated under this Act, which may be violated if the permit were

granted;

(iii) the specific type of information, if any, which the Agency deems the applicant did not provide the Agency; and

(iv) a statement of specific reasons why the Act and the regulations might not be met if the permit were granted.

If there is no final action by the Agency within 90 days after the filing of the application for permit, the applicant may deem the permit issued; except that this time period shall be extended to 180 days when (1) notice and opportunity for public hearing are required by State or federal law or regulation, (2) the application which was filed is for any permit to develop a landfill subject to issuance pursuant to this subsection, or (3) the application that was filed is for a MSWLF unit required to issue public notice under subsection (p) of Section 39. The 90-day and 180-day time periods for the Agency to take final action do not apply to NPDES permit applications under subsection (b) of this Section, to RCRA permit applications under subsection (d) of this Section, ~~or~~ to UIC permit applications under subsection (e) of this Section, or to CCR surface impoundment applications under subsection (y) of this Section.

The Agency shall publish notice of all final permit determinations for development permits for MSWLF units and for significant permit modifications for lateral expansions for

existing MSWLF units one time in a newspaper of general circulation in the county in which the unit is or is proposed to be located.

After January 1, 1994 and until July 1, 1998, operating permits issued under this Section by the Agency for sources of air pollution permitted to emit less than 25 tons per year of any combination of regulated air pollutants, as defined in Section 39.5 of this Act, shall be required to be renewed only upon written request by the Agency consistent with applicable provisions of this Act and regulations promulgated hereunder. Such operating permits shall expire 180 days after the date of such a request. The Board shall revise its regulations for the existing State air pollution operating permit program consistent with this provision by January 1, 1994.

After June 30, 1998, operating permits issued under this Section by the Agency for sources of air pollution that are not subject to Section 39.5 of this Act and are not required to have a federally enforceable State operating permit shall be required to be renewed only upon written request by the Agency consistent with applicable provisions of this Act and its rules. Such operating permits shall expire 180 days after the date of such a request. Before July 1, 1998, the Board shall revise its rules for the existing State air pollution operating permit program consistent with this paragraph and shall adopt rules that require a source to demonstrate that it qualifies for a permit under this paragraph.

(b) The Agency may issue NPDES permits exclusively under this subsection for the discharge of contaminants from point sources into navigable waters, all as defined in the Federal Water Pollution Control Act, as now or hereafter amended, within the jurisdiction of the State, or into any well.

All NPDES permits shall contain those terms and conditions, including but not limited to schedules of compliance, which may be required to accomplish the purposes and provisions of this Act.

The Agency may issue general NPDES permits for discharges from categories of point sources which are subject to the same permit limitations and conditions. Such general permits may be issued without individual applications and shall conform to regulations promulgated under Section 402 of the Federal Water Pollution Control Act, as now or hereafter amended.

The Agency may include, among such conditions, effluent limitations and other requirements established under this Act, Board regulations, the Federal Water Pollution Control Act, as now or hereafter amended, and regulations pursuant thereto, and schedules for achieving compliance therewith at the earliest reasonable date.

The Agency shall adopt filing requirements and procedures which are necessary and appropriate for the issuance of NPDES permits, and which are consistent with the Act or regulations adopted by the Board, and with the Federal Water Pollution Control Act, as now or hereafter amended, and regulations

pursuant thereto.

The Agency, subject to any conditions which may be prescribed by Board regulations, may issue NPDES permits to allow discharges beyond deadlines established by this Act or by regulations of the Board without the requirement of a variance, subject to the Federal Water Pollution Control Act, as now or hereafter amended, and regulations pursuant thereto.

