BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

Midwest Generation, LLC)
(Powerton Station)) PCB 2021-109
)
v.)
)
Illinois Environmental Protection Agency)

To: See attached service list.

NOTICE OF ELECTRONIC FILING

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Pollution Control Board the RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, a copy of which is herewith served upon you.

Respectfully submitted,

Dated: June 25, 2021

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

Respondent,

BY: /s/Christine Zeivel
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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

Midwest Generation, LLC	)	
(Powerton Station)	)	PCB 2021-109
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RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Agency ("Illinois EPA" or "Agency"), by one of its attorneys, hereby files its Recommendation pursuant to Section 37(a) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/37(a), and 35 Ill. Adm. Code §104.216. For reasons described below, the Illinois EPA neither supports nor objects to the Illinois Pollution Control Board ("Board") granting the requests of Midwest Generation, LLC ("MWG" or "Petitioner") for variances to certain requirements of 35 Ill. Adm. Code 845 at its Powerton Station, located in Tazewell County, except that Illinois EPA recommends that the Board deny Petitioner's request for extension of time to complete its fugitive dust control plan and emergency action plan and to submit its closure construction permit application for the Metal Cleaning Basin. In support of its Recommendation, the Illinois EPA states as follows:

I. INTRODUCTION

1. On April 15, 2021, the Board adopted new rules for coal combustion residuals ("CCR") in surface impoundments at 35 Ill. Adm. Code 845 ("Part 845"). *See* Board Docket R2020-019. The Part 845 rules became effective on April 21, 2021. 45 Ill. Reg. 5884 (May 7, 2021).

2. On May 11, 2021, MWG filed a petition for variance for the Metal Cleaning Basin at its Powerton generating station ("Petition"), which included a request for hearing, along with a

Motion for Expedited Review of the Petition. The Petition requests additional time to comply with certain specified requirements to collect data and submit information under Part 845.

3. Specifically, MWG is seeking a variance allowing additional time to comply with the following deadlines contained in Part 845:

a. 35 Ill. Adm. Code §845.650(b)(1)(A): The deadline to collect, analyze, and statistically evaluate the eight independent samples from each background and downgradient well that determine the background levels is October 18, 2021. MWG seeks a variance to extend the deadline to January 31, 2022.

b. 35 Ill. Adm. Code §§845.230(d)(1), 845.520(c), 845.500(b)(4): The deadline to submit an initial operating permit application, the initial emergency action plan and fugitive dust control plan is October 30, 2021. MWG seeks a variance to extend the deadline to March 31, 2022.

c. 35 Ill. Adm. Code §845.700(c): The deadline to submit the category designation of the Metal Cleaning Basin's Closure Prioritization under Section 845.700(g) is May 21, 2021. MWG seeks a variance to extend the deadline to March 31, 2022, concurrent with the initial operating permit application.

d. 35 Ill. Adm. Code §845.700(h)(2): If the Metal Cleaning Basin is designated a Category 5 CCR surface impoundment, the deadline to submit a construction permit application for a CCR Surface Impoundment in Category 5 is August 1, 2022. MWG seeks a variance of the deadline to submit the construction permit application to December 1, 2022.

See Petition, pp. 6-7.

4. On May 25, 2021, the Board granted MWG's Motion for Expedited Review of the Petition.

5. Illinois EPA must make a recommendation to the Board as to the disposition of the Petition, within 45 days of filing of the petition or at least 30 days before a scheduled hearing, whichever is

earlier. 35 Ill. Adm. Code §104.216(b). On May 20, 2021, the Board ordered that Illinois EPA's recommendation is due on June 25, 2021.

II. NOTICE & ACCEPTANCE

6. A petitioner must provide prompt public notice of filing of its petition, including publishing notice within 14 days after filing the petition in a newspaper of general circulation in the county where the facility is located. 415 ILCS 5/37(a) (2018); 35 Ill. Adm. Code §104.214(a).

7. On May 19, 2021, MWG filed with the Board a certification of publication and a copy of the notice published on May 15, 2021 pursuant to 35 Ill. Adm. Code §104.214(e).

8. On June 3, 2021, the Board accepted MWG's petition for hearing. At the time of this filing, hearing in this matter is set for July 21, 2021.

III. INVESTIGATION

9. Upon receipt of a petition for variance, the Illinois EPA must promptly investigate the petition and consider the view of persons who might be adversely affected by the grant of a variance. 415 ILCS 5/37(a); 35 Ill. Adm. Code §104.216(a). Illinois EPA's Recommendation must include a description of the efforts made by the Agency to investigate the facts as alleged and to ascertain the views of persons who might be affected, and a summary of the views so ascertained. 35 Ill. Adm. Code §104.216(b)(1).

10. Illinois EPA conducted a thorough investigation of the information contained in Petitioner's variance request and of additional information in support of the variance request offered informally by Petitioner in subsequent meetings with Illinois EPA staff. In preparing this Recommendation, Illinois EPA reviewed testimony, documents, and comments provided in the Board's Part 845 rulemaking proceedings (Docket R2020-019) and consulted staff within several sections of the Bureau of Water.

11. As a result of this investigation, Illinois EPA neither supports nor objects to the Board granting MWG's requests for variances for certain requirements of 35 Ill. Adm. Code Part 845, except that Illinois EPA objects to MWG's requests for extensions of time to complete its fugitive dust control plan and emergency action plan and to submit its construction permit application for the Metal Cleaning Basin.

IV. AIR MONITORING

12. Illinois EPA's Recommendation must include the location of the nearest air monitoring station maintained by the Agency, where applicable. 35 Ill. Adm. Code §104.216(b)(2). This requirement is not applicable in this matter.

V. ESTIMATED COST OF COMPLIANCE

13. Illinois EPA's Recommendation must include the Agency's estimate of the costs that compliance would impose on the petitioner and others. 35 Ill. Adm. Code §104.216(b)(5). Also, Section 35(a) of the Act requires the Board to determine if the petitioner has presented adequate proof that it would suffer an arbitrary or unreasonable hardship if required to immediately comply with the Board regulation at issue. However, the Board is not required to find that an arbitrary or unreasonable hardship exists exclusively because the regulatory standard is under review and the costs of compliance are substantial and certain. 415 ILCS 5/35(a) (2018).

14. Petitioner states that the total cost of its groundwater sampling plan is $61,900, which includes constructing an access road. *See* Petition, p. 21. Petitioner further estimates that the operating permit application preparation will cost $50,000 and the construction permit application preparation will cost $150,000. *Id.*

15. Illinois EPA does not challenge Petitioner's cost estimates provided by its consultant for complying with the respective Part 845 requirements.[1] However, Illinois EPA does not believe there are any increased costs associated with immediate compliance with Part 845. Petitioner agrees. *Id.*

VI. FACTUAL ALLEGATIONS

16. Illinois EPA's Recommendation must include a statement of the degree to which, if at all, the Agency disagrees with the facts as alleged in the petition, including facts refuting any allegations in the petition for variance, as well as allegations of any other facts the Agency believes relevant to the disposition of the petition, including any past or pending enforcement actions against petitioner. 35 Ill. Adm. Code §§104.216(b)(3) and (b)(4). Illinois EPA's Recommendation must also allege any facts that the Agency believes are relevant to whether the Board should condition a grant of variance on the posting of a performance bond under Section 104.246. 35 Ill. Adm. Code §104.216(b)(9).

17. **MWG states that the Metal Cleaning Basin is not part of the ash sluice system at Powerton Station. See Petition, pp. 2, 8. MWG states that, instead, the Metal Cleaning Basin is a temporary lay down area of CCR and holds process water when the power generating boilers are washed. MWG further states that this ash is removed, and the basin is often empty and typically dredged once per year. *See* Petition, pp. 8-9.**

18. The design and use of the Metal Cleaning Basin are why the Agency has identified it as a CCR surface impoundment. These practices, as described by MWG, over many years and certain conditions, including historical use of poz-o-pac liners that are prone to cracking and annual use

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[1] Illinois EPA does not challenge Petitioner's cost estimates for purposes of evaluating this variance request. Any Agency review of cost estimates submitted pursuant to Subpart I of Part 845 is separate and distinct and will not be limited by statements made in this Recommendation.

of heavy equipment in the impoundment, threaten groundwater contamination.[2] These threats can persist even after a pollution source is removed. As explained in a March 25, 2020 Illinois EPA letter to MWG, the Agency identified the Metal Cleaning Basin as a CCR surface impoundment because the record for Illinois EPA Water Pollution Control Permit #2009EB2748 issued to MWG on November 13, 2009, indicates ash and slag sluice water as a waste stream. *See* Exhibit A, Exhibit B, pp. 5, 34-35. Additionally, considering the process flow at the facility, it would not be uncommon for gas side boiler wash waters received by the Metal Cleaning Basin to contain fly ash. *See* Exhibit B, pp. 33-34; *also see* Petition, Exhibit E.

19. **MWG states it does not have years of accumulated groundwater data required to satisfy Part 845. *See* Petition, p. 2. MWG further states that it would need to "guess" as to whether the groundwater at the Metal Cleaning Basin would meet groundwater protection standards because it would not have the background groundwater monitoring data available at the time of May 21, 2021 deadline to submit a closure priority category designation. *See* Petition, p. 3.**

20. The Powerton facility has conducted significant historical groundwater monitoring since at least 2010. Illinois EPA Water Pollution Control Permit #2009EB2748 dated November 13, 2009, required the installation of three wells specifically for the Metal Cleaning Basin. *See* Exhibit B. Subsequent to that permit, MWG entered into a Compliance Commitment Agreement ("CCA") with Illinois EPA for the Powerton facility dated October 24, 2012, due to Violation Notice ("VN") W-2012-00057 for sitewide groundwater contamination. *See* Exhibits C and D. The VN included

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[2] *See* Petition, p. 8; Exhibit H, pp. 36-40 ("After a careful review of the facts, the Board finds that the Environmental Groups established that both poz-o-pac and HDPE liners at Powerton can and do crack or experience damage on occasions. Based on preponderance of all the evidence in the record, including the groundwater monitoring results, MWG practices in ponds relining and dredging, and flooding at the area, the Board concludes that it is more likely than not that the ash ponds did leach contaminants into the groundwater.").

a well downgradient of the Metal Cleaning Basin (MW-14) due to exceedances of the Class I groundwater quality standards contained in 35 Ill. Adm. Code §620.410. *See* Exhibit C.

21. One of the requirements listed in the CCA was to establish a site-wide Groundwater Management Zone (GMZ) to monitor the groundwater exceedances at the Powerton facility. *See* Exhibit D. The Metal Cleaning Basin is within the boundary of the sitewide GMZ established in 2013 and, as part of the CCA, ongoing groundwater monitoring of the wells associated with the Metal Cleaning Basin was required to assess the efficacy of the previously installed HDPE liner. *See* Exhibits B, E and F. The most recent groundwater quarterly monitoring report (April 2021) indicates exceedances of the Class I groundwater quality standards listed in 35 Ill. Adm. Code §620.410. *See* Exhibit G. The April 2021 laboratory results for sulfate and total dissolved solids ("TDS") at monitoring well MW-14 (downgradient of the Metal Cleaning Basin) are generally higher than the laboratory results for monitoring well MW-15 (upgradient of the Metal Cleaning Basin). *Id.* Therefore, existing data indicates the Metal Cleaning Basin may be, or may have been prior to HDPE liner installation, contributing to groundwater contamination.

22. The numerical Class I groundwater quality standards for sulfate and TDS in Section 620.410 are the same concentrations as the groundwater protection standards ("GWPS") for those constituents in Section 845.600. Illinois EPA agrees that the groundwater quality data that currently exists at the Metal Cleaning Basin is limited to dissolved (filtered) chemical constituents, instead of total (not filtered) chemical constituent analysis as required by 35 Ill. Adm. Code §845.640(i), and does not include the full list of constituents required in 35 Ill. Adm. Code §845.600. However, except for natural variation in groundwater quality and laboratory or sampling variability, the concentrations of filtered sulfate and TDS samples should not yield higher concentrations than total analysis for those constituents. Therefore, it is Illinois EPA's position

that MWG could make informed conclusions to conservatively categorize the Metal Cleaning Basin as Category 5 based on existing data, which would not be mere "guesswork."

23. **MWG states that the Metal Cleaning Basin was relined in 2010 with a 60 mil high-density polyethylene (HDPE) liner and that the liner system is comprised of six layers, which includes a cushion to protect the HDPE liner. *See* Petition, p. 8.**

24. Illinois EPA records indicate that a permit was issued to reline the Metal Cleaning Basin on November 13, 2009. *See* Exhibit B.

25. The exceedances of the Part 620 groundwater quality standards alleged in the 2012 VN (Exhibit C) were also the subject of a citizen suit brought against MWG by environmental groups in 2012, amongst other allegations. After extensive hearings, the Board found that MWG violated various sections of the Act and the Board's groundwater quality regulations at the Powerton Station, including Class I groundwater quality standards. *See* Exhibit H. Illinois EPA issued Violation Notice W-2020-00042 to MWG on July 28, 2020, for failure to pay CCR surface impoundment fees related to its Service Water Basin, which is still unresolved at the time of this filing, but that action is unrelated to the Petition. Otherwise, Illinois EPA's Bureau of Water is not aware of any other past or pending enforcement actions relevant to Petitioner's operation of CCR surface impoundments at the Powerton Station.

26. Subpart I of Part 845 requires financial assurance for CCR surface impoundments in Illinois, which includes financial assurance for closure, post-closure care and corrective action, all of which would include associated groundwater monitoring requirements. Therefore, the Board should not have to condition the grant of a variance on any additional performance bond.

VII. ARBITRARY AND UNREASONABLE HARDSHIP

27. The burden of proof in a variance proceeding is on the petitioner to demonstrate that compliance with the rule or regulation would impose an arbitrary or unreasonable hardship. 415 ILCS 5/37(a); 35 Ill. Adm. Code §104.238(a).

28. MWG states that denying the requested variance would impose an arbitrary and unreasonable hardship for two reasons: (1) compliance is not logistically possible without sacrificing the sufficiency and quality of the data to be relied upon to satisfy the substantive requirements of Part 845; and (2) the requested variance will have no environmental impacts. *See* Petition, pp. 14-15. Below, Illinois EPA will provide a response to the logistics of compliance for each deadline extension request and, in Section VIII, will provide a response concerning the environmental impact of each variance request.

29. **MWG states that collecting and analyzing accurate and reliable groundwater monitoring data in 180 days is not feasible. *See* Petition, pp. 15-16. MWG states that the 180-day deadline (October 18, 2021) for the requirement under 35 Ill. Adm. Code §845.650(b)(1)(A) to collect and analyze eight independent samples from each background and downgradient well at the Metal Cleaning Basin must be extended in order to collect representative background groundwater quality.**

30. Illinois EPA concurs that the requirement as provided in 35 Ill. Adm. Code §845.650(b)(1)(A) to collect and analyze eight independent samples from each background and downgradient well at the Metal Cleaning Basin will not yield high quality background groundwater quality data. However, 40 CFR 257.94(b) requires that new CCR surface impoundments and lateral expansions of CCR surface impoundments collect eight independent samples from each

background well within the first six months of sampling. Therefore, the quality of the background data collected for statistical analysis would be on par with the data required under Part 257.[3]

31. MWG does not consider the Metal Cleaning Basin to be regulated as a 40 CFR 257 CCR surface impoundment under the federal program; therefore, background groundwater quality data does not exist that would meet the requirements of Part 845. The groundwater quality data that currently exists at the Metal Cleaning Basin is limited to dissolved (filtered) chemical constituents, while 35 Ill. Adm. Code §845.640(i) requires total (not filtered) chemical constituent analysis. Further, the chemicals monitored historically at the Metal Cleaning Basin do not include the full list of constituents required in 35 Ill. Adm. Code §845.600.

32. Independent samples provide greater statistical power when adequate time between sampling events can account for temporal variation such as seasonal variation in the data. Accounting for temporal variation can vary from site to site, depending on hydrogeologic conditions, but typically requires at least a month between sampling events. Due to logistical considerations, the facility has only recently begun collecting the required eight independent groundwater samples and cannot meet the deadline of 180 days after April 21, 2021 to complete the sampling, as provided in 35 Ill. Adm. Code §845.650(b)(1)(A).

33. MWG began sampling the newly installed and developed wells at the Metal Cleaning Basin on March 11–13, 2021, with a second sample obtained on April 8, 2021. MWG states that a bailer was used to obtain the first round of groundwater sampling on March 11–13, 2021, and that a low flow technique will be used for the remainder of the samples. *See* Petition, p. 10. This difference in groundwater sampling procedures may increase error in the statistical analysis from which

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[3] This is consistent with the Agency's position in the Board's rulemaking proceedings *In the Matter of Standards for the Disposal of Coal Combustion Residuals in Surface Impoundment: Proposed New 35 Ill. Adm. Code 845*, PCB R2020-019. *See* First Supplement to IEPA's Pre-Filed Answers, pp. 24-25 (Aug. 5, 2020) and Hearing Transcript, pp.138-39 (August 13, 2020).

background quality will be determined. The increased error could increase the calculated background groundwater concentrations, potentially resulting in less protective groundwater protection standards. The Agency will not approve mixing of sample collection techniques on a small sample set; therefore, the owner or operator must use only the samples obtained with low flow procedures. This dictates that the first of the eight samples begin with MWG's second sampling event, April 8, 2021. The changed sample collection technique, and the Agency's opposition to mixing collection techniques, points to a need for additional time to collect the requisite samples.

34. **MWG states that meeting the operating permit application October 30, 2021 deadline is not possible without the completion and inclusion of background groundwater quality data in the initial operating permit application. *See* Petition, pp. 16-18. MWG further states that its deadlines to submit the initial emergency action plan and fugitive dust control plan pursuant to Sections 845.520(c) and 845.500(b)(4), which must be submitted as a part of the operating permit application, should similarly be extended.**

35. Illinois EPA considers Petitioner's requested time extension to submit the initial operating permit application to be unnecessary based on its interpretation of 35 Ill. Adm. Code §845.230(d)(1) and §845.230(d)(2). Specifically, Illinois EPA interprets the plain language of Section 845.230(d)(2)(I)(iv) as allowing for a <u>proposed</u> monitoring program for site-specific situations when groundwater monitoring wells, data, or statistical procedures do not yet fully exist. However, Illinois EPA also recognizes that Section 845.610(b)(1)(D) does not include the term "proposed" when describing the monitoring program generally required for all CCR surface impoundments and lateral expansions of CCR surface impoundments. The absence of the term "proposed" could be construed to mean that the collection of background required by Section

845.650 and the application of a statistical method pursuant to Section 845.640 must be completed prior to submission of the initial operating permit. In addition, allowing an extension of time should yield a more complete and accurate operating permit application. For these reasons, Illinois EPA neither supports nor opposes MWG's request for extension of time to submit its initial operating permit application.

36. Illinois EPA maintains that MWG has sufficient time to complete the initial emergency action plan and fugitive dust control plan by October 30, 2021, as required by 35 Ill. Adm. Code §845.520(c) and §845.500(b)(4). Illinois EPA invoiced the Metal Cleaning Basin as a CCR Surface Impoundment in December 2019 and has maintained that it is a CCR surface impoundment since that time in various meetings and during the Part 845 rulemaking proceedings. *See* Exhibit I and IEPA Pre-Filed Answers, pp. 141, 181-82 (R2020-019, filed Aug. 3, 2020). Further, MWG submitted its CCR surface impoundment fee in May 2020, acknowledging the Metal Cleaning Basin to be a CCR surface impoundment. *See* Exhibit J.

37. MWG argues that it would be "arbitrary and unreasonable" to require submission of these two plans before it can complete the rest of the operating permit application because "[w]hile separately stated, the clear intent is that both of these plans accompany the submission of the operating permit application." *See* Petition, p. 18. Illinois EPA agrees that both plans share the same deadline for completion as the initial operating permit application submission and are required to be submitted with the initial operating permit application. However, Sections 845.520(c) and 845.500(b)(4), from which MWG seeks variances, solely require owners or operators to "prepare" the reports — these provisions do not require submission. These provisions also specify that fugitive dust control plans and emergency action plans are for a facility, not

individual CCR surface impoundments. Section 845.800 requires these plans to be placed into the facility's operating record as soon as they become available.

38. MWG operates three other CCR surface impoundments at the Powerton facility for which fugitive dust control plans and emergency action plans must be completed and submitted with initial operating permit applications by October 30, 2021, and for which no variances were requested and no stays of Part 845 are in place.[4] If the Metal Cleaning Basin requires any special operational considerations regarding the facility's fugitive dust control plan and emergency action plan, those considerations should amount to minor additions to the facility's overall plans.

39. As outlined in Paragraph 36 above, MWG has had time to consider and include any adjustments for the Metal Cleaning Basin in the facility's fugitive dust control plan and emergency action plan. Further, any Professional Engineer's certification of a fugitive dust control plan and an emergency action plan that fails to include the entire facility, as required by Part 845, would be certification of an incomplete plan. Therefore, because the fugitive dust control plan and emergency action plan must already be prepared for the entire facility and submitted as part of the initial operating permit applications for the other Powerton CCR surface impoundments by October 30, 2021, requiring the plans to be completed so as to include the Metal Cleaning Basin and placed in the facility's operating record is not arbitrary or unreasonable, and an extension of time to complete these plans so that they include the Metal Cleaning Basin is unnecessary.

40. **MWG states that it cannot provide the priority category designation for the Metal Cleaning Basin because the groundwater monitoring data is insufficient. S*ee* Petition, p. 18.**

41. Illinois EPA's position is that the construction of Section 845.700(g) is such that every existing and inactive CCR surface impoundment in the State fits into at least one category.

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[4] Referring to the Ash Surge Basin, Bypass Basin and Former Ash Basin

Specifically, subsection (g)(2) provides that if a CCR surface impoundment can be categorized in more than one category, then the more conservative category, which requires closure sooner, must be assigned. Thus, if groundwater compliance is unknown, the applicant must use the more conservative of the categories. In this case, the presence of groundwater exceedances determines whether the Metal Cleaning Basin is either a Category 5 (with groundwater exceedances) or Category 7 (without groundwater exceedances).

42. MWG states this it would be forced to "guess" whether groundwater exceedances are present. *See* Petition, p. 3. However, historical groundwater data could be used to make an informed decision about whether groundwater is contaminated at the Metal Cleaning Basin. MWG has been submitting quarterly groundwater monitoring results to Illinois EPA since 2010, which was required to assess efficacy after the installation of a 60 mil synthetic liner in the Metal Cleaning Basin. *See* Exhibits B, C and L. The most recent quarterly monitoring results available for the Powerton Station (April 2021) indicate concentrations of sulfate and TDS in a well immediately downgradient of the Metal Cleaning Basin (MW-14) in excess of the numeric Class I groundwater quality standards, which have the same concentration as the GWPS of Section 845.600. *See* Exhibit G, Table 2, p. 14. Another well upgradient of the Metal Cleaning Basin (MW-15) also has exceedances of the Class I groundwater quality standards for sulfate and TDS, but the concentrations are generally lower than MW-14. *See* Exhibit G, Table 2, p. 15. While this is not a comprehensive analysis, existing data indicates the Metal Cleaning Basin may be, or may have been prior to HDPE liner installation, contributing to groundwater contamination. Therefore, choosing the higher Category 5 and respective construction permit application submission date would be conservative but appropriately protective.

43. Nevertheless, Illinois EPA agrees that a category designation will be more accurate if it considers established groundwater quality background. Furthermore, delay in submission of the category will not ultimately affect the closure timeline regardless of whether the Board extends the construction permit deadline. For these reasons, if the Board grants the requested extension of time to submit the initial operating permit application, the Agency neither supports nor opposes submission of the category designation for the Metal Cleaning Basin with the initial operating permit application.

44. **MWG states that an August 1, 2022 deadline to submit a construction permit application is not feasible for the Metal Cleaning Basin if it is a Category 5 CCR surface impoundment. *See* Petition, p. 19.**

45. The August 1, 2022 due date for a construction permit application for a Category 5 CCR surface impoundment is attainable even with an extension for obtaining groundwater quality data and the Agency disagrees that an extension of time to submit the construction permit application is needed. The proposed construction permit application deadline of August 1, 2022, for Category 5 surface impoundments is approximately six months after the date provided by MWG (January 31, 2021) to complete its background groundwater quality assessment. Part 845 allows six months for a CCR surface impoundment to initiate closure if required due to failing to complete location restrictions in 35 Ill. Adm. Code §845.700(d)(1). The requirement for closure six months after failing to meet location restrictions is also consistent with 40 CFR 257.101. Therefore, six months has been recognized as an adequate time to initiate closure at both the state and federal level, and the Agency does not believe additional time beyond six months is necessary to submit a construction permit application.

46. In the event that statistical analysis does demonstrate that the Metal Cleaning Basin is not causing or contributing to exceedances of GWPS, a Category 7 would be applicable, and submission of a closure plan would not be required until August 1, 2023. For these reasons, Illinois EPA does not agree that requiring MWG to comply with the Part 845 construction permit application deadlines, regardless of whether the Metal Cleaning Basin is a Category 5 or Category 7 surface impoundment, is an undue hardship, and the Illinois EPA recommends that the Board deny the requested extension.

VIII. PUBLIC INJURY & ENVIRONMENTAL IMPACT

47. Illinois EPA's Recommendation must include the Agency's estimate of the injury that the grant of the variance would impose on the public, including the effect that the continued discharge of contaminants will have upon the environment. 35 Ill. Adm. Code §104.216(b)(6). MWG argues that the lack of environmental impact from granting the variance supports a finding of arbitrary and unreasonable hardship if compliance were compelled. *See* Petition, pp. 19, 22.

48. When deciding to grant or deny a variance petition, the Board is required to balance the petitioner's hardship in complying with the Board regulations against the impact that the requested variance will have on the environment. *Monsanto Co. v. Pollution Control Bd*, 67 Ill. 2d 276, 292 (1977). Petitioner must establish that the hardship it would face from denial of its variance request would outweigh any injury to the public or the environment from granting the relief, and "[o]nly if the hardship outweighs the injury does the evidence rise to the level of an arbitrary or unreasonable hardship." *Marathon Oil Co. v. EPA*, 242 Ill. App. 3d 200, 206 (5th Dist. 1993).

49. MWG states that the requested relief is not substantive but, instead, is limited to the timing of representative data collection and initial information submission requirements, and therefore, there is no environmental benefit to requiring MWG to meet the Part 845 deadlines as promulgated

by the Board. *See* Petition, pp. 4, 19, 22. MWG further points out that the Metal Cleaning Basin is only used on an intermittent basis, is regulated by its NPDES Permit, and has no potable wells located downgradient. *See* Petition, pp. 4, 8, 22.

50. The Agency conducted a potable well survey using the publicly available Source Water Assessment Protection Program (SWAP) website that maps potable wells in the state. According to the SWAP website, no potable wells were identified in the downgradient direction.

51. According to MWG, CCR can sit in the Metal Cleaning Basin for up to one year before it is removed. *See* Petition, p. 9. CCR placed in an impoundment can impact groundwater. *See* Exhibit L. Groundwater contamination can persist at a CCR surface impoundment even after the CCR is removed. *Id.* Monitoring well MW-14 is downgradient of the Metal Cleaning Basin and continues to show exceedances of the Class I groundwater quality standards for sulfate and TDS in 35 Ill. Adm. Code §620.410. *See* Exhibit G, Table 2, p. 14. Monitoring well MW-15, which is upgradient of the Metal Cleaning Basin, also has exceedances of the Class I groundwater quality standards for sulfate and TDS, but the concentrations are generally lower than in MW-14. *See* Exhibit G, Table 2, p. 15.

52. There is public and environmental benefit to having pollution sources under enforceable operating permits, as stated by the legislature and evidenced by the passage of the Coal Ash Pollution Prevention Act.[5] Part 845 operating permits are intended to go well beyond the scope of the facility's NPDES permit. For example, Powerton's NPDES Permit does not contain groundwater monitoring requirements for CCR surface impoundments. *See* Petition, Exhibit H. It

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[5] "The General Assembly finds that...CCR generated by the electric generating industry has caused groundwater contamination and other forms of pollution at active and inactive plants throughout this State" and "environmental laws should be supplemented to ensure consistent, responsible regulation of all existing CCR surface impoundments." 415 ILCS 5/22.59(a)(3), (a)(4). "The Board shall adopt rules establishing construction permit requirements, operating permit requirements, design standards...." 415 ILCS 5/22.59(g).

is the Agency's position that having fugitive dust control plans and emergency action plans in place for CCR surface impoundments is critical to the protection of public health and the environment. Further, there is certainly public and environmental benefit to having sources of groundwater contamination identified and remedied, whether through corrective action or closure. There is also environmental benefit to ensuring that background groundwater quality is established utilizing sufficient and appropriate data; nevertheless, delaying the permitting and closure of CCR surface impoundments does have implications for the public and the environment.

53. Considering the above environmental benefits weighed against the hardship complained of by Petitioner and discussed in Section VII, Illinois EPA neither supports nor objects to MWG's request to extend its deadlines for completing its background groundwater sampling and submitting its operating permit application and category designation for the Metal Cleaning Basin, but recommends that the Board deny MWG's request to extend its deadlines to complete the fugitive dust control plan and emergency action plan, and to submit its construction permit application for closure.

IX. CONSISTENCY WITH FEDERAL LAW

54. Petitions for variances from the Board's waste disposal regulations must indicate whether the Board can grant the requested relief consistent with RCRA and its regulations. 35 Ill. Adm. Code §104.208(d). Illinois EPA's Recommendation must include an analysis of applicable federal laws and regulations and an opinion concerning the consistency of the petition with those federal laws and regulations. 35 Ill. Adm. Code §104.216(b)(7).

55. It is true that MWG does not consider the Metal Cleaning Basin to be a federally regulated surface impoundment under 40 CFR 257. *See* Petition, p. 23. However, since 40 CFR 257 is a self-implementing program, whether a particular unit is considered regulated is a determination made

by the owner or operator unless challenged. MWG goes on to say that granting the variance to allow more than 180 days is "more consistent" with federal requirement. *Id.* As stated above, 40 CFR 257.94(b) requires that new CCR surface impoundments and lateral expansions of CCR surface impoundments collect eight independent samples from each background well within the first six months of sampling to establish background. Therefore, the quality of the background data collected for statistical analysis would be on par with the data required under Part 257.[6] However, Illinois EPA agrees with Petitioner that the requested variances are not inconsistent with 40 CFR 257 and federal law does not provide any barrier to the granting of the relief requested.

X. PERMITTING STATUS

56. Illinois EPA's Recommendation must include the status of any permits or pending permit applications that are associated or affected by the requested variance. 35 Ill. Adm. Code §104.216(b)(8).

57. The Powerton Station and its surface impoundments are currently regulated by NPDES Permit No. IL0002232. *See* Petition, Exhibit H. At the time of this filing, there are no other Illinois EPA Bureau of Water permits issued to MWG and currently effective for the Powerton Station. Granting any of the Petitioner's variance requests will not impact the NPDES Permit.

58. The variance request affects operating and construction permit applications for the Metal Cleaning Basin under Part 845, but any relief requested specific to the Metal Cleaning Basin will not impact the operating and construction permit applications for any other CCR surface impoundment located at the Powerton Station, provided that the facility-wide plans submitted with those applications are complete.

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[6] 6 This is consistent with the Agency's position in the Board's rulemaking proceedings *In the Matter of Standards for the Disposal of Coal Combustion Residuals in Surface Impoundment: Proposed New 35 Ill. Adm. Code 845*, PCB R2020-019. *See* First Supplement to IEPA's Pre-Filed Answers, pp. 24-25 (Aug. 5, 2020) and Hearing Transcript, pp.138-39 (August 13, 2020).

XI. RECOMMENDATION

59. The petitioner is required to present a detailed compliance plan in its Petition for Variance. 35 Ill. Adm. Code §104.204(f). The Petition provides such a compliance plan along with recommended variance conditions. *See* Petition, pp. 20-23.

60. MWG proposes that the requested variance from the deadlines imposed by Part 845 (*see* Section I above) be granted subject to the following conditions:

a. The variance applies only to the Metal Cleaning Basin at MWG's Powerton Station.

b. MWG shall collect and analyze eight independent samples from each background and downgradient well for all constituents with a groundwater protection standard listed in Section 845.600(a) and also for Calcium, and Turbidity by January 31, 2022.

c. MWG shall submit the operating permit application required by Section 845.230 for the Metal Cleaning Basin by March 31, 2022.

d. MWG shall submit the closure category designation required by Section 845.700(c) for the Metal Cleaning Basin to the Illinois EPA by March 31, 2022.

e. If MWG designates the Metal Cleaning Basin as a Category 5 CCR surface impoundment, then it shall submit the construction permit application pursuant to Section 845.220 by December 1, 2022.

f. If the Metal Cleaning Basin is not designated as a Category 5 CCR surface impoundment, no variance relief from the construction permit application deadline has been requested or granted.

g. The variance shall begin on May 11, 2021.

h. The variance ends on March 31, 2022, if the Metal Cleaning Basin is not designated as a Category 5 CCR Surface Impoundment pursuant to Section 845.700(g). The variance ends on December 1, 2022, if the Metal Cleaning Basin is instead designated as Category 5 CCR Surface Impoundment.

See Petition, pp. 22-23.

61. Illinois EPA must recommend to the Board what disposition should be made of the petition, deny or grant, and suggested conditions. If the Agency recommends that variance be granted, the Agency must also recommend a beginning and end date of the requested variance and recommend any conditions on the variance. 415 ILCS 5/37(a); 35 Ill. Adm. Code §104.216(b)(11).

62. Illinois EPA neither supports nor objects to MWG's request to extend its deadlines for completing its background groundwater sampling and submitting its operating permit application and category designation for the Metal Cleaning Basin, but the Agency recommends the Board deny MWG's request to extend its deadlines to complete the fugitive dust control plan and emergency action plan, and to submit its construction permit application for closure.

63. Regarding the specific variance conditions proposed by MWG and listed in Paragraph 60 above, Illinois EPA neither supports nor objects to (a) through (d) and (g). Illinois EPA does object to (e), (f), and (h) and recommends the Board deny Petitioner's request to extend the construction permit application deadline, regardless of whether the Metal Cleaning Basin is ultimately classified as a Category 5 or Category 7 CCR surface impoundment. Specific to (b), Illinois EPA requests that, if the Board grants Petitioner's request to extend its time to collect the eight samples, it require MWG to use only samples obtained with low flow procedures, beginning the first of its eight samples with the April 8, 2021 sampling event. In accordance with Illinois EPA's recommendations, any variance granted should expire on March 31, 2022.

64. Section 36 of the Act provides that "[i]f the hardship complained of consists solely of the need for a reasonable delay on which to correct a violation of this Act or of the Board's regulations, the Board shall condition the grant of such a variance upon posting of sufficient performance bond or other security to assure the completion of the work covered by the variance." Subpart I of Part 845 requires financial assurance for CCR surface impoundments in Illinois, which includes

financial assurance for closure, post-closure care and corrective action, all of which would include associated groundwater monitoring requirements. Therefore, the Board should not have to condition the grant of a variance on any additional performance bond.

65. Illinois EPA reserves the right to supplement this Recommendation any time prior to the closure of the record in this proceeding.

Wherefore, for the reasons stated and subject to the conditions provided above, Illinois EPA neither supports nor objects to MWG's request to extend its deadlines for completing its background groundwater sampling and submitting its operating permit application and category designation for the Metal Cleaning Basin, but Illinois EPA recommends that the Board deny MWG's request to extend its deadlines to complete the fugitive dust control plan and emergency action plan, and to submit its construction permit application for closure.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

Respondent,

Dated: June 25, 2021

BY: /s/ Christine Zeivel
Christine Zeivel, #6298033
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544
Christine.Zeivel@Illinois.Gov

THIS FILING IS SUBMITTED ELECTRONICALLY

CERTIFICATE OF SERVICE

I, the undersigned, on affirmation certify the following:

That I have served the attached **RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY** with supporting documents by e-mail upon Kristen L. Gale at the e-mail address of kg@nijmanfranzetti.com, upon Susan Franzetti at the e-mail address of sf@nijmanfranzetti.com, upon Molly Snittjer at the e-mail address of ms@nijmanfranzetti.com, upon Carol Webb at the e-mail address of Carol.Webb@illinois.gov, and upon Don Brown at the e-mail address of Don.Brown@illinois.gov.

That I have served the attached **RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY** with supporting documents 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 June 25, 2021.

That my e-mail address is Christine.Zeivel@Illinois.gov.

That the number of pages in the e-mail transmission is four hundred seventeen (417).

That the e-mail transmission took place before 4:30 p.m. on the date of June 25 2021.

/s/ Christine Zeivel
June 25, 2021

Exhibit List

Exhibit A – Illinois EPA Letter to MWG re: Invoice for CCR Surface Impoundments at the Powerton Station, dated March 25, 2020.

Exhibit B – Illinois EPA Water Pollution Control Permit No. 2009-EB-2748, issued November 13, 2009.

Exhibit C – Illinois EPA Violation Notice No. W-2012-00057, issued June 11, 2012.

Exhibit D – Illinois EPA Approval of the Compliance Commitment Agreement for VN W-2012-00057, dated October 24, 2012.

Exhibit E – MWG Groundwater Management Zone Application for the Powerton Station, received January 22, 2013.

Exhibit F – Illinois EPA Approval of the Groundwater Management Zone Application for the Powerton Station, dated October 3, 2013.

Exhibit G –Quarterly Groundwater Monitoring Report for the Powerton Station, received April 30, 2021.

Exhibit H – *Sierra Club, et. al v. Midwest Gen., LLC,* PCB 13-15, Interim Opinion and Order of the Board (June 20, 2019).

Exhibit I – Illinois EPA Initial Invoice, issued for the Powerton Station December 16, 2019.

Exhibit J – MWG Letter to Illinois EPA Accounts Receivable, dated May 8, 2020.

Exhibit K – Affidavit of Darin E. LeCrone

Exhibit L – Affidavit of Lynn E. Dunaway

Exhibit

A

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR
JOHN J. KIM, DIRECTOR

217-782-1020

March 25, 2020

Powerton Generating Station
Attn: Accounts Payable
13082 East Manito Road
Pekin, Illinois 61554-8587

Re: Invoice for CCR Surface Impoundments at the Powerton Station.

Dear Sir or Madame:

Pursuant to Section 22.59(j) of the Illinois Environmental Protection Act ("Act"), the Illinois Environmental Protection Agency ("Illinois EPA") invoiced coal combustion residuals ("CCR") surface impoundments at an electrical generating facility operated by Midwest Generation at the Powerton Generating Station (Powerton Station). These invoices provided a billing date of December 16, 2019, and a due date of January 31, 2020.

To date, Midwest Generation has failed to timely remit payment to Illinois EPA for invoiced CCR surface impoundments. In a meeting on January 7, 2020, and in a letter dated January 29, 2020, Midwest Generation has disputed whether one or more of the invoiced CCR surface impoundments should be considered a CCR surface impoundment as defined in Section 3.143 of the Act (415 ILCS 5/3.143).

Illinois EPA provides the following preliminary analysis regarding the disputed CCR surface impoundments and maintains that fees are owing to Illinois EPA:

Powerton Station W1798010008-02 Secondary Ash Basin

- Permit #2010EB0007 states that the Secondary Ash Basin will receive ash and slag sluice waters.
- Discussions with Midwest Generation staff on January 7, 2020, indicate that before relining in 2013 the basin had never required cleaning to function.

Midwest Generation may make a demonstration that the Secondary Ash Basin does not contain CCR and Illinois EPA will review such a demonstration. Midwest Generation may submit an environmental media sampling plan of the bottom contents of this Pond for Illinois EPA review.

Based on the above, the Illinois EPA does not consider the Secondary Ash Basin to have completed closure. The appropriate fee for a CCR surface impoundment that has not completed closure is $75,000.00.

Powerton Station W1798010008-03 Metal Cleaning Basin

- Permit #2009EB2748 states that the Metal Cleaning Basin will receive ash and slag sluice waters.
- Discussions with Midwest Generation staff on January 7, 2020 confirm that CCR is periodically placed in the Metal Cleaning Basin.

Based on the above, the Illinois EPA does not consider the Metal Cleaning Basin to have completed closure. The appropriate fee for a CCR surface impoundment that has not completed closure is $75,000.00.

Total Fees Due to the Agency

Powerton Station	
W1798010008-02 Secondary Ash Basin	$75,000.00*
W1798010008-03 Metal Cleaning Basin	$75,000.00
Total	**$150,000.00**

*The Illinois EPA is allowing Midwest Generation to make a further demonstration that this pond does not meet the definition of a CCR surface impoundment, which could reduce the total by $75,000.00.

Given the above analyses, Illinois EPA requests that within 30 days Midwest Generation either, submit the fees that are due, or arrange a meeting or conference call to discuss any surface impoundments still in dispute. Please note that the Illinois EPA may utilize any available collection procedures to recover unpaid fees.

Please submit all payments responsive to this notification to: Illinois EPA, Fiscal Services #2, P.O. Box 19276, Springfield, Illinois 62794-9276. If you have any questions concerning the information provided above, please call 217-782-1020.

Sincerely,

William E. Busch

William E. Buscher, P.G.
Manager, Hydrogeology and Compliance Unit
Division of Public Water Supplies
Bureau of Water

cc: Darin LeCrone
Rex Gradeless
Ai Kindlon
Records

Exhibit

B

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2748-09

PERMIT NO.: 2009-EB-2748

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Natural Resource Technology Group

DATE ISSUED: NOV 13 2009

SUBJECT: MIDWEST GENERATION LLC - Powerton Generating Station - Metal Cleaning Basin Liner Replacement - Discharge Tributary to the Illinois River

PERMITTEE TO CONSTRUCT AND OPERATE

Midwest Generation, LLC
235 Remington Blvd., Suite A
Bolingbrook, IL 60440

Permit is hereby granted to the above designated permittee(s) to construct and operate water pollution control facilities described as follows:

The Metal Cleaning Basin at the Powerton Generating Station located at 13082 East Manito Rd. in Pekin, Illinois will undergo a liner upgrade by the addition of a 60 mil HDPE geomembrane liner. At the base, a 12 inch thick sand or limestone cushion layer and a 6 inch coarse aggregate warning layer will be placed on top of the new HDPE liner.

Once complete the liner system will consist of the existing chlorosulfonated polyethylene liner and the new 60 mil HDPE geomembrane liner. The DMF of 1.19 MGD and working volume of 5.4 million gallons at 3 to 6 feet of freeboard for the Metal Cleaning Basin will remain unchanged.

This operating permit expires on September 30, 2014.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: The Permittee to Construct shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activities associated with this project will result in the disturbance of one (1) or more acres total land area.

An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control - Permit Section.")

SPECIAL CONDITION 2: The operational portion of this permit shall be governed by NPDES Permit No. IL0002232.

SPECIAL CONDITION 3: All sludges generated on site shall be disposed of at a site and in a manner acceptable to the Agency.

SPECIAL CONDITION 4: The existing Midwest Generation waste storage lagoon shall adhere to the following groundwater protection elements:

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

SAK:JAR:2748-09.docx

DIVISION OF WATER POLLUTION CONTROL

Alan Keller by DEL

Alan Keller, P.E.
Manager, Permit Section

cc: EPA-Peoria FOS
Natural Resource Technology Group
Records - Industrial
Binds

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2748-09

PERMIT NO.: 2009-EB-2748

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Natural Resource Technology Group

DATE ISSUED: NOV 13 2009

SUBJECT: MIDWEST GENERATION LLC - Powerton Generating Station - Metal Cleaning Basin Liner Replacement - Discharge Tributary to the Illinois River

1. A minimum of three monitoring wells must be installed around the waste storage lagoon, no more than 25 feet from the outermost edge of the waste storage lagoon. At least one of the monitoring wells must be located down gradient of the waste storage lagoon. The monitoring wells should be screened in the upper most water bearing materials. Provide drillers logs and well completion reports, and an updated monitoring well location map after well completion.

2. At least six groundwater samples must be collected from each monitoring well within one year, to establish a statistically valid representation of existing (background) concentrations.

3. Sample monitoring wells for the chemical parameters listed in 35 IAC 620.410(a) and (d). The sampling plan will be required as part of the permit. The following parameters listed below should also be sampled.

   Specific Conductance
   Temperature
   Depth to Water (bls)
   Depth to Water (bmp)
   Elevation of MP
   Elevation of GW Surface

4. After a background concentration for each constituent is determined, monitoring will be conducted and reported monthly during waste storage lagoon use.

5. In the event that any Class I: Potable Resource Groundwater Quality Standards are exceeded in any potable water supply well, and is attributable to the operation of the waste storage lagoon, an alternative water supply shall be supplied with all costs of providing the alternative supply being borne by the owner of waste storage lagoon.

6. A corrective action plan is required, if monitoring well analysis indicates impacted groundwater from the waste storage lagoon.

7. The liner must be protected from degradation.

8. Copies of the groundwater monitoring well sample analysis shall be submitted to the following addresses:

   Illinois EPA
   Division of Water Pollution Control
   Compliance Assurance Section
   1021 North Grand Avenue East
   P.O. Box 19276
   Springfield, Illinois 62794-9276

   Illinois EPA
   DWPC - Peoria Region
   5415 North University Ave.
   Peoria, Illinois 61614

   Illinois EPA
   Hydrogeology and Compliance Unit
   1021 North Grand Avenue East
   P.O. Box 19276
   Springfield, Illinois 62794-9276

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

TREATMENT REVIEW CHECKLIST

Subject: Midwest Generation – Powerton Generating Station — Page 1 of 1
Data: 2748-09
Reviewed By: Jaime Rabins — Date: October 29, 2009

A. General Information

1. Permit Type:
   ☒ Construction
   ☐ Operation
   ☐ Construct and Operate

	Yes	No	N/A
2. Application			
PE Signature	☒	☐	☐
Applicant and Signature	☒	☐	☐
Attested (if applicant is a unit of government)	☐	☐	☒
Intermediate Sewer Owner	☐	☐	☒
Additional Certificate by Intermediate Sewer Owner	☐	☐	☒
Waste Treatment Works Owner	☐	☐	☒
City on CR/RS (Effective Date of CR/RS List:)	☐	☐	☒
Certified Operator	☐	☐	☒

3. Type of Operation
   Steam Electric Power Plant

4. Type of Waste:	Ave (mgd)	Max (mgd)
a. Plating Solution		
b. Rinse Water		
c. Cooling Water		
d. Other (Specify) Ash and Slag Sluice Water		1.19
e. Total		

5 Discharge To	Yes	No	N/A
POTW:	☐	☒	☐
Stream: Chicago Sanitary and Ship Canal	☒	☒	☐
Other:	☐	☒	☐
6 Plans and Specifications for Treatment Works Provided	☒	☐	☐
7 Water Supply Source:			
8 Does City have Sewer Ordinance?	☐	☐	☒

B. General Comments

The project is for the addition of a 60 mil HDPE Geomembrane liner to the existing liner system.