(c) Except for those facilities owned or operated by sanitary districts organized under the Metropolitan Water Reclamation District Act, no permit for the development or construction of a new pollution control facility may be granted by the Agency unless the applicant submits proof to the Agency that the location of the facility has been approved by the County Board of the county if in an unincorporated area, or the governing body of the municipality when in an incorporated area, in which the facility is to be located in accordance with Section 39.2 of this Act. For purposes of this subsection (c), and for purposes of Section 39.2 of this Act, the appropriate county board or governing body of the municipality shall be the county board of the county or the governing body of the municipality in which the facility is to be located as of the date when the application for siting approval is filed.

In the event that siting approval granted pursuant to Section 39.2 has been transferred to a subsequent owner or operator, that subsequent owner or operator may apply to the Agency for, and the Agency may grant, a development or

construction permit for the facility for which local siting approval was granted. Upon application to the Agency for a development or construction permit by that subsequent owner or operator, the permit applicant shall cause written notice of the permit application to be served upon the appropriate county board or governing body of the municipality that granted siting approval for that facility and upon any party to the siting proceeding pursuant to which siting approval was granted. In that event, the Agency shall conduct an evaluation of the subsequent owner or operator's prior experience in waste management operations in the manner conducted under subsection (i) of Section 39 of this Act.

Beginning August 20, 1993, if the pollution control facility consists of a hazardous or solid waste disposal facility for which the proposed site is located in an unincorporated area of a county with a population of less than 100,000 and includes all or a portion of a parcel of land that was, on April 1, 1993, adjacent to a municipality having a population of less than 5,000, then the local siting review required under this subsection (c) in conjunction with any permit applied for after that date shall be performed by the governing body of that adjacent municipality rather than the county board of the county in which the proposed site is located; and for the purposes of that local siting review, any references in this Act to the county board shall be deemed to mean the governing body of that adjacent municipality;

provided, however, that the provisions of this paragraph shall not apply to any proposed site which was, on April 1, 1993, owned in whole or in part by another municipality.

In the case of a pollution control facility for which a development permit was issued before November 12, 1981, if an operating permit has not been issued by the Agency prior to August 31, 1989 for any portion of the facility, then the Agency may not issue or renew any development permit nor issue an original operating permit for any portion of such facility unless the applicant has submitted proof to the Agency that the location of the facility has been approved by the appropriate county board or municipal governing body pursuant to Section 39.2 of this Act.

After January 1, 1994, if a solid waste disposal facility, any portion for which an operating permit has been issued by the Agency, has not accepted waste disposal for 5 or more consecutive calendars years, before that facility may accept any new or additional waste for disposal, the owner and operator must obtain a new operating permit under this Act for that facility unless the owner and operator have applied to the Agency for a permit authorizing the temporary suspension of waste acceptance. The Agency may not issue a new operation permit under this Act for the facility unless the applicant has submitted proof to the Agency that the location of the facility has been approved or re-approved by the appropriate county board or municipal governing body under Section 39.2 of this

Act after the facility ceased accepting waste.

Except for those facilities owned or operated by sanitary districts organized under the Metropolitan Water Reclamation District Act, and except for new pollution control facilities governed by Section 39.2, and except for fossil fuel mining facilities, the granting of a permit under this Act shall not relieve the applicant from meeting and securing all necessary zoning approvals from the unit of government having zoning jurisdiction over the proposed facility.

Before beginning construction on any new sewage treatment plant or sludge drying site to be owned or operated by a sanitary district organized under the Metropolitan Water Reclamation District Act for which a new permit (rather than the renewal or amendment of an existing permit) is required, such sanitary district shall hold a public hearing within the municipality within which the proposed facility is to be located, or within the nearest community if the proposed facility is to be located within an unincorporated area, at which information concerning the proposed facility shall be made available to the public, and members of the public shall be given the opportunity to express their views concerning the proposed facility.

The Agency may issue a permit for a municipal waste transfer station without requiring approval pursuant to Section 39.2 provided that the following demonstration is made:

(1) the municipal waste transfer station was in

existence on or before January 1, 1979 and was in continuous operation from January 1, 1979 to January 1, 1993;

(2) the operator submitted a permit application to the Agency to develop and operate the municipal waste transfer station during April of 1994;

(3) the operator can demonstrate that the county board of the county, if the municipal waste transfer station is in an unincorporated area, or the governing body of the municipality, if the station is in an incorporated area, does not object to resumption of the operation of the station; and

(4) the site has local zoning approval.

(d) The Agency may issue RCRA permits exclusively under this subsection to persons owning or operating a facility for the treatment, storage, or disposal of hazardous waste as defined under this Act. Subsection (y) of this Section, rather than this subsection (d), shall apply to permits issued for CCR surface impoundments.

All RCRA permits shall contain those terms and conditions, including but not limited to schedules of compliance, which may be required to accomplish the purposes and provisions of this Act. The Agency may include among such conditions standards and other requirements established under this Act, Board regulations, the Resource Conservation and Recovery Act of 1976 (P.L. 94-580), as amended, and regulations pursuant thereto,

and may include schedules for achieving compliance therewith as soon as possible. The Agency shall require that a performance bond or other security be provided as a condition for the issuance of a RCRA permit.

In the case of a permit to operate a hazardous waste or PCB incinerator as defined in subsection (k) of Section 44, the Agency shall require, as a condition of the permit, that the operator of the facility perform such analyses of the waste to be incinerated as may be necessary and appropriate to ensure the safe operation of the incinerator.

The Agency shall adopt filing requirements and procedures which are necessary and appropriate for the issuance of RCRA permits, and which are consistent with the Act or regulations adopted by the Board, and with the Resource Conservation and Recovery Act of 1976 (P.L. 94-580), as amended, and regulations pursuant thereto.

The applicant shall make available to the public for inspection all documents submitted by the applicant to the Agency in furtherance of an application, with the exception of trade secrets, at the office of the county board or governing body of the municipality. Such documents may be copied upon payment of the actual cost of reproduction during regular business hours of the local office. The Agency shall issue a written statement concurrent with its grant or denial of the permit explaining the basis for its decision.

(e) The Agency may issue UIC permits exclusively under this

subsection to persons owning or operating a facility for the underground injection of contaminants as defined under this Act.

All UIC permits shall contain those terms and conditions, including but not limited to schedules of compliance, which may be required to accomplish the purposes and provisions of this Act. The Agency may include among such conditions standards and other requirements established under this Act, Board regulations, the Safe Drinking Water Act (P.L. 93-523), as amended, and regulations pursuant thereto, and may include schedules for achieving compliance therewith. The Agency shall require that a performance bond or other security be provided as a condition for the issuance of a UIC permit.

The Agency shall adopt filing requirements and procedures which are necessary and appropriate for the issuance of UIC permits, and which are consistent with the Act or regulations adopted by the Board, and with the Safe Drinking Water Act (P.L. 93-523), as amended, and regulations pursuant thereto.

The applicant shall make available to the public for inspection, all documents submitted by the applicant to the Agency in furtherance of an application, with the exception of trade secrets, at the office of the county board or governing body of the municipality. Such documents may be copied upon payment of the actual cost of reproduction during regular business hours of the local office. The Agency shall issue a written statement concurrent with its grant or denial of the

permit explaining the basis for its decision.

(f) In making any determination pursuant to Section 9.1 of this Act:

(1) The Agency shall have authority to make the determination of any question required to be determined by the Clean Air Act, as now or hereafter amended, this Act, or the regulations of the Board, including the determination of the Lowest Achievable Emission Rate, Maximum Achievable Control Technology, or Best Available Control Technology, consistent with the Board's regulations, if any.

(2) The Agency shall adopt requirements as necessary to implement public participation procedures, including, but not limited to, public notice, comment, and an opportunity for hearing, which must accompany the processing of applications for PSD permits. The Agency shall briefly describe and respond to all significant comments on the draft permit raised during the public comment period or during any hearing. The Agency may group related comments together and provide one unified response for each issue raised.