Since no additional wastewater sources or change in treatment is being proposed the quantity or quality should equivalent to the existing quality and would not require additional review.

A CROPA was sent to the DPWS HCU on September 29, 2009. A Memo from the HCU dated October 13, 2009 was received the same day. The HCU determined that the lagoon is a potential secondary source. Three GW well must be installed around the lagoon. Six samples for the parameters listed in 35 IAC 620.410(a) and (d), specific conductance, temperature, depth to water (bls), depth to water (bmp), elevation of MP, and elevation of GE surface must be taken from each well within one year before the pond is used. Groundwater must be monitored monthly for the parameters listed above.

A construction permit will be issued for the addition of a 60 mil HDPE Geomembrane liner. At the base a 12 inch thick sand or limestone cushion layer and a 6 inch coarse aggregate warning layer will be placed on top of the new HDPE liner.

Once complete the liner system at the will consist of the existing chlorosulfonated polyethylene liner and the new 60 mil HDPE Geomembrane liner. The DMF of 1.19 MGD and working volume of 5.4 million gallons at 3 to 6 feet of freeboard for the Metal Cleaning Basin will remain unchanged.

All sludges generated on site will be required to be disposed of at a site and in a manner acceptable to the Agency and the operation portion of the permit will be governed by IL0002232. If more than one acre is disturbed an NOI will be required. The condtions from DPWS HCU will also be incorpoarted into the permit.

04-020

DWPC CROPA FACT SHEET AND MEMORANDUM

Logged in 10-22-09
CBS

UF

DATE: October 19, 2009

in, TO:
______________ DAPC
Steve Nightengale #33 DLPC
______________ DPWS

FROM: Jaime Rabins DWPC CONTACT PERSON

SUBJECT: Candidate for Coordinated Permit Review
Midwest Generation - Powerton Generating Station, Pekin, IL
Name of Project Project Location or Site

On 8/7/09, ______________ (called/[✓ submitted application]) which indicated they would be a potential candidate for a coordinated permit review for this project. A basic description of the project is as follows:

>10,000 P.E...., Contains Toxics.........
Storage of Haz. or Toxic Wastes..........
Facility Treats Haz. or Toxic Wastes.....
Sludge Produced... other Permits may be required...

Source of Waste = APC Device.......
LPC Facility.....
PWS Facility.....

NOTE: PLEASE RESPOND BY 10/30/09.

COMMENTS: The production of 2350 dry tons per year of coal ash and settled solids including metals from boiler wash water. The sludge is hauled by Dave Clinard Trucking to the Buckheart Mine in Canton, Illinois. Sludge storage time is not specified in the application.

- -

TO: Jaime Rabins DWPC

FROM: Ukanno Foxworth DLC CONTACT PERSON ______________ Tel #
SDAU

(FOR DWPC USE ONLY __ CHECK HERE IF NOT SUBJECT TO CROPA)

(1) A permit Is Needed/Has Been Issued/[✓ Is Not Required]
(2) Project is Significant/[✓ Not Significant]

Please attach specific language for any special conditions required.

BL:bv/sp/3118C/1
(Revised 12/86)

Note: The facility is not required to get a permit from BOL for the sludge provided they follow the requirements in EPA Act Section 21(r).

IL 532-1533
WPC 320 1/87

2748-09

For IEPA Use:
RECEIVED
AUG 07 2009
Environmental Protection Agency
WPC-Permit Log In

Illinois Environmental Protection Agency
Permit Section, Division of Water Pollution Control
P.O. Box 19276
Springfield, Illinois 62794-9276

Application for Permit or Construction Approval
WPC-PS-1

1. Owner Name: Midwest Generation EME, LLC

Name of Project: Powerton Metal Cleaning Basin Liner Replacement

Township: Pekin County: Tazewell

2. Brief Description of Project:

Maintenance on Metal Cleaning Basin includes replacement of the pond liner. There will be no significant changes to current operation of the pond.

3. Documents Being Submitted: If the Project involves any of the items listed below, submit the corresponding schedule, and check the appropriate boxes.

	Schedule		Schedule
Private Sewer Connection/Extension	A/B ☐	Spray Irrigation	H ☐
Sewer Extension Construct Only	C ☐	Septic Tanks	I ☐
Sewage Treatment Works	D ☐	Industrial Treatment/Pretreatment	J ☑
Excess Flow Treatment	E ☐	Waste Characteristics	N ☑
Lift Station/Force Main	F ☐	Erosion Control	P ☐
Fast Track Service Connection	FTP ☐	Trust Disclosure	T ☐
Sludge Disposal	G ☑		

Plans: Title Metal Cleaning Basin Liner Replacement, Midwest Generation, Powerton Power Station, Pekin, IL No. of Pages: 4

Specifications: Title Section 02600, High Density Polyethylene (HDPE) Geomembrane No. of Books/Pages: 20

Other Documents: Facility photos (see attached)
(Please Specify)

3.1 Illinois Historic Preservation Agency approval letter: Yes ☐ No ☑

4. Land Trust: Is the project identified in item number 1 herein, for which a permit is requested, to be constructed on land which is the subject of a trust? Yes ☐ No ☑

If yes, Schedule T (Trust Disclosure) must be completed and item number 7.1.1 must be signed by a beneficiary, trustee or trust officer.

5. This is an Application for (Check Appropriate Line):

☐ A. Joint Construction and Operating Permit
☑ B. Authorization to Construct (See Instructions) NPDES Permit No. IL00 02232
☐ C. Construct Only Permit (Does Not Include Operations)
☐ D. Operate Only Permit (Does Not Include Construction)

6. Certifications and Approval:

6.1 Certificate by Design Engineer (When required: refer to instructions)
I hereby certify that I am familiar with the information contained in this application, including the attached schedules indicated above, and that to the best of my knowledge and belief such information is true, complete and accurate. The plans and specifications (specifications other than Standard Specifications or local specifications on file with this Agency) as described above were prepared by me or under my direction.

Engineer Name: Heather M. Simon

Registration Number: 062 - 060491
(3 digits) (6 digits)

Firm: Natural Resource Technology, Inc.

Address: 23713 W. Paul Rd, Suite D

City: Pewaukee State: WI Zip: 53072 Phone No:

Signature X Heather M Simon Date: 7|27|09

(Seal)
ILLINOIS
HEATHER M.
SIMON
062.060491
WATERTOWN
WI
PROFESSIONAL ENGINEER

7. Certifications and Approvals for Permits:

7.1 Certificate by Applicant(s)
I/We hereby certify that I/we have read and thoroughly understand the conditions and requirements of this Application, and am/are authorized to sign this application in accordance with the Rules and Regulations of the Illinois Pollution Control Board. I/We hereby agree to conform with the Standard Conditions and with any other Special Conditions made part of this Permit.

7.1.1 Name of Applicant for Permit to Construct: Midwest Generation EME, LLC

Address: 13082 E Manito Road

City: Pekin State: IL Zip Code: 61554

Signature X Date: 8-4-2009

Printed Name: Mike Hanrahan Phone No:

Title:

Organization:

7.1.2 Name of Applicant for Permit to Own and Operate: Same as above

Address:

City: State: Zip Code:

Signature X Date:

Printed Name: Phone No:

Title:

7.2 Attested (Required When Applicant is a Unit of Government) N/A

Signature X ______________________ Date: ______________

Title: ______________________________
(City Clerk, Village Clerk, Sanitary District Clerk, Etc.)

7.3 Applications from non-governmental applicants which are not signed by the owner, must be signed by a principal executive officer of at least the level of vice president, or a duly authorized representative.

7.4 Certificate By Intermediate Sewer Owner N/A

I hereby certify that (Please check one):

☐ 1. The sewers to which this project will be tributary have adequate reserve capacity to transport the wastewater that will be added by this project without causing a violation of the environmental Protection Act or Subtitle C. Chapter I, or

☐ 2. The Illinois Pollution Control Board, in PCB __________ dated __________granted a variance from Subtitle C, Chapter I to allow construction of facilities that are the subject of this application.

Name and location of sewer system to which this project will be tributary:

____

Sewer System Owner: ______________________________

Address: ______________________________

City: ______________________ State:______ Zip Code: ______________

Signature X ______________________ Date: ______________

Printed Name: ______________________ Phone No: ______________

Title: ______________________________

7.4.1 Additional Certificate By Intermediate Sewer Owner N/A

I hereby certify that (Please check one):

☐ 1. The sewers to which this project will be tributary have adequate reserve capacity to transport the wastewater that will be added by this project without causing a violation of the environmental Protection Act or Subtitle C. Chapter I, or

☐ 2. The Illinois Pollution Control Board, in PCB __________dated __________granted a variance from Subtitle C, Chapter I to allow construction facilities that are the subject of this application.

☐ 3. Not applicable

Name and location of sewer system to which this project will be tributary:

____

Sewer System Owner:______________________________

Address: ______________________________

City: ______________________ State: ______ Zip Code: ______________

Signature X ______________________ Date:______________

Printed Name: ______________________________ Phone No: ________________

Title: ____

7.5 Certificate By Waste Treatment Works Owner N/A

I hereby certify that (Please check one):

☐ 1. The waste treatment plant to which this project will be tributary has adequate reserve capacity to treat the wastewater that will be added by this project without causing a violation of the Environmental Protection Act or Subtitle C, Chapter I, or

☐ 2. The Illinois Pollution Control Board, in PCB __________ dated __________ granted a variance from Subtitle C, Chapter I to allow construction and operation of the facilities that are the subject of this application.

☐ 3. Not applicable

I also certify that, if applicable, the industrial waste discharges described in the application are capable of being treated by the treatment works.

Name of Waste Treatment Works: ____

Waste Treatment Works Owner: ____

Address: ____

City: ______________________________ State: ______ Zip Code: ______________

Signature X ______________________________ Date: ________________

Printed Name: ______________________________ Phone No: ________________

Title: ____

Please return completed form to the following address:

Illinois Environmental Protection Agency
Permit Section, Division of Water Pollution Control
P.O. Box 19276
Springfield, Illinois 62794-9276

This Agency is authorized to require this information under Illinois Revised Statues, 1979, Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

2748-09

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that section. Failure to do so may prevent this form from being processed and could result in your application being denied.

For IEPA Use:

RECEIVED
DATE RECEIVED:
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Environmental Protection Agency
WPC-Permit Log In

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62794-9276

SCHEDULE G SLUDGE DISPOSAL & UTILIZATION

1. Name of Project Powerton Metal Cleaning Basin Liner Replacement

2. General Information

2.1 Source(s) Boiler wash water

2.2 Production Volume per year 2,350 tons Dry Tons per year NA

2.3 Sludge to be disposed of is: Liquid NA Dry Tons NA

2.4 Sludge is: Aerobically digested ☐ , Anaerobically digested ☐ , Heat Anaerobically digested ☐, Raw ☐, Chemically Stabilized ☐ , Composted ☐ , Wastewater Lagoon ☐ , WTP Lime ☐, WTP Alum ☐ , WTP Iron ☐ , Other ☒ ,
If other, describe Coal Ash . Mixture ☐ , If mixture, describe

2.5 Is the sludge defined as hazardous by State or Federal Law? YES ☐ NO ☒ . If yes, basis.

2.6 Is sludge to be stored on the STP site? YES ☐ NO ☒ If yes, type of storage, lagoon ☐ , storage tank ☐ , Other ☐ . If other, describe capacity of storage, cu. ft.

2.7 Sludge Hauling

2.7.1 Name(s), address(es) and Illinois Transporters I.D. Numbers

Dave Clinard Trucking - DOT# 280869
Route 24 West; Mt. Sterling, IL 62353

2.7.2 For industrial generators, has Illinois Generator ID Number and Authorization Number been issued? YES ☒ NO ☐
If no, contact the Division of Land Pollution Control.

Illinois Generator ID Number ILD000665471

Authorization Number 9290-99

3. Methods of Sludge Disposal and/or Utilization

3.1 Land Application

3.1.1 Indicate the number of dry tons of sludge per year to be disposed by each of the following methods:
Agricultural land ☐ , Commercial Fertilizer Production ☐ , Dedicated Land Disposal ☐ , Disturbed Land Reclamation ☒ , Silviculture ☐ , Horticultural Lands ☐ , Public Distribution ☐ , Other ☐ ,
If other, specify

3.1.2 Sludge Disposal Site Location. Provide a map (USGS Quadrangle map or plat map) showing location.

Name of USGS Quadrangle Map (7.5 or 15 minute) or plat map

3.1.3 Provide soil survey map and soil description for disposal site. Identify name of soil survey and map sheet number for each soil survey map provided.

3.1.4 Is sludge to be stored at disposal site? YES ☐ NO ☐ . If yes, describe and state the storage volume ________ cubic feet.

3.1.5 Provide a copy of sludge user information sheet and completed, signed copies for any known users.

3.1.6 In a narrative description provide operating practices and design features to prevent ground and/or surface water pollution, potable water supply wellhead protection and other buffer distances, calculations supporting storage capacity, total acres available, soil characteristics, operational contingencies, etc.

Disposed at Coal Mine once a year at:
Buckheart Mine
22116 E County 6 Hwy
Canton, IL 61520

3.1.7 Submit calculations of sludge application rate for agronomic rate, organic loading and metal loading rate.

3.2 Landfilling ☐ on-site ☐ off-site

3.2.1 Sanitary Landfill ☐ Special Waste Landfill ☐ Hazardous Waste Landfill ☐ Other ☐

If other, specify ________________________________

3.2.2 Name and Location of Landfill(s)

3.2.3 IEPA Permit Number(s) ________________ ; ________________ ;

3.3 Incineration

3.3.1 Name and Location NA

3.3.2 IEPA Permit Number(s) ________________ ; ________________ ;

3.3.3 Ultimate Disposal of Incinerator residue

4. Sludge Characteristics

Submit complete analyses of sludge characteristics in mg/kg dry wt. basis unless otherwise indicated. The analyses shall be performed unless the sludge is disposed of by incineration or at an off-site landfill. Analyses performed shall include but not be limited to parameters below:

Parameter
% TS
% VS
COD mg/l
pH
BOD_5 mg/l
Acidity meq of CaCO3 at pH
Alkalinity meq of CaCO3 at pH
Oil and Grease mg/l
Phenols mg/l
Cyanide
Sulfate (total) mg/l
Sulfide (total) mg/l
Sodium
EC mmhos/cm
TOC

Parameter
Sulfur
Aluminum (total)
Arsenic (total)
Barium (total)
Cadmium (total)
Cobalt (total)
Chromium, hex (total)
Chromium (total)
Copper (total)
Iron (total)
Mercury (total)
Manganese (total)
Molybdenum (total)
Nickel (total)
Lead (total)

Ammonia mg/l
Total Kjeldahl Nitrogen mg/l
Phosphorus
Potassium
% Volatile Acids, if anaerobically digested

Selenium (total)
Vanadium (total)
Zinc (total)
Radium 226 pCi/g
Radium 228 pCi/g
Other*

*Include results of any hazardous waste characteristics tests performed for: 1) EP Toxicity, 2) Corrosivity, 3) Ignitability, and 4) Reactivity.

2748-09

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LOG #
DATE RECEIVED:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION

Springfield, Illinois 62706

SCHEDULE J INDUSTRIAL TREATMENT WORKS CONSTRUCTION OR PRETREATMENT WORKS

1. NAME AND LOCATION:

1.1 Name of project Powerton Metal Cleaning Basin Liner Replacement

1.2 Plant Location

1.2.1	SW	9	T24N	R5W	
	Quarter Section	Section	Township	Range	P.M.

1.2.2 Latitude 40 deg. 32 min. 80 sec. "NORTH

1.2.3 Longitude 89 deg. 40 min. 90 sec. "WEST

1.2.3 Name of USGS Quadrangle Map (7.5 or 15 minute) ______

2. NARRATIVE DESCRIPTION AND SCHEMATIC WASTE FLOW DIAGRAM: (see instructions)

During annual maintenance of the Powerton Power Station boilers, cleaning/wash water flows to the metal cleaning basin periodically between March and June of each year, as shown on attached waste flow diagram.

2.1 PRINCIPAL PRODUCTS:

electrical power

2.2 PRINCIPAL RAW MATERIALS:

coal

3. DESCRIPTION OF TREATMENT FACILITIES:

3.1 Submit a flow diagram through all treatment units showing size, volumes, detention times, organic loadings, surface settling rate, weir overflow rate, and other pertinent design data. Include hydraulic profiles and description of monitoring systems.

3.2 Waste Treatment Works is: Batch ☐ , Continuous ☒ , No. of Batches/day ______ , No. of Shifts/day ______

3.3 Submit plans and specifications for proposed construction.

3.4 Discharge is: Existing ☒ ; Will begin on ______ .

4. DIRECT DISCHARGE IS TO: Receiving Stream ☒ Municipal Sanitary Sewer ☐ Municipal storm or municipal combined sewer ☐

If receiving stream or storm sewer are indicated complete the following:

Name of receiving stream Old Intake Channel ; tributary to Illinois River ;

tributary to ______ ; tributary to ______ ;

5. Is the treatment works subject to flooding? Yes ☐ No ☒ If so, what is the maximum flood elevation of record (in reference to the treatment works datum) and what provisions have been made to eliminate the flooding hazard?

6. APPROXIMATE TIME SCHEDULE: Estimated construction schedule:

Start of Construction 10/15/09 ; Date of Completion 12/31/09

Operation Schedule not in service btw 7/09 & Spring 2010 Date Operation Begins Spring 2010

100% design load to be reached by year ______ .

7. DESIGN LOADINGS

7.1 Design population equivalent (one population equivalent is 100 gallons of wastewater per day, containing 0.17 pounds of BOD_5 and 0.20 pounds of suspended solids;

BOD NA ; Suspended Solids NA ; Flow NA .

7.2 Design Average Flow Rate NA MGD.

7.3 Design Maximum Flow Rate NA MGD.

7.4 Design Minimum Flow Rate NA MGD.

7.5 Minimum 7-day, 10-year low flow NA cfs NA MGD.

Minimum 7-day, 10-year flow obtained from NA

7.6 Dilution Ratio NA :

8. FLOW TO TREATMENT WORKS (if existing):

8.1 Flow (last 12 months)

8.1.1 Average Flow 0.89 MGD

8.1.2 Maximum Flow 1.19 MGD

8.2 Equipment used in determining above flows

9. Has a preliminary engineering report for this project been submitted to this Agency for Approval?

Yes ☐ No ☒ . If so, when was it submitted and approved. Date Submitted

Certification #

Dated

10. List Permits previously issued for the facility:

NPDES Permit No. IL0002232

11. Describe provisions for operation during contingencies such as power failures, flooding, peak loads, equipment failure, maintenance shut downs and other emergencies.

There is no equipment in the basin. Influent pumped to basin, so in the event of power failure or equipment malfunction, the flow of influent to the basin stops.

12. Complete and submit Schedule G if sludge disposal will be required by this facility.

13. WASTE CHARACTERISTICS: Schedule N must be submitted.

14. TREATMENT WORKS OPERATOR CERTIFICATION: List names and certification numbers of certified operators:

Mark Kelly (see attached certification)

2748-09

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that section. Failure to do so may prevent this form from being processed and could result in your application being denied.

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DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62794-9276

SCHEDULE N WASTE CHARACTERISTICS

1. Name of Project Powerton Metal Cleaning Basin Liner Replacement

2. FLOW DATA	EXISTING	PROPOSED-DESIGN
2.1	0	NA
2.2 Maximum Daily Flow (gpd)	1,190,000	NA

2.3 TEMPERATURE

Time of Year	Avg. Intake Temp. F	Avg. Effluent Temp. F	Max. Intake Temp F.	Max. Effluent Temp F.	Max. Temp. Outside Mixing Zone F
SUMMER	NA	NA	NA	NA	NA
WINTER	NA	NA	NA	NA	NA

2.4 Minimum 7-day, 10-year flow: NA cfs NA MGD.

2.5 Dilution Ratio: NA :

2.6 Stream flow rate at time of sampling NA cfs NA MGD.

3. CHEMICAL CONSTITUENT Existing Permitted Conditions ☒ ; Existing conditions ☐ ; Proposed Permitted Conditions ☐

Type of sample: ☐ grab (time of collection ________); ☒ composite (Number of samples per day NA)

(see instructions for analyses required)

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Ammonia Nitrogen (as N)	NA	NA	NA	NA
Arsenic (total)	NA	NA	NA	NA
Barium	NA	NA	NA	NA
Boron	NA	NA	NA	NA
BOD_5	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA
Carbon Chloroform Extract	NA	NA	NA	NA
Chloride	NA	NA	NA	NA
Chromium (total hexavalent)	NA	NA	NA	NA
Chromium (total trivalent)	NA	NA	NA	NA

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Copper	NA	<0.010 / <0.010	NA	NA
Cyanide (total)	NA	NA	NA	NA
Cyanide (readily released @ 150° F & pH 4.5)	NA	NA	NA	NA
Dissolved Oxygen	NA	NA	NA	NA
Fecal Coliform	NA	NA	NA	NA
Fluoride	NA	NA	NA	NA
Hardness (as $CaCO_3$)	NA	NA	NA	NA
Iron (total)	NA	0.047 / 0.210	NA	NA
Lead	NA	NA	NA	NA
Manganese	NA	NA	NA	NA
MBAS	NA	NA	NA	NA
Mercury	NA	NA	NA	NA
Nickel	NA	NA	NA	NA
Nitrates (as N)	NA	NA	NA	NA
Oil & Grease (hexane solubles or equivalent)	NA	<5.6 / <6.0	NA	NA
Organic Nitrogen (as N)	NA	NA	NA	NA
pH	NA	NA	NA	NA
Phenols	NA	NA	NA	NA
Phosphorous (as P)	NA	NA	NA	NA
Radioactivity	NA	NA	NA	NA
Selenium	NA	NA	NA	NA
Silver	NA	NA	NA	NA
Sulfate	NA	NA	NA	NA
Suspended Solids	NA	<4.9 / 11.0	NA	NA
Total Dissolved Solids	NA	NA	NA	NA
Zinc	NA	NA	NA	NA
Others				

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2748-09

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ANALYTICAL REPORT

Job Number: 500-19969-1

Job Description: Powerton Station

For:
Midwest Generation EME LLC
13082 E Manito Road
Pekin, IL 61554

Attention: Mr. Joe Heredia

Bonnie Stadelmann

Approved for release.
Bonnie M Stadelmann
Project Manager II
7/28/2009 4:28 PM

Bonnie M Stadelmann
Project Manager II
bonnie.stadelmann@testamericainc.com
07/28/2009

cc: Ms. Maria Race

These test results meet all the requirements of NELAC for accredited parameters.

The Lab Certification ID# is 100201.
TestAmerica Portland OR00040

All questions regarding this test report should be directed to the TestAmerica Project Manager whose signature appears on this report. All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

ACCREDITED IN ACCORDANCE WITH nelac

Job Narrative
500-J19969-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 9071B: A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: Due to the high moisture content of sample 500-19969-1, additional sodium sulfate was required to chemically dry the sample prior to analysis. Accordingly, the sample weight was reduced. This fact along with the higher correction for moisture content resulted in a higher reporting limit.

No other analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: Midwest Generation EME LLC

Job Number: 500-19969-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
500-19969-1	**MCW BASIN**				
Potassium		1900	77	mg/Kg	6010B
Sodium		7000	150	mg/Kg	6010B
Sulfate		13000	4300	mg/Kg	9038
pH		9.04	0.200	SU	9045C
Phenolics, Total Recoverable		1.5	0.60	mg/Kg	9066
TOC Dup		3700	120	mg/Kg	Lloyd Kahn
Percent Moisture		42	0.10	%	Moisture
Percent Solids		58	0.10	%	Moisture
Ammonia		38	31	mg/Kg	SM 4500 NH3 C
Nitrogen, Kjeldahl		250	64	mg/Kg	SM 4500 Norg C
Phosphorus as P		4100	580	mg/Kg	SM 4500 P E
Biochemical Oxygen Demand		70	3.4	mg/Kg	SM 5210B
Chemical Oxygen Demand		22000	2200	mg/Kg	SM 5220C
TCLP					
Cadmium		0.0094	0.0050	mg/L	6010B
Soluble					
Alkalinity-Soluble		1400	510	mg/Kg	SM 2320B

METHOD SUMMARY

Client: Midwest Generation EME LLC

Job Number: 500-19969-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Metals (ICP)	TAL CHI	SW846 6010B	
Toxicity Characteristic Leaching Procedure	TAL CHI		SW846 1311
Preparation, Total Metals	TAL CHI		SW846 3010A
Preparation, Metals	TAL CHI		SW846 3050B
Mercury (CVAA)	TAL CHI	SW846 7470A	
Toxicity Characteristic Leaching Procedure	TAL CHI		SW846 1311
Preparation, Mercury	TAL CHI		SW846 7470A
Acidity	TAL SAV	MCAWW 305.1	
Deionized Water Leaching Procedure	TAL SAV		ASTM DI Leach
Cyanide	TAL CHI	SW846 9014	
Cyanide, Distillation	TAL CHI		SW846 9010B
Sulfide, Acid Soluble and Insoluble (Titrimetric)	TAL CHI	SW846 9034	
Sulfide, Distillation (Acid Soluble and Insoluble)	TAL CHI		SW846 9030B
Sulfate, Turbidimetric	TAL CHI	SW846 9038	
Anions, Ion Chromatography, 10% Wt/Vol	TAL CHI		MCAWW 300_Prep
pH	TAL CHI	SW846 9045C	
Phenolics, Total Recoverable	TAL CHI	SW846 9066	
Distillation, Phenolics	TAL CHI		Distill/Phenol
HEM	TAL CHI	SW846 9071B	
HEM	TAL CHI		SW846 9071B
Organic Carbon, Total (TOC)	TAL CHI	NJDEP Lloyd Kahn	
Percent Moisture	TAL CHI	EPA Moisture	
Alkalinity	TAL CHI	SM SM 2320B	
Deionized Water Leaching Procedure	TAL CHI		ASTM DI Leach
Ammonia	TAL CHI	SM SM 4500 NH3 C	
Ammonia, Distillation	TAL CHI		SM SM 4500 NH3 B
Nitrogen-Total Kjeldahl	TAL CHI	SM SM 4500 Norg C	
Nitrogen, Total Kjeldahl	TAL CHI		MCAWW 351.3_Prep
Phosphorus	TAL CHI	SM SM 4500 P E	
Phosphorous, Total and Ortho	TAL CHI		SM SM 4500 P B
BOD, 5-Day	TAL CHI	SM SM 5210B	
COD	TAL CHI	SM SM 5220C	
COD	TAL CHI		SM SM 5220

Lab References:

TAL CHI = TestAmerica Chicago

TAL SAV = TestAmerica Savannah

METHOD SUMMARY

Client: Midwest Generation EME LLC

Job Number: 500-19969-1

Description	Lab Location	Method	Preparation Method

Method References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NJDEP = New Jersey Department of Environmental Protection

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Midwest Generation EME LLC

Job Number: 500-19969-1

Method	Analyst	Analyst ID
SW846 6010B	Smith, Todd D	TDS
SW846 7470A	Klee, George O	GOK
MCAWW 305.1	Vasquez, Juana	JV
SW846 9014	Moore, Colleen L	CLM
SW846 9034	Moore, Colleen L	CLM
SW846 9038	Boyd, Cheryl L	CLB
SW846 9045C	Moore, Colleen L	CLM
SW846 9066	Ficarello, Peter M	PMF
SW846 9071B	Brogan, Mary T	MTB
NJDEP Lloyd Kahn	Deb, Khona	KD
EPA Moisture	Boyd, Cheryl L	CLB
SM SM 2320B	Moore, Colleen L	CLM
SM SM 4500 NH3 C	Brogan, Mary T	MTB
SM SM 4500 Norg C	Brogan, Mary T	MTB
SM SM 4500 P E	Dillman, Jessica	JD
SM SM 5210B	Dillman, Jessica	JD
SM SM 5220C	Deb, Khona	KD

SAMPLE SUMMARY

Client: Midwest Generation EME LLC

Job Number: 500-19969-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
500-19969-1	MCW BASIN	Solid	07/14/2009 1310	07/15/2009 0930

SAMPLE RESULTS

Mr. Joe Heredia
Midwest Generation EME LLC
13082 E Manito Road
Pekin, IL 61554

Job Number: 500-19969-1

Client Sample ID: **MCW BASIN**
Lab Sample ID: **500-19969-1**

Date Sampled: 07/14/2009 1310
Date Received: 07/15/2009 0930
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	Dilution
Method: TCLP-6010B		Date Analyzed:	07/20/2009 1736	
Prep Method: 3010A		Date Prepared:	07/20/2009 1015	
Arsenic	<0.050	mg/L	0.050	1.0
Barium	<0.50	mg/L	0.50	1.0
Cadmium	0.0094	mg/L	0.0050	1.0
Chromium	<0.025	mg/L	0.025	1.0
Lead	<0.050	mg/L	0.050	1.0
Selenium	<0.050	mg/L	0.050	1.0
Silver	<0.025	mg/L	0.025	1.0
Method: 6010B		Date Analyzed:	07/17/2009 1412	
Prep Method: 3050B		Date Prepared:	07/17/2009 0752	
Potassium	1900	mg/Kg	77	1.0
Sodium	7000	mg/Kg	150	1.0
Method: TCLP-7470A		Date Analyzed:	07/21/2009 1329	
Prep Method: 7470A		Date Prepared:	07/21/2009 0900	
Mercury	<0.0020	mg/L	0.0020	1.0
Method: Soluble-305.1		Date Analyzed:	07/17/2009 0936	
Acidity	<200	mg/Kg	200	1.0
Method: 9014		Date Analyzed:	07/21/2009 1352	
Prep Method: 9010B		Date Prepared:	07/21/2009 1045	
Cyanide, Total	<0.48	mg/Kg	0.48	1.0
Method: 9034		Date Analyzed:	07/24/2009 1610	
Prep Method: 9030B		Date Prepared:	07/24/2009 1040	
Sulfide	<40	mg/Kg	40	1.0
Method: 9038		Date Analyzed:	07/21/2009 2341	
Prep Method: 300_Prep		Date Prepared:	07/17/2009 0001	
Sulfate	13000	mg/Kg	4300	50
Method: 9045C		Date Analyzed:	07/27/2009 1120	
pH	9.04	SU	0.200	1.0
Method: 9066		Date Analyzed:	07/22/2009 0803	
Prep Method: Distill/Phenol		Date Prepared:	07/21/2009 1400	
Phenolics, Total Recoverable	1.5	mg/Kg	0.60	1.0
Method: 9071B		Date Analyzed:	07/27/2009 1504	
Prep Method: 9071B		Date Prepared:	07/27/2009 0735	
HEM (Oil & Grease)	<1700	mg/Kg	1700	1.0

Mr. Joe Heredia
Midwest Generation EME LLC
13082 E Manito Road
Pekin, IL 61554

Job Number: 500-19969-1

Client Sample ID: MCW BASIN
Lab Sample ID: 500-19969-1

Date Sampled: 07/14/2009 1310
Date Received: 07/15/2009 0930
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	Dilution
Method: Lloyd Kahn		Date Analyzed:	07/24/2009 0843	
TOC Dup	3700	mg/Kg	120	1.0
Method: Moisture		Date Analyzed:	07/15/2009 2210	
Percent Moisture	42	%	0.10	1.0
Method: Soluble-SM 2320B		Date Analyzed:	07/20/2009 1229	
Alkalinity	1400	mg/Kg	510	1.0
Method: SM 4500 NH3 C		Date Analyzed:	07/16/2009 1436	
Prep Method: SM 4500 NH3 B		Date Prepared:	07/16/2009 0745	
Ammonia	38	mg/Kg	31	1.0
Method: SM 4500 Norg C		Date Analyzed:	07/16/2009 1443	
Prep Method: 351.3_Prep		Date Prepared:	07/16/2009 0730	
Nitrogen, Kjeldahl	250	mg/Kg	64	1.0
Method: SM 4500 P E		Date Analyzed:	07/20/2009 1235	
Prep Method: SM 4500 P B		Date Prepared:	07/17/2009 1339	
Phosphorus as P	4100	mg/Kg	580	50
Method: SM 5210B		Date Analyzed:	07/22/2009 1326	
Biochemical Oxygen Demand	70	mg/Kg	3.4	1.0
Method: SM 5220C		Date Analyzed:	07/24/2009 1352	
Prep Method: SM 5220		Date Prepared:	07/24/2009 0900	
Chemical Oxygen Demand	22000	mg/Kg	2200	10

DATA REPORTING QUALIFIERS

Client: Midwest Generation EME LLC

Job Number: 500-19969-1

Lab Section	Qualifier	Description
General Chemistry		
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

APPENDICES

SHEETS

[redacted]

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60466
Phone: 708.534.5200 Fax: 708.534.5211

EFFECTIVE 7/1/09 OUR NEW ZIP CODE IS 60484

Report To
Contact: M. Kelly
Company: MIDWEST GEN - POWERTON
Address: 13082 E. MANITO RD.
Address: PEKIN IL 61554
Phone: 309-477-5240
Fax: 309-477-5386
E-Mail: MKELLY@MWGEN.COM

Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-19969
Chain of Custody Number:
Page ____ of ____
Temperature °C of Cooler:

Client: MIDWEST GEN - POWERTON
Client Project #:
Project Name: MCW BASIN
Project Location/State: POWERTON / IL
Lab Project #:
Sampler: MARK KELLY
Lab PM: B. STADELMANN

Preservative: NONE →

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	TCLP METALS pH	BOD5 Oil & Grease	Phenols Cyanide	Sulfate Sulfide Sodium	Acidity mg Alkalinity mg	TDS Ammonia	Phosphorus Potassium C.O.D.	Total Kjeldahl Nitrogen		Comments
1		MCW BASIN	7-14-09	1:10pm	2	SL	X							X		

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. Cool to 4°
7. None
8. Other

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 10 days ___ 15 Days ________ Other

Sample Disposal
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
M. Kelly	MW GEN	7-14-09	1:45pm		TA	7/15/09	0930

Lab Courier:
Shipped: UPS
Hand Delivered:

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments:

Login Sample Receipt Check List

Client: Midwest Generation EME LLC

Job Number: 500-19969-1

Login Number: 19969
Creator: Lunt, Jeff T
List Number: 1

List Source: TestAmerica Chicago

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

Login Sample Receipt Check List

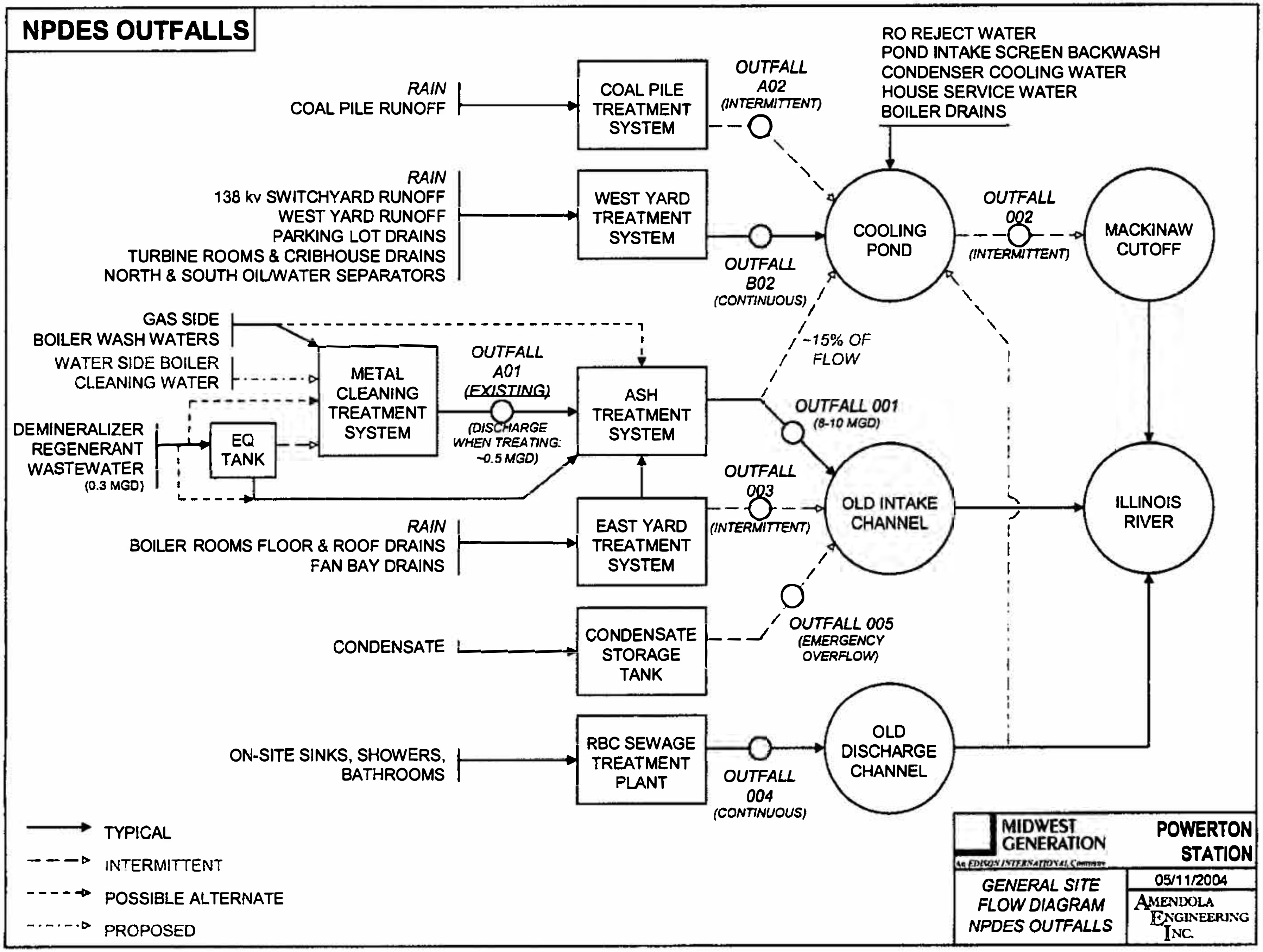
Client: Midwest Generation EME LLC

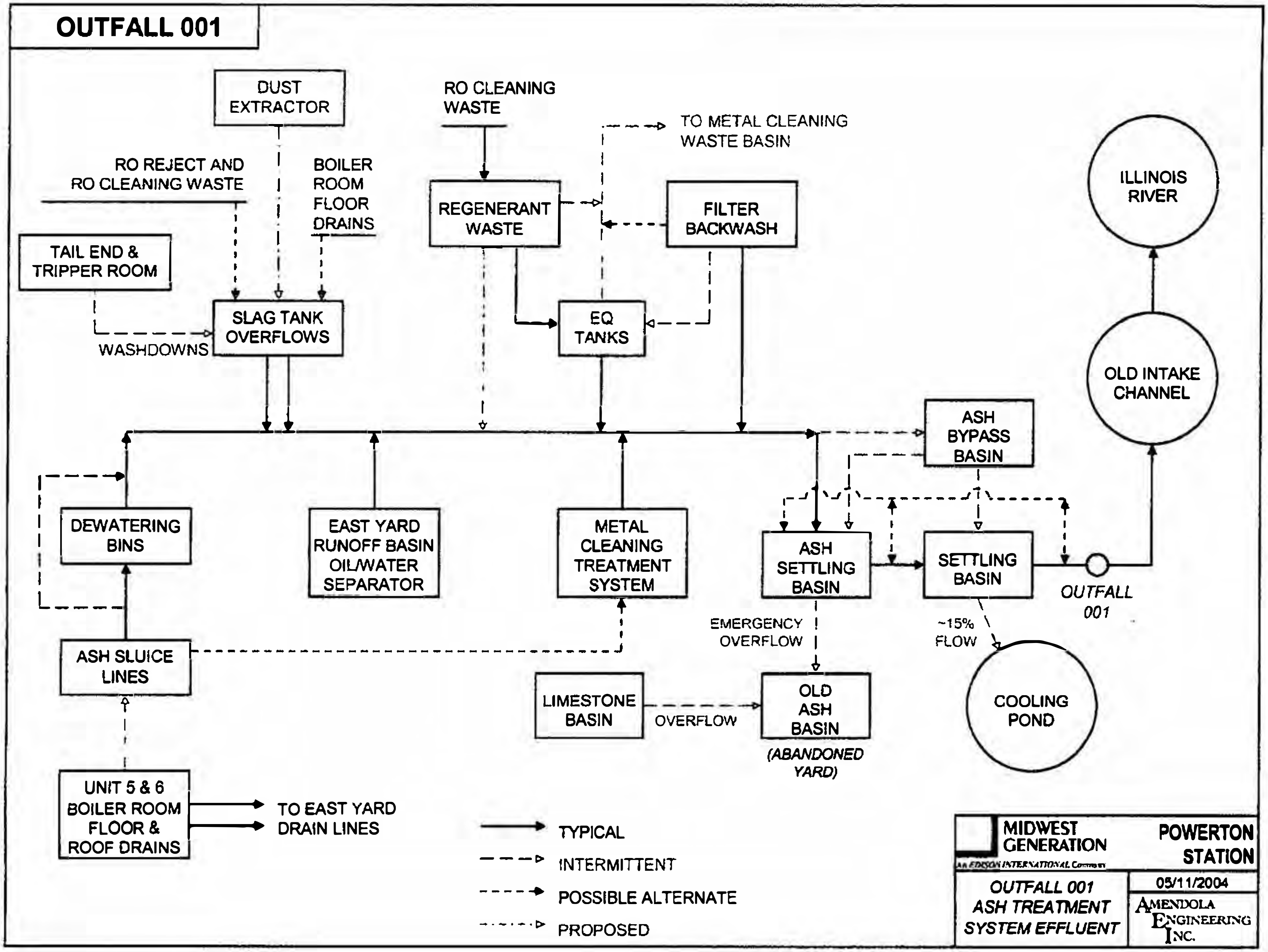
Job Number: 500-19969-1

Login Number: 19969
Creator: Conner, Keaton
List Number: 1

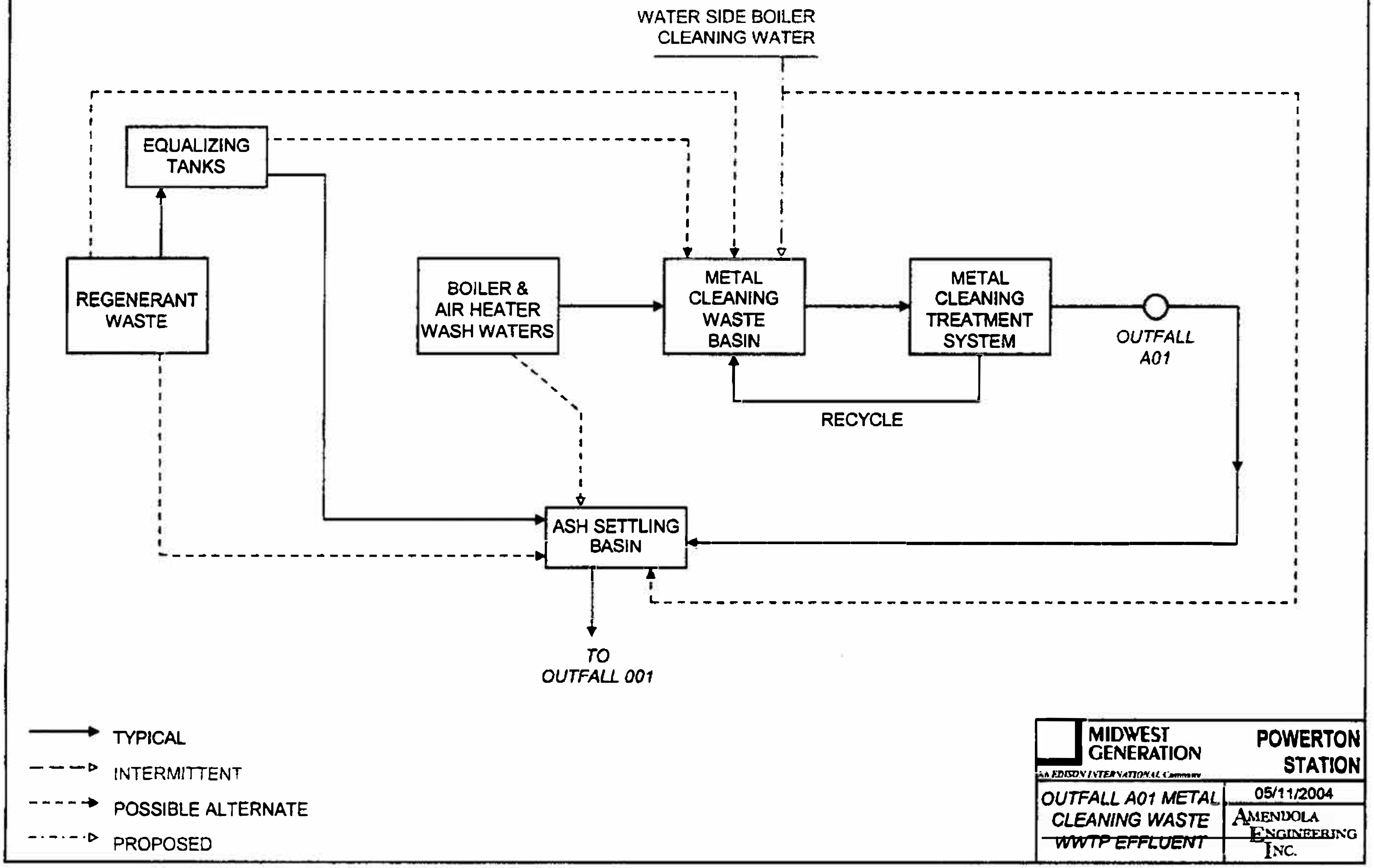
List Source: TestAmerica Savannah
List Creation: 07/16/09 01:39 PM

Question	**T / F/ NA**	**Comment**
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been infomed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	


NPDES OUTFALLS
RAIN
COAL PILE RUNOFF
COAL PILE TREATMENT SYSTEM
OUTFALL A02 (INTERMITTENT)
RO REJECT WATER
POND INTAKE SCREEN BACKWASH
CONDENSER COOLING WATER
HOUSE SERVICE WATER
BOILER DRAINS
RAIN
138 kv SWITCHYARD RUNOFF
WEST YARD RUNOFF
PARKING LOT DRAINS
TURBINE ROOMS & CRIBHOUSE DRAINS
NORTH & SOUTH OIL/WATER SEPARATORS
WEST YARD TREATMENT SYSTEM
OUTFALL B02 (CONTINUOUS)
COOLING POND
OUTFALL 002 (INTERMITTENT)
MACKINAW CUTOFF
GAS SIDE BOILER WASH WATERS
WATER SIDE BOILER CLEANING WATER
METAL CLEANING TREATMENT SYSTEM
OUTFALL A01 (EXISTING)
(DISCHARGE WHEN TREATING: ~0.5 MGD)
ASH TREATMENT SYSTEM
~15% OF FLOW
OUTFALL 001 (8-10 MGD)
DEMINERALIZER REGENERANT WASTEWATER (0.3 MGD)
EQ TANK
OUTFALL 003 (INTERMITTENT)
OLD INTAKE CHANNEL
ILLINOIS RIVER
RAIN
BOILER ROOMS FLOOR & ROOF DRAINS
FAN BAY DRAINS
EAST YARD TREATMENT SYSTEM
CONDENSATE
CONDENSATE STORAGE TANK
OUTFALL 005 (EMERGENCY OVERFLOW)
ON-SITE SINKS, SHOWERS, BATHROOMS
RBC SEWAGE TREATMENT PLANT
OUTFALL 004 (CONTINUOUS)
OLD DISCHARGE CHANNEL
TYPICAL
INTERMITTENT
POSSIBLE ALTERNATE
PROPOSED
MIDWEST GENERATION
An EDISON INTERNATIONAL Company
POWERTON STATION
GENERAL SITE FLOW DIAGRAM NPDES OUTFALLS
05/11/2004
AMENDOLA ENGINEERING INC.