(3) Any complete permit application submitted to the Agency under this subsection for a PSD permit shall be granted or denied by the Agency not later than one year after the filing of such completed application.

(4) The Agency shall, after conferring with the

applicant, give written notice to the applicant of its proposed decision on the application including the terms and conditions of the permit to be issued and the facts, conduct or other basis upon which the Agency will rely to support its proposed action.

(g) The Agency shall include as conditions upon all permits issued for hazardous waste disposal sites such restrictions upon the future use of such sites as are reasonably necessary to protect public health and the environment, including permanent prohibition of the use of such sites for purposes which may create an unreasonable risk of injury to human health or to the environment. After administrative and judicial challenges to such restrictions have been exhausted, the Agency shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located.

(h) A hazardous waste stream may not be deposited in a permitted hazardous waste site unless specific authorization is obtained from the Agency by the generator and disposal site owner and operator for the deposit of that specific hazardous waste stream. The Agency may grant specific authorization for disposal of hazardous waste streams only after the generator has reasonably demonstrated that, considering technological feasibility and economic reasonableness, the hazardous waste cannot be reasonably recycled for reuse, nor incinerated or chemically, physically or biologically treated so as to

neutralize the hazardous waste and render it nonhazardous. In granting authorization under this Section, the Agency may impose such conditions as may be necessary to accomplish the purposes of the Act and are consistent with this Act and regulations promulgated by the Board hereunder. If the Agency refuses to grant authorization under this Section, the applicant may appeal as if the Agency refused to grant a permit, pursuant to the provisions of subsection (a) of Section 40 of this Act. For purposes of this subsection (h), the term "generator" has the meaning given in Section 3.205 of this Act, unless: (1) the hazardous waste is treated, incinerated, or partially recycled for reuse prior to disposal, in which case the last person who treats, incinerates, or partially recycles the hazardous waste prior to disposal is the generator; or (2) the hazardous waste is from a response action, in which case the person performing the response action is the generator. This subsection (h) does not apply to any hazardous waste that is restricted from land disposal under 35 Ill. Adm. Code 728.

(i) Before issuing any RCRA permit, any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, or any waste-transportation operation, any permit or interim authorization for a clean construction or demolition debris fill operation, or any permit required under subsection (d-5) of Section 55, the Agency shall conduct an evaluation of the prospective owner's or operator's prior experience in waste

management operations, clean construction or demolition debris fill operations, and tire storage site management. The Agency may deny such a permit, or deny or revoke interim authorization, if the prospective owner or operator or any employee or officer of the prospective owner or operator has a history of:

(1) repeated violations of federal, State, or local laws, regulations, standards, or ordinances in the operation of waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites; or

(2) conviction in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court; or conviction in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition; or

(3) proof of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or proof of gross carelessness or incompetence in using clean construction or demolition debris as fill.

(i-5) Before issuing any permit or approving any interim

authorization for a clean construction or demolition debris fill operation in which any ownership interest is transferred between January 1, 2005, and the effective date of the prohibition set forth in Section 22.52 of this Act, the Agency shall conduct an evaluation of the operation if any previous activities at the site or facility may have caused or allowed contamination of the site. It shall be the responsibility of the owner or operator seeking the permit or interim authorization to provide to the Agency all of the information necessary for the Agency to conduct its evaluation. The Agency may deny a permit or interim authorization if previous activities at the site may have caused or allowed contamination at the site, unless such contamination is authorized under any permit issued by the Agency.

(j) The issuance under this Act of a permit to engage in the surface mining of any resources other than fossil fuels shall not relieve the permittee from its duty to comply with any applicable local law regulating the commencement, location or operation of surface mining facilities.