OUTFALL 001
DUST EXTRACTOR
RO CLEANING WASTE
TO METAL CLEANING WASTE BASIN
RO REJECT AND RO CLEANING WASTE
BOILER ROOM FLOOR DRAINS
REGENERANT WASTE
FILTER BACKWASH
ILLINOIS RIVER
TAIL END & TRIPPER ROOM
SLAG TANK OVERFLOWS
WASHDOWNS
EQ TANKS
OLD INTAKE CHANNEL
ASH BYPASS BASIN
DEWATERING BINS
EAST YARD RUNOFF BASIN OIL/WATER SEPARATOR
METAL CLEANING TREATMENT SYSTEM
ASH SETTLING BASIN
SETTLING BASIN
OUTFALL 001
EMERGENCY OVERFLOW
~15% FLOW
ASH SLUICE LINES
LIMESTONE BASIN
OVERFLOW
OLD ASH BASIN
(ABANDONED YARD)
COOLING POND
UNIT 5 & 6 BOILER ROOM FLOOR & ROOF DRAINS
TO EAST YARD DRAIN LINES
TYPICAL
INTERMITTENT
POSSIBLE ALTERNATE
PROPOSED
MIDWEST GENERATION
An EDISON INTERNATIONAL Company
POWERTON STATION
OUTFALL 001 ASH TREATMENT SYSTEM EFFLUENT
05/11/2004
AMENDOLA ENGINEERING INC.

OUTFALL A01



MIDWEST GENERATION
An EDISON INTERNATIONAL Company

POWERTON STATION

OUTFALL A01 METAL CLEANING WASTE WWTP EFFLUENT

05/11/2004

AMENDOLA ENGINEERING INC.

The appearance of some of the images

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Environmental Protection Agency

State of Illinois

MARK S. KELLY

having fulfilled the requirements therefore, is hereby awarded this

Certificate of Competency

as an

Industrial Wastewater Treatment Works Operator

COM ED

POWERTON

Issued this 3rd day of August A.D. 1993

Mary a. Ga

Director

2748-09

PHOTOGRAPH LOG

Powerton Power Station Metal Cleaning Basin
Midwest Generation, LLC
Pekin, Illinois

Photograph Number	**Photograph Description**
1.	South end of Metal Cleaning Basin looking north on June 22, 2009.
2.	West side of Metal Cleaning Basin looking southeast on June 22, 2009
3.	North end of Metal Cleaning Basin looking northeast on June 22, 2009.
4.	South end of Metal Cleaning Basin looking southwest on June 22, 2009.
5.	Looking down concrete access ramp on June 22, 2009.
6.	Northwest corner looking east on June 22, 2009.

Photo 1

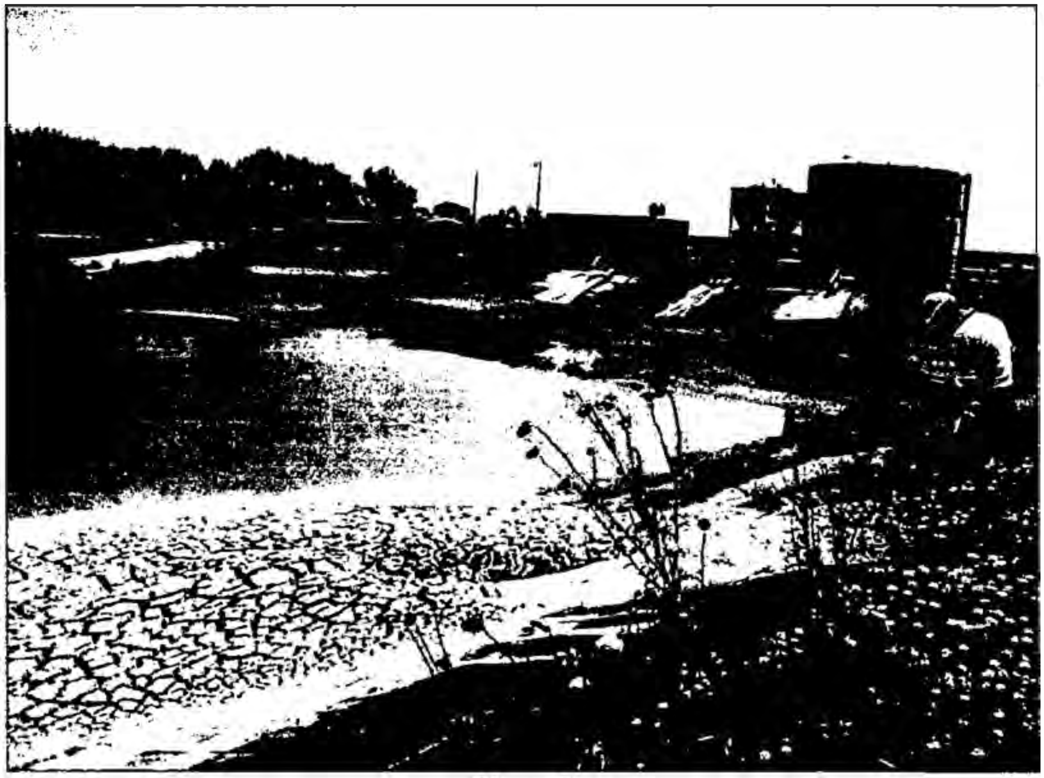


Photo 2

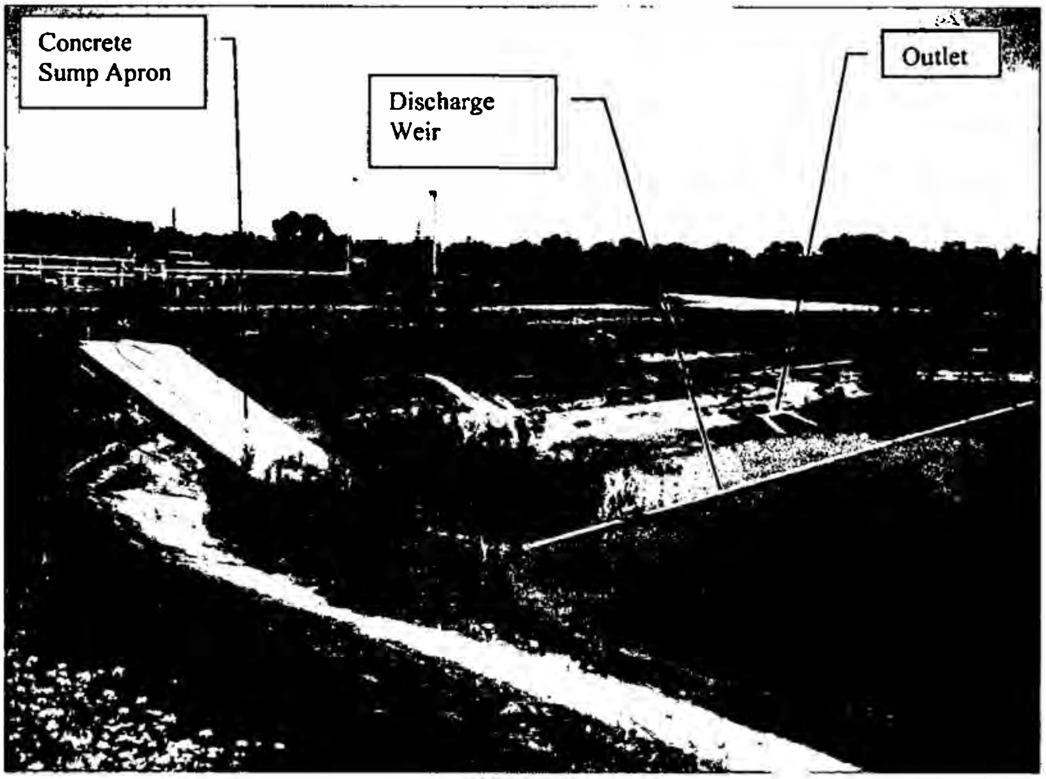


Photo 3

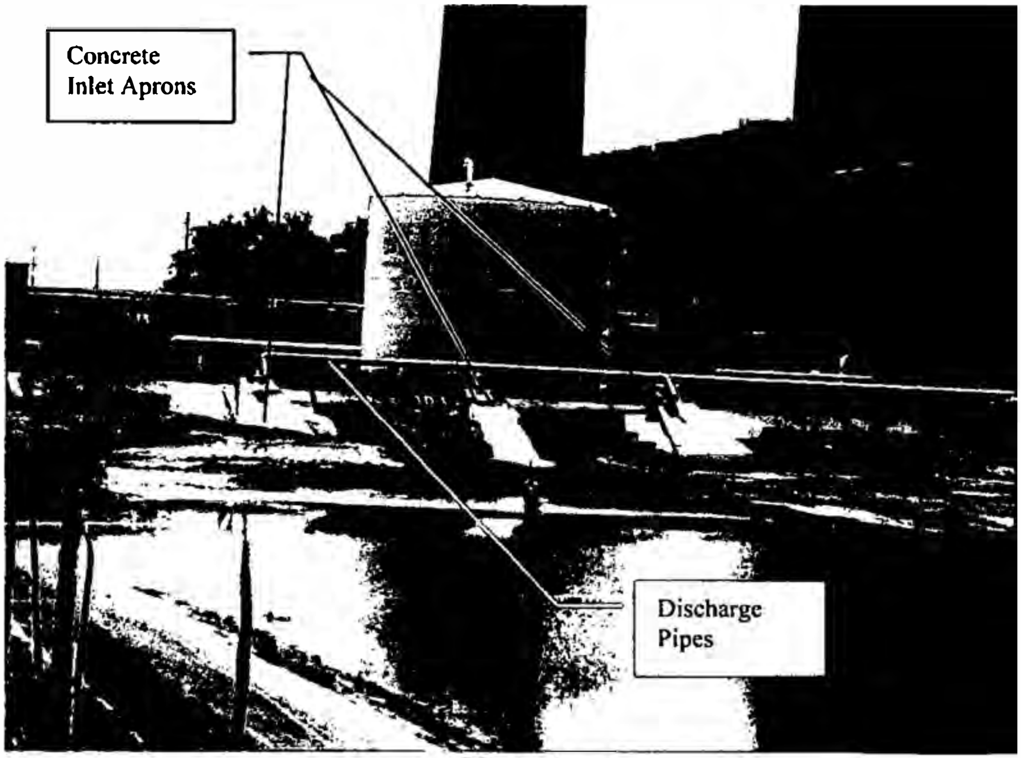


Photo 4

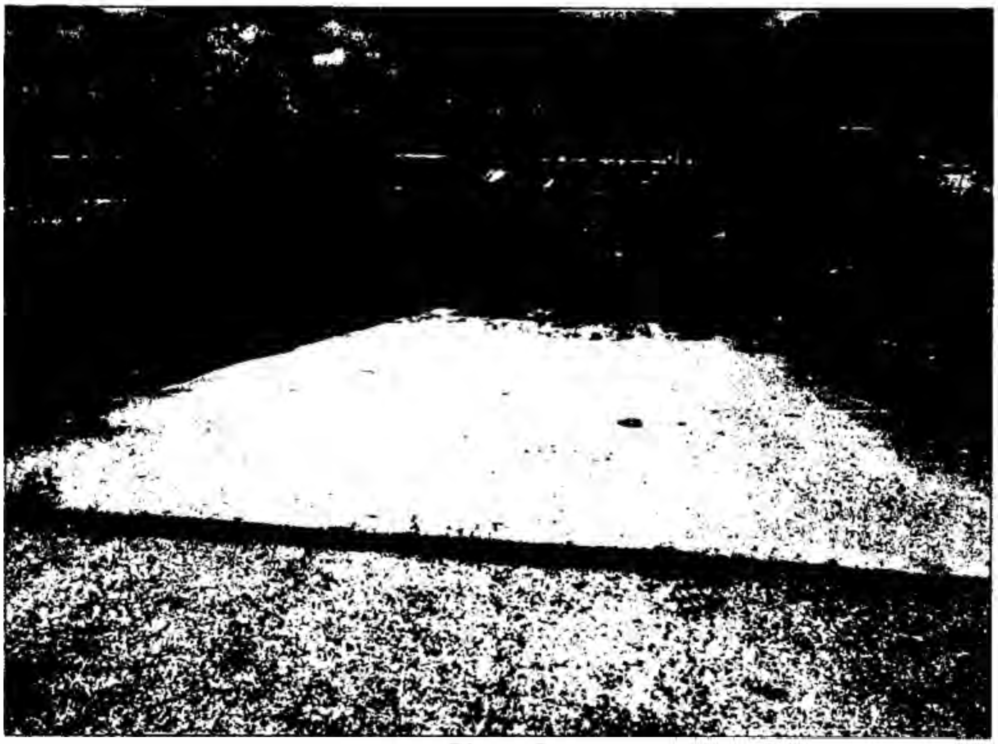


Photo 5

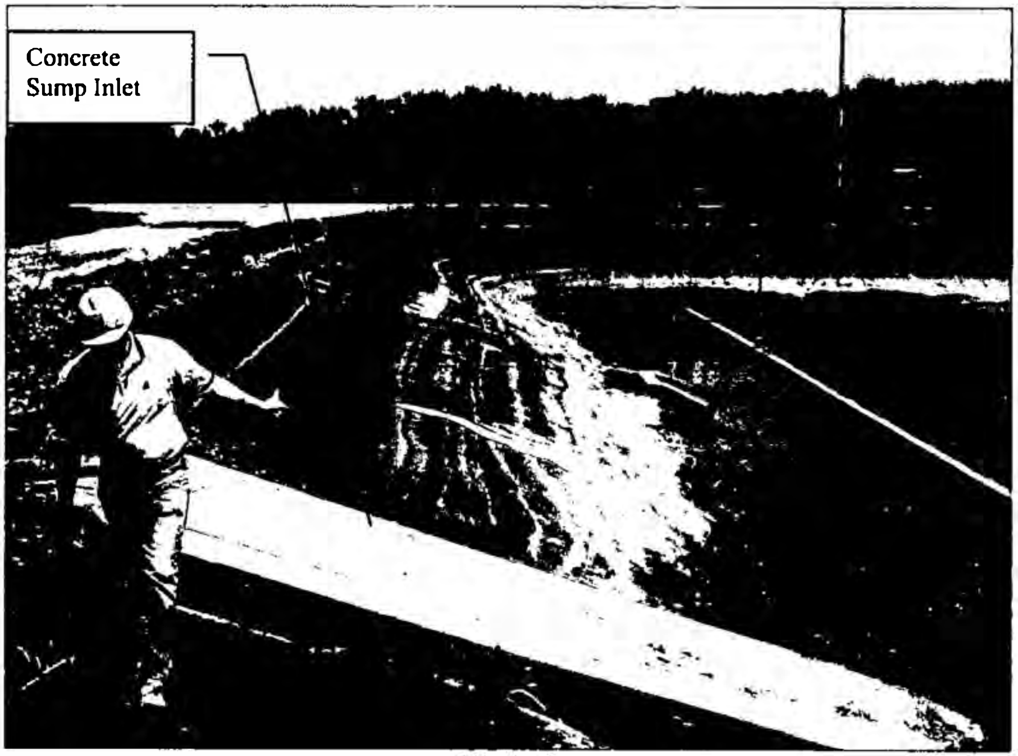


Photo 6

SECTION 02600
HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANE

2748-09

PART 1 - GENERAL

1.01 WORK INCLUDES

A. Furnish all labor, materials, tools, supervision, transportation, and installation equipment necessary for installation of 60-mil High Density Polyethylene (HDPE) geomembrane, as specified herein, and as shown on Contract Drawings.

1.02 REFERENCE STANDARDS

A. ASTM D5641 – Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber

B. ASTM D5820 – Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes

C. ASTM D6392 –Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods.

D. ASTM D7007 Standard Practice for Locating Leaks in Geomembranes Covered with Water or Earthen Materials.

E. GRI Test Method, GM 13 - Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes

F. GRI Test Method, GM 14 – Selecting Variable Intervals for Taking Geomembrane Destructive Seam Samples Using the Method of Attributes.

G. GRI Test Method, GM 19 – Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes.

1.03 DEFINITIONS

A. Geomembrane Installer: hired by Contractor or Owner responsible for field handling, transporting, storing, deploying, seaming and testing of the geomembrane seams.

B. Geomembrane Manufacturer: hired by Geomembrane Installer, Contractor, or Owner to provide HDPE geomembrane.

C. Leak Location Contractor: hired by Contractor or Owner and responsible for locating potential holes in the installed geomembrane using electrical methods.

D. Geosynthetic Quality Assurance Consultant: Consultant, independent from the Manufacturer, and Installer, responsible for field oversight of geosynthetics installation, and related testing, usually under the direction of the Owner.

D. Geosynthetic Quality Assurance Laboratory (Testing Laboratory): Laboratory, independent from the Manufacturer and Installer, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing, usually under the direction of the Owner.

D. Lot: A quantity of resin (usually the capacity of one rail car) used in the manufacture of geomembranes. Finished roll will be identified by a roll number traceable to the resin lot used.

E. Resin Supplier: selected by Geomembrane Manufacturer to provide resin used in manufacturing geomembrane.

F. Panel: Unit area of a geomembrane that will be seamed in the field that is larger than 100ft^2.

G. Patch: Unit area of a geomembrane that will be seamed in the field that is less than 100ft^2.

H. Subgrade Surface: Soil Layer surface which immediately underlies the geosynthetic material(s).

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Geomembrane Manufacturer shall have a minimum of 5 years of continuous experience manufacturing HDPE geomembrane totaling 1,000,000 square feet.

2. Geomembrane Installer:

   a. 5 years of continuous experience in installation of HDPE geomembrane.

   b. Experience totaling a minimum of 5,000,000 square feet of installed HDPE geomembrane on some combination of at least 10 completed facilities.

   c. Personnel performing seaming operations qualified by experience or by successfully passing seaming tests. Master seamer shall have experience seaming a minimum of 3,000,000 square feet of geomembrane using same type of seaming apparatus to be used on this project.

3. Leak Location Contractor:

   d. 3 years of continuous experience in performing leak location surveys using electrical methods.

   e. Experience totaling a minimum of 2,000,000 square feet of geomembrane leak location surveys on some combination of at least 5 completed facilities.

f. Personnel performing survey qualified by experience with at least 2 years of geomembrane testing experience using the leak location survey electrical method.

B. Quality Assurance Program:

1. Geomembrane Manufacturer/Installer shall conform with requirements of these Technical Specifications.

2. The Owner or Contractor may engage and pay for the services of a Geosynthetic Quality Assurance Consultant and Laboratory to monitor geomembrane installation.

1.05 SUBMITTALS

A. Prior to project start, submit the following to Geosynthetic Quality Assurance Consultant in accordance with Section 01300, Submittals:

1. Raw Materials:

   a. Name of Resin Supplier, location of supplier's production plant(s), resin brand name and product number.

   b. Source and nature of plasticizers, fillers, carbon black and any other additives along with their percent addition to geomembrane material.

   c. Test results documenting conformance with the "index properties" of GRI Test Method, GM 13.

2. Geomembrane Manufacturer's Certification:

   a. Written certification that Geomembrane Manufacturer's Quality Control Plan was fully implemented during production of geomembrane material supplied for this project. (Submittal shall be made within 5 working days of delivery to site).

3. Geomembrane Installer's Seaming Personnel

   a. Training completed by personnel.

   b. Seaming experience for each personnel.

4. Geomembrane Manufacturer Production Information:

   a. Corporate background information indicating compliance with qualification requirements.

   b. Quality control plan for manufacturing.

c. Copy of quality control certificates demonstrating compliance with the quality control plan for manufacturing and the test property requirements of GRI Test method, GM 13 (i.e. mill certificates).

5. Geomembrane Installer's Information:

   a. Corporate background information indicating compliance with qualification requirements.

   b. List of completed facilities, totaling 5,000,000 square feet minimum for which Geomembrane Installer has completed installation of a HDPE geomembrane. Include name and purpose of facility, location, date of installation, and quantity installed.

   c. Resumes of personnel performing field seaming operation, along with pertinent experience information. Include documentation regarding which seamers are qualified to use thermal fusion welding apparatus.

   d. Installation quality control plan.

6. Installation panel layout diagram identifying placement of geomembrane panels, seams, and any variance or additional details which deviate from Contract Drawings or Technical Specifications. Layout shall be drawn to scale and shall be adequate for use as a construction plan. Layout shall include dimensions and pertinent seam and anchorage details.

7. Installation Sequence and Schedule shall be included as part of Construction Progress Schedule.

8. Description of seaming apparatus to be used.

B. With bid, submit the following to Owner and/or Engineer in accordance with Section 01300, Submittals

1. Leak Location Contractor's Work Plan:

   a. Corporate background information indicating compliance with qualification requirements.

   b. List of completed facilities, totaling 2,000,000 square feet minimum of geomembrane leak location surveys on some combination of at least 5 completed facilities. Include name and purpose of facility, location, date of survey, survey method, and quantity surveyed.

   c. Resumes of personnel performing leak location survey, along with pertinent experience information.

   d. Leak Location Contractor quality control plan including description of the proposed survey methods and procedures, and field calibration procedures.

e. Leak Location Contractor's required site preparations to be completed to perform the proposed leak location survey, and estimated duration to complete the survey.

f. An example of a final report (per ASTM D 7007) provided by the Leak Location Contractor following the completion of the survey.

C. During installation, submit the following to the Geosynthetic Quality Assurance Consultant:

1. Daily records/logs prepared by Geomembrane Installer documenting work performed, personnel involved, general working conditions, and any problems encountered or anticipated on project. Submit on a weekly basis.

2. Copy of subgrade acceptance signed by Geomembrane Installer for areas to be covered with geomembrane each day.

D. Within 10 days of geomembrane installation completion, submit the following to Geosynthetic Quality Assurance Consultant:

1. Geomembrane installation certification that Work was performed under Geomembrane Installer's approved quality-control plan and in substantial compliance with Technical Specifications and Contract Drawings.

2. As-built panel diagram identifying placement of geomembrane panels, seams, repairs, and destructive seam sample locations.

3. Copy of warranty for material (including factory seams) and installation covering both for a period of 2 years from the date of substantial completion.

E. The Geosynthetic Quality Assurance Consultant will review and inspect HDPE geomembrane installation upon completion of all Work specified in this Section. Deficiencies noted shall be corrected at no additional cost to the Owner.

F. The Geosynthetic Quality Assurance Consultant will provide written final acceptance of the geomembrane installation after completion of material placement above geomembrane. Written conditional geomembrane installation acceptance can be provided to the Contractor prior to completion of material placement above geomembrane when the following conditions are satisfied, if necessary, and requested by the Contractor:

1. The entire geomembrane installation is completed or any pre-determined subsection if the project is phased.

2. All installation quality assurance/control documentation has been completed and submitted to the Geosynthetic Quality Assurance Consultant or Owner.

3. Verification of the adequacy of all field seams, repairs and associated testing is complete.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Transportation:

1. Geomembrane rolls shall be transported, unloaded and handled at the job site in accordance with manufacturer recommendations. Damaged material may be rejected by the Geosynthetic Quality Assurance Consultant.

B. On-site Storage:

1. Geomembrane rolls which have been delivered to job site shall be unloaded and stored in original, unopened packaging in a secure location, determined by Owner and/or Geosynthetic Quality Assurance Consultant.

2. Store geomembrane rolls to ensure adequate protection against exposure to the following:

   a. Equipment;

   b. Strong oxidizing chemicals, acids, or bases;

   c. Flames, including welding sparks;

   d. Temperatures in excess of 160 deg. F;

   e. Dust;

   f. Ultraviolet radiation (i.e. sunlight); and

   g. Inclement weather.

3. Whenever possible, provide a 6-inch minimum air space between rolls.

4. Containers/rolls shall not be stacked.

C. On-Site Handling:

1. Handle rolls per Geomembrane Manufacturer's recommendations and as necessary to prevent damage.

PART 2 - PRODUCTS

2.01 MATERIALS

A. High Density Polyethylene (HDPE) White Textured Geomembrane.

1. HDPE geomembrane shall be white, textured, 60-mil product approved by the Engineer and/or Geosynthetic Quality Assurance Consultant.

2. The Contractor shall submit, with the bid, written certification from the proposed Geomembrane Manufacturer that geomembrane products proposed in the bid satisfy the following requirements:

   a. The proposed HDPE compound shall be comprised entirely of virgin materials. Compliance with this specification shall be documented in accordance with Geomembrane Manufacturer's quality control program and submitted to the Geosynthetic Quality Assurance Consultant with the written conformance certification.

   b. The proposed Geomembrane Manufacturer shall certify that any plasticizers, fillers and additives incorporated into the manufacturing process for the proposed HDPE geomembrane have demonstrated acceptable performance on past projects.

   c. The proposed geomembrane shall meet the requirements of Geosynthetic Research Institute's test method GM 13.

   d. The nominal thickness of proposed geomembrane shall be 60 mil., or as approved by the Engineer and/or Geosynthetic Quality Assurance Consultant.

3. Geomembrane sheets shall be visually consistent in appearance and shall contain no holes, blisters, undisbursed raw materials or other signs of contamination by foreign material. Geomembrane must have no striations, roughness or bubbles on the surface.

B. Seaming Apparatus

1. Thermal fusion welding machines used for joining geomembrane surfaces may be either extrusion or hot wedge. These machines shall include sufficient temperature and rate-of-travel monitoring devices to allow continuous monitoring of operating conditions.

2. One spare, operable thermal fusion seaming device shall be maintained on site at all times.

C. Field Test Equipment

1. Field Tensiometer: the field tensiometer shall be calibrated within three months prior to project start date over the range of field test values.

2. Air Channel Test Equipment: air channel test equipment shall consist of hoses, fittings, valves and pressure gauge(s) needed to deliver and monitor the pressure of compressed air through an approved pressure feed device.

3. Air Compressor: the air compressor utilized for field testing shall be capable of producing and maintaining an operating pressure of at least 50 psi.

4. Vacuum Box: the vacuum box shall consist of a vacuum gage, valve, and a gasket around the edge of the open bottom needed to apply vacuum to a surface.

2.02. CONFORMANCE TESTING REQUIREMENTS

A. Geomembrane shipped to site shall undergo conformance testing. Manufacturer's roll certificates may be used for conformance evaluation at the option of the Geosynthetic Assurance Consultant. Nonconforming material shall either be retested at the direction of the Geosynthetic Quality Assurance Consultant or removed from site and replaced at Contractor's expense.

B. Conformance Test Methods

1. Samples will be located and collected by the Geosynthetic Quality Assurance Consultant at a rate of one sample per 100,000 square feet of geomembrane delivered to site.

2. One sample will be obtained from each geomembrane production batch delivered to the site.

3 Samples shall be cut by Geomembrane Installer and be at least 45 square feet in size.

4. Samples shall be tested in accordance with Table 1 (Smooth) or Table 2 (Textured) specified in GRI Test Method GM13.

5. Geomembrane thickness shall be measured a minimum of three times per panel during deployment to verify conformance with GRI Test Method GM13.

C. Role of Testing Laboratories

1. The Geosynthetic Quality Assurance Consultant will be responsible for acquiring samples of the geomembrane for conformance testing. The Owner or Geosynthetic Quality Assurance Consultant will retain an independent, third party laboratory to perform conformance testing on samples of geomembrane.

2. Retesting of geomembrane panels by the Geomembrane Installer because of failure to meet any of the conformance specifications can only be authorized by the Geosynthetic Quality Assurance Consultant.

3. The Geomembrane Manufacturer and/or Geomembrane Installer may perform independent tests in accordance with methods and procedures specified in GRI GM 13. Results shall not be substituted for quality assurance testing described herein.

D. Procedures for Determining Conformance Test Failures

1. If conformance test results fail to meet specifications, the roll and/or batch may be retested using specimens from either the original roll sample or from another sample collected by the Geosynthetic Quality Assurance Consultant. Two additional tests (retests) shall be performed for each failed test procedure. Each retest shall consist of multiple specimen tests if multiple specimens are specified in the test procedure. If the results of both retests meet specifications, the roll and batch will be considered to have passed conformance testing.

2. Failure of any retest shall be cause for rejection of the entire roll or batch depending on the type of failing test. The Geosynthetic Quality Assurance Consultant reserves the right to collect samples from other rolls of a particular batch for further conformance testing. The Geosynthetic Quality Assurance Consultant may choose to accept only a portion of the batch on the basis of the results of conformance testing of samples collected from other rolls.

3. If retesting does not result in conformance with the specifications as defined in preceding paragraph, or if there are any other nonconformities with the material specifications, the Contractor shall remove the rolls from use in the project. The Contractor shall also be responsible for removal of rejected geomembrane from the site and replacement with acceptable geomembrane at no additional cost to the Owner.

PART 3 - EXECUTION

3.01 PRE-CONSTRUCTION MEETING

A. A Pre-Construction Meeting shall be held at the site to discuss and plan the details of geomembrane installation. This meeting shall be attended by the Geomembrane Installer, Owner, Engineer and the Contractor.

B. The following topics relating to geomembrane installation shall be addressed:

1. Responsibilities of each party.
2. Lines of authority and communication.
3. Methods for documenting, reporting and distributing documents and reports.
4. Procedures for packaging and storing archive samples.
5. Review of the schedule for all installation and quality assurance testing, including third-party testing turnaround times.
6. Review of panel layout, access and numbering systems for panels and seams including details for marking on the HDPE geomembrane.
7. Procedures and responsibilities for preparation and submittal of as-built drawings.

8. Temperature and weather limitations, installation procedures for adverse weather conditions and defining acceptable subgrade or ambient moisture and temperature conditions for working during liner installation.

9. Subgrade conditions, dewatering responsibilities and subgrade maintenance plan.

10. Deployment techniques including allowable subgrade for geomembrane.

11. Procedures for covering of the geomembrane to prevent damage.

12. Plan for minimizing wrinkles in the geomembrane.

13. Measurement and payment schedules.

14. Site health and safety procedures/protocols.

3.02 SUBGRADE PREPARATION

A. Contractor shall prepare a subgrade surface in accordance with Section 02300, Earthwork.

B. The Contractor shall not excavate more than the amount of anchor trench required for one day of geosynthetics deployment, unless otherwise specified by the Geosynthetic Quality Assurance Consultant. Rounded corners shall be provided in the trenches where the geosynthetics enter the trench to allow them to be uniformly supported by the subgrade and to avoid sharp bends. The geosynthetics shall not be supported by loose soils in anchor trenches.

C. The Geomembrane Installer shall visually inspect the subgrade immediately prior to geomembrane deployment. Inspection shall verify that there are no potentially harmful foreign objects present, such as sharp rocks and other deleterious debris. Any foreign objects encountered shall be removed by Geomembrane Installer or Contractor. All subgrade damaged by construction equipment and deemed unsuitable for geomembrane deployment shall be repaired prior to geomembrane deployment. All repairs shall be approved by the Geosynthetic Quality Assurance Consultant and Geomembrane Installer. The responsibility for preparation, repairs, and maintenance of the subgrade shall be defined in the preconstruction meeting. The Geomembrane Installer shall provide the Geosynthetic Quality Assurance Consultant with written acceptance of subgrade surface over which geomembrane is deployed (Part 1 .05C) for each day of deployment.

3.03 GEOMEMBRANE DEPLOYMENT

A. Geomembrane shall not be deployed until all applicable certifications/quality control certificates listed in Subsection 1.05 of this section and conformance testing listed in Subsection 2.02 of this section are submitted and approved by the Geosynthetic Quality Assurance Consultant. Any geomembrane deployed prior to approval by the Geosynthetic Quality Assurance Consultant shall be at the sole risk of the Geomembrane Installer and/or Contractor. If material installed prior to approval by the Geosynthetic Quality Assurance Consultant does not meet the requirements of this specification, it shall be removed from the site at no additional cost to the Owner.

B. Geomembrane will be deployed according to submitted panel layout drawing as approved by the Geosynthetic Quality Assurance Consultant. The Geosynthetic Quality Assurance Consultant is to be notified of and approve any revisions or modifications to the approved panel layout drawing prior to deploying geomembrane in the area of review.

C. Adequate temporary anchoring (sand bags, tires, etc.) that will not damage the geomembrane shall be placed on a deployed panel to prevent uplift by wind.

D. Geomembrane shall not be deployed if:

1. Ambient temperatures are below 41 degrees F (5 degrees C) or above 104 degrees F (40 degrees C) measured six inches above geomembrane surface unless approved by the Geosynthetic Quality Assurance Consultant.

2. Precipitation is expected or in the presence of excessive moisture or ponded water on the subgrade surface.

3. Winds are excessive as determined by Geomembrane Installer in agreement with the Geosynthetic Quality Assurance Consultant.

4. The Geosynthetic Quality Assurance Consultant will have the authority to suspend work during such conditions.

E. The Geomembrane Installer shall be responsible for conformance with the following requirements:

1. Equipment utilized for installation/quality assurance testing does not damage geomembrane. Such equipment shall have rubber tires and a ground pressure not exceeding 5 psi or total weight exceeding 750 lbs. Only equipment necessary for installation and quality assurance testing is allowed on the deployed geomembrane.

2. Personnel working on geomembrane do not damage geomembrane (activities such as smoking or wearing damaging clothing shall not be allowed).

3. Method of deployment does not damage geomembrane.

4. Method of deployment minimizes wrinkles.

5. Temporary loading or anchoring does not damage geomembrane.

6. Direct contact with geomembrane is minimized.

F. No vehicles shall be allowed on deployed geomembrane under any circumstances.

3.04 FIELD SEAMS

A. Seam Layout

1. In general, seams shall be oriented parallel to the line of the maximum slope. In corners and at other odd-shaped geometric intersections, number of seams should

be minimized. If at all possible, seams shall not be located at low points in the subgrade unless geometry requires seaming to be done at these locations.

2. A seam numbering system compatible with the panel numbering system shall be agreed upon at the Pre-Construction Meeting.

B. Seaming Processes/Equipment

1. Approved processes for field seaming (panel to panel) are extrusion or hot wedge fusion-type seam methods. No other processes can be used without prior written authorization from the Geosynthetic Quality Assurance Consultant. Only equipment which has been specifically approved by make and model shall be used, if applicable.

4. The Geomembrane Installer will meet the following requirements regarding use, availability, and cleaning of welding equipment at job site:

   a. Intersecting hot wedge seams shall be patched using extrusion welding process.

   b. Electric generator for equipment shall be placed on a smooth base such that no damage occurs to geomembrane. A smooth insulating plate or fabric shall be placed beneath hot equipment after usage.

3. The Geomembrane Installer shall keep records for performance and testing of all seams.

C. Seaming Requirements/Procedures

1. Weather Conditions - Range of weather conditions under which geomembrane seaming can be performed are as follows:

   a. Unless otherwise authorized in writing by Geosynthetic Quality Assurance Consultant, no seaming shall be attempted or performed at an ambient temperature below 41 degrees F (5 degrees C) or above 104 degrees F (40 degrees C).

   b. Between ambient temperatures of 32 degrees F (0 degrees C) and 41 degrees F (5 degrees C), seaming shall be performed only if geomembrane is preheated by either sun or a hot air device, provided there is no excessive ambient cooling resulting from high winds. Pre-qualification seams shall be produced under identical conditions.

   c. Above 41 degrees F (5 degrees C), no preheating of geomembrane will be required.

   d. Geomembrane shall be dry and protected from wind.

   e. Seaming shall not be performed during any precipitation event.

f. Seaming shall not be performed in areas where ponded water has collected below surface of geomembrane.

2. If the Geomembrane Installer chooses to use methods which may allow seaming at ambient temperatures below 41 degrees F or above 104 degrees F, the Geomembrane Installer shall demonstrate and submit certification to Geosynthetic Quality Assurance Consultant that methods and techniques used to perform seaming produce seams that are equivalent to seams produced at temperatures above 41 degrees F and below 104 degrees F. The Geosynthetic Quality Assurance Consultant may deny approval for use of the proposed technique regardless of demonstration results.

3. Overlapping - Geomembrane panels shall have finished overlap as follows:

   a. Minimum of 6 inches for thermal fusion welding.

   b. Insufficient overlap will be considered a failed seam.

4. Pre-qualification tests for geomembrane fusion welding shall be conducted by a minimum of 2 pre-qualification seams conducted per day per welding machine by each seaming technician performing welding with that machine. At least one test shall be performed at the start of each work day, with tests at intervals of no greater than 5 hours and additional pre-qualification tests following work interruptions, weather changes, changes to machine settings, or as directed by the Geosynthetic Quality Assurance Consultant. Pre-qualification seams shall be made under the same conditions as the actual seams.

   a. Pre-qualification seam samples shall be 5 feet long by 1-foot wide (minimum) after seaming, with seam centered along its length. Each pre-qualification seam shall be labeled with the date, geomembrane temperature, seaming unit identifier, seam number or test location, technician performing the test seam and description of testing results.

   b. Seam overlap shall be in accordance with Subsection 3.04(C)(3).

   c. Pre-qualification seams shall be inspected for proper squeeze-out, footprint pressure, and general appearance.

   d. Four specimens, each 1-inch in length, shall be cut from opposite ends of the pre-qualification seam sample by the Geomembrane Installer. The remainder of pre-qualification seam shall be retained by the Geosynthetic Quality Assurance Consultant and may be submitted for laboratory testing.

   e. The Geomembrane Installer shall complete two shear tests and two peel tests in accordance with GRI GM 19.

   f. Pre-qualification seams failed by inspection or testing may be retested at request of the Geomembrane Installer. If the second pre-qualification seam fails, then the seaming apparatus or seaming technique shall be disqualified from use until two consecutive, satisfactory pre-qualification seams are obtained.

5. Seam Preparation

   a. Prior to seaming, seam area shall be clean and free of moisture, dust, dirt, debris of any kind, and foreign material.

   b. Seams shall be aligned so as to minimize number of wrinkles and fishmouths.

6. General Seaming Procedures

   a. Fishmouths or wrinkles at seam overlaps shall be cut along ridge of the wrinkle to achieve a flat overlap. Cut fishmouths or wrinkles shall be repaired, and/or patched in accordance with Part 3.08.

   b. Seaming shall extend to the outside edge of geomembrane panels including material placed in anchor trenches.

   c. The intersecting thermal fusion seams shall be patched using the extrusion welding process.

3.05 NON-DESTRUCTIVE TESTING

A. Each field seam shall be non-destructively tested over its entire length by the Installer. Testing shall be conducted as field seaming progresses, not at completion of all seams, unless specifically agreed to by the Geosynthetic Quality Assurance Consultant in writing.

B. Vacuum Testing – shall be performed in accordance with ASTM D5641.

C. Air Pressure Testing – shall be performed in accordance with ASTM D5820, and GRI GM 6, Pressurized Air Channel Test for Dual Seamed Geomembranes.

D. Each seam tested non-destructively shall be marked with the date of the test, name of the testing technician, length of the seam, test method and results. The same shall also be recorded by the Geosynthetic Quality Assurance Consultant on the appropriate CQA documentation.

E. Non-Destructive Seam Test Failures

   1. Seams failing non-destructive testing shall be repaired by the Geomembrane Installer according to Part 3.08. Seams shall be non-destructively retested. If the seam defect cannot be located, the entire section of seam affected shall be repaired and retested.

3.06 DESTRUCTIVE TESTING

A. The Owner shall have the option to destructively test geomembrane panel seams completed in the field. Destructive seam testing shall be performed by the Geomembrane Installer under the observation of the Geosynthetic Quality Assurance Consultant.

B. Sampling Procedure

1. For each sample location, the Geosynthetic Installer will:

   a. Assign a sample number and mark the sample accordingly.

   b. Record the sample location on the as-built layout drawing.

   c. By sample number, record reason for collecting sample (e.g., as part of statistical testing program, suspicious seam, retest, etc.).

   d. Record pertinent information, including date, time, seam number, number of seaming unit, and name of seamer, on the seam sample.

2. Each destructive sample shall be at least 12 inches wide (at least 6 inches on each side of seam) by 54 inches long. Samples will be cut by the Geomembrane Installer and distributed as follows:

   a. A 12-inch by 12-inch portion shall be cut and tested in accordance with Subsection 3.06(C) by the Geomembrane Installer.

   b. A 12-inch by 12-inch portion shall be cut and retained by the Geomembrane Installer. The Geomembrane Installer may elect to omit this requirement.

   c. A 12-inch by 12-inch portion shall be cut and retained by the Geosynthetic Quality Assurance Consultant as an archive sample.

   d. A 12-inch by 18-inch portion shall be submitted by the Geosynthetic Quality Assurance Consultant for laboratory testing as described in Part 3.06(D).

3. Ten specimens, each 1 inch wide by 12 inches long with seam centered perpendicular to width, shall be collected and field tested by the Geomembrane Installer prior to shipping the sample to the laboratory. If all samples pass field tensiometer test described in Part 3.06(C), then the laboratory sample shall be submitted for testing by the Geosynthetic Quality Assurance Consultant.

4. Holes cut into geomembrane resulting from destructive seam sampling shall be immediately repaired by Geomembrane Installer in accordance with repair procedures described in Part 3.08.

C. Field Test Methods

1. Ten 1-inch-wide samples described above under Part 3.06(B)(3) shall be field tested for peel (5 samples) and shear (5 samples) in accordance with GRI GM 19.

2. One seam sample shall be field tested for peel and shear at the end of each continuous field seam 100 feet or greater in length.

3. Testing shall be performed in accordance with ASTM D6392 using a field tensiometer or equivalent device to qualitatively and quantitatively determine mode of failure.

4. Seam shall be considered passing if failure in both peel and shear meet criteria listed in GRI GM 19.

5. The procedures specified in Subsection 3.06(D) shall be implemented when sample passes field tensiometer test.

D. Laboratory Test Methods

1. Laboratory testing of seam samples shall be conducted by the Geosynthetic Quality Assurance Laboratory under contract with the Geosynthetic Quality Assurance Consultant or Owner. Five specimens shall be tested in shear and five in peel.

2. Laboratory testing shall be conducted in accordance with GRI GM 19.

3. For both seam shear and peel tension tests, an indication will be given for each specimen tested which defines locus of failure.

4. For shear tests, the following values, along with the mean and standard deviation where appropriate, will be reported for each specimen tested:

    a. Maximum tension in pounds per square inch.

    b. Elongation at break (up to a tested maximum of 100 percent).

    c. Locus of failure using ASTM D6392 designations.

5. For peel tests, the following values, along with the mean and standard deviation where appropriate, will be reported for each specimen tested:

    a. Maximum tension in pounds per square inch.

    b. Seam separation (expressed as percent of original seam area).

c. Locus of failure.

6. Retesting of seams due to nonconformance with specifications may be performed at the discretion of the Geosynthetic Quality Assurance Consultant.

E. Destructive Seam Test Failure

1. Shear and peel test results derived from testing described in Parts 3.06(C) and 3.06(D) shall comply with GRI GM 19 for seam to be considered acceptable.

2. The Geomembrane Installer has two options in determining the repair boundary whenever a seam has failed destructive testing:

   a. The seam can be reconstructed between the two previously tested and passed destructive sample locations; or,

   b. The Geomembrane Installer can trace the welding path to an intermediate location at least ten feet from point of failed test in each direction and obtain destructive test samples collected from these locations. If destructive tests on these samples are acceptable, then the seam shall be reconstructed between the intermediate locations. If either sample fails, the process may be repeated until an acceptable seam test has been performed on both sides of the original failed sample. If a passing sample is not realized on one (or both) side of the original failed sample, then seam repair must extend to the end(s) of the seam. Retesting of seams according to this procedure shall utilize the sampling methodology described in Part 3.06(B). The Owner reserves the right to terminate this process, at the discretion of the Geosynthetic Quality Assurance Consultant, after the second retesting. An additional sample taken from the reconstructed zone must pass destructive seam testing if destructive sample failure(s) causes reconstruction.

3. The Geosynthetic Quality Assurance Consultant shall be responsible for documenting all actions taken in repairing seams. The Geomembrane Installer will be responsible for keeping the Geosynthetic Quality Assurance Consultant informed of seaming progress.

4. Additional fees for destructive seam test failures shall be assessed to the Contractor and deducted from payment. This fee shall be assessed only if the failing sample is a laboratory sample.

3.07 ELECTRONIC LEAK LOCATION SURVEY

A. The Owner shall have the option to conduct an electronic leak location survey. Leak location survey shall be performed by the Leak Location Contractor under the observation of the Geosynthetic Quality Assurance Consultant.

B. Leak Location Contractor shall identify actions required by Contractor to prepare the site for the leak location survey.

C. Contractor shall ensure that the layers above and below the geomembrane contains sufficient moisture to conduct a leak location survey. Typically, a moisture content of earth materials of 1% to 2% by weight is sufficient to conduct the survey. If the moisture content of layers above and/or below the geomembrane is not sufficient per the requirements of the Leak Location Contractor, Contractor shall add moisture to the layers, as required.

D. Contractor shall provide electrical isolation of the metal marker posts, batten bars, and concrete structures, as requested by Leak Location Contractor.

E. Leak Location Contractor shall inspect the site prior to commencing the survey to ensure all site preparations are completed and the site conditions are appropriate for conducting the leak location survey.

F. Any discrepancy in the required site preparation detailed in the Leak Location Contractor's Work Plan or site conditions shall be reported to the Contractor for corrective or appropriate action.

G. After the final layer is placed above the geomembrane, conduct a leak location survey on the final layer material using the procedures for surveys with earth materials covering the Geomembrane as described in ASTM D 7007.

H. A leak detection sensitivity test using an artificial leak shall be conducted on the geomembrane for each set of equipment used before the equipment is used on for the leak location survey, as described in ASTM D 7007 to determine the detection distance for the survey.

I. The leak location survey shall be taken on survey lines or on a grid spaced no farther apart than twice the leak detection distance as determined in the leak detection sensitivity test.

J. The Leak Location Contractor shall inform the Owner and/or Engineer and mark the locations of all identified or indicated leaks with a flag or spray paint. The Geomembrane Installer shall repair the defect/hole as detailed in Part 3.08 of this Section.

3.08 DEFECTS AND REPAIRS

A. The geomembrane shall be examined by the Geomembrane Installer and the Engineer for defects, holes, blisters, undispersed raw materials, and any signs of contamination by foreign matter. The geomembrane surface shall be swept and/or washed by the Geomembrane Installer if the amount of dust or mud inhibits examination. The

Contractor shall provide a water truck, an operator, clean water and hoses as reasonably necessary to assist the Geomembrane Installer in this activity.

B. Portions of geomembrane exhibiting flaws, or failing a non-destructive or destructive (if conducted) test, shall be repaired or replaced by the Geomembrane Installer. Repair procedures available include:

1. Patching - used to repair large holes, tears, undispersed raw materials, contamination by foreign matter, holes resulting from destructive sampling (if conducted), and locations where seam overlap is insufficient;

2. Capping - used to repair large lengths of failed seams; and

3. Additional Procedures - used upon recommendation of the Geomembrane Installer if agreed to by the Engineer.

C. Patches or caps.

1. Extend patch or cap 6 inches (minimum) beyond the edge of the defect.

2. Round corners of patch and/or cap (suggest 3-inch radius).

3. Repair procedures, equipment, materials, and techniques will be approved by the Geosynthetic Quality Assurance Consultant prior to repair.

4. Geomembrane below large caps shall be appropriately cut to avoid water or gas collection between two sheets.

D. The Geomembrane Installer shall mark on the geomembrane (using a non-puncturing writing utensil), repair date, time, and personnel involved.

E. Each repair shall be non-destructively tested in accordance with Part 3.05. Large caps may require destructive test sampling in accordance with Part 3.06 at the discretion of the Geosynthetic Quality Assurance Consultant.

F. Repairs which fail testing shall be redone and retested until a passing result is obtained. The Geomembrane Installer will perform non-destructive testing on repairs and will document retesting of repairs.

G. The Geosynthetic Quality Assurance Consultant will document repairs, repair testing, and retesting results.

H. The Geomembrane Installer shall cut and seam wrinkles which may adversely affect long-term integrity of the geomembrane, hinder subsequent construction of overlying layers, or impede drainage off of the geomembrane after it is covered by soil. Seaming shall be done in accordance with procedures described in Parts 3.04(B) and 3.04(C), and it shall be subject to test provisions of Parts 3.05 (non-destructive testing) and 3.06 (destructive testing – if conducted).

3.09 PROTRUSIONS AND CONNECTIONS TO GEOMEMBRANE

A. If required, the Geomembrane Installer shall install geomembrane around utility poles, guy wires, and other structures according to the Contract Drawings and the following requirements:

1. Use minimum 1-ft long geomembrane pipe boots and steel clamps to seal the geomembrane around pole or structure.

2. Use standard welding procedures to seam the geomembrane boot to the geomembrane.

3. Seaming performed on and around penetrations, and other appurtenances shall be non-destructively tested using the vacuum testing method.

3.10 SURVEY DOCUMENTATION

A. The Geomembrane Installer shall survey the completed geomembrane prior to covering and provide the Geosynthetic Quality Assurance Consultant with 24-hour notification of survey. The Contractor shall document the location of all seams (panel corners acceptable), destructive test samples (if conducted) and repairs. The Contractor shall provide survey data to the Geosynthetic Quality Assurance Consultant within two working day of survey completion.

3.11 DAILY FIELD INSTALLATION REPORTS

A. At the beginning of each day, the Geomembrane Installer shall provide the Geosynthetic Quality Assurance Consultant with a report for all work completed the previous day.

B. The Daily Field Installation Report shall include the following:

1. The total amount and location of geomembrane placed.

2. The total length and location of seams completed, technician name and welding unit numbers.

3. A drawing or sketch depicting the geomembrane installed the previous day including the panel number, seam number and locations of non-destructive and destructive testing (if conducted).

4. Results of pre-qualification test seams, if available.

5. Results of non-destructive testing.

C. Destructive test results (if conducted) shall be reported within 48 hours or prior to covering the geomembrane, whichever is practical.

3.12 MATERIAL ABOVE GEOMEMBRANE

A. The Geosynthetic Quality Assurance Consultant and Geomembrane Installer shall verify the area of geomembrane completion prior to placement of material over the geomembrane.

B. Soils - Apply following general criteria for covering of the geomembrane:

1. Do not place soils on the geomembrane at an ambient temperature below 32 degrees F, (0 degrees C) nor above 104 degrees F (40 degrees C), unless otherwise specified.

2. Do not drive equipment used for placing soil directly on the geomembrane.

3. A minimum thickness of 1 foot of soil is specified between a low ground pressure dozer (maximum contact pressure of 5 lb/sq. inch) and the geomembrane.

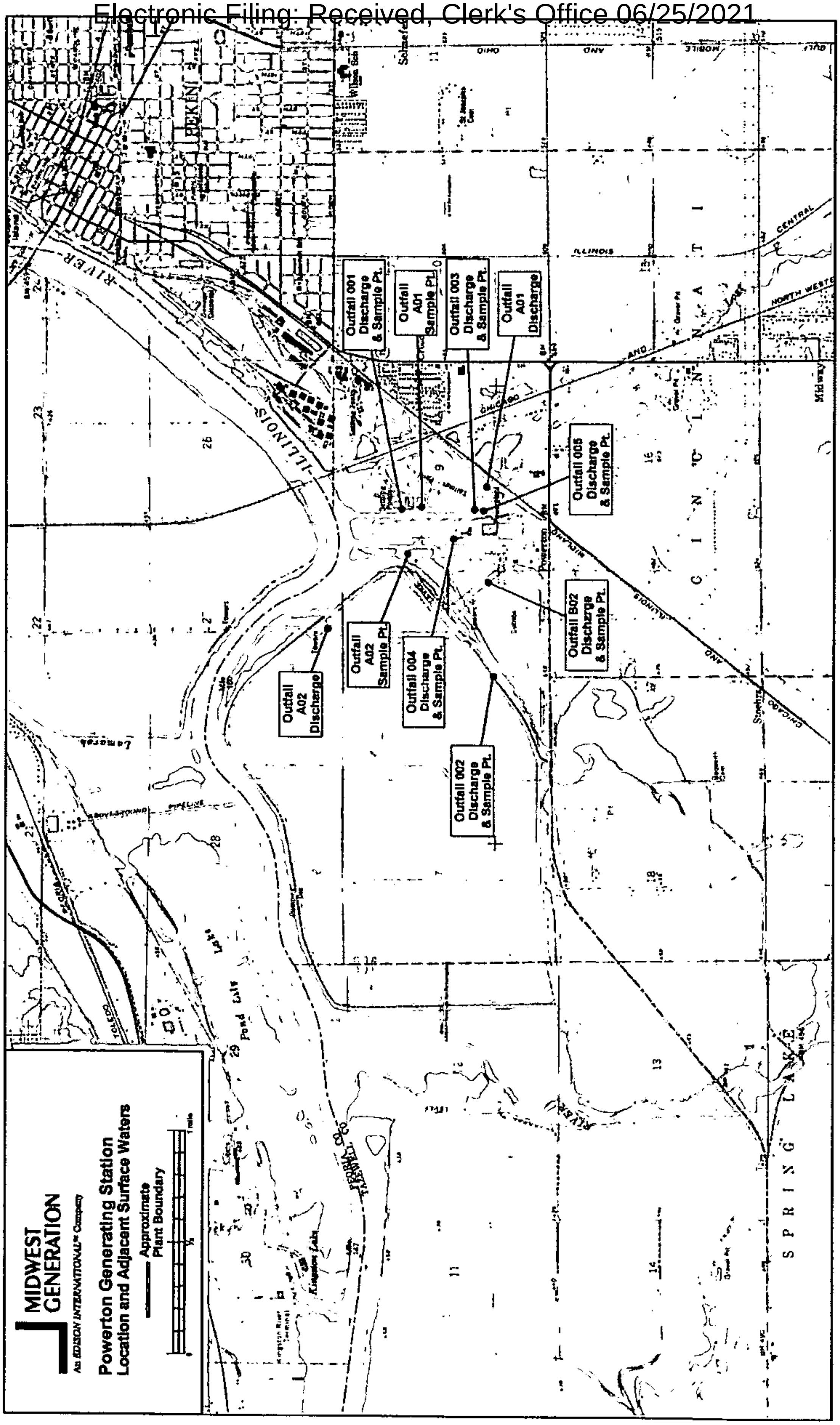
4. A minimum thickness of 2 feet of soil is required between rubber-tired vehicles and the geomembrane.

5. Do not compact soils placed directly on geomembrane.

6. Damage to the geomembrane resulting from placement of cover soils shall be repaired in accordance with Part 3.08 by the Geomembrane Installer at the Contractor's expense.

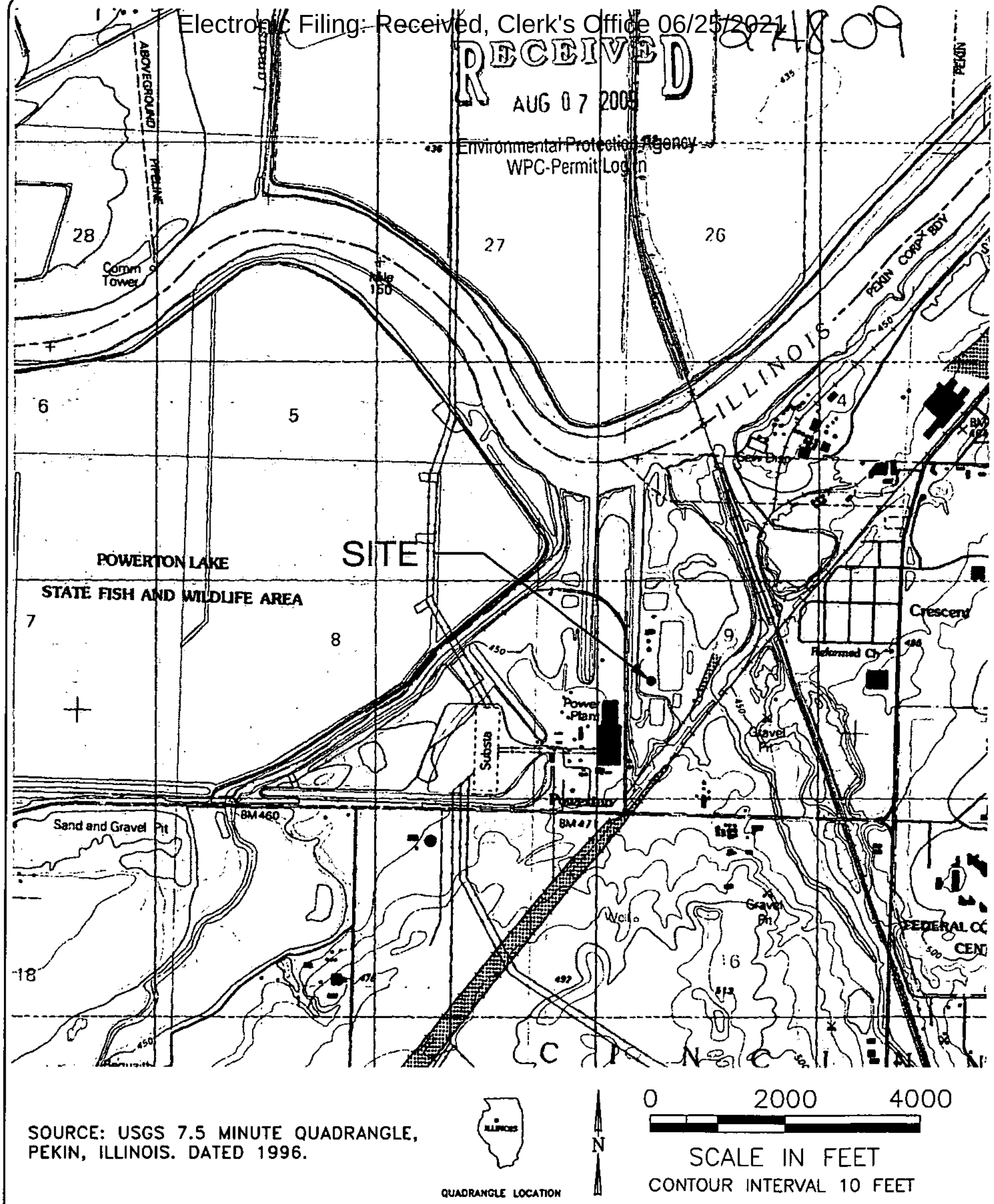
7. Do not push soil downslope. Soil shall be placed over the geomembrane starting from base of the slope, up to top of the slope.

END OF SECTION



Powerton Generating Station
Location and Adjacent Surface Waters

2748-09



SOURCE: USGS 7.5 MINUTE QUADRANGLE, PEKIN, ILLINOIS. DATED 1996.

SITE LOCATION MAP

METAL CLEANING BASIN LINER REPLACEMENT
MIDWEST GENERATION
POWERTON POWER STATION
PEKIN, ILLINOIS

DRAWN BY: KNW 07/27/09 APP'D BY: HMS DATE: 07/27/09

NATURAL RESOURCE TECHNOLOGY

PROJECT NO. 1965/2.0

DRAWING NO. 1965-2-A01C

FIGURE NO. 1

Rabins, Jaime

From: Heather M. Simon [hsimon@naturalrt.com]
Sent: Thursday, October 29, 2009 3:39 PM
To: Rabins, Jaime
Subject: FW: Revised MWG Powerton Metal Cleaning Basin Permit Paragraph

Hypalon ® is chlorosulfonated polyethylene

Heather M. Simon, PE
Environmental Engineer
Natural Resource Technology, Inc.
262.522.1207

From: Heather M. Simon
Sent: Thursday, October 22, 2009 3:21 PM
To: 'Rabins, Jaime'
Cc: 'Maria Race'
Subject: Revised MWG Powerton Metal Cleaning Basin Permit Paragraph

The project is for the replacement of the existing liner system of the Metal Cleaning Waste Basin. The replacement liner system will consist of 60 mil HDPE Geomembrane. A 12-inch thick sand or limestone cushion layer, and 6 inches coarse aggregate warning layer will be placed at the base of the basin above the geomembrane to protect the liner during future dredging operations.

At the base of the basin, the existing 12-inch lime, fly-ash, and aggregate layer referred to as Poz-O-Pac will remain in place to minimize the liner replacement effort, except for the area north of the outlet weir. The Poz-O-Pac and 6 inches of subgrade material north of the outlet weir will be removed to accommodate the cushion and warning layers above the replacement liner without having to modify the existing outlet pipe.

Along the side slopes of the basin, the existing Poz-O-Pac layer will be removed to facilitate installation of the replacement liner. The existing Hypalon® liner will remain in place below the replacement liner.

The DMF of 1.19 MGD and working volume of 5.4 million gallons at 3 to 6 feet of freeboard for the Metal Cleaning Waste Basin will remain unchanged.

Jaime,
If you have any additional questions or comments pertaining to this project, please contact us.

Sincerely,

Heather M. Simon, PE
Environmental Engineer
Natural Resource Technology, Inc.
262.522.1207

From: Rabins, Jaime [mailto:Jaime.Rabins@Illinois.gov]
Sent: Wednesday, October 21, 2009 12:59 PM
To: Maria Race
Cc: Heather M. Simon
Subject: RE: MWG Powerton Metal Cleaning Basin Permit

Maria,

Based on our phone conversation it appears the different parts of the basin will be lined differently. Break the first paragraph into at two parts. In the first part identify what layers will be removed and replaced for the base of the impoundment. In the second part identify what layers will be removed and replaced for the sides of the impoundment. Do the same for the second paragraph. This will help me to better understand the project.

Jaime Rabins
Environmental Protection Engineer, Industrial Unit
Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency

ph: 217-524-3035
fax: 217-782-9891
Jaime.Rabins@Illinois.gov

From: Heather M. Simon [mailto:hsimon@naturalrt.com]
Sent: Thursday, September 24, 2009 3:39 PM
To: Rabins, Jaime
Cc: Maria Race
Subject: RE: MWG Powerton Metal Cleaning Basin Permit

Jamie,

I made a correction to the description, as shown below.

If you have any questions, please feel free to contact me.

Sincerely,

Heather M. Simon, PE
Environmental Engineer
Natural Resource Technology, Inc.
262.522.1207

From: Rabins, Jaime [mailto:Jaime.Rabins@Illinois.gov]
Sent: Thursday, September 24, 2009 2:48 PM
To: Heather M. Simon
Subject: RE: MWG Powerton Metal Cleaning Basin Permit

Heather,

Confirm that the below description of the project is correct.

The project is for the removal and replacement of the existing 12 inch lime, fly-ash, and aggregate layer referred to as Poz-O-Pac along the side slopes with a 16 oz nonwoven geotextile, a 60 mil HDPE Geomembrane liner, a 12 oz nonwoven geotextile, 12 inch thick sand or limestone cushion layer, and a 6 inch coarse aggregate warning layer. On top of the existing Hypalon® liner along the side slopes, the liner system will consist of 60 mil HDPE Geomembrane liner. Once complete the liner system at the base of the Metal Cleaning Basin will consist of 12 inches of Poz-o-Pac, 6 inches of fill, a 16 oz nonwoven geotextile, a 60 mil HDPE Geomembrane liner, a 12 oz nonwoven geotextile, 12 inch thick sand or limestone cushion layer, and a 6 inch coarse aggregate warning layer. The DMF of 1.19 MGD and working volume of 5.4 million gallons at 3 to 6 feet of freeboard for the Metal Cleaning Waste Basin will remain unchanged.

I sent Maria Race an email regarding this project. Was it not forwarded to you? Since it appears that you are the contact for this project I will direct all future questions to you.

Jaime Rabins
Environmental Protection Engineer, Industrial Unit
Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency

ph: 217-524-3035
fax: 217-782-9891

Jaime.Rabins@Illinois.gov

From: Heather M. Simon [mailto:hsimon@naturalrt.com]
Sent: Thursday, September 24, 2009 2:33 PM
To: Rabins, Jaime
Subject: MWG Powerton Metal Cleaning Basin Permit

Jaime,

I'm contacting you to find out what the status is on your review of Midwest Generation Powerton Metal Cleaning Basin liner replacement application for construction approval, which you received late July. Please let me know when we should expect completion of your review/approval.

If you have any questions, please feel free to contact me. Thank you for your time on this matter.

Sincerely,

Heather M. Simon, PE
Environmental Engineer
Natural Resource Technology, Inc.
23713 W. Paul Road, Suite D
Pewaukee, WI 53072
262.522.1207 direct | 262.719-4514 cell
262.523.9000 phone | 262.523.9001 fax
hsimon@naturalrt.com | www.naturalrt.com

Smarter solutions, Exceptional service, Value

Rabins, Jaime

From: Rabins, Jaime
Sent: Wednesday, September 09, 2009 4:08 PM
To: 'Maria Race'
Subject: Powerton Liner Replacement Project

Maria,

Confirm that the below description of the project is correct.

The project is for the removal and replacement of the existing 12 inch lime, fly-ash, and aggregate layer referred to as Poz-O-Pac along the side slopes with a 16 oz nonwoven geotextile, a 60 mil HDPE Geomembrane liner, a 12 oz nonwoven geotextile, 12 inch thick sand or limestone cushion layer, and a 6 inch coarse aggregate warning layer.

Once complete the liner system will consist of 12 inches of Poz-o-Pac, 6 inches of fill, a 16 oz nonwoven geotextile, a 60 mil HDPE Geomembrane liner, a 12 oz nonwoven geotextile, 12 inch thick sand or limestone cushion layer, and a 6 inch coarse aggregate warning layer. The DMF of 1.19 MGD and working volume of 5.4 million gallons at 3 to 6 feet of freeboard for the Metal Cleaning Waste Basin will remain unchanged.

Jaime Rabins
Environmental Protection Engineer, Industrial Unit
Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency

ph: 217-524-3035
fax: 217-782-9891
Jaime.Rabins@Illinois.gov

Rabins, Jaime

From: Kamp, Carl
Sent: Thursday, November 12, 2009 3:53 PM
To: Rabins, Jaime
Cc: Buscher, Bill
Subject: RE: Urgent Response Necessary!!!

Sorry, I had to go to the dentist, and am now back. If I remember the basin is only used once or twice a year. They have to clean out the old basin in order to upgrade it. I conversed with Bill, and he agrees. It is necessary to determine the amount of contamination, which chemicals are exceeding the applicable regulations, and to have a starting point for monitoring the upgraded impoundment.

From: Rabins, Jaime
Sent: Thursday, November 12, 2009 1:43 PM
To: Kamp, Carl
Subject: Urgent Response Necessary!!!
Importance: High

Karl,

Item #2 of your October 13, 2009 Memo regarding the re-lining of the Metal Cleaning Basin at the Powerton Generating Station is a requirement that six groundwater samples be taken prior to placing the basin in service. Darin is requesting confirmation that this is necessary considering the fact that the impoundment is already in service and therefore the current groundwater quality may already be impacted by the contents of the Metal Cleaning Basin.

Jaime Rabins
Environmental Protection Engineer, Industrial Unit
Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency

ph: 217-524-3035
fax: 217-782-9891
Jaime.Rabins@Illinois.gov

From: Kamp, Carl
Sent: Tuesday, October 13, 2009 1:36 PM
To: Rabins, Jaime
Cc: Buscher, Bill
Subject: Midwest Generation

Last E-mail was blank. I will try it again. Attached is the Midwest Generation memo with language that needs to be added to the permit. I will get you the signed Memo in a bit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-2829
James R. Thompson Center, 100 West Randolph, Suite 11-300, Chicago, IL 60601 • (312) 814-6026
PAT QUINN, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

MEMORANDUM

RECEIVED
OCT 13 2009
Environmental Protection Agency
WPC--Permit Log In

DATE: October 13, 2009

TO: Jamie Rabins

FROM: Bill Buscher

SUBJECT: Midwest Generation Powerton Power Station Metal Cleaning Basin Liner Replacement Construction Permit #2009-EB-2748

This memorandum is in response to your request for the Hydrogeology and Compliance Unit (HCU) to review the Permit Application for compliance with the Environmental Protection Act [415 ILCS 55/1 et seq.]. The HCU completed its review of the permit construction application. Midwest Generation plans to re-line their existing waste storage lagoon. The lagoon has been determined to be a potential secondary source; therefore, groundwater monitoring is required. The following language should be added to the permit:

SPECIAL CONDITION #

The existing Midwest Generation waste storage lagoon shall adhere to the following groundwater protection elements:

1. A minimum of three monitoring wells must be installed around the waste storage lagoon, no more than 25 feet from the outermost edge of the waste storage lagoon. At least one of monitoring wells must be located down gradient of the waste storage lagoon. The monitoring wells should be screened in the upper most water bearing materials. Provide drillers logs and well completion reports, and an updated monitoring well location map after well completion.

2. At least six groundwater samples must be collected from each monitoring well within one year before the pond is used, to establish a statistically valid representation of existing (background) concentrations.

3. Sample monitoring wells for the chemical parameters listed in 35 IAC 620.410(a) and (d). The sampling plan will be required as part of the permit. The following parameters listed below should also be sampled.

RECEIVED
[redacted]
Environmental Protection Agency
WPC--Permit Log In

Rockford • 4302 N. Main St., Rockford, IL 61103 • (815) 987-7760
Elgin • 595 S. State, Elgin, IL 60123 • (847) 608-3131
Bureau of Land – Peoria • 7620 N. University St., Peoria, IL 61614 • (309) 693-5462
Collinsville • 2009 Mall Street, Collinsville, IL 62234 • (618) 346-5120
Des Plaines • 9511 W. Harrison St., Des Plaines, IL 60016 • (847) 294-4000
Peoria • 5415 N. University St., Peoria, IL 61614 • (309) 693-5463
Champaign • 2125 S. First St., Champaign, IL 61820 • (217) 278-5800
Marion • 2309 W. Main St., Suite 116, Marion, IL 62959 • (618) 993-7200
1
Printed on Recycled Paper

Specific Conductance
Temperature
Depth to Water (bls)
Depth to Water (bmp)
Elevation of MP
Elevation of GW Surface

4. After a background concentration for each constituent is determined, monitoring will be conducted and reported monthly during waste storage lagoon use.

5. In the event that any Class I: Potable Resource Groundwater Quality Standards are exceeded in any potable water supply well, and is attributable to the operation of the waste storage lagoon, an alternative water supply shall be supplied with all costs of providing the alternative supply being borne by the owner of waste storage lagoon.

6. A corrective action plan is required, if monitoring well analysis indicates impacted groundwater from the waste storage lagoon.

7. The liner must be protected from degradation.

8. Copies of the groundwater monitoring well sample analysis shall be submitted to the following addresses:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Illinois Environmental Protection Agency
DWPC - Rockford Region
4302 Main Street
Rockford, Illinois 61103

Illinois Environmental Protection Agency
Hydrogeology and Compliance Unit
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

To Carl Kamp 9-11-09
Due 10/1/09

DWPC CROPA FACT SHEET AND MEMORANDUM

RECEIVED
SEP 11 2009
DIVISION OF PUBLIC WATER SUPPLIES
ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS

DATE: September 9, 2009

TO: ______________ DAPC
______________ DLPC
Bill Buscher #3 DPWS

FROM: Jaime Rabins DWPC CONTACT PERSON

SUBJECT: Candidate for Coordinated Permit Review
Liner Replacement - Powerton Generating Station
Name of Project Project Location or Site

On 8/7/09, Midwest Generation (~~called/~~[✓ submitted application]) which indicated they would be a potential candidate for a coordinated permit review for this project. A basic description of the project is as follows:

>10,000 P.E...., Contains Toxics......... Source of Waste = APC Device.......
Storage of Haz. or Toxic Wastes.......... LPC Facility.....
Facility Treats Haz. or Toxic Wastes..... PWS Facility.....
Sludge Produced... other Permits may be required...

NOTE: PLEASE RESPOND BY 10/23/09.

COMMENTS: Relining of an existing metal cleaning waste basin with a 60 mil HDPE Geomembrane with a permeability of 2 X 10^{-13} to 4 X 10^{-13} cm/sec. Advise of any concerns or requirements necessary to comply with 35 IAC 620 or the Act.

- -

TO: ______________ DWPC

FROM: ______________ D___ CONTACT PERSON ______________ Tel #

(FOR DWPC USE ONLY __ CHECK HERE IF NOT SUBJECT TO CROPA)

(1) A permit Is Needed/Has Been Issued/Is Not Required
(2) Project is Significant/Not Significant

Please attach specific language for any special conditions required.

BL:bv/sp/3118C/1
(Revised 12/86)

IL 532-1533
WPC 520 1/87

PERMIT # 2009-EB-2748

MIDWEST
GENERATION EME, LLC
An *EDISON INTERNATIONAL*℠ Company

Maria L. Race
Environmental Program Manager

2748-09

RECEIVED
AUG 07 2009
Environmental Protection Agency
WPC-Permit Log In

RECEIVED
AUG 07 2009
ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY
BOW/WPC/PERMIT SECTION

July 27, 2009

Mr. Jaime Rabins
Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62702

RE: Application for Permit or Construction Approval
Metal Cleaning Basin Liner Replacement
Midwest Generation Powerton Power Station
13082 East Manito Road, Pekin, IL
NPDES Permit No. IL0002232

Dear Mr. Rabins,

Midwest Generation, LLC (MWG) is requesting a construction permit for liner replacement in the Metal Cleaning Basin at the Powerton Power Station. This activity is part of MWG's routine maintenance program for the facility; no significant modifications will be made to the basin's operation or treatment process. Please find enclosed a copy of the Application for Permit or Construction Approval WPC-PS-1 and supporting documents.

The following information is attached:

- A site location map is included in the "Figure" tab;
- A plan view of existing conditions, liner replacement plan, cross section and details drawings are included in the "Sheets" tab;
- Form WPC-PS-1 "Application for Permit or Construction Approval", and Schedules G "Sludge Disposal & Utilization", J "Industrial Treatment Works Construction or Pretreatment Works", and N "Waste Characteristics" are provided in Appendix A;
- Representative photographs of the Metal Cleaning Basin are provided in Appendix B; and
- Specification Section 02600 for installation of high-density polyethylene (HDPE) geomembrane liner is provided in Appendix C.

Midwest Generation EME, LLC
One Financial Place
440 South LaSalle Street
Suite 3500
Chicago, IL 60605
Tel: 312 583 6062
Fax: 312 788 5526
Email: mrace@mwgen.com

MIDWEST
GENERATION EME, LLC
An EDISON INTERNATIONAL℠ Company

Maria L. Race
Environmental Program Manager

FACILITY DESCRIPTION

The Metal Cleaning Basin is for settling of solid/sludge waste from cleaning/wash water associated with boiler maintenance at the Powerton Generating Station. The basin is operational when maintenance activities are conducted, which is generally between March and June each year. The total depth of the basin is 12 feet with a capacity of approximately 5.4 million gallons. Typically, the basin freeboard ranges between 3 and 6 feet during operation. Currently, the basin is lined with Hypalon® geomembrane on the side slopes, and a 12-inch thick layer of Poz-o-pac[1] at the base (Sheet C010) and 5 feet up the side slopes. Photographs of the current condition of the basin are provided in Appendix B.

PROJECT DESCRIPTION

Liner replacement activities for the Metal Cleaning Basin are anticipated to occur in October/November 2009, following scheduled dredging activities (dewatering followed by dry excavation). This schedule may change based upon plant operation needs. Liner replacement activities will include:

- Subgrade preparation for HDPE geomembrane liner (Sheet C020), including removal of the existing Poz-o-Pac liner along the side slopes of the basin (i.e., 12 inches of Poz-o-pac to remain at the base), and removal of the concrete aprons for the inlet pipes;
- Deployment and seaming of the HDPE geomembrane replacement liner. The permeability[2] of geomembrane is typically between $2x10^{-13}$ and $4x10^{-13}$ centimeters per second; and
- Placement of cushion and warning layers over the replacement liner.

The warning layer will consist of dense-graded aggregate, grade no. CA6 conforming to Section 1004.01, Coarse Aggregate of State of Illinois, Department of Transportation (IDOT), Standard Specifications for Road and Bridge Construction, or other easily-identifiable material.

The cushion layer will consist of sand, or limestone screenings grade no. FA 1, FA 2, FA3 or FA5 conforming to Section 1003.01 Fine Aggregate of IDOT Standard Specifications for Road and Bridge

---

[1] A stabilized subgrade that is comprised of lime, fly ash and aggregate. Compressive strength could be between 500 to 1,000 psi.

[2] Koerner, Robert M., and David E. Daniel, *Final Covers for Solid Waste Landfills and Abandoned Dumps*, ASCE Press, 1997

Construction.

The proposed HDPE geomembrane replacement liner, associated anchor trenches, and cushion and warning layers are shown on Sheet C030. Cross sections and details associated with the liner and cushion/warning layers are shown on Sheets C031 and C032.

If you have any questions or require additional information as you review this application, please call me at 312-583-6062.

Sincerely,

Maria Race
Environmental Program Manager

Attachments: Figure 1 – Site Location Map
Appendix A – WPC-PS-1 and Schedules G, J and N
Appendix B – Site Photographs
Appendix C – Specification Section 02600, HDPE Geomembrane
Sheet C010 – Existing Conditions
Sheet C020 – Liner Subgrade Preparation
Sheet C030 – Warning Layer Plan
Sheet C031 – Details and Sections
Sheet C032 – Details and Sections

cc: Mr. Mark Kelly, MWG-Powerton

[1965 Metal Cleaning Basin letter DRAFT 090715]

Midwest Generation EME, LLC
One Financial Place
440 South LaSalle Street
Suite 3500
Chicago, IL 60605
Tel: 312 583 6062
Fax: 312 788 5526
Email: mrace@mwgen.com

08/11/2009

SPEED OF PROCESSING FORM

DATE RECEIVED: 08/07/2009

PROJECT NAME: MIDWEST GENERATION LLC

LOG NUMBER: 2748 LOG YEAR: 2009

PROJECT DESC: ITP POWERTON

ENGINEER: JAR

PROJECT TYPE: ITP

UNIT:

LOCATION: PEKIN

PLANS: C

REGION: 3

FIPS COUNTY: 179

ORIGINAL LOG NO:

45 DAY FIELD: .F.

PREVIOUS PERMIT NO:

CARD SENT: (Y or N)

LOAN/GRANT:

FEE SUBMITTED

CHECK NUMBER: 0

CHECK AMOUNT: 0

CHECK NUMBER:

CHECK AMOUNT:

30 DAY REVIEW PERIOD ENDS

IDNR: / /

IHPA: / /

SIGN-OFF AUTHORIZATIONS

	INITIALS	DATE
ENGINEER:	JAR	10/27/09
UNIT MANAGER:	DEL	11/13/09
SECTION MANAGER:	SAK by DLL	11/13/09
DATE MAILED:	BOM	11/13/09

ACTION: ___ PERMIT: X DENIAL: ___ VOIDED ___ NPR: ___ NOI: ___

PERMIT NUMBER: 2009-EB-2748

LOADING: — P.E.

— GPD DAF

ISSUE DATE:

EXPIRATION DATE: September 30, 2014

Exhibit

C

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
PAT QUINN, GOVERNOR **JOHN J. KIM,** INTERIM DIRECTOR

217/785-0561

June 11, 2012

CERTIFIED MAIL # 7010 2780 0002 1163 7254
RETURN RECEIPT REQUESTED

Mr. Basil G. Constantelos: Managing Director, Environmental Services
Midwest Generation EME, LLC
2535 Remington Blvd
Suite A
Bolingbrook, IL 60440

Re: Violation Notice: Midwest Generation, LLC, Powerton Generating Station
Identification No.: 6282
Violation Notice No.: W-2012-00057

Dear Mr. Constantelos:

This constitutes a Violation Notice pursuant to Section 31(a)(1) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(1), and is based upon a review of available information and an investigation by representatives of the Illinois Environmental Protection Agency ("Illinois EPA").

The Illinois EPA hereby provides notice of alleged violations of environmental laws, regulations, or permits as set forth in Attachment A to this notice. Attachment A includes an explanation of the activities that the Illinois EPA believes may resolve the specified alleged violations. Due to the nature and seriousness of the alleged violations, please be advised that resolution of the violations may also require the involvement of a prosecutorial authority for purposes that may include, among others, the imposition of statutory penalties.

A written response, which may include a request for a meeting with representatives of the Illinois EPA, must be submitted via certified mail to the Illinois EPA within 45 days of receipt of this letter. If a meeting is requested, it shall be held within 60 days of receipt of this notice. The response must include information in rebuttal, explanation, or justification of each alleged violation and a statement indicating whether or not the facility wishes to enter into a Compliance Commitment Agreement ("CCA") pursuant to Section 31(a) of the Act. If the facility wishes to enter into a CCA, the written response must also include proposed terms for the CCA that includes dates for achieving each commitment and may include a statement that compliance has been achieved for some or all of the alleged violations. The proposed terms of the CCA should contain sufficient detail and must include steps to be taken to achieve compliance and the necessary dates by which compliance will be achieved.

The Illinois EPA will review the proposed terms for a CCA provided by the facility and, within 30 days of receipt, will respond with either a proposed CCA or a notice that no CCA will be issued by the Illinois EPA. If the Illinois EPA sends a proposed CCA, the facility must respond in writing by either agreeing to and signing the proposed CCA or by notifying the Illinois EPA that the facility rejects the terms of the proposed CCA.

If a timely written response to this Violation Notice is not provided, it shall be considered a waiver of the opportunity to respond and meet, and the Illinois EPA may proceed with referral to a prosecutorial authority.

Written communications should be directed to:

Illinois EPA – Division of Public Water Supplies
Attn: Andrea Rhodes, CAS #19
P.O. BOX 19276
Springfield, IL 62794-9276

All communications must include reference to this Violation Notice number, W-2012-00057.

Questions regarding this Violation Notice should be directed to Andrea Rhodes at 217/785-0561.

Sincerely,

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

Attachments

cc: Maria Race

CASE ID: 2012-006

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

A review of information available to the Illinois EPA indicates the following on-going violations of statutes, regulations, or permits. Included with each type of violation is an explanation of the activities that the Illinois EPA believes may resolve the violation.

Groundwater Quality

No person shall cause, threaten or allow the release of any contaminant to a resource groundwater such that: treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater; or an existing or potential use of such groundwater is precluded. No person shall cause, threaten or allow the release of any contaminant to groundwater so as to cause a groundwater quality standard to be exceeded. Midwest Generation, LLC must take actions to mitigate existing contamination and prevent the continuing release of contaminants into the environment.

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-1 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.39 su	6.5-9.0 su	12/12/2011
Boron	2.9 mg/l	2.0 mg/l	3/19/2012
Nitrate	11 mg/l	10.0 mg/l	9/20/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-2 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.41 su	6.5-9.0 su	12/12/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

A review of information available to the Illinois EPA indicates the following on-going violations of statutes, regulations, or permits. Included with each type of violation is an explanation of the activities that the Illinois EPA believes may resolve the violation including an estimated time period for resolution.

Groundwater Quality

No person shall cause, threaten or allow the release of any contaminant to a resource groundwater such that: treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater; or an existing or potential use of such groundwater is precluded. No person shall cause, threaten or allow the release of any contaminant to groundwater so as to cause a groundwater quality standard to be exceeded. Midwest Generation, LLC must take actions to mitigate existing contamination and prevent the continuing release of contaminants into the environment.

Violation
Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-1 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.39 su	6.5-9.0 su	12/12/2011
Boron	2.9 mg/l	2.0 mg/l	3/19/2012
Nitrate	11 mg/l	10.0 mg/l	9/20/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation
Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-2 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.41 su	6.5-9.0 su	12/12/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

Violation
Description
Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-4 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.37 su	6.5-9.0 su	12/12/2011
Manganese	0.35 mg/l	0.15 mg/l	12/12/2011
Manganese	0.69 mg/l	0.15 mg/l	9/20/2011
Manganese	0.41 mg/l	0.15 mg/l	6/16/2011
Manganese	0.68 mg/l	0.15 mg/l	3/25/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation
Description
Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-5 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.34 su	6.5-9.0 su	12/12/2011
Manganese	0.26 mg/l	0.15 mg/l	3/19/2012
Manganese	0.50 mg/l	0.15 mg/l	12/12/2011
Manganese	0.64 mg/l	0.15 mg/l	9/20/2011
Manganese	0.48 mg/l	0.15 mg/l	6/16/2011
Manganese	0.49 mg/l	0.15 mg/l	3/25/2011
Manganese	0.51 mg/l	0.15 mg/l	12/15/2010

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation
Description
Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-6 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
Manganese	0.61 mg/l	0.15 mg/l	3/19/2012
Manganese	0.63 mg/l	0.15 mg/l	12/12/2011
Manganese	0.66 mg/l	0.15 mg/l	9/20/2011
Manganese	0.63 mg/l	0.15 mg/l	6/16/2011
Manganese	0.68 mg/l	0.15 mg/l	3/25/2011
Manganese	0.68 mg/l	0.15 mg/l	12/15/2010

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

Violation Description

MW-6 continued

Parameter	Sample Value	GW Standard	Collection Date
Chloride	210 mg/l	200 mg/l	9/20/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-7 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.45 su	6.5-9.0 su	12/12/2011
Arsenic	0.23 mg/l	0.05 mg/l	3/19/2012
Arsenic	0.23 mg/l	0.05 mg/l	12/12/2011
Arsenic	0.18 mg/l	0.05 mg/l	9/20/2011
Arsenic	0.12 mg/l	0.05 mg/l	6/16/2011
Arsenic	0.085 mg/l	0.05 mg/l	3/25/2011
Iron	31 mg/l	5.0 mg/l	3/19/2012
Iron	26 mg/l	5.0 mg/l	12/12/2011
Iron	22 mg/l	5.0 mg/l	9/20/2011
Iron	10 mg/l	5.0 mg/l	6/16/2011
Iron	7.5 mg/l	5.0 mg/l	3/25/2011
Iron	8.0 mg/l	5.0 mg/l	12/15/2010
Lead	0.039 mg/l	0.0075 mg/l	12/15/2010
Manganese	11 mg/l	0.15 mg/l	3/19/2012
Manganese	12 mg/l	0.15 mg/l	12/12/2011
Manganese	12 mg/l	0.15 mg/l	9/20/2011
Manganese	6.4 mg/l	0.15 mg/l	6/16/2011
Manganese	5.9 mg/l	0.15 mg/l	3/25/2011
Manganese	3.5 mg/l	0.15 mg/l	12/15/2010
Selenium	0.054 mg/l	0.05 mg/l	12/12/2011
TDS	1,400 mg/l	1,200 mg/l	3/19/2012
TDS	1,300 mg/l	1,200 mg/l	12/12/2011
TDS	1,300 mg/l	1,200 mg/l	9/20/2011
TDS	1,300 mg/l	1,200 mg/l	6/16/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

Violation
Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-8 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
Manganese	0.27 mg/l	0.15 mg/l	3/19/2012
Manganese	0.20 mg/l	0.15 mg/l	12/12/2011
Manganese	0.18 mg/l	0.15 mg/l	9/20/2011
Manganese	0.29 mg/l	0.15 mg/l	6/16/2011
Manganese	0.27 mg/l	0.15 mg/l	3/25/2011
Chloride	210 mg/l	200 mg/l	9/20/2011
Chloride	210 mg/l	200 mg/l	3/25/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation
Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-9 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.31 su	6.5-9.0 su	12/12/2011
Manganese	0.22 mg/l	0.15 mg/l	3/19/2012
Manganese	0.28 mg/l	0.15 mg/l	12/12/2011
Manganese	0.48 mg/l	0.15 mg/l	6/16/2011
Manganese	0.45 mg/l	0.15 mg/l	3/25/2011
Manganese	0.43 mg/l	0.15 mg/l	2/15/2011
Manganese	0.23 mg/l	0.15 mg/l	12/16/2010
Manganese	0.19 mg/l	0.15 mg/l	12/15/2010
Selenium	0.072 mg/l	0.05 mg/l	3/25/2011
Boron	2.6 mg/l	2.0 mg/l	3/19/2012
Boron	2.7 mg/l	2.0 mg/l	12/12/2011
Boron	2.5 mg/l	2.0 mg/l	9/20/2011
Boron	2.5 mg/l	2.0 mg/l	9/19/2011
Boron	2.1 mg/l	2.0 mg/l	12/16/2010
Boron	2.2 mg/l	2.0 mg/l	12/15/2010

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-10 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.03 su	6.5-9.0 su	12/12/2011
Manganese	2.3 mg/l	0.15 mg/l	3/19/2012
Manganese	2.3 mg/l	0.15 mg/l	12/12/2011
Manganese	2.3 mg/l	0.15 mg/l	9/20/2011
Manganese	3.8 mg/l	0.15 mg/l	6/16/2011
Manganese	2.8 mg/l	0.15 mg/l	3/25/2011
Manganese	2.1 mg/l	0.15 mg/l	12/15/2010

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-11 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.48 su	6.5-9.0 su	12/12/2011
Manganese	2.9 mg/l	0.15 mg/l	3/19/2012
Manganese	2.5 mg/l	0.15 mg/l	12/12/2011
Manganese	2.9 mg/l	0.15 mg/l	9/19/2011
Manganese	2.2 mg/l	0.15 mg/l	6/16/2011
Manganese	3.6 mg/l	0.15 mg/l	2/15/2011
Manganese	3.2 mg/l	0.15 mg/l	12/16/2010
Boron	2.3 mg/l	2.0 mg/l	3/19/2012

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-12 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
Iron	5.6 mg/l	5.0 mg/l	6/16/2011
Iron	6.3 mg/l	5.0 mg/l	2/15/2011
Iron	5.5 mg/l	5.0 mg/l	12/15/2010

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

Violation Description

MW-12 Continued:

Parameter	Sample Value	GW Standard	Collection Date
Manganese	0.25 mg/l	0.15 mg/l	12/12/2011
Manganese	0.37 mg/l	0.15 mg/l	9/19/2011
Manganese	0.26 mg/l	0.15 mg/l	6/16/2011
Manganese	0.58 mg/l	0.15 mg/l	2/15/2011
Manganese	0.32 mg/l	0.15 mg/l	12/15/2010
Mercury	0.0096 mg/l	0.002 mg/l	12/15/2010
Chloride	210 mg/l	200 mg/l	12/12/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-13 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
Manganese	3.5 mg/l	0.15 mg/l	4/10/2012
Manganese	3.5 mg/l	0.15 mg/l	12/12/2011
Manganese	3.6 mg/l	0.15 mg/l	10/13/2011
Manganese	2.6 mg/l	0.15 mg/l	8/9/2011
Manganese	2.9 mg/l	0.15 mg/l	6/16/2011
Manganese	2.7 mg/l	0.15 mg/l	4/25/2011
Manganese	3.8 mg/l	0.15 mg/l	2/15/2011
Manganese	5.0 mg/l	0.15 mg/l	12/15/2010
Selenium	0.056 mg/l	0.05 mg/l	8/9/2011
Boron	4.0 mg/l	2.0 mg/l	4/10/2012
Boron	4.1 mg/l	2.0 mg/l	12/12/2011
Boron	3.0 mg/l	2.0 mg/l	10/13/2011
Boron	2.7 mg/l	2.0 mg/l	8/9/2011
Boron	3.0 mg/l	2.0 mg/l	6/16/2011
Boron	2.6 mg/l	2.0 mg/l	4/25/2011
Boron	3.1 mg/l	2.0 mg/l	2/15/2011
Boron	3.9 mg/l	2.0 mg/l	12/15/2010
Sulfate	1,100 mg/l	400 mg/l	4/10/2012
Sulfate	1,100 mg/l	400 mg/l	12/12/2011
Sulfate	660 mg/l	400 mg/l	10/13/2011
Sulfate	440 mg/l	400 mg/l	8/9/2011
Sulfate	540 mg/l	400 mg/l	6/16/2011
Sulfate	580 mg/l	400 mg/l	4/25/2011
Sulfate	770 mg/l	400 mg/l	2/15/2011
Sulfate	1,400 mg/l	400 mg/l	12/15/2010

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

Violation
Description
MW-13 continued:

Parameter	Sample Value	GW Standard	Collection Date
Sulfate	580 mg/l	400 mg/l	4/25/2011
Sulfate	770 mg/l	400 mg/l	2/15/2011
Sulfate	1,400 mg/l	400 mg/l	12/15/2010
TDS	2,300 mg/l	1,200 mg/l	4/10/2012
TDS	2,100 mg/l	1,200 mg/l	12/12/2011
TDS	1,500 mg/l	1,200 mg/l	10/13/2011
TDS	1,300 mg/l	1,200 mg/l	6/16/2011
TDS	1,400 mg/l	1,200 mg/l	4/25/2011
TDS	1,600 mg/l	1,200 mg/l	2/15/2011
TDS	2,600 mg/l	1,200 mg/l	12/15/2010

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation
Description
Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-14 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
pH	6.05 su	6.5-9.0 su	12/12/2011
Manganese	0.63 mg/l	0.15 mg/l	4/10/2012
Manganese	0.84 mg/l	0.15 mg/l	10/13/2011
Manganese	0.57 mg/l	0.15 mg/l	8/9/2011
Manganese	0.36 mg/l	0.15 mg/l	6/16/2011
Manganese	0.29 mg/l	0.15 mg/l	4/25/2011
Manganese	0.81 mg/l	0.15 mg/l	2/15/2011
Manganese	0.68 mg/l	0.15 mg/l	12/15/2010
Selenium	0.065 mg/l	0.05 mg/l	4/25/2011
Thallium	0.0034 mg/l	0.002 mg/l	4/10/2012
Thallium	0.0027 mg/l	0.002 mg/l	8/9/2011
Thallium	0.0039 mg/l	0.002 mg/l	6/16/2011
Thallium	0.0035 mg/l	0.002 mg/l	4/25/2011
Sulfate	990 mg/l	400 mg/l	4/10/2012
Sulfate	880 mg/l	400 mg/l	12/12/2011
Sulfate	850 mg/l	400 mg/l	10/13/2011
Sulfate	940 mg/l	400 mg/l	8/9/2011
Sulfate	810 mg/l	400 mg/l	6/16/2011
Sulfate	770 mg/l	400 mg/l	4/25/2011
Sulfate	820 mg/l	400 mg/l	2/15/2011
Sulfate	960 mg/l	400 mg/l	12/15/2010

ATTACHMENT A

MIDWEST GENERATION, LLC, POWERTON GENERATING STATION, ID:6282
VIOLATION NOTICE NO. W-2012-00057:

Violation Description

MW-14 continued:

Parameter	Sample Value	GW Standard	Collection Date
Chloride	240 mg/l	200 mg/l	8/9/2011
TDS	2,200 mg/l	1,200 mg/l	4/10/2012
TDS	1,800 mg/l	1,200 mg/l	12/12/2011
TDS	1,800 mg/l	1,200 mg/l	10/13/2011
TDS	2,000 mg/l	1,200 mg/l	8/9/2011
TDS	1,900 mg/l	1,200 mg/l	6/16/2011
TDS	1,800 mg/l	1,200 mg/l	4/25/2011
TDS	1,700 mg/l	1,200 mg/l	2/15/2011
TDS	1,800 mg/l	1,200 mg/l	12/15/2010

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Violation Description

Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring well MW-15 for the following constituents:

Parameter	Sample Value	GW Standard	Collection Date
Manganese	0.25 mg/l	0.15 mg/l	4/10/2012
Manganese	0.39 mg/l	0.15 mg/l	12/12/2011
Manganese	0.48 mg/l	0.15 mg/l	10/13/2011
Manganese	0.37 mg/l	0.15 mg/l	8/9/2011
Manganese	0.60 mg/l	0.15 mg/l	6/16/2011
Manganese	0.36 mg/l	0.15 mg/l	4/25/2011
Manganese	0.42 mg/l	0.15 mg/l	2/15/2011
Manganese	0.56 mg/l	0.15 mg/l	12/15/2010
Sulfate	650 mg/l	400 mg/l	6/16/2011
Chloride	210 mg/l	200 mg/l	8/9/2011
TDS	1,600 mg/l	1,200 mg/l	6/16/2011

Rule/Reg. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

Exhibit

D

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
PAT QUINN, GOVERNOR JOHN J. KIM, INTERIM DIRECTOR

217-785-0561

October 24, 2012

CERTIFIED MAIL # 7011 1150 0001 0859 0119
RETURN RECEIPT REQUESTED

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

Re: Compliance Commitment Acceptance
Violation Notice: W-2012-00057
Midwest Generation, LLC, Powerton Generating Station; ID Number: 6282

Dear Mr. Kennedy:

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

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

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

Questions regarding this matter should be directed to Andrea Rhodes at 217/785-0561. Written communications should be directed to the Illinois Environmental Protection Agency, Bureau of Water, CAS #19, P.O. Box 19276, Springfield, IL 62794-9276, and all communications shall include reference to your Violation Notice Number W-2012-00057.