(k) A development permit issued under subsection (a) of Section 39 for any facility or site which is required to have a permit under subsection (d) of Section 21 shall expire at the end of 2 calendar years from the date upon which it was issued, unless within that period the applicant has taken action to develop the facility or the site. In the event that review of the conditions of the development permit is sought pursuant to

Section 40 or 41, or permittee is prevented from commencing development of the facility or site by any other litigation beyond the permittee's control, such two-year period shall be deemed to begin on the date upon which such review process or litigation is concluded.

(l) No permit shall be issued by the Agency under this Act for construction or operation of any facility or site located within the boundaries of any setback zone established pursuant to this Act, where such construction or operation is prohibited.

(m) The Agency may issue permits to persons owning or operating a facility for composting landscape waste. In granting such permits, the Agency may impose such conditions as may be necessary to accomplish the purposes of this Act, and as are not inconsistent with applicable regulations promulgated by the Board. Except as otherwise provided in this Act, a bond or other security shall not be required as a condition for the issuance of a permit. If the Agency denies any permit pursuant to this subsection, the Agency shall transmit to the applicant within the time limitations of this subsection specific, detailed statements as to the reasons the permit application was denied. Such statements shall include but not be limited to the following:

(1) the Sections of this Act that may be violated if the permit were granted;

(2) the specific regulations promulgated pursuant to

this Act that may be violated if the permit were granted;

(3) the specific information, if any, the Agency deems the applicant did not provide in its application to the Agency; and

(4) a statement of specific reasons why the Act and the regulations might be violated if the permit were granted.

If no final action is taken by the Agency within 90 days after the filing of the application for permit, the applicant may deem the permit issued. Any applicant for a permit may waive the 90-day limitation by filing a written statement with the Agency.

The Agency shall issue permits for such facilities upon receipt of an application that includes a legal description of the site, a topographic map of the site drawn to the scale of 200 feet to the inch or larger, a description of the operation, including the area served, an estimate of the volume of materials to be processed, and documentation that:

(1) the facility includes a setback of at least 200 feet from the nearest potable water supply well;

(2) the facility is located outside the boundary of the 10-year floodplain or the site will be floodproofed;

(3) the facility is located so as to minimize incompatibility with the character of the surrounding area, including at least a 200 foot setback from any residence, and in the case of a facility that is developed or the permitted composting area of which is expanded after

November 17, 1991, the composting area is located at least 1/8 mile from the nearest residence (other than a residence located on the same property as the facility);

(4) the design of the facility will prevent any compost material from being placed within 5 feet of the water table, will adequately control runoff from the site, and will collect and manage any leachate that is generated on the site;

(5) the operation of the facility will include appropriate dust and odor control measures, limitations on operating hours, appropriate noise control measures for shredding, chipping and similar equipment, management procedures for composting, containment and disposal of non-compostable wastes, procedures to be used for terminating operations at the site, and recordkeeping sufficient to document the amount of materials received, composted and otherwise disposed of; and

(6) the operation will be conducted in accordance with any applicable rules adopted by the Board.

The Agency shall issue renewable permits of not longer than 10 years in duration for the composting of landscape wastes, as defined in Section 3.155 of this Act, based on the above requirements.

The operator of any facility permitted under this subsection (m) must submit a written annual statement to the Agency on or before April 1 of each year that includes an

estimate of the amount of material, in tons, received for composting.

(n) The Agency shall issue permits jointly with the Department of Transportation for the dredging or deposit of material in Lake Michigan in accordance with Section 18 of the Rivers, Lakes, and Streams Act.

(o) (Blank.)

(p) (1) Any person submitting an application for a permit for a new MSWLF unit or for a lateral expansion under subsection (t) of Section 21 of this Act for an existing MSWLF unit that has not received and is not subject to local siting approval under Section 39.2 of this Act shall publish notice of the application in a newspaper of general circulation in the county in which the MSWLF unit is or is proposed to be located. The notice must be published at least 15 days before submission of the permit application to the Agency. The notice shall state the name and address of the applicant, the location of the MSWLF unit or proposed MSWLF unit, the nature and size of the MSWLF unit or proposed MSWLF unit, the nature of the activity proposed, the probable life of the proposed activity, the date the permit application will be submitted, and a statement that persons may file written comments with the Agency concerning the permit application within 30 days after the filing of the permit application unless the time period to submit comments is extended by the Agency.