Sincerely,

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

Attachments

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

BOW ID: W1798010008 CASE ID: 2012-006

cc: Basil G. Constantelos
Midwest Generation EME, LLC
235 Remington Blvd, Suite A
Bolingbrook, IL 60440

Maria Race
Midwest Generation EME, LLC
2535 Remington Blvd, Suite A
Bolingbrook, IL 60440

Susan M. Franzetti
10 South LaSalle St.
Suite 3600
Chicago, IL 60603

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

RECEIVED
OCT 17 2012
IEPA/CAS

IN THE MATTER OF:)
)
MIDWEST GENERATION, LLC,)
POWERTON GENERATING STATION)
PEKIN, TAZEWELL COUNTY, IL)
ID NUMBER: 6282)
)
) ILLINOIS EPA VN W-2012-00057
) BUREAU OF WATER
)

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

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

II. Allegation of Violations

2. Respondent owns and operates Powerton Generating Station in Pekin, Tazewell County, Illinois ("Powerton").

3. Pursuant to Violation Notice ("VN") W-2012-00057 issued on June 11, 2012, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

   a) Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, and MW-15. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

III. Compliance Activities

4. On September 4, 2012, the Illinois EPA received Respondent's response to VN W-2012-00057, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.

5. Respondent agrees to undertake and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in VN W-2012-00057:

   a) The ash ponds at Powerton shall not be used as permanent disposal sites and shall continue to function as treatment ponds to precipitate ash. Ash shall continue to be removed from the ponds on a periodic basis.

   b) The ash treatment ponds shall be maintained and operated in a manner which protects the integrity of the existing liners. During the removal of ash from the ponds, appropriate procedures shall be followed to protect the integrity of the existing liners, including operating the ash removal equipment in a manner which minimizes the risk of any damage to the liner.

   c) During the ash removal process, visual inspections of the ponds shall be conducted to identify any signs of a breach in the integrity of the pond liners. In the event that a breach of the pond liners is detected, Midwest Generation shall promptly notify the Illinois EPA and shall implement a corrective action plan for repair or replacement as necessary, of the liner. Upon the Illinois EPA's approval, and the issuance of any necessary construction permit, Midwest Generation will implement the corrective action plan.

   d) Midwest Generation shall monitor the new well as described in 5(f) below and the existing fifteen groundwater monitoring wells quarterly for constituents in 35 Ill. Adm. Code 620.410(a) and (d), with the exception of radium 226 and 228, and report its findings to the Illinois EPA within 30 days of the end of each quarter. In addition, Midwest Generation shall record and report groundwater elevation and submit a potentiometric surface map with the above quarterly groundwater monitoring report.

   e) Within 90 days of the effective date of the CCA, Midwest Generation shall submit an application for a construction permit to re-line the Ash Surge Basin and the Secondary Ash Settling Basin at Powerton with a 60 mil thickness high density polyethylene ("HDPE") liner or an Illinois EPA approved equivalent material.

   f) Midwest Generation shall install an additional groundwater monitoring well south of monitor well 9, in a location approved by the Illinois EPA, to better define up gradient groundwater quality, within 60 days of the effective date of the CCA.

g) Midwest Generation shall submit an application to establish a GMZ pursuant to 35 Ill. Adm. Code Part 620.250 within 90 days of the effective date of the CCA.

h) Midwest Generation shall enter into an Environmental Land Use Control (ELUC) to cover the area of the Powerton Station property which is contained within the GMZ. Midwest Generation shall submit a proposed draft ELUC to the Illinois EPA for review and comment within 90 days of the effective date of the CCA.

i) Midwest Generation shall record the ELUC within 30 days of approval of the ELUC by the Illinois EPA.

j) Midwest Generation shall establish a GMZ pursuant to 35 Ill. Adm. Code Part 620.250 within one year of the effective date of the CCA.

k) Once the Ash Surge Basin and the Secondary Ash Settling Basin have been lined and a GMZ and ELUC have been established at Powerton, Midwest Generation shall submit a certification (or a statement) of compliance. Midwest Generation may submit either the attached "Illinois EPA Compliance Statement" or another similar writing to satisfy the statement of compliance within one year of the effective date of the CCA.

l) Midwest Generation shall not allow the East Yard Run-off Basin to be part of the ash sluicing flow system. Further, Midwest Generation shall submit monitoring results from water contained in the East Yard Run-off Basin proximate to outfall monitoring point 003 within 60 days of the effective date of the CCA. Quarterly monitoring of the East Yard Run-off Basin shall be for the constituents listed in 35 Ill. Adm. Code 620.410(a) and (d) with the exception of radium 226 and radium 228. At the end of four (4) quarters of monitoring, Midwest Generation may request cessation of water monitoring from the East Yard Run-off Basin.

m) Midwest Generation shall not use any unlined areas for permanent or temporary ash storage or ash handling.

IV. Terms and Conditions

6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in VN W-2012-00057.

7. This CCA is solely intended to address the violations alleged in Illinois EPA VN W-2012-00057. The Illinois EPA reserves and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations [and Permit, if applicable].

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Powerton in Pekin, Tazewell County, Illinois.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

11. This CCA shall only become effective:

    a) If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA, Bureau of Water, Andrea Rhodes, MC #19, 1021 North Grand Ave East, Springfield, IL 62702. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b) Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: __________________ DATE: 10/24/12

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

FOR RESPONDENT:

BY: __________________ DATE: Oct 15, 2012

John Kennedy
Senior Vice President, Generation
Midwest Generation, LLC

Illinois EPA Compliance Statement

The owner of the facility must acknowledge that all compliance commitment agreement (CCA) measures have been successfully completed.

Please complete, sign, and return.

I ________________________________ *(print name)*, hereby certify that all violations

addressed in Violation Notice (VN) number ____________________ have been addressed and

that all CCA measures were completed on ____________________________ *(date)*.

____
Signature

____
Title

____
Telephone Number

____
Date

Be sure to retain copies of this document for your files. Should you need additional notification forms, please contact this office at (217)785-0561. Return this completed form to:

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

"Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Agency,.....related to or required by this Act, a regulation adopted under this Act, any federal law or regulation for which the Agency has responsibility, or any permit, term, or condition thereof, commits a Class 4 felony..." (415 ILCS 5/44(h) (8))

Exhibit
E

MIDWEST
GENERATION EME, LLC

[illegible]
[illegible]
[illegible]
[illegible]

January 18, 2013

RECEIVED
JAN 22 2012
IEPA/CAS

Ms. Andrea Rhodes
Illinois Environmental Protection Agency – DPWS
MC #19
1021 North Grand Avenue East
Springfield, IL 62702

VIA FEDERAL EXPRESS

Re: Compliance Commitment Agreement – Groundwater Management Zone Application
Midwest Generation, LLC, Powerton Generating Station; ID No. 6282
Violation Notice W-2012-00057

Dear Ms. Rhodes:

The Compliance Commitment Agreement (CCA) for the above referenced site relative to Violation Notice W-2012-00057 was signed by Midwest Generation on October 15, 2012 and executed by Illinois Environmental Protection Agency (IEPA) signature on October 24, 2012 (effective date). Item 5 (g) of the CCA requires Midwest Generation to submit an application to establish a Groundwater Management Zone (GMZ) pursuant to 35 Ill. Adm. Code Part 620.250 within 90 days of the effective date of the CCA.

Based on previous discussions with IEPA, the proposed areal extent of the GMZ is shown on Figure 1 in Attachment 1. The GMZ Application Forms (Parts I through III) and supporting information/data are provided in Attachment 2. As discussed in the Application Forms support documentation, groundwater flow within the silt/clay unit in the vicinity of the subject ash basins is in a westerly direction with discharge to the adjoining intake channel and groundwater flow within the gravelly sand unit is to the north with discharge to the Illinois River. The western (downgradient) extent of the proposed GMZ corresponds with the hydraulic boundary formed by the intake channel. The northern extent corresponds with the hydraulic boundary formed by the Illinois River. The southern and eastern boundaries are defined by the property boundary. The vertical extent of the GMZ would be defined by the top of the Carbondale Formation which is estimated to be approximately 70 feet below ground surface based on other site boring logs from other portions of the property.

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

This submittal fulfills the requirements set forth under Item 5 (g) of the signed CCA. Once the application is approved by IEPA and the proposed extent of the GMZ is agreed upon, a formal surveying of the area will be performed and legal description generated. Please call me at 630-771-7863 if there are any questions.

Sincerely,
Midwest Generation, LLC

Amy Hanrahan

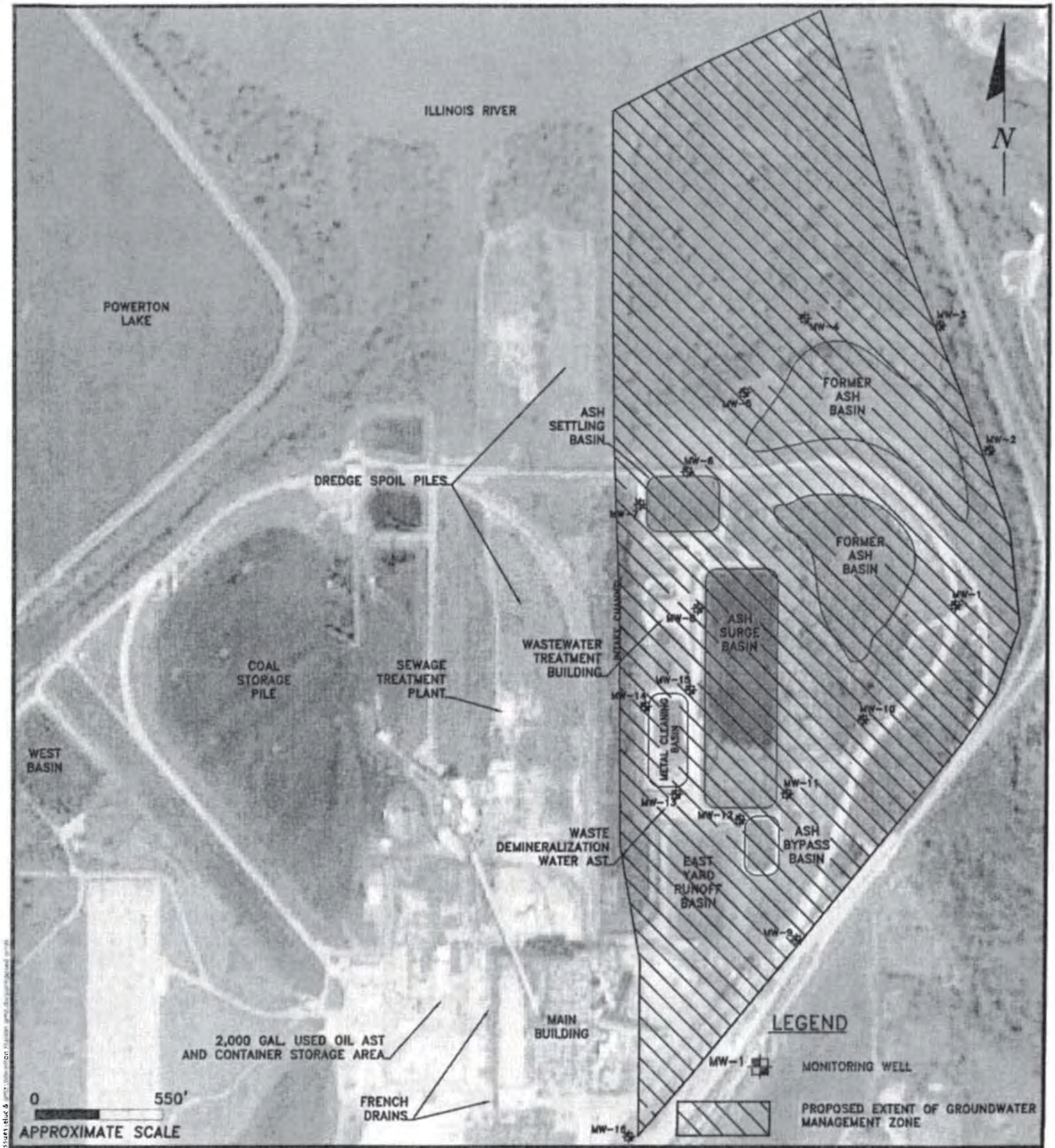
Amy Hanrahan
Senior Environmental Engineer

Attachments: *1 – Proposed Areal Extent of GMZ*
2 – Completed GMZ Application Forms (Parts I through III)

cc: Ms. Maria Race, Midwest Generation EME, LLC
Mr. Basil Constantelos, Midwest Generation EME, LLC
Mr. Joseph Heredia, Midwest Generation, LLC
Mr. Christopher Foley, Midwest Generation EME, LLC
Ms. Susan Franzetti, Nijman Franzetti, LLP
Mr. Richard Gnat, KPRG and Associates, Inc.
Mr. Bill Buscher, IEPA

ATTACHMENT 1

Proposed Areal Extent of GMZ



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

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

PROPOSED GROUNDWATER MANAGEMENT ZONE

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550'
Date: January 17, 2013

KPRG Project No. 18311.21
FIGURE 1

ATTACHMENT 2

Completed GMZ Application Forms (Parts I through III)

Section 620.APPENDIX D Confirmation of an Adequate Corrective Action Pursuant to 35 Ill. Adm. Code 620.250(a)(2)

Pursuant to 35 Ill. Adm. Code 620.250(a) if an owner or operator provides a written confirmation to the Agency that an adequate corrective action, equivalent to a corrective action process approved by the Agency, is being undertaken in a timely and appropriate manner, then a groundwater management zone may be established as a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site. This document provides the form in which the written confirmation is to be submitted to the Agency.

Note 1. Parts I and II are to be submitted to IEPA at the time that the facility claims the alternative groundwater standards. Part III is to be submitted at the completion of the site investigation. At the completion of the corrective process, a final report is to be filed which includes the confirmation statement included in Part IV.

Note 2. The issuance of a permit by IEPA's Division of Air Pollution Control or Water Pollution Control for a treatment system does not imply that the Agency has approved the corrective action process.

Note 3. If the facility is conducting a cleanup of a unit which is subject to the requirements of the Resource Conservation and Recovery Act (RCRA) or the 35 Ill. Adm. Code 731 regulations for Underground Storage Tanks, this confirmation process is not applicable and cannot be used.

Note 4. If the answers to any of these questions require explanation or clarification, provide such in an attachment to this document.

Part I. Facility Information

Facility Name Powerton Generating Station

Facility Address 13082 E. Manito Rd.
Pekin, IL

County Tazewell County

Standard Industrial Code (SIC) 4911

1. Provide a general description of the type of industry, products

manufactured, raw materials used, location and size of the facility.

The Midwest Generation Powerton Station is a coal-fired electrical power generating station in operation since the 1920s. The facility is located at 13082 E. Manito Road in Pekin, Illinois. The generating station property covers an area of approximately 1,710 acres plus approximately 1,440 acres for Powerton Lake.

2. What specific units (operating or closed) are present at the facility which are or were used to manage waste, hazardous waste, hazardous substances or petroleum?

	YES	NO
Landfill		X
Surface Impoundment	X	
Land Treatment		X
Spray Irrigation		X
Waste Pile	X	
Incinerator		X
Storage Tank (above ground)	X	
Storage Tank (underground)		X
Container Storage Area	X	
Injection Well		X
Water Treatment Units	X	
Septic Tanks		X
French Drains	X	
Transfer Station		X
Other Units (please describe)		

3. Provide an extract from a USGS topographic or county map showing the location of the site and a more detailed scaled map of the facility with each waste management unit identified in Question 2 or known/suspected source clearly identified. Map scale must be specified and the location of the facility must be provided with respect to Township, Range and Section.

Please see Figures 1 and 2 in Attachment 2A.

4. Has the facility ever conducted operations which involved the generation, manufacture, processing, transportation, treatment, storage or handling of "hazardous substances" as defined by the Illinois Environmental Protection Act? Yes _X__ No ___ If the answer to this question is "yes" generally describe these operations.

Powerton Station generates typical hazardous and non-hazardous substance wastes associated with coal-fired electrical power generation. A full list of hazardous substances can be provided upon request.

5. Has the facility generated, stored or treated hazardous waste as defined by the Resource Conservation and Recovery Act? Yes____ No _X__ If the answer to this question is "yes" generally describe these operations.

6. Has the facility conducted operations which involved the processing, storage or handling of petroleum? Yes _X_ No ____ If the answer to this question is "yes" generally describe these operations.

The facility stores oil for operations in above ground storage tanks for start-up operations and for heavy equipment fueling and other diesel powered equipment.

7. Has the facility ever held any of the following permits?

   a. Permits for any waste storage, waste treatment or waste disposal operation. Yes __ No _X__ If the answer to this question is "yes", identify the IEPA permit numbers.

   Powerton Station did maintain a NPDES permit to filter asbestos from the Units 1 through 4 demolitions (ILR10H493).
   Sludge disposal. 2011-EE-1949
   NPDES permit (RBC Sewerage Treatment) IL0002232 (2005).

   b. Interim Status under the Resources Conservation and Recovery Act (filing of a RCRA Part A application). Yes ___ No _X__ If the answer to this question is "yes", attach a copy of the last approved Part A application.

   c. RCRA Part B Permits. Yes ___ No _X__ If the answer to this question is "yes", identify the permit log number.

8. Has the facility ever conducted the closure of a RCRA hazardous waste management unit? Yes ___ No _X__

9. Have any of the following State or federal government actions taken place for a release at the facility?

   a. Written notification regarding known, suspected or alleged contamination on or emanating from the property (e.g., a Notice pursuant to Section 4(q) of the Environment Protection Act)? Yes _X__ No ___ If the to this question is "yes", identify the caption and date of issuance.

A Violation Notice was issued by IEPA on June 11, 2012 relative to the three ash basins alleging a potential release of coal ash constituents to groundwater (Violation Notice No. W-2012-00057). This was resolved through a Compliance Commitment Agreement (CCA) dated October 4, 2012 and formally executed on October 24, 2012. This submittal is part of the CCA compliance.

b. Consent Decree or Order under RCRA, CERCLA, EPAct Section 22.2 (State Superfund), or EPAct Section 21(f) (State RCRA). Yes ___ No _X__

c. If either of Items a or b were answered by checking "yes", is the notice, order or decree still in effect? Yes _X__ No ___

10. What groundwater classification will the facility be subject to at the completion of the remediation?

Class I __X__ Class II ___ Class III ____ Class IV ____
If more than one Class applies, please explain.

11. Describe the circumstances which the release to groundwater was identified.

As requested by Illinois Environmental Protection Agency (IEPA), a groundwater monitoring plan was developed and implemented for three ash basins known as the Ash Bypass Basin, Ash Surge Basin and Ash Settling Basin which are located on the east side of the facility. A total of fifteen monitoring wells were installed in the vicinity of the ash basins. Quarterly sampling was initiated in December 2010 and has been ongoing since. The data were provided to IEPA on a quarterly basis. Based on the monitoring data, on June 11, 2012, IEPA issued a Violation Notice (W-2012-00057) to Midwest Generation alleging that potential leakage from the basins has resulted in a violation of Class I groundwater standards for arsenic, boron, chloride, iron, lead, manganese, nitrate, pH, selenium, sulfate thallium and total dissolved solids.

Based on my inquiry of those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true and accurate.

Powerton Generating Station
Facility Name

Signature of Owner/Operator

Pekin, IL
Location of Facility

Midwest Generation, LLC
Name of Owner/Operator

ID No. 6282
EPA Identification Number

January 17, 2013
Date

PART II: Release Information

1. Identify the chemical constituents release to the groundwater. Attach additional documents as necessary.

Chemical Description	Chemical Abstract No.
Arsenic	7440-38-2
Boron	7440-42-8
Chloride	16887-00-6
Iron	7439-89-6
Lead	7439-92-1
pH	Not Applicable
Manganese	7439-96-5
Nitrate	C-005
Selenium	7782-49-2
Sulfate	18785-72-3
Thallium	7440-28-0
Total Dissolved Solids	C-010

2. Describe how the site will be investigated to determine the source or sources of the release.

This work has already been performed. As requested by Illinois Environmental Protection Agency (IEPA), Midwest Generation, LLC (Midwest Generation) prepared and submitted on September 3, 2010 a Hydrogeologic Assessment Plan for three ash basins located at the Powerton Generating Station. The purpose of the hydrogeologic assessment was to: (i) evaluate the potential, if any, for migration of ash related constituents from the ash basins and conduct monitoring for groundwater constituents regulated by Illinois Part 620 groundwater standards; (ii) characterize the subsurface hydrogeology: and (iii) identify potable well use within 2,500 feet of the ash basins.

Upon IEPA approval of the Hydrogeologic Assessment Plan, a total of twelve monitoring wells (MW-1 through MW-12) were installed around the three ash basins identified as Ash Bypass Basin, Ash Surge Basin and Ash Settling Basin (see Figure 3 in Attachment 2A). In addition, three monitoring wells MW-12 through MW-15 were concurrently installed associated with monitoring of the adjacent Metals Cleaning Basin. These wells have now also been included by IEPA as part of the overall ash basin system monitoring program. The wells were drilled and constructed in October 2010 after which point quarterly monitoring was initiated in accordance with approved, low-flow sampling procedures. A Hydrogeologic Assessment Report for Powerton Generating Station was prepared by Patrick Engineering, Inc. and submitted by Midwest Generation to IEPA in February 2011. The results of the Hydrogeologic Assessment Report are incorporated into this application submittal by reference. It is noted that since the submittal of the Hydrogeologic Assessment Report, a re-evaluation of the groundwater flow system was performed and discussion submitted to IEPA as part of Violation Notice Responses dated July 27, 2012. Specifically, it was noted that wells MW-6, MW-8, MW-12, MW-14 and MW-15 are screened within a localized silt/clay unit whereas the remaining monitoring wells are screened within a gravelly sand unit. Water levels within the wells screened in the silt/clay unit tend to be higher that those in the gravelly sand unit by approximately 8 to 10 feet, or more, in elevation. When the water levels from the five monitoring wells that are screened in the silt/clay unit are plotted separately from the wells screened within the gravelly sand unit, it is evident that there are two distinct, though hydraulically connected, groundwater units beneath this portion of the site. Groundwater flow maps for each unit using the most recent data from the December 2012 sampling event are provided as Figures 4 and 5 in Attachment 2A. Figure 4 indicates a westerly groundwater flow within the silt/clay unit towards the adjoining intake channel. Figure 5 indicates a northerly groundwater flow direction within the gravelly sand unit towards the Illinois River.

Since the submittal of the Hydrogeologic Assessment Report in February 2011, quarterly monitoring of the wells has been ongoing. As part of the CCA, another upgradient monitoring well (MW-16) was installed in November, 2012 and is now included in the monitoring program. The most recent round of sampling was performed in December 2012. Complete updated data summary tables are provided in Attachment 2B. As noted above, updated groundwater flow maps using the water level measurements from the most recent round of sampling are provided as Figure 4 (silt/clay unit wells) and Figure 5 (gravelly sand unit wells) in Attachment 2A.

3. Describe how groundwater will be monitored to determine the rate and extent of the release.

As part of the hydrogeologic assessment already performed (see discussion for item 2 above), in-situ hydraulic conductivity tests were performed on five of the monitoring wells (MW-2, MW-5, MW-8, MW-9 and MW-10) installed around the ash basins. Based on the results of the testing, hydraulic conductivity values in the vicinity of the well screens were found to range from 7.41×10^{-4} to 9.24×10^{-3} ft/sec with an average hydraulic conductivity of 4.7×10^{-3} ft/sec.

Relative to the extent of impacts, a box-plot map of detections of the constituents identified in Part II - Item 1 above is provided as Figure 6 in Attachment 2A.

4. Has the release been contained on-site at the facility?

Yes. Groundwater monitoring data indicates that the impacts are limited to within the property boundary. Natural groundwater flow is generally to the west towards the adjoining intake channel (silt/clay unit) and north towards the Illinois River (gravelly sand unit).

5. Describe the groundwater monitoring network and groundwater and soil sampling protocols in place at the facility.

The existing IEPA approved groundwater monitoring network at the site consists of sixteen monitoring wells (MW-1 through MW-16) located around the three existing ash basin (see Figure 3 in Attachment 2A). Wells MW-1, MW-9, MW-10 and MW-16 are generally upgradient monitoring wells. The remaining wells are considered downgradient monitoring points. The well borings were advanced using hollow-stem augers to depths ranging from approximately 30 to 45 feet below ground surface (bgs). The depth of a specific boring was terminated approximately 10 feet below the encountered water table. The wells were subsequently constructed using standard, 2-inch diameter PVC casing with 10-feet of 0.010 slot PVC screens. The wells were completed approximately three feet above grade with locking protective steel casings and bumper posts. The boring logs and well construction summaries are included in the above referenced Hydrogeologic Assessment Report (see discussion for item 2 above). The monitoring wells are sampled on a quarterly basis using low-flow sampling with a peristaltic pump. Field measurements of pH, specific conductivity, temperature, dissolved oxygen (DO) and oxidation-reduction potential (ORP) are recorded. Once collected, the samples are placed on ice and transported under a completed chain-of-custody to PDC Laboratories, Inc. which is an Illinois accredited analytical laboratory. The samples are analyzed for the inorganic compounds listed in 35 IAC 620.410(a) and (d), excluding radium 226/228.

There is no soil sampling that is performed as part of the approved site monitoring program.

6. Provide the schedule for investigation and monitoring.

Groundwater sampling of all existing monitoring wells is performed on a quarterly basis. The general sampling schedule is as follows:

Event	Sampling Schedule
1st Quarter	March
2nd Quarter	June
3rd Quarter	September
4th Quarter	December

7. Describe the laboratory quality assurance program utilized for the investigation.

The quality management system for PDC Laboratories, Inc. is outlined in the *Quality Manual.* The *Quality Manual* defines the policies, procedures, and documentation that assure analytical services continually meet a defined standard of quality that is designed to provide clients with data of known and documented quality and, where applicable, demonstrate regulatory compliance.

The *Quality Manual* sets the standard under which all laboratory operations are performed, including the laboratory's organization, objectives, and operating philosophy. The *Quality Manual* has been prepared to assure compliance with the 2009 TNI Environmental Laboratory Sector Standard – Volume 1 – Management and Technical Requirements for Laboratories Performing Environmental Analysis (EL-V1-M1 through M7-ISO-2009). This Standard is consistent with ISO/IEC 17025:2005 requirements that are relevant to the scope of environmental testing services and thus, the laboratory operates a quality system in conformance with ISO/IEC 17025:2005(E). In addition, the policies and procedures outlined are compliant with the various accreditation and certification programs the laboratory maintains.

In addition, the *Quality Manual* has been prepared to be consistent with the requirements of the following documents:

1. Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth Edition,
2. Standard Methods for the Examination of Water and Wastewater, as updated by MUR II,
3. 40 CFR Part 136 including Appendices,
4. Test Methods for Evaluating Solid Waste: SW-846,
5. State–specific analytical methods (such as OA-1 and OA-2 for State of Iowa), and
6. Title 77 Illinois Administrative Code, Chapter I, Subchapter d, Part 465 – Certification and Operation of Environmental Laboratories (Microbiology)

A copy of the *Quality Manual* can be provided upon request.

8. Provide a summary of the results of available soil testing and groundwater monitoring associated with the release at the facility. The summary or results should provide the following information: dates of sampling; types of samples taken (soil or water); locations and depths of samples; sampling and analytical methods; analytical laboratories used; chemical constituents for which analyses were performed; analytical detection limits; and concentrations of chemical constituents in ppm (levels below detection should be identified as "ND").

The data summary for all groundwater sampling performed to date is provided in Tables 1 and 2 in Attachment 2B.

Based on my inquiry of those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of knowledge and belief, true and accurate and confirm that the actions identified herein will be undertaken in accordance with the schedule set forth herein.

Powerton Generating Station	
Facility Name	Signature of Owner/Operator
Pekin, IL	Midwest Generation LLC
Location of Facility	Name of Owner/Operator
ID No. 6282	January 17, 2013
EPA Identification Number	Date

Part III: Remedy Selection Information

1. Describe the selected remedy.

The Ash Bypass Basin is already lined with high density polyethylene (HDPE). The Ash Surge Basin is lined with Poz-o-Pac material and the Ash Settling Basin is presently unlined. The agreed upon remedy is specified in Item 5 (a) through (m) of the executed Compliance Commitment Agreement (CCA) which is provided in Attachment 2C. The remedy includes relining of the Ash Surge Basin and Ash Settling Basin with HDPE. This Groundwater Management Zone (GMZ) application fulfills requirements set forth under Item 5 (g) of the CCA.

2. Describe other remedies which were considered and why they were rejected.

The primary alternate remedy discussed during negotiations with IEPA was to ensure that the ash basins will not be used as permanent disposal sites, maintain the ash basins in a manner that will be protective of the integrity of the existing liners, include visual inspections of the liners during ash removal events, implement repairs or replacement of the liners as necessary, establish a GMZ and to continue with the existing quarterly groundwater monitoring program until the federal ash regulation revisions are established. Upon the finalization of the new federal ash storage regulations, retrofit the basins, as necessary, to meet the new technical requirements for ash storage impoundments or re-engineer plant processes to maintain compliance and take the basins out of service.

This remedy was rejected by IEPA due to the uncertainty of the timeframe within which the new federal regulations will be issued.

3. Will waste, contaminated soil or contaminated groundwater be removed from the site in the course of this remediation? Yes _X_ No ___ If the answer to this question is "yes", where will the contaminated material be taken?

The ash that will be removed from the Ash Surge Basin and the Ash Settling Basin prior to relining will be sent to the Buckheart Mine on County Highway 6 in Canton, Illinois.

4. Describe how the selected remedy will accomplish the maximum practical restoration of beneficial use of groundwater.

Once the Ash Surge Basin and the Ash Settling Basin are lined with a HDPE liner, all the ash basins in service for ash accumulation will have been constructed and operated to minimize potential release of ash basin fluids to groundwater. Any residual groundwater impacts potentially associated with prior ash basin leakage will naturally attenuate through the groundwater system under monitored conditions within the established GMZ with eventual discharge to the adjoining intake channel or the Illinois River.

5. Describe how the selected remedy will minimize any threat to public health or the environment.

The existing conditions do not pose a threat to public health since the impacts are limited to within the property boundary, there are no downgradient groundwater use receptors and the basins are located within a fenced property with 24-hour security controlled access. Any potential impacts to the environment will be minimized and managed as discussed under item 4 above.

6. Describe how the selected remedy will result in compliance with the applicable groundwater standards.

Once all the ash basins are lined with HDPE, the ash collection system will have been constructed and operated to minimize potential release of ash basin fluids to groundwater (i.e, the ash basins as a potential source of groundwater impacts will be eliminated). Any residual groundwater impacts potentially associated with prior ash basin leakage will naturally attenuate through the groundwater system under monitored conditions within the established GMZ and/or discharge to the adjoining intake channel or the Illinois River, west and north of the ash basins, respectively.

7. Provide a schedule for design, construction and operation of the remedy, including dates for the start and completion.

Relative to the Ash Settling Basin, the construction window will be coordinated with the spring plant shutdown which will occur from March 15, 2013 through April 15, 2013. At this time liner installation is anticipated to occur the week of April 1, 2013.

Relative to the Ash Surge Basin, the construction window is April 9, 2013 through August 28, 2013. The dredging of ash will occur between April 9, 2013 and June 3, 2013. At this time liner installation will likely occur in July 2013.

A more detailed schedule is being provided under separate cover with the Application for Construction Permit to reline the two basins.

8. Describe how the remedy will be operated and maintained.

Upon completion of construction activities, Midwest Generation will develop and submit an Operation and Maintenance (O&M) Plan to the IEPA. The O&M Plan will be based on manufacturer and installer recommendations. It will include procedures for liner system inspections, inspection frequency, documentation requirements and what corrective measure procedures are to be implemented, if necessary.

9. Have any of the following permits been issued for the remediation?

   a. Construction or Operating permit from the Division of Water Pollution Control. Yes _X_ No ___

   This permit submittal is currently under review by IEPA.

   b. Land treatment permit from the Division of Water Pollution Control. Yes ___ No _X__ If the answer to this question is "yes", identify the permit number.

   c. Construction or Operating permit from the Division of Air Pollution Control. Yes ___ No _X__ If the answer to this question is "yes", identify the permit number.

10. How will groundwater at the facility be monitored following completion of the remedy to ensure that the groundwater standards have been attained?

There are currently 16 monitoring wells surrounding the ash basins (see Figure 3 in Attachment 2A). As required under Item 5 (d) of the CCA, these wells will continue to be monitored on a quarterly basis for constituents listed in 35 IAC 620.410(a) and (d), with the exception of radium 226/228. The monitoring data will be reported to IEPA within 30 days of the end of each quarter. In addition, an updated groundwater potentiometric surface map will be provided with each quarterly submittal. IEPA, upon written request, may approve a reduction in the frequency and scope of the sampling program in the future. Upon the IEPA's approval, the approved changes in the frequency and scope of the monitoring program shall be implemented.

It is noted that in addition to the quarterly groundwater monitoring, the CCA requires at least one year of quarterly monitoring of water from the East Yard Run-off Basin to be analyzed for constituents listed in 35 IAC 620.410(a) and (d), with the exception of radium 226/228.

Based on my inquiry of those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true and accurate and confirm that the actions identified herein will be undertaken in accordance with the schedule set forth herein.

Powerton Generating Station

Facility Name

Pekin, IL

Location of Facility

ID No. 6282

EPA Identification Number

Signature of Owner/Operator

Midwest Generation, LLC

Name of Owner/Operator

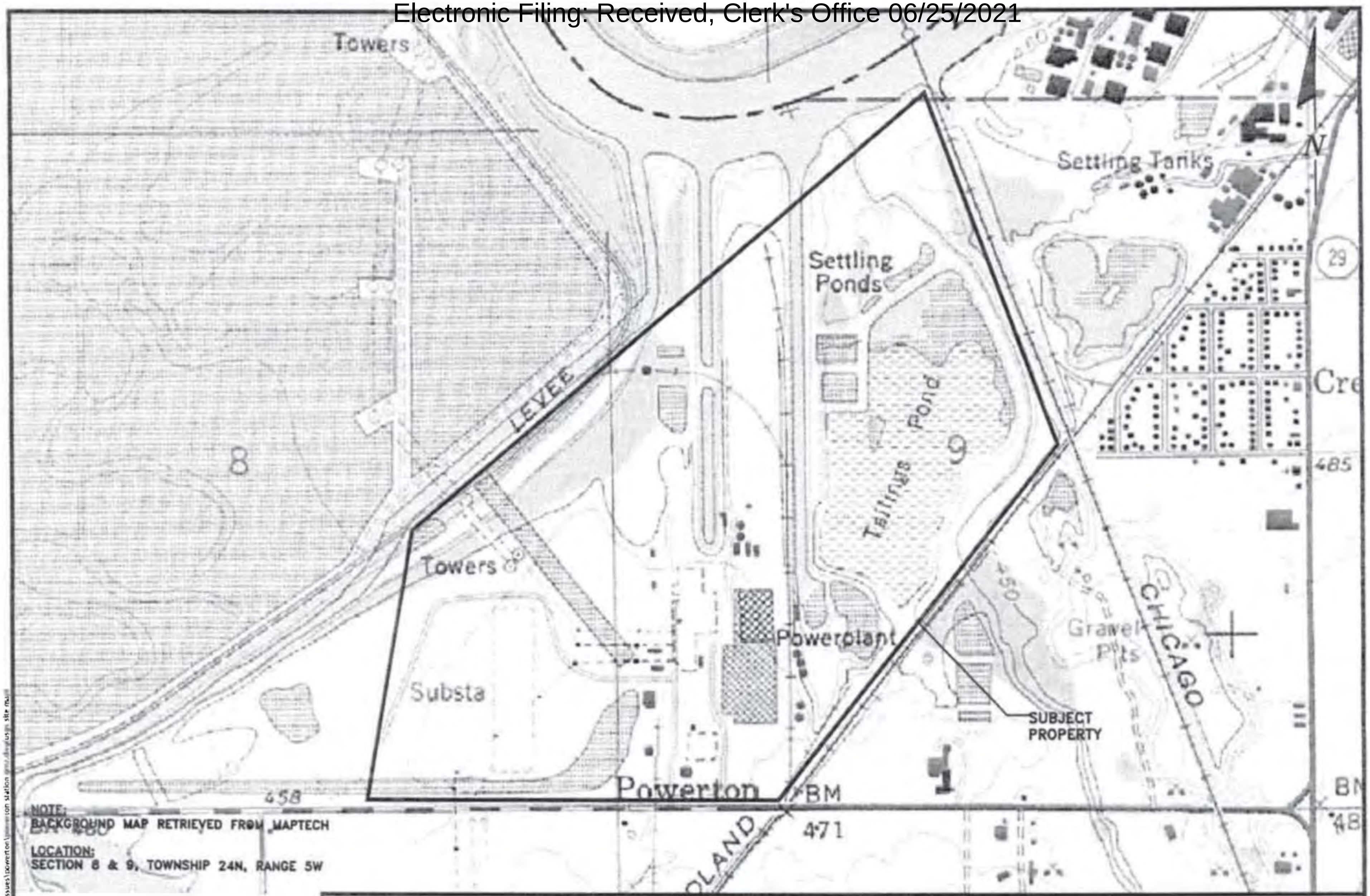
January 17, 2013

Date

(Source: Amended at 36 Ill. Reg. 15206, effective October 5, 2012)

ATTACHMENT 2A

Figures



NOTE:
BACKGROUND MAP RETRIEVED FROM MAPTECH

LOCATION:
SECTION 8 & 9, TOWNSHIP 24N, RANGE 5W

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

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

USGS TOPOGRAPHIC SITE MAP

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 1000'
Date: January 11, 2013

KPRG Project No. 18311.21
FIGURE 1

NOTE:
BACKGROUND MAP RETRIEVED FROM GOOGLE MAPS 2012

LOCATION:
SECTION 8 & 9, TOWNSHIP 24 N, RANGE 5 W

0 550'
APPROXIMATE SCALE

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

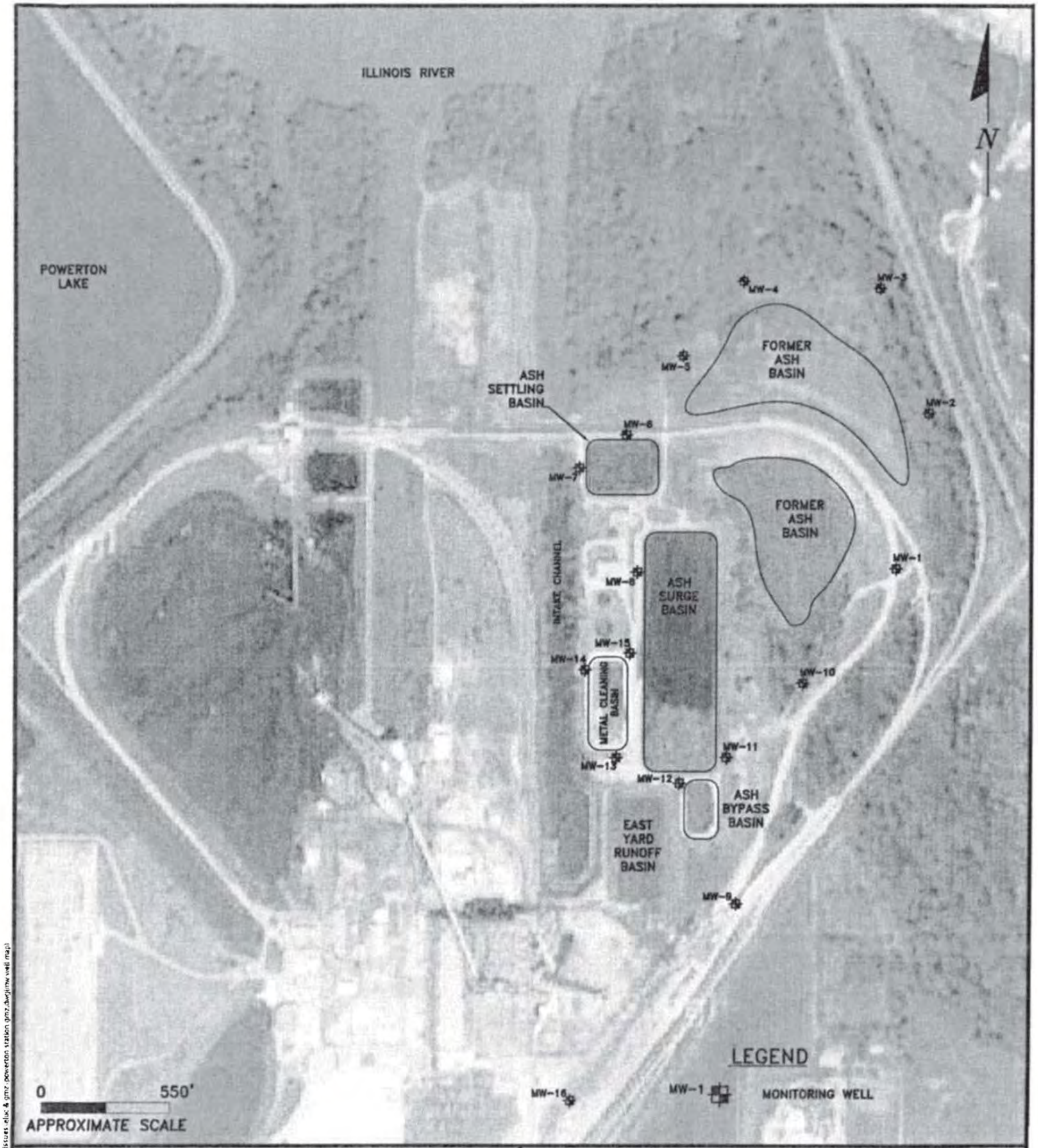
KPRG and Associates, Inc.