When a permit applicant submits information to the Agency

to supplement a permit application being reviewed by the Agency, the applicant shall not be required to reissue the notice under this subsection.

(2) The Agency shall accept written comments concerning the permit application that are postmarked no later than 30 days after the filing of the permit application, unless the time period to accept comments is extended by the Agency.

(3) Each applicant for a permit described in part (1) of this subsection shall file a copy of the permit application with the county board or governing body of the municipality in which the MSWLF unit is or is proposed to be located at the same time the application is submitted to the Agency. The permit application filed with the county board or governing body of the municipality shall include all documents submitted to or to be submitted to the Agency, except trade secrets as determined under Section 7.1 of this Act. The permit application and other documents on file with the county board or governing body of the municipality shall be made available for public inspection during regular business hours at the office of the county board or the governing body of the municipality and may be copied upon payment of the actual cost of reproduction.

(q) Within 6 months after July 12, 2011 (the effective date of Public Act 97-95), the Agency, in consultation with the regulated community, shall develop a web portal to be posted on its website for the purpose of enhancing review and promoting

timely issuance of permits required by this Act. At a minimum, the Agency shall make the following information available on the web portal:

(1) Checklists and guidance relating to the completion of permit applications, developed pursuant to subsection (s) of this Section, which may include, but are not limited to, existing instructions for completing the applications and examples of complete applications. As the Agency develops new checklists and develops guidance, it shall supplement the web portal with those materials.

(2) Within 2 years after July 12, 2011 (the effective date of Public Act 97-95), permit application forms or portions of permit applications that can be completed and saved electronically, and submitted to the Agency electronically with digital signatures.

(3) Within 2 years after July 12, 2011 (the effective date of Public Act 97-95), an online tracking system where an applicant may review the status of its pending application, including the name and contact information of the permit analyst assigned to the application. Until the online tracking system has been developed, the Agency shall post on its website semi-annual permitting efficiency tracking reports that include statistics on the timeframes for Agency action on the following types of permits received after July 12, 2011 (the effective date of Public Act 97-95): air construction permits, new NPDES permits and

associated water construction permits, and modifications of major NPDES permits and associated water construction permits. The reports must be posted by February 1 and August 1 each year and shall include:

(A) the number of applications received for each type of permit, the number of applications on which the Agency has taken action, and the number of applications still pending; and

(B) for those applications where the Agency has not taken action in accordance with the timeframes set forth in this Act, the date the application was received and the reasons for any delays, which may include, but shall not be limited to, (i) the application being inadequate or incomplete, (ii) scientific or technical disagreements with the applicant, USEPA, or other local, state, or federal agencies involved in the permitting approval process, (iii) public opposition to the permit, or (iv) Agency staffing shortages. To the extent practicable, the tracking report shall provide approximate dates when cause for delay was identified by the Agency, when the Agency informed the applicant of the problem leading to the delay, and when the applicant remedied the reason for the delay.

(r) Upon the request of the applicant, the Agency shall notify the applicant of the permit analyst assigned to the

application upon its receipt.

(s) The Agency is authorized to prepare and distribute guidance documents relating to its administration of this Section and procedural rules implementing this Section. Guidance documents prepared under this subsection shall not be considered rules and shall not be subject to the Illinois Administrative Procedure Act. Such guidance shall not be binding on any party.

(t) Except as otherwise prohibited by federal law or regulation, any person submitting an application for a permit may include with the application suggested permit language for Agency consideration. The Agency is not obligated to use the suggested language or any portion thereof in its permitting decision. If requested by the permit applicant, the Agency shall meet with the applicant to discuss the suggested language.

(u) If requested by the permit applicant, the Agency shall provide the permit applicant with a copy of the draft permit prior to any public review period.

(v) If requested by the permit applicant, the Agency shall provide the permit applicant with a copy of the final permit prior to its issuance.

(w) An air pollution permit shall not be required due to emissions of greenhouse gases, as specified by Section 9.15 of this Act.

(x) If, before the expiration of a State operating permit

that is issued pursuant to subsection (a) of this Section and contains federally enforceable conditions limiting the potential to emit of the source to a level below the major source threshold for that source so as to exclude the source from the Clean Air Act Permit Program, the Agency receives a complete application for the renewal of that permit, then all of the terms and conditions of the permit shall remain in effect until final administrative action has been taken on the application for the renewal of the permit.

(y) The Agency may issue permits exclusively under this subsection to persons owning or operating a CCR surface impoundment subject to Section 22.59.

All CCR surface impoundment permits shall contain those terms and conditions, including, but not limited to, schedules of compliance, which may be required to accomplish the purposes and provisions of this Act, Board regulations, the Illinois Groundwater Protection Act and regulations pursuant thereto, and the Resource Conservation and Recovery Act and regulations pursuant thereto, and may include schedules for achieving compliance therewith as soon as possible.

The Board shall adopt filing requirements and procedures that are necessary and appropriate for the issuance of CCR surface impoundment permits and that are consistent with this Act or regulations adopted by the Board, and with the RCRA, as amended, and regulations pursuant thereto.

The applicant shall make available to the public for

inspection all documents submitted by the applicant to the Agency in furtherance of an application, with the exception of trade secrets, on its public internet website as well as at the office of the county board or governing body of the municipality where CCR from the CCR surface impoundment will be permanently disposed. Such documents may be copied upon payment of the actual cost of reproduction during regular business hours of the local office.

The Agency shall issue a written statement concurrent with its grant or denial of the permit explaining the basis for its decision.

(Source: P.A. 98-284, eff. 8-9-13; 99-396, eff. 8-18-15; 99-463, eff. 1-1-16; 99-642, eff. 7-28-16.)

(415 ILCS 5/40) (from Ch. 111 1/2, par. 1040)

Sec. 40. Appeal of permit denial.

(a)(1) If the Agency refuses to grant or grants with conditions a permit under Section 39 of this Act, the applicant may, within 35 days after the date on which the Agency served its decision on the applicant, petition for a hearing before the Board to contest the decision of the Agency. However, the 35-day period for petitioning for a hearing may be extended for an additional period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Agency within the initial appeal period. The Board shall give 21 days' notice to any person in the county where is located the

facility in issue who has requested notice of enforcement proceedings and to each member of the General Assembly in whose legislative district that installation or property is located; and shall publish that 21-day notice in a newspaper of general circulation in that county. The Agency shall appear as respondent in such hearing. At such hearing the rules prescribed in Section 32 and subsection (a) of Section 33 of this Act shall apply, and the burden of proof shall be on the petitioner. If, however, the Agency issues an NPDES permit that imposes limits which are based upon a criterion or denies a permit based upon application of a criterion, then the Agency shall have the burden of going forward with the basis for the derivation of those limits or criterion which were derived under the Board's rules.

(2) Except as provided in paragraph (a)(3), if there is no final action by the Board within 120 days after the date on which it received the petition, the petitioner may deem the permit issued under this Act, provided, however, that that period of 120 days shall not run for any period of time, not to exceed 30 days, during which the Board is without sufficient membership to constitute the quorum required by subsection (a) of Section 5 of this Act, and provided further that such 120 day period shall not be stayed for lack of quorum beyond 30 days regardless of whether the lack of quorum exists at the beginning of such 120-day period or occurs during the running of such 120-day period.