GENERATING STATION SITE MAP

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550' | Date: January 17, 2013

KPRG Project No. 18311.21 | FIGURE 2



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

14665 West Lisbon Road, Suite 28 Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

MONITORING WELLS LOCATION SITE MAP

POWERTON STATION
PEKIN, ILLINOIS

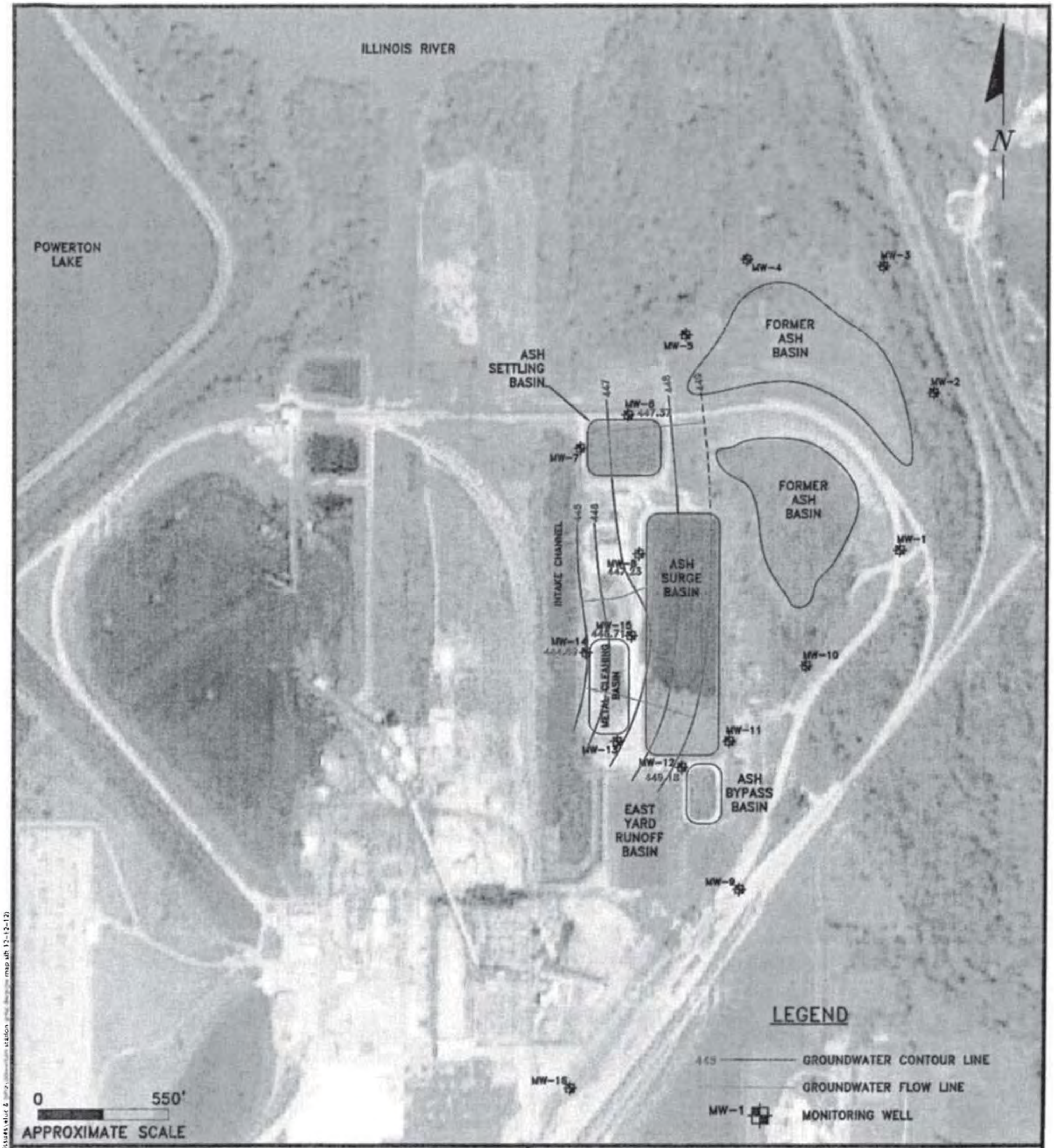
Scale: 1" = 550'

Date: January 17, 2013

KPRG Project No. 18311.21

FIGURE 3

W:\c-p&p\projects\midwest generation\ash pond issues\eluc & gmz\powerton station gmz.dwg(mw well map)



ENVIRONMENTAL CONSULTATION & REMEDIATION

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

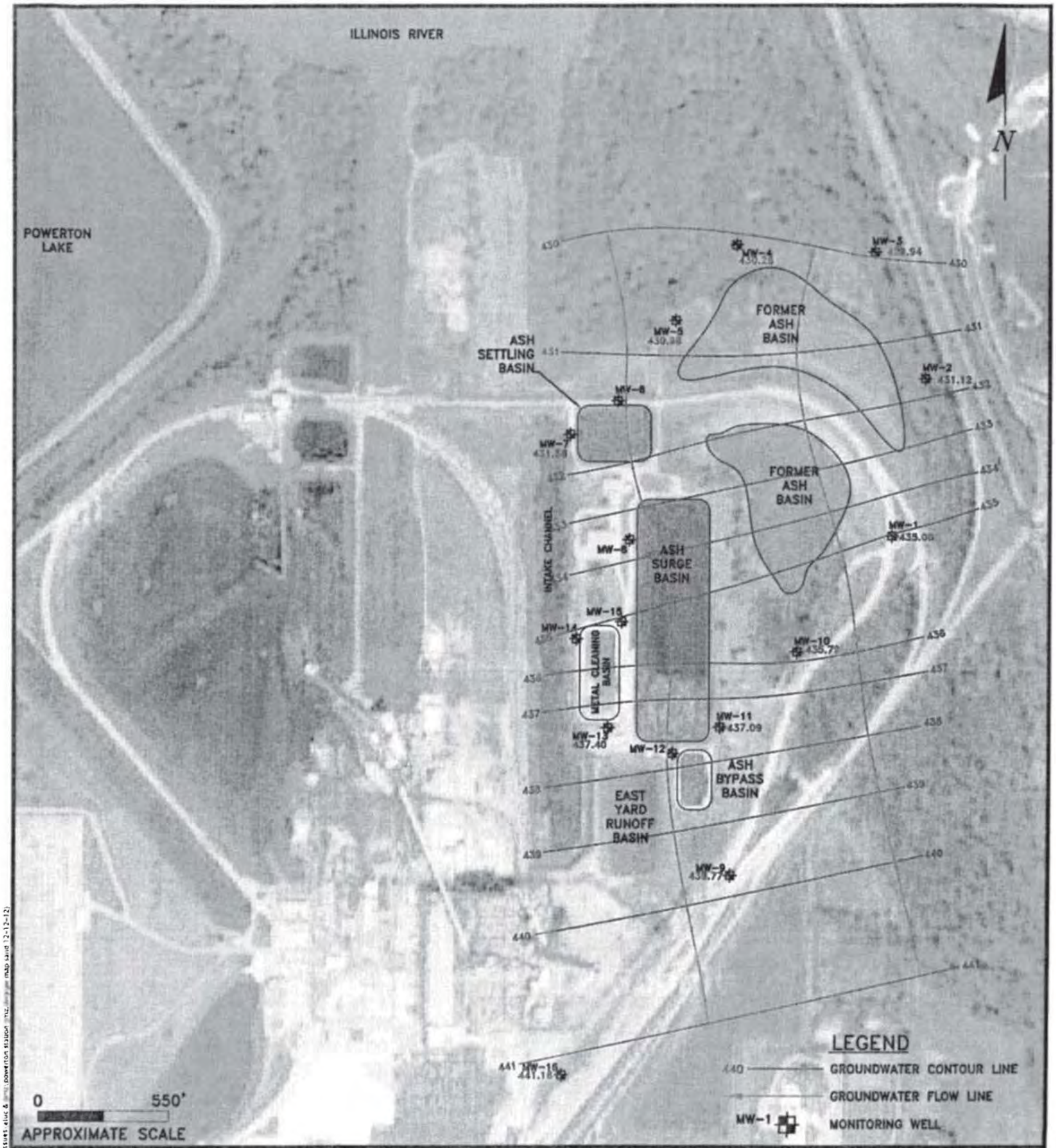
14665 West Lisbon Road, Suite 28 Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 12/12/2012

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550'
Date: January 17, 2013
KPRG Project No. 18311.21
FIGURE 4

W:\c-[illegible]\projects\midwest generation\ash [illegible] issues\elue & [illegible] station [illegible] map slt 12-12-12)



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

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 28 Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

GROUNDWATER CONTOUR MAP FOR
GRAVELLY SAND UNIT 12/12/2012

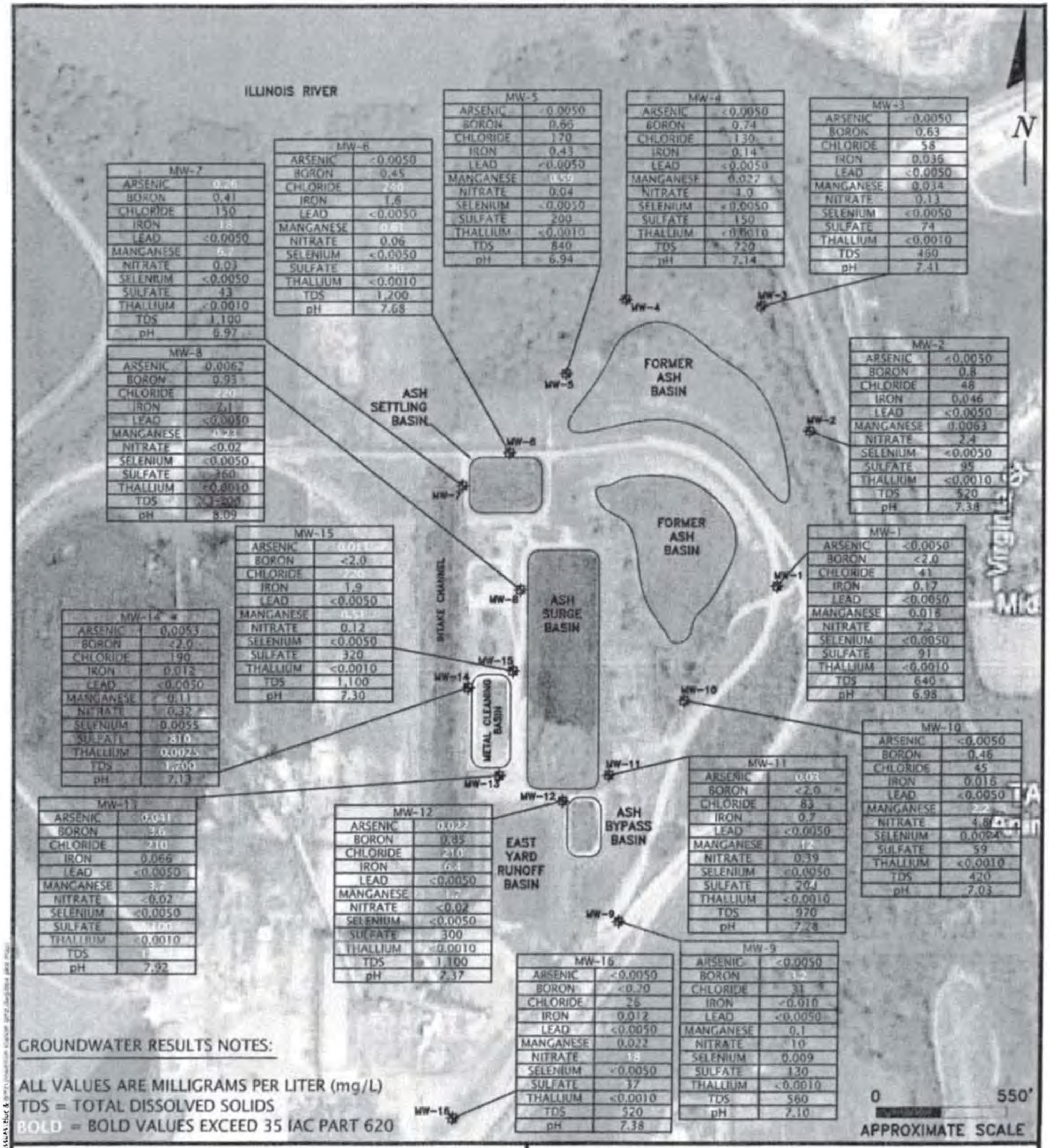
POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550'

Date: January 17, 2013

KPRG Project No. 18311.21

FIGURE 5



MW-5	
ARSENIC	<0.0050
BORON	0.66
CHLORIDE	170
IRON	0.43
LEAD	<0.0050
MANGANESE	0.59
NITRATE	0.04
SELENIUM	<0.0050
SULFATE	200
THALLIUM	<0.0010
TDS	840
pH	6.94

MW-4	
ARSENIC	<0.0050
BORON	0.74
CHLORIDE	130
IRON	0.14
LEAD	<0.0050
MANGANESE	0.027
NITRATE	4.0
SELENIUM	<0.0050
SULFATE	150
THALLIUM	<0.0010
TDS	720
pH	7.14

MW-3	
ARSENIC	<0.0050
BORON	0.63
CHLORIDE	58
IRON	0.036
LEAD	<0.0050
MANGANESE	0.034
NITRATE	0.13
SELENIUM	<0.0050
SULFATE	74
THALLIUM	<0.0010
TDS	460
pH	7.41

MW-6	
ARSENIC	<0.0050
BORON	0.45
CHLORIDE	240
IRON	1.6
LEAD	<0.0050
MANGANESE	0.61
NITRATE	0.06
SELENIUM	<0.0050
SULFATE	[illegible]
THALLIUM	<0.0010
TDS	1,200
pH	7.68

MW-7	
ARSENIC	0.26
BORON	0.41
CHLORIDE	150
IRON	18
LEAD	<0.0050
MANGANESE	6.7
NITRATE	0.03
SELENIUM	<0.0050
SULFATE	43
THALLIUM	<0.0010
TDS	1,100
pH	6.97

MW-8	
ARSENIC	0.0062
BORON	0.93
CHLORIDE	220
IRON	2.1
LEAD	<0.0050
MANGANESE	0.28
NITRATE	<0.02
SELENIUM	<0.0050
SULFATE	360
THALLIUM	<0.0010
TDS	[illegible]
pH	8.09

MW-2	
ARSENIC	<0.0050
BORON	0.8
CHLORIDE	48
IRON	0.046
LEAD	<0.0050
MANGANESE	0.0063
NITRATE	2.4
SELENIUM	<0.0050
SULFATE	95
THALLIUM	<0.0010
TDS	520
pH	7.38

MW-15	
ARSENIC	0.011
BORON	<2.0
CHLORIDE	220
IRON	1.9
LEAD	<0.0050
MANGANESE	0.51
NITRATE	0.12
SELENIUM	<0.0050
SULFATE	320
THALLIUM	<0.0010
TDS	1,100
pH	7.30

MW-1	
ARSENIC	<0.0050
BORON	<2.0
CHLORIDE	41
IRON	0.17
LEAD	<0.0050
MANGANESE	0.018
NITRATE	7.2
SELENIUM	<0.0050
SULFATE	91
THALLIUM	<0.0010
TDS	640
pH	6.98

MW-14 *	
ARSENIC	0.0053
BORON	<2.0
CHLORIDE	190
IRON	0.012
LEAD	<0.0050
MANGANESE	0.11
NITRATE	0.32
SELENIUM	0.0055
SULFATE	810
THALLIUM	0.0025
TDS	1,700
pH	7.13

MW-10	
ARSENIC	<0.0050
BORON	0.46
CHLORIDE	45
IRON	0.016
LEAD	<0.0050
MANGANESE	2.2
NITRATE	4.8
SELENIUM	0.0094
SULFATE	59
THALLIUM	<0.0010
TDS	420
pH	7.03

MW-11	
ARSENIC	0.03
BORON	<2.0
CHLORIDE	83
IRON	0.7
LEAD	<0.0050
MANGANESE	12
NITRATE	0.39
SELENIUM	<0.0050
SULFATE	204
THALLIUM	<0.0010
TDS	970
pH	7.28

MW-13	
ARSENIC	0.011
BORON	3.6
CHLORIDE	210
IRON	0.066
LEAD	<0.0050
MANGANESE	3.7
NITRATE	<0.02
SELENIUM	<0.0050
SULFATE	[illegible]
THALLIUM	<0.0010
TDS	[illegible]
pH	7.92

MW-12	
ARSENIC	0.022
BORON	0.85
CHLORIDE	210
IRON	6.4
LEAD	<0.0050
MANGANESE	1.7
NITRATE	<0.02
SELENIUM	<0.0050
SULFATE	300
THALLIUM	<0.0010
TDS	1,100
pH	7.37

MW-9	
ARSENIC	<0.0050
BORON	3.2
CHLORIDE	31
IRON	<0.010
LEAD	<0.0050
MANGANESE	0.1
NITRATE	10
SELENIUM	0.009
SULFATE	130
THALLIUM	<0.0010
TDS	560
pH	7.10

MW-16	
ARSENIC	<0.0050
BORON	<0.20
CHLORIDE	26
IRON	0.012
LEAD	<0.0050
MANGANESE	0.022
NITRATE	18
SELENIUM	<0.0050
SULFATE	37
THALLIUM	<0.0010
TDS	520
pH	7.38

GROUNDWATER RESULTS NOTES:

ALL VALUES ARE MILLIGRAMS PER LITER (mg/L)
TDS = TOTAL DISSOLVED SOLIDS
BOLD = BOLD VALUES EXCEED 35 IAC PART 620

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

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AREAL DISTRIBUTION OF GROUNDWATER IMPACTS

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550'
Date: January 17, 2013

KPRG Project No. 18311.21
FIGURE 6

ATTACHMENT 2B

Summary Data Table

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-01	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	0.001	0.001	ND	0.0050	ND
Barium	6020	NP	0.044	0.001	0.026	0.001	0.034	0.001	0.056	0.001	0.044	0.001	0.038	0.001	0.06	0.001	0.074	0.20	ND
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.45	0.01	0.26	0.01	0.33	0.01	1	0.01	0.48	0.01	0.29	0.01	0.46	0.01	1.8	2.0	ND
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	46	10	37	10	40	10	41	10	26	10	53	10	42	10	43	10	41
Chromium	6020	NP	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.0030	0.014
Cobalt	6020	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	ND	0.003	0.0057	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	0.0077	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.28	0.25	0.32	0.25	0.38	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND
Iron	6020	NP	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	0.17
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	0.0027	0.0020	0.018
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	6020	NP	0.01	0.005	0.008	0.005	ND	0.005	0.0069	0.005	0.0095	0.005	ND	0.005	0.0066	0.005	0.01	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	7.2	0.20	4.3	0.20	5.7	0.20	11	0.20	4.1	0.20	7.3	0.20	6.5	0.20	5.4	0.20	7.2
pH	Obtained in field	NA	7.46	NA	7.43	NA	7.58	NA	7.37	NA	6.39	NA	7.59	NA	7.45	NA	7.06	NA	6.98
Selenium	6020	NP	0.0016	0.001	0.0022	0.001	0.0016	0.001	0.0036	0.001	0.0027	0.001	0.0025	0.001	0.0042	0.001	0.005	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	50	10	30	10	39	10	83	10	31	10	61	10	68	25	72	10	91
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	490	17	340	17	410	17	510	17	440	17	470	17	580	17	710	26	640
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 20.5 to 30.5 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-02	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0018	0.001	0.0015	0.001	0.0017	0.001	ND	0.001	ND	0.001	ND	0.001	0.0011	0.001	0.0012	0.0050	ND
Barium	6020	NP	0.042	0.001	0.025	0.001	0.053	0.001	0.059	0.001	0.066	0.001	0.049	0.001	0.064	0.001	0.06	0.040	0.075
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.38	0.01	0.23	0.01	0.35	0.01	0.83	0.01	0.69	0.01	0.27	0.01	0.74	0.01	0.65	0.40	0.8
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	45	10	43	10	44	10	46	10	40	10	53	10	51	10	45	10	48
Chromium	6020	NP	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.0030	0.0096
Cobalt	6020	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	ND	0.25	0.30	0.25	0.35	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	0.28
Iron	6020	NP	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	0.046
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	ND	0.001	0.0012	0.001	0.0022	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	0.0019	0.0020	0.0063
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	6020	NP	0.0086	0.005	0.0096	0.005	0.0053	0.005	0.01	0.005	0.0073	0.005	ND	0.005	0.0065	0.005	0.0066	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	7.5	0.20	4.5	0.20	4.7	0.20	4.3	0.20	6.9	0.20	5.1	0.20	4.4	0.20	2.9	0.20	2.4
pH	Obtained in field	NA	7.91	NA	7.78	NA	7.20	NA	7.52	NA	6.41	NA	7.92	NA	7.35	NA	7.32	NA	7.38
Selenium	6020	NP	0.0017	0.001	0.0032	0.001	0.0014	0.001	0.0032	0.001	0.0037	0.001	ND	0.001	0.0039	0.001	0.0016	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	52	10	42	10	53	10	70	10	69	10	55	10	73	10	69	10	95
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	480	17	420	17	470	17	460	17	490	17	440	17	500	17	510	26	520
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	0.013	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 23.5 to 33.5 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-03	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0017	0.001	ND	0.001	0.0011	0.001	0.0012	0.001	0.0012	0.001	0.0012	0.001	ND	0.001	0.0015	0.0050	ND
Barium	6020	NP	0.038	0.001	0.03	0.001	0.063	0.001	0.081	0.001	0.076	0.001	0.052	0.001	0.059	0.001	0.1	0.040	0.11
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.75	0.01	0.18	0.01	0.24	0.01	0.64	0.01	0.7	0.01	0.56	0.01	0.63	0.01	0.64	0.40	0.63
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	39	10	52	10	59	10	62	10	39	10	54	10	57	10	54	10	58
Chromium	6020	NP	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.0030	0.0086
Cobalt	6020	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	ND	0.003	0.012	0.003	0.0042	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.3	0.25	0.35	0.25	0.41	0.25	0.35	0.25	ND	0.25	ND	0.25	ND	0.25	0.29	0.25	0.35
Iron	6020	NP	ND	0.010	ND	0.010	ND	0.010	0.042	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	0.036
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.0047	0.001	0.0023	0.001	ND	0.001	0.0037	0.001	0.0014	0.001	ND	0.001	0.0033	0.001	0.002	0.0020	0.034
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	6020	NP	0.011	0.005	0.0095	0.005	ND	0.005	0.008	0.005	0.0078	0.005	ND	0.005	0.005	0.005	0.0067	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	9.4	0.20	5.2	0.20	5.4	0.02	0.20	0.02	0.20	0.20	2.1	0.02	0.37	0.02	0.08	0.02	0.13
pH	Obtained in field	NA	7.43	NA	7.55	NA	7.33	NA	7.30	NA	6.58	NA	7.38	NA	7.36	NA	7.46	NA	7.41
Selenium	6020	NP	ND	0.001	0.0036	0.001	0.0015	0.001	0.0036	0.001	0.0021	0.001	0.0067	0.001	0.0018	0.001	0.0033	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	64	10	42	10	47	10	66	10	45	10	72	10	84	10	74	10	74
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	480	17	430	17	440	17	460	17	480	17	450	17	520	17	520	26	460
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	0.012	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 24 to 34 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-04	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	0.0012	0.0050	ND
Barium	6020	NP	0.055	0.001	0.052	0.001	0.058	0.001	0.041	0.001	0.048	0.001	0.043	0.001	0.04	0.001	0.07	0.040	0.09
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.77	0.01	0.83	0.01	0.33	0.01	0.84	0.01	0.79	0.01	0.78	0.01	0.83	0.01	0.76	0.40	0.74
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	150	10	77	10	43	25	86	1.0	8.1	10	58	10	75	25	110	25	130
Chromium	6020	NP	0.0045	0.004	ND	0.004	ND	0.004	0.0044	0.004	ND	0.004	ND	0.004	ND	0.004	0.0045	0.0030	0.01
Cobalt	6020	NP	ND	0.002	0.0026	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	ND	0.003	0.0033	0.003	0.01	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.3	0.25	0.39	0.25	0.43	0.25	0.31	0.25	ND	0.25	ND	0.25	ND	0.25	0.26	0.25	0.29
Iron	6020	NP	ND	0.010	0.017	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	0.14
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.77	0.001	0.68	0.001	0.41	0.001	0.69	0.001	0.35	0.001	0.089	0.001	0.26	0.001	0.5	0.0020	0.027
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	6020	NP	0.012	0.005	0.012	0.005	0.0067	0.005	0.011	0.005	0.01	0.005	0.0055	0.005	0.0074	0.005	0.0095	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	0.34	0.02	0.73	0.20	2.7	0.02	0.06	0.02	0.07	0.02	0.65	0.02	1.1	0.02	0.46	0.02	1.0
pH	Obtained in field	NA	7.27	NA	7.48	NA	7.26	NA	7.22	NA	6.37	NA	7.24	NA	7.04	NA	7.13	NA	7.14
Selenium	6020	NP	0.0022	0.001	0.0037	0.001	0.0022	0.001	0.0039	0.001	0.002	0.001	0.0085	0.001	0.0035	0.001	0.0032	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	110	25	140	10	48	25	61	1.0	6.7	50	160	10	94	25	170	25	150
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	680	17	620	17	470	17	580	17	520	17	660	17	600	17	800	26	720
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 24 to 34 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-05	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0011	0.001	ND	0.001	ND	0.001	ND	0.001	0.001	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Barium	6020	NP	0.053	0.001	0.048	0.001	0.046	0.001	0.071	0.001	0.065	0.001	0.054	0.001	0.058	0.001	0.066	0.040	0.077
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.95	0.01	0.93	0.01	0.79	0.01	0.79	0.01	0.77	0.01	0.82	0.01	0.74	0.01	0.65	0.40	0.66
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	150	25	120	10	89	25	160	25	140	10	82	50	100	50	150	25	170
Chromium	6020	NP	0.0044	0.004	0.0042	0.004	ND	0.004	0.0066	0.004	ND	0.004	ND	0.004	ND	0.004	0.0058	0.0030	0.0049
Cobalt	6020	NP	0.0025	0.002	0.0023	0.002	ND	0.002	0.0027	0.002	0.0022	0.002	ND	0.002	ND	0.002	0.002	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	ND	0.003	0.0036	0.003	0.0061	0.003	ND	0.003	0.0031	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.27	0.25	0.36	0.25	0.43	0.25	0.25	0.25	ND	0.25	ND	0.25	ND	0.25	0.32	0.25	0.32
Iron	6020	NP	0.13	0.010	0.050	0.010	0.046	0.010	0.082	0.010	0.036	0.010	ND	0.010	ND	0.010	ND	0.010	0.43
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.51	0.001	0.49	0.001	0.48	0.001	0.64	0.001	0.5	0.001	0.26	0.001	0.41	0.001	1	0.040	0.59
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	6020	NP	0.014	0.005	0.013	0.005	0.0077	0.005	0.014	0.005	0.014	0.005	0.008	0.005	0.0095	0.005	0.013	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	ND	0.02	ND	0.02	0.08	0.02	ND	0.02	ND	0.02	1.6	0.02	0.04	0.02	0.04	0.02	0.04
pH	Obtained in field	NA	7.24	NA	7.36	NA	7.29	NA	7.05	NA	6.34	NA	7.14	NA	7.00	NA	6.94	NA	6.94
Selenium	6020	NP	0.0019	0.001	0.003	0.001	ND	0.001	0.0045	0.001	0.0023	0.001	0.0028	0.001	0.0033	0.001	0.0031	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	160	25	170	25	110	25	250	25	170	25	120	50	130	50	200	25	200
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	740	17	680	17	640	17	890	17	820	17	590	17	700	17	890	26	840
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 21 to 31 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-06	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0042	0.001	0.0024	0.001	0.0029	0.001	0.0031	0.001	0.0036	0.001	0.002	0.001	0.0021	0.001	0.0022	0.0050	ND
Barium	6020	NP	0.11	0.001	0.092	0.001	0.1	0.001	0.1	0.001	0.12	0.001	0.097	0.001	0.12	0.001	0.11	0.040	0.12
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.5	0.01	0.35	0.01	0.43	0.01	0.61	0.01	0.63	0.01	0.39	0.01	0.46	0.01	0.57	0.40	0.45
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	180	50	200	50	160	50	210	50	150	50	150	50	200	50	190	50	240
Chromium	6020	NP	0.006	0.004	0.0083	0.004	0.0045	0.004	0.0085	0.004	0.0056	0.004	ND	0.004	0.0054	0.004	0.0072	0.0030	0.0077
Cobalt	6020	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	0.0032	0.003	0.0042	0.003	ND	0.003	0.16	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.65	0.25	0.61	0.25	0.63	0.25	0.64	0.25	0.50	0.25	0.47	0.25	0.37	0.25	0.48	0.25	0.42
Iron	6020	NP	1.6	0.010	1.6	0.010	1.7	0.010	1.8	0.010	1.9	0.010	1.7	0.010	1.9	0.010	1.9	0.010	1.6
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.68	0.001	0.68	0.001	0.63	0.001	0.66	0.001	0.63	0.001	0.61	0.001	0.71	0.001	0.64	0.040	0.61
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.0091	0.005	0.014	0.005	0.0078	0.005	0.0099	0.005	0.0089	0.005	ND	0.005	0.0095	0.005	0.011	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	0.037	0.02	ND	0.02	ND	0.02	0.04	0.02	0.06	0.02	ND	0.02	ND	0.02	0.04	0.02	0.06
pH	Obtained in field	NA	7.67	NA	7.97	NA	7.62	NA	7.61	NA	7.35	NA	7.68	NA	7.59	NA	7.73	NA	7.68
Selenium	6020	NP	0.0034	0.001	ND	0.001	ND	0.001	0.0025	0.001	0.0033	0.001	ND	0.001	0.0013	0.001	0.0023	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	210	50	250	50	280	50	260	50	170	50	250	50	450	50	340	50	440
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	950	17	990	17	1100	17	970	17	1000	17	1100	17	1300	17	1200	26	1200
Zinc	6020	NP	0.0064	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	0.049	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 18 to 28 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-07	Date	12/6/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.026	0.001	0.085	0.001	0.12	0.001	0.18	0.001	0.23	0.001	0.23	0.001	0.15	0.001	0.18	0.0050	0.26
Barium	6020	NP	0.55	0.001	0.52	0.001	0.57	0.001	0.57	0.001	0.59	0.001	0.57	0.001	0.44	0.001	0.46	0.040	0.47
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.61	0.01	0.44	0.012	0.43	0.01	0.38	0.01	0.34	0.01	0.35	0.01	0.41	0.01	0.36	0.40	0.41
Cadmium	6020	NP	0.0026	0.001	ND	0.001	0.0015	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	170	50	200	25	140	25	130	10	81	25	99	25	130	25	130	25	150
Chromium	6020	NP	0.0088	0.004	0.0075	0.004	0.0061	0.004	0.011	0.004	ND	0.004	ND	0.004	0.0043	0.004	0.0051	0.0030	0.028
Cobalt	6020	NP	0.017	0.002	0.0056	0.002	0.007	0.002	0.0055	0.002	0.006	0.002	0.0067	0.002	0.011	0.002	0.009	0.0030	0.0056
Copper	6020	NP	0.14	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	0.0055	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.47	0.25	0.42	0.25	0.58	0.25	0.94	0.25	0.47	0.25	0.54	0.25	0.38	0.25	0.35	0.25	0.35
Iron	6020	NP	8	0.010	7.5	0.010	10	0.010	22	0.010	26	0.010	31	0.010	10	0.010	21	0.010	18
Lead	6020	NP	0.039	0.001	ND	0.001	0.0014	0.001	ND	0.001	ND	0.001	ND	0.001	0.0013	0.001	ND	0.0050	ND
Manganese	6020	NP	3.5	0.001	5.9	0.001	6.4	0.001	12	0.001	12	0.001	11	0.001	9.3	0.001	8	0.040	6.7
Mercury	7470A	NP	ND	0.0002	ND	0.0002	0.00025	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.045	0.005	0.021	0.005	0.022	0.005	0.026	0.005	0.022	0.005	0.018	0.005	0.026	0.005	0.028	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	0.043	0.02	0.08	0.02	ND	0.20	0.31	0.02	0.03	0.02	ND	0.02	0.02	0.02	ND	0.02	0.03
pH	Obtained in field	NA	NM	NA	7.04	NA	6.78	NA	6.83	NA	6.45	NA	6.79	NA	6.91	NA	6.93	NA	6.97
Selenium	6020	NP	0.0043	0.001	0.0026	0.001	0.0025	0.001	0.0073	0.001	0.0054	0.001	0.0013	0.001	0.006	0.001	0.0047	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	120	10	49	10	25	1.0	9.1	1.0	3.3	1.0	3.0	10	18	10	25	10	43
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	860	17	1100	17	1300	17	1300	17	1300	17	1400	17	1300	17	1300	26	1100
Zinc	6020	NP	0.076	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	0.011	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 35 to 45 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

NM - Not Measured

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-08	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0052	0.001	0.0039	0.001	0.0044	0.001	0.0036	0.001	0.0052	0.001	0.0038	0.001	0.004	0.001	0.0041	0.0050	0.0062
Barium	6020	NP	0.11	0.001	0.12	0.001	0.11	0.001	0.11	0.001	0.13	0.001	0.14	0.001	0.14	0.001	0.14	0.040	0.16
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.93	0.01	0.72	0.012	0.64	0.01	0.82	0.01	0.82	0.01	0.57	0.01	0.57	0.01	1	0.40	0.93
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	180	50	210	50	140	50	210	50	190	50	170	50	200	50	210	50	220
Chromium	6020	NP	0.0059	0.004	0.0081	0.004	0.0059	0.004	0.0084	0.004	0.0053	0.004	ND	0.004	0.0056	0.004	0.0066	0.0030	0.012
Cobalt	6020	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	0.0036	0.003	0.0037	0.003	0.01	0.003	ND	0.003	ND	0.003	0.0032	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.77	0.25	0.76	0.25	0.81	0.25	0.84	0.25	0.75	0.25	0.70	0.25	0.63	0.25	0.53	0.25	0.63
Iron	6020	NP	0.56	0.010	2.1	0.010	1.7	0.010	0.97	0.010	0.94	0.010	2.3	0.010	1.2	0.010	1.3	0.010	2.1
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.15	0.001	0.27	0.001	0.29	0.001	0.18	0.001	0.2	0.001	0.27	0.001	0.2	0.001	0.2	0.0020	0.23
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.011	0.005	0.013	0.005	0.0076	0.005	0.007	0.005	0.009	0.005	0.0054	0.005	0.0075	0.005	0.009	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	ND	0.02	ND	0.02	0.10	1.0	1.6	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
pH	Obtained in field	NA	8.24	NA	8.17	NA	7.66	NA	8.24	NA	7.87	NA	7.97	NA	8.20	NA	8.23	NA	8.09
Selenium	6020	NP	0.0036	0.001	0.0013	0.001	ND	0.001	0.0031	0.001	0.0036	0.001	0.0018	0.001	0.0018	0.001	ND	0.0050	ND
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	160	50	240	50	140	50	200	50	200	50	300	50	440	50	330	50	360
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	890	17	990	17	970	17	940	17	990	17	1200	17	1200	17	1200	26	1200
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 20 to 30 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-09	Date	12/16/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	ND	0.001	0.0018	0.001	0.0017	0.001	ND	0.001	0.0012	0.001	ND	0.001	0.0017	0.001	ND	0.0050	ND
Barium	6020	NP	0.038	0.001	0.042	0.001	0.038	0.001	0.03	0.001	0.038	0.001	0.035	0.001	0.038	0.001	0.038	0.040	0.062
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	2.1	0.01	1.9	0.012	1.9	0.01	2.5	0.01	2.7	0.01	2.6	0.01	2.6	0.01	2.9	1.0	3.2
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	25	10	28	10	28	10	30	25	30	10	30	10	27	10	28	10	31
Chromium	6020	NP	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.0030	0.01
Cobalt	6020	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	ND	0.25	0.31	0.25	0.34	0.25	0.25	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	0.3
Iron	6020	NP	ND	0.010	0.066	0.010	ND	0.010	ND	0.010	ND	0.010	0.014	0.010	ND	0.010	ND	0.010	ND
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.23	0.001	0.45	0.001	0.48	0.001	0.14	0.001	0.28	0.001	0.22	0.001	0.34	0.001	0.11	0.0020	0.1
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.01	0.005	0.0093	0.005	0.0063	0.005	0.0065	0.005	0.0088	0.005	ND	0.005	ND	0.005	0.0067	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	2.9	0.20	5.6	0.20	5.6	0.20	3.7	0.50	2.6	0.20	5.0	0.20	2.8	0.20	6.3	0.20	10
pH	Obtained in field	NA	7.22	NA	7.34	NA	7.10	NA	7.32	NA	6.31	NA	7.28	NA	7.30	NA	7.18	NA	7.10
Selenium	6020	NP	0.0024	0.001	0.0072	0.001	0.0017	0.001	0.0043	0.001	0.0041	0.001	0.0072	0.001	0.0047	0.001	0.0044	0.0050	0.009
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	110	25	110	25	110	25	130	25	110	25	120	50	130	25	120	25	130
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	500	17	510	17	540	17	500	17	520	17	530	17	520	17	580	26	560
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 22 to 32 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-10	Date	12/15/2010		3/25/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	ND	0.001	ND	0.001	0.0015	0.001	ND	0.001	ND	0.001	ND	0.001	0.0015	0.001	0.0014	0.0050	ND
Barium	6020	NP	0.24	0.001	0.28	0.001	0.36	0.001	0.25	0.001	0.26	0.001	0.26	0.001	0.27	0.001	0.23	0.040	0.24
Beryllium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	0.48	0.01	0.48	0.012	0.52	0.01	0.42	0.01	0.57	0.01	0.54	0.01	0.54	0.01	0.42	0.40	0.46
Cadmium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	40	10	43	10	43	10	49	10	42	10	45	10	46	10	45	10	45
Chromium	6020	NP	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.0030	0.0048
Cobalt	6020	NP	0.0026	0.002	0.0027	0.002	0.0039	0.002	0.0025	0.002	0.0026	0.002	0.0024	0.002	0.0029	0.002	0.0029	0.0030	ND
Copper	6020	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	0.0041	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	ND	0.25	0.30	0.25	0.36	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	0.28
Iron	6020	NP	ND	0.010	ND	0.010	0.044	0.010	ND	0.010	ND	0.010	ND	0.010	0.015	0.010	0.012	0.010	0.016
Lead	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	2.1	0.001	2.8	0.001	3.8	0.001	2.3	0.001	2.3	0.001	2.3	0.001	2.6	0.001	2.5	0.040	2.2
Mercury	7470A	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.015	0.005	0.016	0.005	0.015	0.005	0.01	0.005	0.013	0.005	0.0091	0.005	0.0093	0.005	0.014	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	3.0	0.20	4.0	0.20	2.1	0.20	4.5	0.20	4.9	0.20	6.0	0.20	2.9	0.20	5.2	0.20	4.8
pH	Obtained in field	NA	7.04	NA	7.01	NA	6.88	NA	7.04	NA	6.03	NA	7.03	NA	6.95	NA	6.96	NA	7.03
Selenium	6020	NP	0.0042	0.001	0.0064	0.001	0.0043	0.001	0.0057	0.001	0.0065	0.001	0.0056	0.001	0.0056	0.001	0.0058	0.0050	0.0074
Silver	6020	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	62	10	64	10	67	10	64	10	72	10	76	10	63	10	58	10	59
Thallium	6020	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	530	17	520	17	650	17	470	17	540	17	530	17	550	17	580	26	420
Zinc	6020	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 19 to 29 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-11	Date	12/16/2010		2/15/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0021	NP	0.0025	0.001	0.0019	0.001	0.0016	0.001	0.0019	0.001	0.0021	0.001	0.0032	0.001	0.0038	0.0050	0.03
Barium	6020	NP	0.17	NP	0.11	0.001	0.18	0.001	0.11	0.001	0.11	0.001	0.13	0.001	0.17	0.001	0.22	0.20	ND
Beryllium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	1.6	NP	1.8	0.012	1.6	0.01	1.5	0.01	1.8	0.01	2.3	0.01	1.9	0.01	2.6	2.0	ND
Cadmium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	70	NP	66	50	120	25	53	50	87	10	54	25	150	10	52	50	83
Chromium	6020	NP	ND	NP	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	0.0051	0.004	ND	0.0030	0.015
Cobalt	6020	NP	0.0028	NP	0.0041	0.002	0.0024	0.002	ND	0.002	ND	0.002	0.0024	0.002	0.0039	0.002	0.0049	0.0030	0.0041
Copper	6020	NP	0.0032	NP	0.0032	0.003	0.0043	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	0.0049	0.010	ND
Cyanide	9014	NP	ND	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.53	NP	0.56	0.25	0.67	0.25	0.58	0.25	0.44	0.25	0.42	0.25	0.32	0.25	0.56	0.25	0.64
Iron	6020	NP	0.44	NP	0.01	0.010	0.029	0.010	0.018	0.010	ND	0.010	ND	0.010	0.056	0.010	2.0	0.010	0.7
Lead	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	0.0023	0.0050	ND
Manganese	6020	NP	3.2	NP	3.6	0.001	2.9	0.001	2.2	0.001	2.5	0.001	2.9	0.001	3.7	0.001	4.7	0.20	12
Mercury	7470A	NP	ND	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.019	NP	0.016	0.005	0.013	0.005	0.011	0.005	0.013	0.005	0.011	0.005	0.013	0.005	0.017	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	0.41	NP	0.17	0.02	0.04	0.02	0.74	0.02	1.5	0.02	0.39	0.02	ND	0.20	4.6	0.02	0.39
pH	Obtained in field	NA	7.88	NA	7.13	NA	7.02	NA	7.31	NA	6.48	NA	7.32	NA	7.15	NA	7.30	NA	7.28
Selenium	6020	NP	0.0026	NP	0.0015	0.001	0.0018	0.001	0.004	0.001	0.0031	0.001	0.0039	0.001	0.0039	0.001	0.004	0.0050	ND
Silver	6020	NP	ND	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	170	NP	160	50	210	25	140	50	160	50	130	100	320	25	170	50	200
Thallium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	740	NP	710	17	930	17	620	17	730	17	740	17	1000	17	760	26	970
Zinc	6020	NP	0.012	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	0.0073	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 30 to 40 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-12	Date	12/15/2010		2/15/2011		6/16/2011		9/19/2011		12/12/2011		3/19/2012		6/25/2012		9/18/2012		12/12/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0088	NP	0.013	0.001	0.0064	0.001	0.0087	0.001	0.0089	0.001	0.0042	0.001	0.014	0.001	0.011	0.0050	0.022
Barium	6020	NP	0.089	NP	0.11	0.001	0.091	0.001	0.085	0.001	0.09	0.001	0.071	0.001	0.12	0.001	0.11	0.040	0.1
Beryllium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	1.6	NP	1.4	0.012	1.3	0.01	1.2	0.01	1.3	0.01	0.92	0.01	1.2	0.01	1.1	0.40	0.85
Cadmium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	170	NP	180	50	180	50	190	50	210	50	170	50	190	50	170	50	210
Chromium	6020	NP	ND	NP	0.0056	0.004	0.0044	0.004	0.0071	0.004	0.0047	0.004	ND	0.004	0.0043	0.004	0.0045	0.0030	0.0079
Cobalt	6020	NP	ND	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	NP	ND	0.003	0.0032	0.003	0.0036	0.003	0.0031	0.003	ND	0.003	ND	0.003	ND	0.010	ND
Cyanide	9014	NP	ND	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.71	NP	0.61	0.25	0.64	0.25	0.74	0.25	0.61	0.25	0.46	0.25	0.36	0.25	0.42	0.25	0.43
Iron	6020	NP	5.5	NP	6.3	0.010	5.6	0.010	4.0	0.010	3.1	0.010	4.8	0.010	8.2	0.010	8.9	0.010	6.4
Lead	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.32	NP	0.58	0.001	0.26	0.001	0.37	0.001	0.25	0.001	0.13	0.001	0.71	0.001	0.64	0.040	1.7
Mercury	7470A	NP	ND	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.0096	NP	0.01	0.005	0.0072	0.005	0.0075	0.005	0.0091	0.005	0.0075	0.005	0.0082	0.005	0.012	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	ND	NP	ND	0.02	0.14	0.02	ND	0.02	ND	0.02	0.04	0.20	ND	0.02	0.03	0.02	ND
pH	Obtained in field	NA	7.65	NA	7.51	NA	6.98	NA	7.66	NA	7.38	NA	7.22	NA	7.40	NA	7.50	NA	7.37
Selenium	6020	NP	0.0026	NP	0.0027	0.001	ND	0.001	0.0023	0.001	0.0034	0.001	0.0043	0.001	0.0038	0.001	0.0016	0.0050	ND
Silver	6020	NP	ND	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	290	NP	270	50	350	50	360	50	300	50	310	50	430	50	370	50	300
Thallium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	980	NP	1000	17	1100	17	970	17	970	17	1000	17	1200	17	1200	26	1100
Zinc	6020	NP	ND	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 19 to 29 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-13	Date	12/15/2010		2/15/2011		4/25/2011		6/16/2011		8/9/2011		10/13/2011		12/12/2011		4/10/2012		12/14/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.011	NP	0.0069	0.001	0.0063	0.001	0.0057	0.001	0.0048	0.001	0.0066	0.001	0.023	0.001	0.027	0.0050	0.041
Barium	6020	NP	0.11	NP	0.052	0.001	0.073	0.001	0.059	0.001	0.046	0.001	0.083	0.001	0.21	0.001	0.14	0.0020	0.3
Beryllium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	3.9	NP	3.1	0.01	2.6	0.012	3	0.01	2.7	0.01	3	0.01	4.1	0.01	4	1.0	3.6
Cadmium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	160	NP	120	25	100	25	86	25	110	25	110	100	180	50	170	50	210
Chromium	6020	NP	0.0062	NP	0.0042	0.004	0.0045	0.004	ND	0.004	ND	0.004	0.01	0.004	0.0055	0.004	0.0055	0.0030	0.011
Cobalt	6020	NP	0.0031	NP	0.0026	0.002	0.0023	0.002	0.0022	0.002	0.0031	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	0.0068	NP	0.0037	0.003	0.0041	0.003	0.004	0.003	0.004	0.003	0.0055	0.003	0.0066	0.003	0.0068	0.010	ND
Cyanide	9014	NP	ND	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.28	NP	0.29	0.25	0.31	0.25	0.44	0.25	0.38	0.25	0.30	0.25	ND	0.25	0.32	0.25	ND
Iron	6020	NP	0.69	NP	0.052	0.010	0.077	0.010	ND	0.010	0.043	0.010	ND	0.010	0.11	0.010	0.20	0.010	0.066
Lead	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	5	NP	3.8	0.001	2.7	0.001	2.9	0.001	2.6	0.001	3.6	0.001	3.5	0.001	3.5	0.0020	3.7
Mercury	7470A	NP	ND	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.03	NP	0.023	0.005	0.021	0.005	0.018	0.005	0.016	0.005	0.015	0.005	0.022	0.005	0.02	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	0.14	NP	1.3	0.02	1.8	0.20	2.2	0.50	3.6	0.02	1.6	0.02	0.07	0.02	0.06	0.02	ND
pH	Obtained in field	NA	7.68	NA	7.53	NA	7.26	NA	6.75	NA	7.13	NA	7.31	NA	7.19	NA	8.49	NA	7.92
Selenium	6020	NP	0.0046	NP	0.0046	0.001	0.0045	0.001	0.0029	0.001	0.0056	0.001	0.004	0.001	0.0036	0.001	0.0037	0.0050	ND
Silver	6020	NP	ND	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	1400	NP	770	250	580	100	540	100	440	250	660	250	1100	500	1100	500	1100
Thallium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	2600	NP	1600	17	1400	17	1300	17	1100	17	1500	17	2100	17	2300	26	1900
Zinc	6020	NP	ND	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	0.06	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 30 to 40 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-14	Date	12/15/2010		2/15/2011		4/25/2011		6/16/2011		8/9/2011		10/13/2011		12/12/2011		4/10/2012		12/14/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.024	NP	0.019	0.001	0.0084	0.001	0.005	0.001	0.0062	0.001	0.015	0.001	0.0033	0.001	0.0039	0.0050	0.0053
Barium	6020	NP	0.034	NP	0.034	0.001	0.036	0.001	0.04	0.001	0.041	0.001	0.04	0.001	0.045	0.001	0.045	0.0020	0.038
Beryllium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	2	NP	1.9	0.01	1.9	0.01	1.9	0.01	1.8	0.01	1.9	0.01	1.9	0.01	1.8	2.0	ND
Cadmium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	160	NP	160	25	160	50	160	25	240	100	200	100	200	50	190	50	190
Chromium	6020	NP	ND	NP	0.0046	0.004	0.0078	0.004	0.0049	0.004	0.0076	0.004	0.0096	0.004	0.0065	0.004	0.0057	0.0030	0.018
Cobalt	6020	NP	ND	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	0.0037	NP	0.0035	0.003	0.0074	0.003	0.0071	0.003	0.0064	0.003	0.0055	0.003	0.025	0.003	0.0067	0.010	ND
Cyanide	9014	NP	ND	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	1.7	NP	1.6	0.25	1.1	0.25	1.3	0.25	1.4	0.25	0.88	0.25	1.1	0.25	1.0	0.25	1.2
Iron	6020	NP	2.2	NP	0.94	0.010	0.36	0.010	0.30	0.010	0.71	0.010	2.0	0.010	0.12	0.010	0.77	0.010	0.012
Lead	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	0.0035	0.0050	ND
Manganese	6020	NP	0.68	NP	0.81	0.001	0.29	0.001	0.36	0.001	0.57	0.001	0.84	0.001	0.067	0.001	0.63	0.0020	0.11
Mercury	7470A	NP	ND	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.015	NP	0.015	0.005	0.02	0.005	0.016	0.005	0.016	0.005	0.011	0.005	0.015	0.005	0.018	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	0.036	NP	ND	0.02	1.0	0.02	0.27	0.02	0.05	0.02	ND	0.02	0.33	0.02	0.31	0.02	0.32
pH	Obtained in field	NA	7.55	NA	7.75	NA	7.27	NA	7.15	NA	7.08	NA	7.40	NA	6.05	NA	8.35	NA	7.13
Selenium	6020	NP	0.0024	NP	0.0015	0.001	0.065	0.001	0.0035	0.001	0.003	0.001	0.0017	0.001	0.0037	0.001	0.022	0.0050	0.0055
Silver	6020	NP	ND	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	960	NP	820	250	770	250	810	250	940	100	850	100	880	250	990	500	810
Thallium	6020	NP	0.0019	NP	0.0018	0.001	0.0035	0.001	0.0039	0.001	0.0027	0.001	0.0016	0.001	0.0016	0.001	0.0034	0.0010	0.0025
Total Dissolved Solids	SM 2540C	NP	1800	NP	1700	17	1800	17	1900	17	2000	17	1800	17	1800	17	2200	26	1700
Zinc	6020	NP	ND	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	0.0084	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 20 to 30 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-15	Date	12/15/2010		2/15/2011		4/25/2011		6/16/2011		8/9/2011		10/13/2011		12/12/2011		4/10/2012		12/14/2012	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Antimony	6020	NP	ND	NP	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.0050	ND
Arsenic	6020	NP	0.0099	NP	0.0092	0.001	0.0064	0.001	0.0052	0.001	0.0053	0.001	0.011	0.001	0.0097	0.001	0.0061	0.0050	0.011
Barium	6020	NP	0.058	NP	0.052	0.001	0.061	0.001	0.11	0.001	0.057	0.001	0.06	0.001	0.063	0.001	0.075	0.0020	0.11
Beryllium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Boron	6020	NP	1.6	NP	1.4	0.01	1.5	0.01	1.6	0.01	1.3	0.02	1.2	0.01	1.2	0.01	1.4	2.0	ND
Cadmium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Chloride	9251	NP	180	NP	190	25	190	50	170	25	210	100	180	100	200	50	200	50	220
Chromium	6020	NP	0.0042	NP	0.0061	0.004	0.0092	0.004	0.0054	0.004	0.0091	0.004	0.0062	0.004	0.0062	0.004	0.0071	0.0030	0.012
Cobalt	6020	NP	ND	NP	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.0030	ND
Copper	6020	NP	ND	NP	ND	0.003	0.0039	0.003	0.005	0.003	0.0041	0.003	0.0037	0.003	0.0031	0.003	0.0039	0.010	ND
Cyanide	9014	NP	ND	NP	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND
Fluoride	SM 4500 F C	NP	0.69	NP	0.75	0.25	0.60	0.25	0.73	0.25	0.76	0.25	0.77	0.25	0.75	0.25	0.79	0.25	0.95
Iron	6020	NP	3.3	NP	2.4	0.010	2.1	0.010	0.70	0.010	2.1	0.010	2.6	0.010	2.1	0.010	1.1	0.010	1.9
Lead	6020	NP	ND	NP	ND	0.001	0.0012	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0050	ND
Manganese	6020	NP	0.56	NP	0.42	0.001	0.36	0.001	0.6	0.001	0.37	0.001	0.48	0.001	0.39	0.001	0.25	0.0020	0.51
Mercury	7470A	NP	ND	NP	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.00020	ND
Nickel	6020	NP	0.013	NP	0.011	0.005	0.012	0.005	0.015	0.005	0.01	0.005	0.011	0.005	0.011	0.005	0.01	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	NP	0.03	NP	0.086	0.02	0.04	0.02	0.07	0.02	0.05	0.02	ND	0.02	0.07	0.02	0.12	0.02	0.12
pH	Obtained in field	NA	7.43	NA	7,23	NA	7.06	NA	6.79	NA	6.89	NA	7.37	NA	6.84	NA	8.23	NA	7.30
Selenium	6020	NP	0.0042	NP	0.0079	0.001	0.017	0.001	0.004	0.001	0.002	0.001	0.004	0.001	0.0047	0.001	0.025	0.0050	ND
Silver	6020	NP	ND	NP	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.010	ND
Sulfate	9038	NP	300	NP	220	100	270	100	650	50	250	100	180	100	140	50	200	50	320
Thallium	6020	NP	ND	NP	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.0010	ND
Total Dissolved Solids	SM 2540C	NP	1000	NP	1000	17	1100	17	1600	17	1000	17	890	17	840	17	1000	26	1100
Zinc	6020	NP	ND	NP	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.006	ND	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 20 to 30 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 1. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-16	Date	12/12/2012	
Parameter	Lab Method	D.L.	Result
Antimony	6020	0.0050	ND
Arsenic	6020	0.0050	ND
Barium	6020	0.020	0.039
Beryllium	6020	0.0010	ND
Boron	6020	0.20	ND
Cadmium	6020	0.0010	ND
Chloride	9251	10	26
Chromium	6020	0.0030	0.0047
Cobalt	6020	0.0030	ND
Copper	6020	0.010	ND
Cyanide	9014	0.0050	ND
Fluoride	SM 4500 F C	0.25	ND
Iron	6020	0.010	0.012
Lead	6020	0.0050	ND
Manganese	6020	0.0020	0.022
Mercury	7470A	0.00020	ND
Nickel	6020	0.010	ND
Nitrogen/Nitrate	Nitrogen Calc	0.50	18
pH	Obtained in field	NA	7.38
Selenium	6020	0.0050	ND
Silver	6020	0.010	ND
Sulfate	9038	10	37
Thallium	6020	0.0010	ND
Total Dissolved Solids	SM 2540C	26	520
Zinc	6020	0.020	ND