(3) Paragraph (a)(2) shall not apply to any permit which is subject to subsection (b), (d) or (e) of Section 39. If there is no final action by the Board within 120 days after the date on which it received the petition, the petitioner shall be entitled to an Appellate Court order pursuant to subsection (d) of Section 41 of this Act.

(b) If the Agency grants a RCRA permit for a hazardous waste disposal site, a third party, other than the permit applicant or Agency, may, within 35 days after the date on which the Agency issued its decision, petition the Board for a hearing to contest the issuance of the permit. Unless the Board determines that such petition is duplicative or frivolous, or that the petitioner is so located as to not be affected by the permitted facility, the Board shall hear the petition in accordance with the terms of subsection (a) of this Section and its procedural rules governing denial appeals, such hearing to be based exclusively on the record before the Agency. The burden of proof shall be on the petitioner. The Agency and the permit applicant shall be named co-respondents.

The provisions of this subsection do not apply to the granting of permits issued for the disposal or utilization of sludge from publicly-owned sewage works.

(c) Any party to an Agency proceeding conducted pursuant to Section 39.3 of this Act may petition as of right to the Board for review of the Agency's decision within 35 days from the date of issuance of the Agency's decision, provided that such

appeal is not duplicative or frivolous. However, the 35-day period for petitioning for a hearing may be extended by the applicant for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Agency within the initial appeal period. If another person with standing to appeal wishes to obtain an extension, there must be a written notice provided to the Board by that person, the Agency, and the applicant, within the initial appeal period. The decision of the Board shall be based exclusively on the record compiled in the Agency proceeding. In other respects the Board's review shall be conducted in accordance with subsection (a) of this Section and the Board's procedural rules governing permit denial appeals.

(d) In reviewing the denial or any condition of a NA NSR permit issued by the Agency pursuant to rules and regulations adopted under subsection (c) of Section 9.1 of this Act, the decision of the Board shall be based exclusively on the record before the Agency including the record of the hearing, if any, unless the parties agree to supplement the record. The Board shall, if it finds the Agency is in error, make a final determination as to the substantive limitations of the permit including a final determination of Lowest Achievable Emission Rate.

(e)(1) If the Agency grants or denies a permit under subsection (b) of Section 39 of this Act, a third party, other than the permit applicant or Agency, may petition the Board

within 35 days from the date of issuance of the Agency's decision, for a hearing to contest the decision of the Agency.

(2) A petitioner shall include the following within a petition submitted under subdivision (1) of this subsection:

(A) a demonstration that the petitioner raised the issues contained within the petition during the public notice period or during the public hearing on the NPDES permit application, if a public hearing was held; and

(B) a demonstration that the petitioner is so situated as to be affected by the permitted facility.

(3) If the Board determines that the petition is not duplicative or frivolous and contains a satisfactory demonstration under subdivision (2) of this subsection, the Board shall hear the petition (i) in accordance with the terms of subsection (a) of this Section and its procedural rules governing permit denial appeals and (ii) exclusively on the basis of the record before the Agency. The burden of proof shall be on the petitioner. The Agency and permit applicant shall be named co-respondents.

(f) Any person who files a petition to contest the issuance of a permit by the Agency shall pay a filing fee.

(g) If the Agency grants or denies a permit under subsection (y) of Section 39, a third party, other than the permit applicant or Agency, may appeal the Agency's decision as provided under federal law for CCR surface impoundment permits.

(Source: P.A. 99-463, eff. 1-1-16; 100-201, eff. 8-18-17.)

Section 10. The State Finance Act is amended by adding Section 5.891 as follows:

(30 ILCS 105/5.891 new)

Sec. 5.891. The Coal Combustion Residual Surface Impoundment Financial Assurance Fund.

Section 97. Severability. The provisions of this Act are severable under Section 1.31 of the Statute on Statutes.

Section 99. Effective date. This Act takes effect upon becoming law.