Notes: Groundwater sample analyzed at PDC Laboratories.
Well screen depth is from 20 to 30 feet below ground surface.
Sample collected using low-flow technique.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect
NA - Not Applicable
NP - Not Provided by lab

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

12/12-14/2012	Sample	MW-01		MW-02		MW-03		MW-04		MW-05		MW-06		MW-07		MW-08	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Benzene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Ethylbenzene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Toluene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
m,p-Xylene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
o-Xylene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Xylenes- Total	EPA 624	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND
Perchlorate	EPA 314.0	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Vanadium	6020	0.0080	ND	0.0080	ND	0.0080	ND	0.0080	ND	0.0080	ND	0.0080	ND	0.0080	0.012	0.0080	ND

12/12-14/2012	Sample	MW-09		MW-10		MW-11		MW-12		MW-13		MW-14		MW-15		MW-16	
Parameter	Lab Method	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result	D.L.	Result
Benzene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Ethylbenzene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Toluene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
m,p-Xylene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
o-Xylene	EPA 624	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Xylenes- Total	EPA 624	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND
Perchlorate	EPA 314.0	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Vanadium	6020	0.0080	ND	0.0080	ND	0.0080	ND	0.0080	ND	0.0080	ND	0.0080	0.010	0.0080	ND	0.0080	ND

Notes: Groundwater sample analyzed at TestAmerica laboratory.
Sample collected using low-flow technique.
Please see Table 1 for sample depths.
All values are in mg/L (ppm).

DL - Detection limit
ND - Non-detect

ATTACHMENT 2C

Compliance Commitment Agreement

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
PAT QUINN, GOVERNOR JOHN J. KIM, INTERIM DIRECTOR

217-785-0561

October 4, 2012

CERTIFIED MAIL # 7010 2780 0002 1163 4895
RETURN RECEIPT REQUESTED

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

Re: Proposed Compliance Commitment Agreement
Violation Notice: W-2012-00057
Midwest Generation, LLC, Powerton Generating Station; ID Number: 6282

Dear Mr. Kennedy:

The Illinois Environmental Protection Agency ("Illinois EPA") has reviewed the proposed Compliance Commitment Agreement ("CCA") terms submitted by Midwest Generation, LLC, Powerton Generating Station in a letter dated September 4, 2012, in response to the Violation Notice dated June 11, 2012. Pursuant to the authority vested in the Illinois EPA under Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i), attached to this letter is a proposed CCA, which contains terms and conditions that the Illinois EPA has determined are necessary in order for you to attain compliance with the Act and Illinois Pollution Control Board Regulations.

Pursuant to Section 31(a)(7.5) of the Act, 415, ILCS 5/31(a)(7.5), **within 30 days of your receipt of this proposed CCA**, Midwest Generation, LLC, Powerton Generating Station or its duly authorized representative must either (1) agree to and sign the proposed CCA, and submit the signed and dated CCA by certified mail to Illinois EPA Bureau of Water, Andrea Rhodes, MC #19, 1021 North Grand Ave East, Springfield, IL 62702; or (2) notify the Illinois EPA by certified mail that you reject the proposed CCA.

The proposed CCA shall only become effective upon your timely submittal of the signed CCA as discussed above, and upon final execution by the Illinois EPA. Failure by you to execute and submit the proposed CCA within 30 days of receipt shall be deemed a rejection of the CCA by operation of law. Upon timely receipt of the signed CCA, the Illinois EPA will send you a fully executed copy of the CCA for your records.

In addition, the proposed CCA is not subject to amendment or modification prior to execution by you and the Illinois EPA. Any amendment or modification to the proposed CCA by Respondent prior to execution by you and the Illinois EPA shall be deemed a rejection of the proposed CCA by operation of law. The proposed CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and you.

RECEIVED
OCT 09 2012

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

9511 Harrison St., Des Plaines, IL 60016 (847)294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309)693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312)814-6026

Questions regarding this matter should be directed to Illinois EPA, Bureau of Water, Andrea Rhodes at 217/785-0561. Written communications should be directed to Illinois EPA – DPWS, Attn: Andrea Rhodes, MC #19, 1021 North Grand Ave East, Springfield, IL 62702.

Sincerely,

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

Attachments

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

BOW ID: W1798010008 CASE ID: 2012-006

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:)
)
MIDWEST GENERATION, LLC,)
POWERTON GENERATING STATION)
PEKIN, TAZEWELL COUNTY, IL)
ID NUMBER: 6282)
)
) ILLINOIS EPA VN W-2012-00057
) BUREAU OF WATER
)

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

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

II. Allegation of Violations

2. Respondent owns and operates Powerton Generating Station in Pekin, Tazewell County, Illinois ("Powerton").

3. Pursuant to Violation Notice ("VN") W-2012-00057 issued on June 11, 2012, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

   a) Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, and MW-15. Section 12 of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, and 620.410.

III. Compliance Activities

4. On September 4, 2012, the Illinois EPA received Respondent's response to VN W-2012-00057, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.

5. Respondent agrees to undertake and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in VN W-2012-00057:

   a) The ash ponds at Powerton shall not be used as permanent disposal sites and shall continue to function as treatment ponds to precipitate ash. Ash shall continue to be removed from the ponds on a periodic basis.

   b) The ash treatment ponds shall be maintained and operated in a manner which protects the integrity of the existing liners. During the removal of ash from the ponds, appropriate procedures shall be followed to protect the integrity of the existing liners, including operating the ash removal equipment in a manner which minimizes the risk of any damage to the liner.

   c) During the ash removal process, visual inspections of the ponds shall be conducted to identify any signs of a breach in the integrity of the pond liners. In the event that a breach of the pond liners is detected, Midwest Generation shall promptly notify the Illinois EPA and shall implement a corrective action plan for repair or replacement as necessary, of the liner. Upon the Illinois EPA's approval, and the issuance of any necessary construction permit, Midwest Generation will implement the corrective action plan.

   d) Midwest Generation shall monitor the new well as described in 5(f) below and the existing fifteen groundwater monitoring wells quarterly for constituents in 35 Ill. Adm. Code 620.410(a) and (d), with the exception of radium 226 and 228, and report its findings to the Illinois EPA within 30 days of the end of each quarter. In addition, Midwest Generation shall record and report groundwater elevation and submit a potentiometric surface map with the above quarterly groundwater monitoring report.

   e) Within 90 days of the effective date of the CCA, Midwest Generation shall submit an application for a construction permit to re-line the Ash Surge Basin and the Secondary Ash Settling Basin at Powerton with a 60 mil thickness high density polyethylene ("HDPE") liner or an Illinois EPA approved equivalent material.

   f) Midwest Generation shall install an additional groundwater monitoring well south of monitor well 9, in a location approved by the Illinois EPA, to better define up gradient groundwater quality, within 60 days of the effective date of the CCA.

g) Midwest Generation shall submit an application to establish a GMZ pursuant to 35 Ill. Adm. Code Part 620.250 within 90 days of the effective date of the CCA.

h) Midwest Generation shall enter into an Environmental Land Use Control (ELUC) to cover the area of the Powerton Station property which is contained within the GMZ. Midwest Generation shall submit a proposed draft ELUC to the Illinois EPA for review and comment within 90 days of the effective date of the CCA.

i) Midwest Generation shall record the ELUC within 30 days of approval of the ELUC by the Illinois EPA.

j) Midwest Generation shall establish a GMZ pursuant to 35 Ill. Adm. Code Part 620.250 within one year of the effective date of the CCA.

k) Once the Ash Surge Basin and the Secondary Ash Settling Basin have been lined and a GMZ and ELUC have been established at Powerton, Midwest Generation shall submit a certification (or a statement) of compliance. Midwest Generation may submit either the attached "Illinois EPA Compliance Statement" or another similar writing to satisfy the statement of compliance within one year of the effective date of the CCA.

l) Midwest Generation shall not allow the East Yard Run-off Basin to be part of the ash sluicing flow system. Further, Midwest Generation shall submit monitoring results from water contained in the East Yard Run-off Basin proximate to outfall monitoring point 003 within 60 days of the effective date of the CCA. Quarterly monitoring of the East Yard Run-off Basin shall be for the constituents listed in 35 Ill. Adm. Code 620.410(a) and (d) with the exception of radium 226 and radium 228. At the end of four (4) quarters of monitoring, Midwest Generation may request cessation of water monitoring from the East Yard Run-off Basin.

m) Midwest Generation shall not use any unlined areas for permanent or temporary ash storage or ash handling.

IV. Terms and Conditions

6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in VN W-2012-00057.

7. This CCA is solely intended to address the violations alleged in Illinois EPA VN W-2012-00057. The Illinois EPA reserves and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations [and Permit, if applicable].

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Powerton in Pekin, Tazewell County, Illinois.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

11. This CCA shall only become effective:

    a) If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA, Bureau of Water, Andrea Rhodes, MC #19, 1021 North Grand Ave East, Springfield, IL 62702. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b) Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: ____________________ DATE: ______________

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

FOR RESPONDENT:

BY: ____________________ DATE: Oct 15, 2012

John Kennedy
Senior Vice President, Generation
Midwest Generation, LLC

Illinois EPA Compliance Statement

The owner of the facility must acknowledge that all compliance commitment agreement (CCA) measures have been successfully completed.

Please complete, sign, and return.

I ____________________________________ *(print name)*, hereby certify that all violations

addressed in Violation Notice (VN) number ______________________ have been addressed and

that all CCA measures were completed on _______________________________ *(date)*.

____
Signature

____
Title

____
Telephone Number

____
Date

Be sure to retain copies of this document for your files. Should you need additional notification forms, please contact this office at (217)785-0561. Return this completed form to:

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

"Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Agency, ...related to or required by this Act, a regulation adopted under this Act, any federal law or regulation for which the Agency has responsibility, or any permit, term, or condition thereof, commits a Class 4 felony..." (415 ILCS 5/44(h) (8))

Exhibit

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W1798010008
DeJ

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217)782-2829
PAT QUINN, GOVERNOR LISA BONNETT, DIRECTOR

October 3, 2013

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

Re: Groundwater Management Zone Application
Violation Notice: W-2012-00057
Midwest Generation, LLC, Powerton Generating Station; ID Number: 6282

Dear Mr. Kennedy:

The Illinois Environmental Protection Agency ("Illinois EPA") has reviewed the Groundwater Management Zone ("GMZ") application submitted January 18, 2013 as required by the approved Compliance Commitment Agreement ("CCA"), in response to the Violation Notice dated June 11, 2012. The Illinois EPA has also reviewed the supplemental information dated September 11, 2013, requested in its letter dated August 26, 2013 to Midwest Generation LLC.

The Illinois EPA approves the GMZ as described in the January 18, 2013 submission and subsequently amended by the August 26, 2013 submission. Midwest Generation should proceed with the GMZ as proposed in the above referenced documents.

Questions regarding this matter should be directed to Illinois EPA, Bureau of Water, Lynn Dunaway at 217/785-4787. Written communications should be directed to Illinois EPA – DPWS, Attn: Andrea Rhodes, MC #19, 1021 North Grand Ave East, Springfield, IL 62702.

Sincerely,

William E. Buscher

William E. Buscher, PG
Manager, Hydrogeology and Compliance Unit
Groundwater Section
Division of Public Water Supplies
Bureau of Water

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
APR 04 2014
REVIEWER JKS

cc: Andrea Rhodes
Mike Crumly
Lynn Dunaway
Basil G. Constantelos
Maria Race
Amy Hanrahan
Susan M. Franzetti

4302 N. Main St., Rockford, IL 61103 (815)987-7760
595 S. State, Elgin, IL 60123 (847)608-3131
2125 S. First St., Champaign, IL 61820 (217)278-5800
2009 Mall St., Collinsville, IL 62234 (618)346-5120
9511 Harrison St., Des Plaines, IL 60016 (847)294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309)693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312)814-6026

Exhibit

G

Send
Oak

QUARTERLY GROUNDWATER MONITORING REPORT
POWERTON GENERATING STATION

April 15, 2021

Ms. Andrea Rhodes
Illinois Environmental Protection Agency
Division of Public Water Supplies
MC#19
1021 North Grand Avenue East
Springfield, IL 62794-9276

RECEIVED
APR 30 2021
IEPA/CAS

Via FedEx

Re: Quarterly Groundwater Monitoring Results – First Quarter 2021
Powerton Generating Station – Ash Impoundments
Compliance Commitment Agreement VN W-2012-00057; ID# 6282

Dear Ms. Rhodes:

The first quarterly groundwater sampling for 2021 has been completed for the ash pond monitoring wells located at the Midwest Generation, LLC (Midwest Generation) Powerton Generating Station in accordance with the Compliance Commitment Agreement (CCA) with Illinois Environmental Protection Agency (IEPA) dated October 24, 2012. This quarterly monitoring report summarizes the results of the monitoring event.

Well Inspection and Sampling Procedures

The groundwater monitoring network around the ash ponds at the Powerton facility consists of sixteen wells (MW-1 through MW-16) as shown on Figure 1. As part of sampling procedures, the integrity of all monitoring wells was inspected and water levels obtained using an electronic water level meter (see summary of water level discussion below). All wells were found in good condition with locked protector casings and the concrete surface seals were intact.

Groundwater samples at well locations MW-1 through MW-16 were collected using the low-flow sampling technique. One duplicate sample was collected for quality assurance purposes. The groundwater monitoring samples and the duplicate sample were analyzed for the inorganic compounds listed in Illinois Administrative Code (IAC) 620.410(a), 620.410(d) and 620.410(e), excluding radium 226/228. The trip blank was analyzed for the volatile organic compounds (VOCs) listed in IAC 620.410(d).

Groundwater Flow Evaluation

Water level data from the most recent round of sampling along with historical water levels obtained from each well are summarized in Table 1. As noted in previous submittals, monitoring wells MW-6, MW-8, MW-12, MW-14 and MW-15 are screened within a shallow, localized, saturated clay/silt unit which is underlain by a more extensive sand unit. The remaining eleven monitoring wells have deeper screens, within the more extensive sand 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. These maps are provided on Figures 2 and 3. The water elevation data within the clay/silt unit indicates localized groundwater flow in a westerly direction (Figure 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 3). It is noted that the water level at MW-03 appears to be slightly anomalous and was not included in the contouring.

Summary of Analytical Data

A copy of the analytical data package is provided in Attachment 1. The field parameter and groundwater analytical data from the most recent sampling, along with the previous eight quarters of data, are summarized in Table 2. The duplicate sample was collected from well MW-02. The duplicate sample was analyzed and the relative percent difference for each detected parameter was within an acceptable range (+/- 30%) with the exception of cyanide which was non-detect in the investigative sample but was detected at 0.043 mg/L in the duplicate. All wells for which the sampling data reports a value above one or more groundwater standards are located within the area of the approved Groundwater Management Zone.

If there are any questions, please contact either Sharene Shealey of Midwest Generation at 724-255-3220 or Richard Gnat of KPRG and Associates, Inc. at 262-781-0475.

Sincerely,

Dale Green

Dale Green
Station Manager

Attachments

cc: Mike Summers/Lynn Dunaway, IEPA
Joseph Kotas, Midwest Generation
Sharene Shealey, Midwest Generation
Richard Gnat, KPRG and Associates, Inc.

FIGURES

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

KPRG and Associates, inc.

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

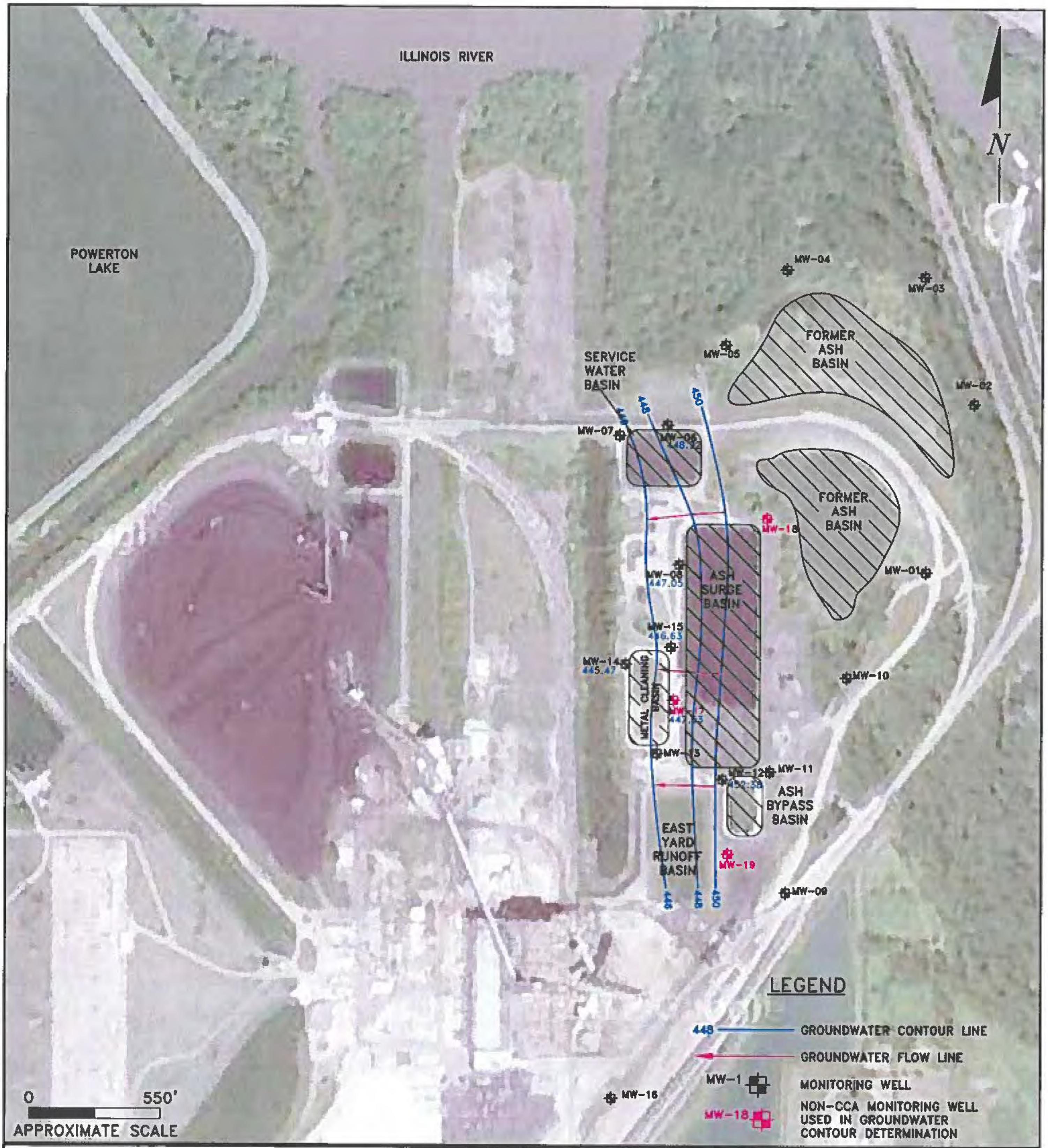
414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

SITE MAP

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550'
Date: January 15, 2019

KPRG Project No. 12313.1
FIGURE 1



ENVIRONMENTAL CONSULTATION & REMEDIATION

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

GROUNDWATER CONTOUR MAP FOR SILT/CLAY UNIT 02/2021

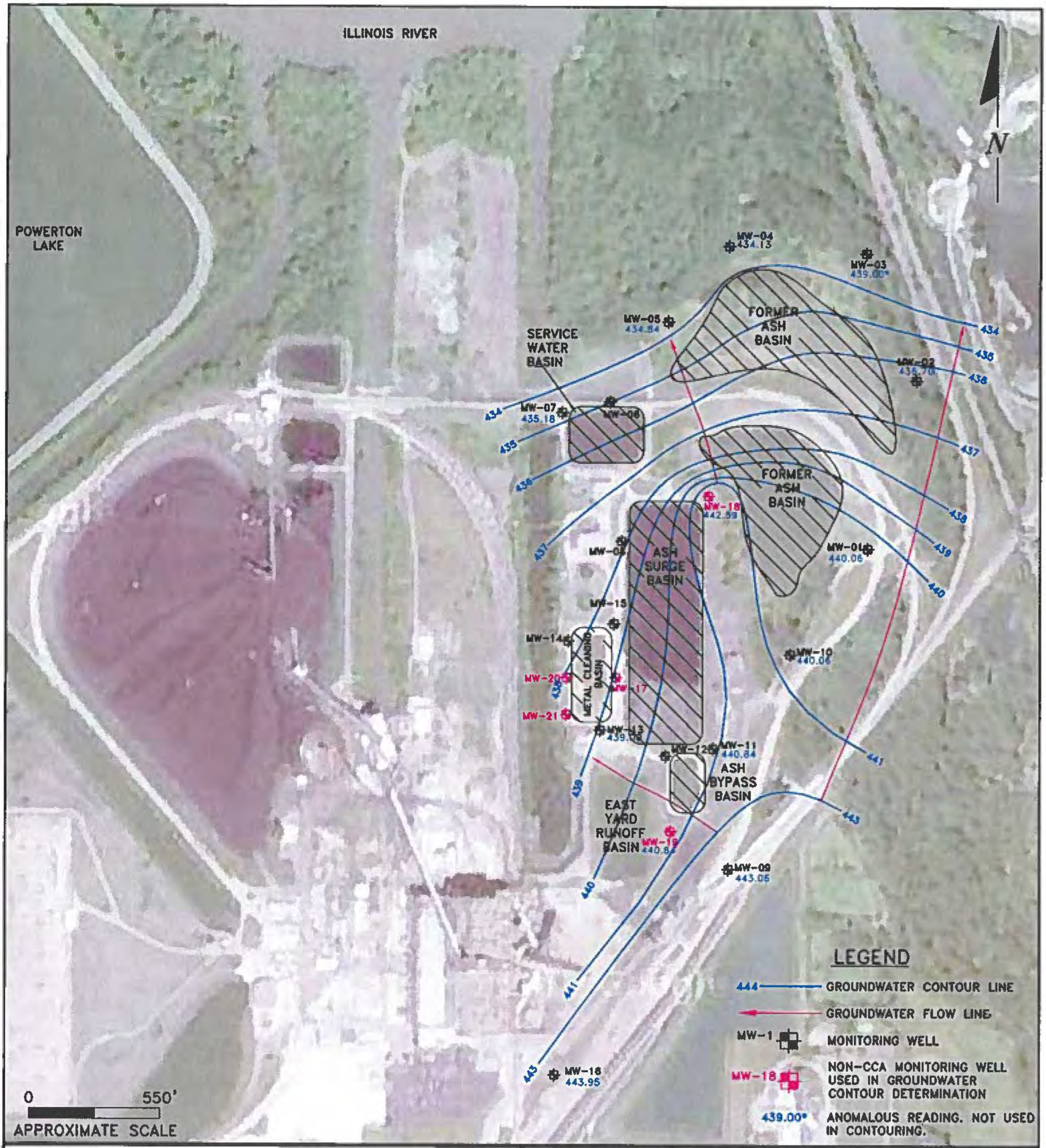
POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550'

Date: March 29, 2021

KPRG Project No. 12313.1

FIGURE 2



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

KPRG and Associates, Inc.

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

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

GROUNDWATER CONTOUR MAP FOR GRAVELLY SAND UNIT 02/2021

POWERTON STATION
PEKIN, ILLINOIS

Scale: 1" = 550'

Date: March 29, 2021

KPRG Project No. 12313.1

FIGURE 3

TABLES

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

Well ID	Date	Top of Casing (TOC) Elevation (ft above MSL)	Ground Elevation (ft above MSL)	Groundwater Elevation (ft above MSL)	Sampling Groundwater Elevation (ft above MSL)	Bottom of Well Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Sampling Depth to Groundwater (ft below TOC)	Depth to Bottom of Well (ft below TOC)
MW-01	5/11/2015	465.06	461.67	441.72	441.73	430.96	23.34	23.33	34.10
	8/18/2015	465.06	461.67	443.73	443.73	430.96	21.33	21.33	34.10
	11/16/2015	465.06	461.67	439.02	439.04	430.96	26.04	26.02	34.10
	2/22/2016	465.24	462.01	443.34	443.04	431.14	21.90	22.20	34.10
	5/16/2016	465.24	462.01	443.41	443.76	431.14	21.83	21.48	34.10
	8/15/2016	465.24	462.01	441.35	441.37	431.14	23.89	23.87	34.10
	11/14/2016	465.24	462.01	441.86	441.75	431.14	23.38	23.49	34.10
	2/13/2017	465.24	462.01	443.53	443.46	431.14	21.71	21.78	34.10
	5/3/2017	465.24	462.01	446.37	447.11	431.14	18.87	18.13	34.10
	8/25/2017	465.24	462.01	440.54	440.52	431.14	24.70	24.72	34.10
	11/8/2017	465.24	462.01	440.32	440.07	431.14	24.92	25.17	34.10
	3/6/2018	465.24	462.01	448.15	448.22	431.14	17.09	17.02	34.10
	5/17/2018	465.24	462.01	442.58	442.59	431.14	22.66	22.65	34.10
	8/8/2018	465.24	462.01	439.19	439.00	431.14	26.05	26.24	34.10
	10/30/2018	465.24	462.01	440.55	440.50	431.14	24.69	24.74	34.10
	2/25/2019	465.24	462.01	445.80	445.89	431.14	19.44	19.35	34.10
	4/29/2019	465.24	462.01	445.09	445.14	431.14	20.15	20.10	34.10
	8/26/2019	465.24	462.01	441.39	441.39	431.14	23.85	23.85	34.10
	11/11/2019	465.24	462.01	445.75	445.64	431.14	19.49	19.60	34.10
	2/24/2020	465.24	462.01	444.53	444.53	431.14	20.71	20.71	34.10
	4/27/2020	465.24	462.01	444.34	444.34	431.14	20.90	20.90	34.10
	8/10/2020	465.24	462.01	442.06	442.02	431.14	23.18	23.22	34.10
	12/7/2020	465.24	462.01	439.55	442.02	431.14	25.69	23.22	34.10
	2/22/2021	465.24	462.01	440.06	440.09	431.14	25.18	25.15	34.10
MW-02	5/13/2015	462.42	459.25	440.57	440.59	425.31	21.85	21.83	37.11
	8/17/2015	462.42	459.25	438.03	438.02	425.31	24.39	24.40	37.11
	11/16/2015	462.42	459.25	433.15	434.16	425.31	29.27	28.26	37.11
	2/22/2016	462.60	459.53	439.40	439.28	425.49	23.20	23.32	37.11
	5/16/2016	462.60	459.53	443.06	443.29	425.49	19.54	19.31	37.11
	8/15/2016	462.60	459.53	436.77	433.78	425.49	25.83	28.82	37.11
	11/14/2016	462.60	459.53	438.32	438.24	425.49	24.28	24.36	37.11
	2/13/2017	462.60	459.53	440.84	440.71	425.49	21.76	21.89	37.11
	5/1/2017	462.60	459.53	445.51	445.64	425.49	17.09	16.96	37.11
	8/23/2017	462.60	459.53	434.18	434.06	425.49	28.42	28.54	37.11
	11/7/2017	462.60	459.53	436.52	436.19	425.49	26.08	26.41	37.11
	3/6/2018	462.60	459.53	449.87	449.85	425.49	12.73	12.75	37.11
	5/15/2018	462.60	459.53	439.34	439.44	425.49	23.26	23.16	37.11
	8/7/2018	462.60	459.53	432.90	432.83	425.49	29.70	29.77	37.11
	10/30/2018	462.60	459.53	435.83	435.46	425.49	26.77	27.14	37.11
	2/25/2019	462.60	459.53	445.58	445.85	425.49	17.02	16.75	37.11
	4/29/2019	462.60	459.53	443.34	443.35	425.49	19.26	19.25	37.11
	8/26/2019	462.60	459.53	435.15	435.15	425.49	27.45	27.45	37.11
	11/11/2019	462.60	459.53	445.25	445.00	425.49	17.35	17.60	37.11
	2/24/2020	462.60	459.53	442.25	442.25	425.49	20.35	20.35	37.11
	4/27/2020	462.60	459.53	442.09	442.09	425.49	20.51	20.51	37.11
	8/10/2020	462.60	459.53	437.68	437.65	425.49	24.92	24.95	37.11
	12/7/2020	462.60	459.53	433.89	437.65	425.49	28.71	24.95	37.11
	2/22/2021	462.60	459.53	436.70	436.70	425.49	25.90	25.90	37.11
MW-03	5/13/2015	462.34	459.10	440.77	440.79	425.04	21.57	21.55	37.30
	8/17/2015	462.34	459.10	440.42	440.41	425.04	21.92	21.93	37.30
	11/16/2015	462.34	459.10	432.48	432.42	425.04	29.86	29.92	37.30
	2/22/2016	462.48	459.31	441.14	441.01	425.18	21.34	21.47	37.30
	5/16/2016	462.48	459.31	442.24	442.52	425.18	20.24	19.96	37.30
	8/15/2016	462.48	459.31	437.62	438.14	425.18	24.86	24.34	37.30
	11/14/2016	462.48	459.31	438.80	438.69	425.18	23.68	23.79	37.30
	2/13/2017	462.48	459.31	441.21	441.06	425.18	21.27	21.42	37.30
	5/1/2017	462.48	459.31	445.31	445.36	425.18	17.17	17.12	37.30
	8/23/2017	462.48	459.31	434.30	434.28	425.18	28.18	28.20	37.30
	11/7/2017	462.48	459.31	437.10	436.78	425.18	25.38	25.70	37.30
	3/6/2018	462.48	459.31	448.93	448.94	425.18	13.55	13.54	37.30
	5/15/2018	462.48	459.31	439.86	439.32	425.18	22.62	23.16	37.30
	8/7/2018	462.48	459.31	433.31	433.31	425.18	29.17	29.17	37.30
	10/30/2018	462.48	459.31	437.77	437.13	425.18	24.71	25.35	37.30
	2/25/2019	462.48	459.31	445.28	445.40	425.18	17.20	17.08	37.30
	4/29/2019	462.48	459.31	443.63	443.57	425.18	18.85	18.91	37.30
	8/26/2019	462.48	459.31	434.83	434.83	425.18	27.65	27.65	37.30
	11/11/2019	462.48	459.31	445.15	445.08	425.18	17.33	17.40	37.30
	2/24/2020	462.48	459.31	442.30	442.30	425.18	20.18	20.18	37.30
	4/27/2020	462.48	459.31	442.05	442.05	425.18	20.43	20.43	37.30
	8/10/2020	462.48	459.31	438.60	438.58	425.18	23.88	23.90	37.30
	12/7/2020	462.48	459.31	433.87	438.58	425.18	28.61	23.90	37.30
	2/22/2021	462.48	459.31	439.00	438.96	425.18	23.48	23.52	37.30
MW-04	5/13/2015	460.48	457.29	439.29	439.32	423.33	21.19	21.16	37.15
	8/17/2015	460.48	457.29	436.02	436.01	423.33	24.46	24.47	37.15
	11/16/2015	460.48	457.29	431.20	431.23	423.33	29.28	29.25	37.15
	2/22/2016	460.57	457.30	437.06	436.91	423.42	23.51	23.66	37.15
	5/16/2016	460.57	457.30	441.95	442.38	423.42	18.62	18.19	37.15
	8/15/2016	460.57	457.30	434.10	434.65	423.42	26.47	25.92	37.15
	11/14/2016	460.57	457.30	435.14	434.96	423.42	25.43	25.61	37.15
	2/13/2017	460.57	457.30	438.79	438.50	423.42	21.78	22.07	37.15
	5/1/2017	460.57	457.30	445.16	445.34	423.42	15.41	15.23	37.15
	8/28/2017	460.57	457.30	432.08	431.62	423.42	28.49	28.95	37.15
	11/7/2017	460.57	457.30	434.95	434.68	423.42	25.62	25.89	37.15
	3/6/2018	460.57	457.30	449.50	449.46	423.42	11.07	11.11	37.15
	5/15/2018	460.57	457.30	436.44	436.83	423.42	24.13	23.74	37.15
	8/7/2018	460.57	457.30	431.34	431.16	423.42	29.23	29.41	37.15
	10/30/2018	460.57	457.30	433.99	433.66	423.42	26.58	26.91	37.15
	2/25/2019	460.57	457.30	445.12	445.42	423.42	15.45	15.15	37.15
	4/29/2019	460.57	457.30	444.69	442.62	423.42	15.88	17.95	37.15
	8/26/2019	460.57	457.30	433.22	433.22	423.42	27.35	27.35	37.15
	11/11/2019	460.57	457.30	444.83	444.45	423.42	15.74	16.12	37.15
	2/24/2020	460.57	457.30	440.76	440.76	423.42	19.81	19.81	37.15
	4/27/2020	460.57	457.30	440.81	440.81	423.42	19.76	19.76	37.15
	8/10/2020	460.57	457.30	435.17	435.17	423.42	25.40	25.40	37.15
	12/7/2020	460.57	457.30	432.07	435.17	423.42	28.50	25.40	37.15
	2/22/2021	460.57	457.30	434.13	434.12	423.42	26.44	26.45	37.15

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

Well ID	Date	Top of Casing (TOC) Elevation (ft above MSL)	Ground Elevation (ft above MSL)	Groundwater Elevation (ft above MSL)	Sampling Groundwater Elevation (ft above MSL)	Bottom of Well Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Sampling Depth to Groundwater (ft below TOC)	Depth to Bottom of Well (ft below TOC)
MW-05	5/13/2015	458.58	455.80	439.74	439.75	423.79	18.84	18.83	34.79
	8/17/2015	458.58	455.80	436.46	436.45	423.79	22.12	22.13	34.79
	11/16/2015	458.58	455.80	432.19	429.26	423.79	26.39	29.32	34.79
	2/22/2016	458.66	455.92	437.54	437.40	423.87	21.12	21.26	34.79
	5/16/2016	458.66	455.92	442.08	442.48	423.87	16.58	16.18	34.79
	8/15/2016	458.66	455.92	435.07	435.49	423.87	23.59	23.17	34.79
	11/14/2016	458.66	455.92	435.94	435.78	423.87	22.72	22.88	34.79
	2/13/2017	458.66	455.92	439.53	439.25	423.87	19.13	19.41	34.79
	5/1/2017	458.66	455.92	445.57	445.72	423.87	13.09	12.94	34.79
	8/28/2017	458.66	455.92	433.28	433.28	423.87	25.38	25.38	34.79
	11/7/2017	458.66	455.92	435.75	435.54	423.87	22.91	23.12	34.79
	3/6/2018	458.66	455.92	449.30	449.25	423.87	9.36	9.41	34.79
	5/15/2018	458.66	455.92	437.12	437.41	423.87	21.54	21.25	34.79
	8/7/2018	458.66	455.92	432.49	432.41	423.87	26.17	26.25	34.79
	10/30/2018	458.66	455.92	434.69	434.41	423.87	23.97	24.25	34.79
	2/25/2019	458.66	455.92	445.45	445.74	423.87	13.21	12.92	34.79
	4/29/2019	458.66	455.92	443.26	443.09	423.87	15.40	15.57	34.79
	8/26/2019	458.66	455.92	434.31	434.31	423.87	24.35	24.35	34.79
	11/11/2019	458.66	455.92	445.10	444.71	423.87	13.56	13.95	34.79
	2/24/2020	458.66	455.92	441.41	441.41	423.87	17.25	17.25	34.79
	4/27/2020	458.66	455.92	441.25	441.25	423.87	17.41	17.41	34.79
	8/10/2020	458.66	455.92	435.81	435.78	423.87	22.85	22.88	34.79
	12/7/2020	458.66	455.92	433.01	435.78	423.87	25.65	22.88	34.79
	2/22/2021	458.66	455.92	434.84	434.83	423.87	23.82	23.83	34.79
MW-06	5/11/2015	464.47	461.22	447.21	447.19	431.87	17.26	17.28	32.60
	8/18/2015	464.47	461.22	448.82	448.80	431.87	15.65	15.67	32.60
	11/16/2015	464.47	461.22	445.36	445.51	431.87	19.11	18.96	32.60
	2/22/2016	464.50	461.27	447.39	447.37	431.90	17.11	17.13	32.60
	5/16/2016	464.50	461.27	446.70	446.69	431.90	17.80	17.81	32.60
	8/15/2016	464.50	461.27	450.37	449.77	431.90	14.13	14.73	32.60
	11/14/2016	464.50	461.27	449.44	449.24	431.90	15.06	15.26	32.60
	2/13/2017	464.50	461.27	450.73	449.81	431.90	13.77	14.69	32.60
	5/2/2017	464.50	461.27	450.35	451.78	431.90	14.15	12.72	32.60
	8/24/2017	464.50	461.27	448.41	447.61	431.90	16.09	16.89	32.60
	11/8/2017	464.50	461.27	447.74	448.08	431.90	16.76	16.42	32.60
	3/6/2018	464.50	461.27	449.50	449.99	431.90	15.00	14.51	32.60
	5/18/2018	464.50	461.27	448.68	448.85	431.90	15.82	15.65	32.60
	8/10/2018	464.50	461.27	450.21	450.45	431.90	14.29	14.05	32.60
	10/29/2018	464.50	461.27	447.83	447.82	431.90	16.67	16.68	32.60
	2/25/2019	464.50	461.27	449.52	449.52	431.90	14.98	14.98	32.60
	4/29/2019	464.50	461.27	448.63	449.35	431.90	15.87	15.15	32.60
	8/26/2019	464.50	461.27	449.19	449.70	431.90	15.31	14.80	32.60
	11/11/2019	464.50	461.27	449.34	449.81	431.90	15.16	14.69	32.60
	2/24/2020	464.50	461.27	448.67	448.67	431.90	15.83	15.83	32.60
	4/27/2020	464.50	461.27	449.14	449.14	431.90	15.36	15.36	32.60
	8/10/2020	464.50	461.27	446.80	447.82	431.90	17.70	16.68	32.60
	12/7/2020	464.50	461.27	448.50	447.82	431.90	16.00	16.68	32.60
	2/22/2021	464.50	461.27	448.92	448.77	431.90	15.58	15.73	32.60
MW-07	5/11/2015	463.23	459.65	438.83	438.80	414.93	24.40	24.43	48.30
	8/18/2015	463.23	459.65	436.10	436.07	414.93	27.13	27.16	48.30
	11/16/2015	463.23	459.65	432.80	432.78	414.93	30.43	30.45	48.30
	2/22/2016	463.27	459.73	437.59	437.48	414.97	25.68	25.79	48.30
	5/16/2016	463.27	459.73	442.31	442.86	414.97	20.96	20.41	48.30
	8/15/2016	463.27	459.73	435.64	437.09	414.97	27.63	26.18	48.30
	11/14/2016	463.27	459.73	436.29	436.10	414.97	26.98	27.17	48.30
	2/13/2017	463.27	459.73	439.81	439.39	414.97	23.46	23.88	48.30
	5/2/2017	463.27	459.73	445.49	446.90	414.97	17.78	16.37	48.30
	8/24/2017	463.27	459.73	434.12	434.03	414.97	29.15	29.24	48.30
	11/8/2017	463.27	459.73	436.17	435.87	414.97	27.10	27.40	48.30
	3/6/2018	463.27	459.73	449.31	449.03	414.97	13.96	14.24	48.30
	5/18/2018	463.27	459.73	437.40	439.02	414.97	25.87	24.25	48.30
	8/10/2018	463.27	459.73	433.15	432.73	414.97	30.12	30.54	48.30
	10/29/2018	463.27	459.73	434.90	434.89	414.97	28.37	28.38	48.30
	2/25/2019	463.27	459.73	445.39	445.39	414.97	17.88	17.88	48.30
	4/29/2019	463.27	459.73	443.29	444.52	414.97	19.98	18.75	48.30
	8/26/2019	463.27	459.73	434.73	434.62	414.97	28.54	28.65	48.30
	11/11/2019	463.27	459.73	445.13	444.69	414.97	18.14	18.58	48.30
	2/24/2020	463.27	459.73	441.63	441.63	414.97	21.64	21.64	48.30
	4/27/2020	463.27	459.73	441.37	441.37	414.97	21.90	21.90	48.30
	8/10/2020	463.27	459.73	436.12	435.87	414.97	27.15	27.40	48.30
	12/7/2020	463.27	459.73	433.43	435.87	414.97	29.84	27.40	48.30
	2/22/2021	463.27	459.73	435.18	435.12	414.97	28.09	28.15	48.30
MW-08	5/11/2015	471.73	468.70	446.25	446.25	438.21	25.48	25.48	33.52
	8/18/2015	471.73	468.70	448.48	448.50	438.21	23.25	23.23	33.52
	11/16/2015	471.73	468.70	445.67	445.66	438.21	26.06	26.07	33.52
	2/22/2016	471.75	468.75	447.76	447.62	438.23	23.99	24.13	33.52
	5/16/2016	471.75	468.75	446.27	446.28	438.23	25.48	25.47	33.52
	8/15/2016	471.75	468.75	448.14	448.14	438.23	23.61	23.61	33.52
	11/14/2016	471.75	468.75	447.44	447.52	438.23	24.31	24.23	33.52
	2/13/2017	471.75	468.75	447.78	447.74	438.23	23.97	24.01	33.52
	5/2/2017	471.75	468.75	448.47	448.62	438.23	23.28	23.13	33.52
	8/29/2017	471.75	468.75	447.23	447.14	438.23	24.52	24.61	33.52
	11/8/2017	471.75	468.75	446.48	446.52	438.23	25.27	25.23	33.52
	3/7/2018	471.75	468.75	447.71	447.89	438.23	24.04	23.86	33.52
	5/17/2018	471.75	468.75	447.39	447.41	438.23	24.36	24.34	33.52
	8/8/2018	471.75	468.75	447.71	447.81	438.23	24.04	23.94	33.52
	10/31/2018	471.75	468.75	446.83	446.81	438.23	24.92	24.94	33.52
	2/25/2019	471.75	468.75	447.62	447.60	438.23	24.13	24.15	33.52
	4/29/2019	471.75	468.75	447.47	447.55	438.23	24.28	24.20	33.52
	8/26/2019	471.75	468.75	447.85	447.80	438.23	23.90	23.95	33.52
	11/11/2019	471.75	468.75	447.51	447.65	438.23	24.24	24.10	33.52
	2/24/2020	471.75	468.75	447.19	447.19	438.23	24.56	24.56	33.52
	4/27/2020	471.75	468.75	447.25	447.25	438.23	24.50	24.50	33.52
	8/10/2020	471.75	468.75	447.41	447.35	438.23	24.34	24.40	33.52
	12/7/2020	471.75	468.75	446.40	447.35	438.23	25.35	24.40	33.52
	2/22/2021	471.75	468.75	447.05	447.05	438.23	24.70	24.70	33.52

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

Well ID	Date	Top of Casing (TOC) Elevation (ft above MSL)	Ground Elevation (ft above MSL)	Groundwater Elevation (ft above MSL)	Sampling Groundwater Elevation (ft above MSL)	Bottom of Well Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Sampling Depth to Groundwater (ft below TOC)	Depth to Bottom of Well (ft below TOC)
MW-09	5/12/2015	469.19	466.21	444.36	444.36	434.05	24.83	24.83	35.14
	8/19/2015	469.19	466.21	447.13	447.12	434.05	22.06	22.07	35.14
	11/16/2015	469.19	466.21	443.12	443.59	434.05	26.07	25.60	35.14
	2/22/2016	469.14	466.44	446.31	446.01	434.00	22.83	23.13	35.14
	5/16/2016	469.14	466.44	446.08	446.32	434.00	23.06	22.82	35.14
	8/15/2016	469.14	466.44	444.64	444.63	434.00	24.50	24.51	35.14
	11/14/2016	469.14	466.44	444.81	444.69	434.00	24.33	24.45	35.14
	2/13/2017	469.14	466.44	445.71	445.60	434.00	23.43	23.54	35.14
	5/3/2017	469.14	466.44	448.37	448.74	434.00	20.77	20.40	35.14
	8/25/2017	469.14	466.44	444.35	444.02	434.00	24.79	25.12	35.14
	11/8/2017	469.14	466.44	443.40	443.30	434.00	25.74	25.84	35.14
	3/7/2018	469.14	466.44	447.09	447.25	434.00	22.05	21.89	35.14
	5/16/2018	469.14	466.44	445.25	445.19	434.00	23.89	23.95	35.14
	8/8/2018	469.14	466.44	443.65	443.56	434.00	25.49	25.58	35.14
	11/1/2018	469.14	466.44	443.12	443.15	434.00	26.02	25.99	35.14
	2/25/2019	469.14	466.44	447.64	447.74	434.00	21.50	21.40	35.14
	4/29/2019	469.14	466.44	447.84	448.45	434.00	21.30	20.69	35.14
	8/26/2019	469.14	466.44	445.34	445.19	434.00	23.80	23.95	35.14
	11/11/2019	469.14	466.44	447.83	447.76	434.00	21.31	21.38	35.14
	2/24/2020	469.14	466.44	447.15	447.15	434.00	21.99	21.99	35.14
	4/27/2020	469.14	466.44	447.34	447.34	434.00	21.80	21.80	35.14
	8/10/2020	469.14	466.44	445.59	445.42	434.00	23.55	23.72	35.14
	12/7/2020	469.14	466.44	442.95	445.42	434.00	26.19	23.72	35.14
	2/22/2021	469.14	466.44	443.06	442.30	434.00	26.08	26.84	35.14
MW-10	5/14/2015	457.39	454.09	442.44	442.44	424.89	14.95	14.95	32.50
	8/18/2015	457.39	454.09	443.57	443.56	424.89	13.82	13.83	32.50
	11/16/2015	457.39	454.09	439.17	439.68	424.89	18.22	17.71	32.50
	2/22/2016	457.31	453.97	443.08	443.08	424.81	14.23	14.23	32.50
	5/16/2016	457.31	453.97	443.57	443.85	424.81	13.74	13.46	32.50
	8/15/2016	457.31	453.97	441.30	441.41	424.81	16.01	15.90	32.50
	11/14/2016	457.31	453.97	441.82	441.67	424.81	15.49	15.64	32.50
	2/13/2017	457.31	453.97	443.60	443.42	424.81	13.71	13.89	32.50
	5/2/2017	457.31	453.97	446.68	446.96	424.81	10.63	10.35	32.50
	8/24/2017	457.31	453.97	440.92	440.89	424.81	16.39	16.42	32.50
	11/9/2017	457.31	453.97	440.45	440.13	424.81	16.86	17.18	32.50
	3/7/2018	457.31	453.97	447.78	447.89	424.81	9.53	9.42	32.50
	5/16/2018	457.31	453.97	442.43	442.43	424.81	14.88	14.88	32.50
	8/8/2018	457.31	453.97	439.43	439.28	424.81	17.88	18.03	32.50
	10/30/2018	457.31	453.97	440.27	440.22	424.81	17.04	17.09	32.50
	2/25/2019	457.31	453.97	446.03	446.11	424.81	11.28	11.20	32.50
	4/29/2019	457.31	453.97	445.43	446.33	424.81	11.88	10.98	32.50
	8/26/2019	457.31	453.97	441.42	441.42	424.81	15.89	15.89	32.50
	11/11/2019	457.31	453.97	445.92	445.86	424.81	11.39	11.45	32.50
	2/24/2020	457.31	453.97	444.67	444.67	424.81	12.64	12.64	32.50
	4/27/2020	457.31	453.97	444.56	444.56	424.81	12.75	12.75	32.50
	8/10/2020	457.31	453.97	441.95	441.86	424.81	15.36	15.45	32.50
	12/7/2020	457.31	453.97	439.51	441.86	424.81	17.80	15.45	32.50
	2/22/2021	457.31	453.97	440.06	440.09	424.81	17.25	17.22	32.50
MW-11	5/12/2015	471.59	468.07	442.91	442.92	427.89	28.68	28.67	43.70
	8/19/2015	471.59	468.07	443.15	443.12	427.89	28.44	28.47	43.70
	11/16/2015	471.59	468.07	439.92	440.81	427.89	31.67	30.78	43.70
	2/22/2016	471.62	468.04	443.28	442.89	427.92	28.34	28.73	43.70
	5/16/2016	471.62	468.04	444.51	444.98	427.92	27.11	26.64	43.70
	8/15/2016	471.62	468.04	441.98	442.02	427.92	29.64	29.60	43.70
	11/14/2016	471.62	468.04	442.43	442.21	427.92	29.19	29.41	43.70
	2/13/2017	471.62	468.04	444.13	443.91	427.92	27.49	27.71	43.70
	5/3/2017	471.62	468.04	447.28	448.50	427.92	24.34	23.12	43.70
	8/29/2017	471.62	468.04	441.20	441.22	427.92	30.42	30.40	43.70
	11/9/2017	471.62	468.04	441.35	441.03	427.92	30.27	30.59	43.70
	3/8/2018	471.62	468.04	448.27	448.06	427.92	23.35	23.56	43.70
	5/16/2018	471.62	468.04	443.04	443.05	427.92	28.58	28.57	43.70
	8/9/2018	471.62	468.04	440.58	440.30	427.92	31.04	31.32	43.70
	11/1/2018	471.62	468.04	440.80	440.82	427.92	30.82	30.80	43.70
	2/25/2019	471.62	468.04	446.72	446.92	427.92	24.90	24.70	43.70
	4/29/2019	471.62	468.04	446.24	447.04	427.92	25.38	24.58	43.70
	8/26/2019	471.62	468.04	442.27	442.12	427.92	29.35	29.50	43.70
	11/11/2019	471.62	468.04	446.74	446.67	427.92	24.88	24.95	43.70
	2/24/2020	471.62	468.04	445.36	445.36	427.92	26.26	26.26	43.70
	4/27/2020	471.62	468.04	445.27	445.27	427.92	26.35	26.35	43.70
	8/10/2020	471.62	468.04	442.68	442.57	427.92	28.94	29.05	43.70
	12/7/2020	471.62	468.04	440.27	442.57	427.92	31.35	29.05	43.70
	2/22/2021	471.62	468.04	440.84	440.97	427.92	30.78	30.65	41.70
MW-12	5/12/2015	473.38	470.00	450.63	450.63	440.79	22.75	22.75	32.59
	8/19/2015	473.38	470.00	451.05	451.03	440.79	22.33	22.35	32.59
	11/16/2015	473.38	470.00	448.90	448.92	440.79	24.48	24.46	32.59
	2/22/2016	473.38	470.34	451.97	449.91	440.79	21.41	23.47	32.59
	5/16/2016	473.38	470.34	450.44	450.42	440.79	22.94	22.96	32.59
	8/15/2016	473.38	470.34	449.53	449.62	440.79	23.85	23.76	32.59
	11/14/2016	473.38	470.34	449.49	449.47	440.79	23.89	23.91	32.59
	2/13/2017	473.38	470.34	451.45	451.52	440.79	21.93	21.86	32.59
	5/3/2017	473.38	470.34	451.12	451.15	440.79	22.26	22.23	32.59
	8/29/2017	473.38	470.34	449.46	448.43	440.79	23.92	24.95	32.59
	11/10/2017	473.38	470.34	449.09	449.07	440.79	24.29	24.31	32.59
	3/8/2018	473.38	470.34	451.36	451.32	440.79	22.02	22.06	32.59
	5/16/2018	473.38	470.34	450.92	450.93	440.79	22.46	22.45	32.59
	8/9/2018	473.38	470.34	449.60	449.64	440.79	23.78	23.74	32.59
	11/1/2018	473.38	470.34	449.64	449.64	440.79	23.74	23.74	32.59
	2/25/2019	473.38	470.34	451.99	452.03	440.79	21.39	21.35	32.59
	4/29/2019	473.38	470.34	451.33	451.31	440.79	22.05	22.07	32.59
	8/26/2019	473.38	470.34	450.05	449.93	440.79	23.33	23.45	32.59
	11/11/2019	473.38	470.34	450.53	450.58	440.79	22.85	22.80	32.59
	2/24/2020	473.38	470.34	452.77	452.77	440.79	20.61	20.61	32.59
	4/27/2020	473.38	470.34	451.94	451.94	440.79	21.44	21.44	32.59
	8/10/2020	473.38	470.34	449.73	449.66	440.79	23.65	23.72	32.59
	12/7/2020	473.38	470.34	450.68	449.66	440.79	22.70	23.72	32.59
	2/22/2021	473.38	470.34	452.38	452.30	440.79	21.00	21.08	32.59

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

Well ID	Date	Top of Casing (TOC) Elevation (ft above MSL)	Ground Elevation (ft above MSL)	Groundwater Elevation (ft above MSL)	Sampling Groundwater Elevation (ft above MSL)	Bottom of Well Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Sampling Depth to Groundwater (ft below TOC)	Depth to Bottom of Well (ft below TOC)
MW-13	5/13/2015	470.94	467.65	442.61	442.15	427.85	28.33	28.79	43.09
	8/19/2015	470.94	467.65	439.23	438.72	427.85	31.71	32.22	43.09
	11/16/2015	470.94	467.65	437.71	437.76	427.85	33.23	33.18	43.09
	2/22/2016	470.94	467.79	439.98	439.85	427.85	30.96	31.09	43.09
	5/16/2016	470.94	467.79	443.55	443.95	427.85	27.39	26.99	43.09
	8/15/2016	470.94	467.79	439.59	439.71	427.85	31.35	31.23	43.09
	11/14/2016	470.94	467.79	440.30	439.82	427.85	30.64	31.12	43.09
	2/13/2017	470.94	467.79	442.76	442.15	427.85	28.18	28.79	43.09
	5/4/2017	470.94	467.79	446.10	449.38	427.85	24.84	21.56	43.09
	8/24/2017	470.94	467.79	439.19	438.96	427.85	31.75	31.98	43.09
	11/9/2017	470.94	467.79	440.13	439.32	427.85	30.81	31.62	43.09
	3/7/2018	470.94	467.79	449.90	448.99	427.85	21.04	21.95	43.09
	5/16/2018	470.94	467.79	441.05	440.95	427.85	29.89	29.99	43.09
	8/9/2018	470.94	467.79	438.43	438.01	427.85	32.51	32.93	43.09
	10/31/2018	470.94	467.79	438.80	438.54	427.85	32.14	32.40	43.09
	2/25/2019	470.94	467.79	446.24	446.41	427.85	24.70	24.53	43.09
	4/29/2019	470.94	467.79	444.99	445.74	427.85	25.95	25.20	43.09
	8/26/2019	470.94	467.79	439.62	439.54	427.85	31.32	31.40	43.09
	11/11/2019	470.94	467.79	446.29	446.29	427.85	24.65	24.65	43.09
	2/24/2020	470.94	467.79	443.74	443.74	427.85	27.20	27.20	43.09
	4/27/2020	470.94	467.79	443.15	443.15	427.85	27.79	27.79	43.09
	8/10/2020	470.94	467.79	441.09	439.49	427.85	29.85	31.45	43.09
	12/7/2020	470.94	467.79	437.93	439.49	427.85	33.01	31.45	43.09
	2/22/2021	470.94	467.79	439.00	438.28	427.85	31.94	32.66	43.09
MW-14	5/13/2015	470.79	467.67	446.82	446.41	439.32	23.97	24.38	31.47
	8/19/2015	470.79	467.67	448.13	448.08	439.32	22.66	22.71	31.47
	11/16/2015	470.79	467.67	445.55	444.53	439.32	25.24	26.26	31.47
	2/22/2016	470.90	467.73	448.77	447.59	439.43	22.13	23.31	31.47
	5/16/2016	470.90	467.73	446.31	445.86	439.43	24.59	25.04	31.47
	8/15/2016	470.90	467.73	447.12	446.98	439.43	23.78	23.92	31.47
	11/14/2016	470.90	467.73	446.79	446.48	439.43	24.11	24.42	31.47
	2/13/2017	470.90	467.73	446.96	446.88	439.43	23.94	24.02	31.47
	5/4/2017	470.90	467.73	447.49	448.77	439.43	23.41	22.13	31.47
	8/29/2017	470.90	467.73	446.49	446.45	439.43	24.41	24.45	31.47
	11/9/2017	470.90	467.73	445.03	444.98	439.43	25.87	25.92	31.47
	3/7/2018	470.90	467.73	450.14	449.68	439.43	20.76	21.22	31.47
	5/17/2018	470.90	467.73	446.96	446.81	439.43	23.94	24.09	31.47
	8/9/2018	470.90	467.73	446.51	446.32	439.43	24.39	24.58	31.47
	10/31/2018	470.90	467.73	446.04	445.63	439.43	24.86	25.27	31.47
	2/25/2019	470.90	467.73	447.12	447.27	439.43	23.78	23.63	31.47
	4/29/2019	470.90	467.73	447.22	447.05	439.43	23.68	23.85	31.47
	8/26/2019	470.90	467.73	447.40	447.30	439.43	23.50	23.60	31.47
	11/11/2019	470.90	467.73	447.21	447.20	439.43	23.69	23.70	31.47
	2/24/2020	470.90	467.73	446.95	446.95	439.43	23.95	23.95	31.47
	4/27/2020	470.90	467.73	446.93	446.93	439.43	23.97	23.97	31.47
	8/10/2020	470.90	467.73	447.08	446.65	439.43	23.82	24.25	31.47
	12/7/2020	470.90	467.73	444.45	446.65	439.43	26.45	24.25	31.47
	2/22/2021	470.90	467.73	445.47	445.47	439.43	25.43	25.43	31.47
MW-15	5/14/2015	471.38	468.26	446.70	446.70	439.91	24.68	24.68	31.47
	8/19/2015	471.38	468.26	449.21	449.21	439.91	22.17	22.17	31.47
	11/16/2015	471.38	468.26	446.05	445.96	439.91	25.33	25.42	31.47
	2/22/2016	471.37	468.29	448.46	448.31	439.90	22.91	23.06	31.47
	5/16/2016	471.37	468.29	446.66	446.64	439.90	24.71	24.73	31.47
	8/15/2016	471.37	468.29	447.92	447.92	439.90	23.45	23.45	31.47
	11/14/2016	471.37	468.29	447.43	447.38	439.90	23.94	23.99	31.47
	2/13/2017	471.37	468.29	447.64	447.63	439.90	23.73	23.74	31.47
	5/4/2017	471.37	468.29	448.10	448.25	439.90	23.27	23.12	31.47
	8/29/2017	471.37	468.29	448.24	447.18	439.90	23.13	24.19	31.47
	11/10/2017	471.37	468.29	446.24	446.28	439.90	25.13	25.09	31.47
	3/7/2018	471.37	468.29	447.42	447.69	439.90	23.95	23.68	31.47
	5/17/2018	471.37	468.29	447.52	447.48	439.90	23.85	23.89	31.47
	8/9/2018	471.37	468.29	447.41	447.43	439.90	23.96	23.94	31.47
	10/31/2018	471.37	468.29	446.82	446.78	439.90	24.55	24.59	31.47
	2/25/2019	471.37	468.29	447.59	447.65	439.90	23.78	23.72	31.47
	4/29/2019	471.37	468.29	447.80	447.86	439.90	23.57	23.51	31.47
	8/26/2019	471.37	468.29	448.15	448.07	439.90	23.22	23.30	31.47
	11/11/2019	471.37	468.29	447.58	447.57	439.90	23.79	23.80	31.47
	2/24/2020	471.37	468.29	447.38	447.38	439.90	23.99	23.99	31.47
	4/27/2020	471.37	468.29	447.42	447.42	439.90	23.95	23.95	31.47
	8/10/2020	471.37	468.29	447.67	447.59	439.90	23.70	23.78	31.47
	12/7/2020	471.37	468.29	446.36	447.59	439.90	25.01	23.78	31.47
	2/22/2021	471.37	468.29	446.63	446.42	439.90	24.74	24.95	31.47
MW-16	5/12/2015	471.56	468.26	444.54	444.54	434.27	27.02	27.02	37.29
	8/18/2015	471.56	468.26	448.73	448.72	434.27	22.83	22.84	37.29
	11/16/2015	471.56	468.26	443.93	443.94	434.27	27.63	27.62	37.29
	2/24/2016	471.55	469.32	447.43	447.43	434.26	24.12	24.12	37.29
	5/16/2016	471.55	469.32	446.46	446.47	434.26	25.09	25.08	37.29
	8/15/2016	471.55	469.32	445.13	445.06	434.26	26.42	26.49	37.29
	11/14/2016	471.55	469.32	445.28	445.19	434.26	26.27	26.36	37.29
	2/13/2017	471.55	469.32	446.17	446.11	434.26	25.38	25.44	37.29
	5/2/2017	471.55	469.32	448.25	448.33	434.26	23.30	23.22	37.29
	8/23/2017	471.55	469.32	444.44	443.75	434.26	27.11	27.80	37.29
	11/9/2017	471.55	469.32	444.06	444.05	434.26	27.49	27.50	37.29
	3/8/2018	471.55	469.32	445.99	446.78	434.26	25.56	24.77	37.29
	5/17/2018	471.55	469.32	445.91	445.75	434.26	25.64	25.80	37.29
	8/8/2018	471.55	469.32	444.36	444.36	434.26	27.19	27.19	37.29
	10/31/2018	471.55	469.32	443.83	443.83	434.26	27.72	27.72	37.29
	2/25/2019	471.55	469.32	447.95	448.05	434.26	23.60	23.50	37.29
	4/29/2019	471.55	469.32	448.58	448.80	434.26	22.97	22.75	37.29
	8/26/2019	471.55	469.32	446.05	446.45	434.26	25.50	25.10	37.29
	11/11/2019	471.55	469.32	448.45	448.45	434.26	23.10	23.10	37.29
	2/24/2020	471.55	469.32	447.96	447.96	434.26	23.59	23.59	37.29
	4/27/2020	471.55	469.32	448.05	448.05	434.26	23.50	23.50	37.29
	8/10/2020	471.55	469.32	446.85	446.73	434.26	24.70	24.82	37.29
	12/7/2020	471.55	469.32	443.86	446.73	434.26	27.69	24.82	37.29
	2/22/2021	471.55	469.32	443.95	443.92	434.26	27.60	27.63	37.29

Note: Values for Depth to Bottom of Well are from prior to the installation of the dedicated pumps

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL.

Sample: MW-01	Date	2/25/2019		4/30/2019		8/27/2019		11/13/2019		2/24/2020		5/19/2020		8/10/2020		12/7/2020		2/23/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	0.0086	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.045	0.0025	0.036	0.0025	0.056	0.0025	0.05	0.0025	0.042	0.0025	0.059	0.0025	0.057	0.0025	0.058	0.0025	0.046
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND ^I+	0.001	ND ^+
Boron	2	0.05	0.057	0.05	0.061	0.05	0.53	0.05	0.53	0.05	0.24	0.5	2	0.25	0.82	0.05	0.53	0.05	0.34
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND ^	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	2	67	2	55	2	38	2	46	2	54	10	36	2	39	2	53	4	61
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	0.0064 *	0.005	ND
Fluoride	4	0.1	0.15	0.1	0.16	0.1	0.13	0.1	0.2	0.1	0.24	0.1	0.17	0.1	0.17	0.1	0.26	0.1	0.18
Iron	5	0.1	ND	0.1	ND	0.1	ND	0.1	0.35	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.0059	0.0025	ND	0.0025	ND	0.0025	0.013	0.0025	0.0029	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	0.008
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	4.6	0.1	3.8	0.1	5.1	0.1	5.7	0.1	4.5	0.1	2.4	0.1	1.3	0.1	8.4	0.1	5.5
Nitrogen/Nitrate, Nitrite	NA	0.5	4.6	0.5	3.8	0.5	5.1	0.5	5.7 ^	0.5	4.5	0.5	2.4	0.1	1.3	0.5	8.4	0.5	5.5
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	0.0054	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	25	33	5	28	5	89	5	46	5	32	25	98 H	25	64	15	57 F1	10	41
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	470	10	410	10	580	10	380	10	410	10	500	30	440	10	420	10	430
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND ^	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.32	NA	7.20	NA	7.15	NA	7.51	NA	7.19	NA	7.10	NA	6.86	NA	7.22	NA	7.52
Temperature	NA	NA	5.80	NA	6.10	NA	12.10	NA	16.07	NA	9.90	NA	10.00	NA	13.90	NA	11.90	NA	5.70
Conductivity	NA	NA	0.85	NA	0.47	NA	0.14	NA	0.69	NA	0.28	NA	0.76	NA	0.82	NA	0.86	NA	0.55
Dissolved Oxygen	NA	NA	9.35	NA	7.43	NA	3.51	NA	2.88	NA	4.50	NA	3.28	NA	5.33	NA	4.36	NA	8.66
ORP	NA	NA	66.1	NA	119.1	NA	110.7	NA	-48	NA	52.7	NA	73.9	NA	139.9	NA	-4.8	NA	37.3

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620,
Subpart D, Section 620.410 - Groundwater Quality Standards for
Class I: Potable Resource Groundwater
All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits
F2 - MS/MSD RPD exceeds control limits.
^I+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation

Electronic Filing: Received, Clerk's Office 06/25/2021

Sample: MW-02	Date	2/26/2019		4/30/2019		8/27/2019		11/12/2019		2/24/2020		5/19/2020		8/10/2020		12/9/2020		2/22/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	0.0036	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.0012	0.001	0.0017	0.001	ND	0.001	0.0011	0.001	ND	0.001	0.0012	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.038	0.0025	0.046	0.0025	0.066	0.0025	0.066	0.0025	0.061	0.0025	0.057	0.0025	0.078	0.0025	0.071	0.0025	0.054
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.064	0.05	0.13	0.05	0.49	0.05	0.43	0.05	0.3	0.05	0.33	0.25	1.1	0.05	0.56	0.05	0.25
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND ^	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	2	51	2	51	2	49	2	46	2	55	10	47	2	42	2	43	4	44
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	0.16	0.1	0.18	0.1	0.17	0.1	0.19	0.1	0.23	0.1	0.2	0.1	0.22	0.1	0.15	0.1	0.15
Iron	5	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND F1	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	3.7	0.1	1.2	0.1	0.71	0.1	2.4	0.1	2.1	0.1	4.1	0.1	6.3	0.1	9.5	0.1	7.9
Nitrogen/Nitrate, Nitrite	NA	0.5	3.7	0.1	1.2	0.1	0.71	0.5	2.4	0.5	2.1	0.5	4.1	1	6.3	0.5	9.5	0.5	7.9
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND ^1+
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND F2	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	1	24	5	30	5	38	5	43	5	39	5	37 H	25	68	15	65	15	51
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND F1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	400	10	440	10	420	10	420	10	380	10	390	30	450	10	340	10	540
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND ^	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.82	NA	7.60	NA	7.13	NA	7.66	NA	7.43	NA	7.33	NA	6.96	NA	7.78	NA	7.65
Temperature	NA	NA	1.60	NA	4.90	NA	15.20	NA	13.75	NA	6.80	NA	10.10	NA	17.90	NA	9.50	NA	2.40
Conductivity	NA	NA	0.70	NA	0.48	NA	0.13	NA	0.71	NA	0.33	NA	0.64	NA	0.84	NA	0.84	NA	0.50
Dissolved Oxygen	NA	NA	8.28	NA	4.19	NA	0.45	NA	0.61	NA	1.11	NA	0.55	NA	1.03	NA	5.30	NA	11.49
ORP	NA	NA	91.4	NA	116.0	NA	108.7	NA	-65.1	NA	44.5	NA	60.2	NA	135.3	NA	168.3	NA	140.7

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620 410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm'	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-03	Date	2/26/2019		4/30/2019		8/26/2019		11/12/2019		2/24/2020		5/19/2020		8/10/2020		12/9/2020		2/22/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.0030	ND	0.0030	ND	0.0030	ND	0.0030	ND	0.0030	ND	0.0030	ND	0.0030	ND	0.0030	ND	0.0030	ND
Arsenic	0.01	0.001	ND	0.001	0.0011	0.001	ND	0.001	0.0012	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.049	0.0025	0.058	0.0025	0.071	0.0025	0.075	0.0025	0.063	0.0025	0.053	0.0025	0.056	0.0025	0.081	0.0025	0.088
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	ND	0.05	0.27	0.05	0.28	0.05	0.3	0.05	0.3	0.05	0.15	0.05	0.49	0.05	0.76	0.05	0.6
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND ^	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	2	56	2	48	2	51	2	50	2	53	10	49	2	47	2	44	4	53
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	0.25	0.1	0.23	0.1	0.25	0.1	0.27	0.1	0.25	0.1	0.3	0.1	0.26	0.1	0.29	0.1	0.24
Iron	5	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	ND	0.0025	ND	0.0025	0.014	0.0025	0.0036	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	3.7	0.1	0.22	0.1	ND	0.1	0.46	0.1	ND	0.1	4.6	0.1	0.39	0.1	4.3	0.1	6.1
Nitrogen/Nitrate, Nitrite	NA	0.5	3.7	0.1	0.22	0.1	ND	0.1	0.46	0.1	ND	0.5	4.6	0.1	0.39	0.5	4.3	0.5	6.1
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND ^1+
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	0.0032
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	25	27	5	39	5	15	5	32	5	71	5	34	5	43	25	59	25	54
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	400	10	420	10	420	10	390	10	410	10	340	30	350	10	410	10	520
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND ^	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BTEX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.49	NA	7.17	NA	7.17	NA	7.55	NA	7.10	NA	7.09	NA	7.00	NA	7.46	NA	7.34
Temperature	NA	NA	2.80	NA	10.50	NA	25.0	NA	19.0	NA	10.0	NA	12.0	NA	21.5	NA	17.8	NA	13.9
Conductivity	NA	NA	0.72	NA	0.44	NA	0.73	NA	0.72	NA	0.71	NA	0.19	NA	0.42	NA	0.25	NA	0.68
Dissolved Oxygen	NA	NA	8.66	NA	4.53	NA	0.24	NA	0.43	NA	0.30	NA	3.61	NA	0.28	NA	1.15	NA	1.12
ORP	NA	NA	116.4	NA	117.8	NA	30.3	NA	-50.3	NA	147.8	NA	53.2	NA	77.8	NA	148.9	NA	148.2

Notes: Standards obtained from IAC, Title 35, Chapter 1, Part 620,
Subpart D, Section 620.410 - Groundwater Quality Standards for
Class I: Potable Resource Groundwater
All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL.

Sample: MW-04	Date	2/26/2019		4/30/2019		8/26/2019		11/12/2019		2/24/2020		4/28/2020		8/10/2020		12/9/2020		2/22/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.025	0.0025	0.024	0.0025	0.034	0.0025	0.028	0.0025	0.024	0.0025	0.024	0.0025	0.03	0.0025	0.033	0.0025	0.032
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.35	0.05	0.37	0.05	0.58	0.05	0.25	0.05	0.32	0.05	0.52	0.05	0.69	0.05	0.5	0.05	0.47
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	2	55	2	47	2	58	2	53	2	51	2	50	2	56	10	88	6	62
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	0.26	0.1	0.25	0.1	0.24	0.1	0.27	0.1	0.22	0.1	0.25	0.1	0.25	0.1	0.32	0.1	0.31
Iron	5	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.033	0.0025	ND	0.0025	0.086	0.0025	0.1	0.0025	0.041	0.0025	0.0098	0.0025	0.024	0.0025	0.22	0.0025	0.059
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	0.0022	0.002	ND
Nitrogen/Nitrate	10	0.1	0.18	0.1	ND	0.1	ND	0.1	ND	0.1	0.1	0.1	ND	0.1	ND	0.1	0.23	0.1	0.36
Nitrogen/Nitrate, Nitrite	NA	0.1	0.18	0.1	ND	0.1	ND	0.1	ND	0.1	0.1	0.1	ND	0.1	ND	0.1	0.23	0.1	0.36
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND ^1+
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND ^	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	50	59	5	36	5	15	5	66	5	71	5	54 ^	5	23	15	97	15	86
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	450	10	380	10	520	10	440	10	390	10	380	30	420	10	530	10	560
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND ^	0.02	0.035	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.18	NA	7.08	NA	7.08	NA	7.78	NA	7.05	NA	7.03	NA	6.92	NA	7.10	NA	7.23
Temperature	NA	NA	8.90	NA	11.70	NA	25.10	NA	18.93	NA	6.70	NA	12.50	NA	23.60	NA	16.60	NA	13.20
Conductivity	NA	NA	0.83	NA	0.44	NA	0.91	NA	0.72	NA	0.65	NA	0.23	NA	0.77	NA	0.19	NA	0.73
Dissolved Oxygen	NA	NA	1.00	NA	2.32	NA	3.98	NA	6.90	NA	2.92	NA	2.51	NA	5.96	NA	1.92	NA	4.10
ORP	NA	NA	107.7	NA	117.8	NA	15.9	NA	-56.0	NA	138.9	NA	62.1	NA	111.5	NA	60.5	NA	143.4

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm'	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation

Sample: MW-05	Date	2/26/2019		4/30/2019		8/26/2019		11/12/2019		2/24/2020		4/28/2020		8/10/2020		12/9/2020		2/22/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.054	0.0025	0.041	0.0025	0.053	0.0025	0.049	0.0025	0.055	0.0025	0.05	0.0025	0.059	0.0025	0.048	0.0025	0.045
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.56	0.05	0.6	0.05	0.47	0.05	0.56	0.05	0.52	0.05	0.48	0.05	0.68	0.05	0.46	0.05	0.53
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	87	2	74	10	78	2	72	2	80	2	56	2	70	10	80	6	70
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	0.0039	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	0.0069
Fluoride	4	0.1	0.34	0.1	0.37	0.1	0.29	0.1	0.35	0.1	0.39	0.1	0.37	0.1	0.26	0.1	0.31	0.1	0.33
Iron	5	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.0076	0.0025	0.039	0.0025	0.037	0.0025	0.053	0.0025	0.028	0.0025	0.03	0.0025	0.042	0.0025	0.04	0.0025	0.0084
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	0.00047	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	0.0025	0.002	0.0022	0.002	0.0026	0.002	0.0022	0.002	0.0023	0.002	0.0022	0.002	ND
Nitrogen/Nitrate	10	0.1	0.48	0.1	0.24	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	0.33
Nitrogen/Nitrate, Nitrite	NA	0.1	0.48	0.1	0.24	0.1	ND	0.1	ND	0.1	0.1	0.1	ND	0.1	ND	0.1	ND	0.1	0.33
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND ^1+
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND ^	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	130	140	5	130	5	140	5	120	5	140	5	130 ^	25	92	15	110	25	110
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	660	10	590	10	660	10	590	10	660	10	600	30	650	10	580	10	650
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND ^	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	6.99	NA	6.96	NA	7.01	NA	7.85	NA	6.90	NA	6.87	NA	6.79	NA	6.91	NA	7.14
Temperature	NA	NA	14.50	NA	14.40	NA	17.70	NA	15.40	NA	14.20	NA	13.50	NA	16.70	NA	15.00	NA	15.60
Conductivity	NA	NA	1.13	NA	0.62	NA	0.15	NA	0.96	NA	0.34	NA	0.26	NA	1.12	NA	0.19	NA	0.86
Dissolved Oxygen	NA	NA	0.10	NA	0.21	NA	0.35	NA	0.51	NA	0.21	NA	0.23	NA	0.20	NA	0.21	NA	1.12
ORP	NA	NA	109.7	NA	116.4	NA	139.4	NA	-58.1	NA	40.3	NA	17.0	NA	-0.9	NA	56.3	NA	146.2

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater
All values are in mg/L (ppm) unless otherwise noted

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
* - Denotes instrument related QC exceeds the control limits
F1- MS and/or MSD Recovery outside of limits
F2- MS/MSD RPD exceeds control limits
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation [illegible]

Sample: MW-06	Date	2/25/2019		5/1/2019		8/27/2019		11/12/2019		2/25/2020		4/27/2020		8/11/2020		12/9/2020		2/23/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	ND	0.001	0.0017	0.001	0.0023	0.001	0.0022	0.001	ND	0.001	ND ^	0.001	0.0016	0.001	0.0017	0.001	0.0011
Barium	2	0.0025	0.071	0.0025	0.073	0.0025	0.081	0.0025	0.07	0.0025	0.055	0.0025	0.063	0.0025	0.062	0.0025	0.052	0.0025	0.049
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.24	0.05	0.33	0.05	0.35	0.05	0.26	0.05	0.22	0.05	0.31	0.05	0.49	0.05	0.23	0.05	0.25
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	170	10	180	10	160	10	150	10	150	10	140	10	140	10	140	10	130
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	0.43	0.1	0.42	0.1	0.49	0.1	0.51	0.1	0.46	0.1	0.42	0.1	0.47	0.1	0.57	0.1	0.41
Iron	5	0.1	1.2	0.1	1.8	0.1	1.1	0.1	0.87	0.1	1.4	0.1	1.1	0.1	0.65	0.1	1.2	0.1	1
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.78	0.0025	1.1	0.0025	0.77	0.0025	0.73	0.0025	0.7	0.0025	0.7	0.0025	0.57	0.0025	0.57	0.0025	0.66
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	0.0036	0.0025	ND	0.0025	ND	0.0025	0.0063	0.0025	ND	0.0025	0.012	0.0025	0.0025	0.0025	ND	0.0025	0.0069
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	20	350	20	390	20	360 F1	20	280	20	280	50	400	100	280	50	220	50	240
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	1000	10	1100	10	970	10	920	10	830	10	1200	30	790	10	640	10	790
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11,705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.55	NA	7.36	NA	7.52	NA	8.03	NA	7.76	NA	7.52	NA	7.50	NA	7.65	NA	7.90
Temperature	NA	NA	12.10	NA	12.40	NA	22.80	NA	18.25	NA	10.50	NA	11.90	NA	18.90	NA	16.00	NA	10.70
Conductivity	NA	NA	1.60	NA	1.02	NA	1.50	NA	1.35	NA	1.21	NA	0.34	NA	0.66	NA	1.21	NA	0.94
Dissolved Oxygen	NA	NA	0.75	NA	0.19	NA	0.23	NA	0.22	NA	0.22	NA	0.24	NA	0.36	NA	0.11	NA	0.34
ORP	NA	NA	-125.9	NA	-49.2	NA	-159.0	NA	-132.2	NA	-193.2	NA	-173.0	NA	-102.4	NA	-217.5	NA	-171.7

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-07	Date	2/25/2019		5/1/2019		8/27/2019		11/12/2019		2/25/2020		4/27/2020		8/11/2020		12/9/2020		2/23/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.14	0.001	0.21	0.001	0.17	0.001	0.16	0.001	0.11	0.001	0.2	0.001	0.15	0.001	0.13	0.001	0.12
Barium	2	0.0025	0.51	0.0025	0.45	0.0025	0.48	0.0025	0.44	0.0025	0.47	0.0025	0.49	0.0025	0.52	0.0025	0.49	0.0025	0.46
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.33	0.1	0.58	0.05	0.38	0.05	0.58	0.05	0.53	0.05	0.44	0.05	0.59	0.05	0.46	0.05	0.47
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	170	10	170	10	170	10	150	10	170	10	170	10	170	10	170	10	150
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	0.0058	0.001	0.0044	0.001	0.005	0.001	0.0043	0.001	0.0052	0.001	0.0052	0.001	0.0044	0.001	0.0056	0.001	0.0051
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND F1
Fluoride	4	0.1	0.41	0.1	0.45	0.1	0.37	0.1	0.44	0.1	0.44	0.1	0.44	0.1	0.31	0.1	0.5	0.1	0.48
Iron	5	0.1	11	0.1	13	0.1	19	0.1	10	0.1	14	0.1	11	0.1	20	0.1	15	0.1	12
Lead	0.0075	0.0005	0.0012	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	0.00054
Manganese	0.15	0.0025	4.9	0.005	5.9	0.013	7.5	0.013	5.3	0.013	11	0.013	5.1	0.013	7.3	0.013	5.2	0.0025	4.9
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	0.0073	0.002	0.0055	0.002	0.0053	0.002	0.0054	0.002	0.0068	0.002	0.0064	0.002	0.005	0.002	0.0064	0.002	0.0061
Nitrogen/Nitrate	10	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	0.0041	0.0025	0.0077	0.0025	ND	0.0025	0.0094	0.0025	ND	0.0025	0.011	0.0025	0.0063	0.0025	ND	0.0025	0.0035
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	2	49	5	48	5	18	5	87	5	64	5	30	25	57	15	52	10	82
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	1100	10	1100	10	1100	10	1100	10	1100	10	1100	60	1100	10	1000	10	1000
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	6.61	NA	6.58	NA	6.68	NA	7.32	NA	6.64	NA	6.58	NA	6.55	NA	6.51	NA	6.76
Temperature	NA	NA	16.20	NA	16.50	NA	18.80	NA	15.85	NA	15.50	NA	15.90	NA	16.20	NA	15.20	NA	14.80
Conductivity	NA	NA	1.96	NA	1.26	NA	2.05	NA	1.77	NA	0.42	NA	1.69	NA	0.82	NA	0.23	NA	1.64
Dissolved Oxygen	NA	NA	0.00	NA	0.25	NA	0.67	NA	0.55	NA	0.20	NA	0.31	NA	5.14	NA	0.29	NA	0.41
ORP	NA	NA	-103.7	NA	-127.6	NA	-102.7	NA	-113.0	NA	-162.0	NA	-153.6	NA	127.3	NA	-119.8	NA	-126.9

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620 410 - Groundwater Quality Standards for Class I Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
* - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation [illegible]

Sample: MW-08	Date	2/25/2019		5/1/2019		8/27/2019		11/13/2019		2/25/2020		5/19/2020		8/11/2020		12/9/2020		2/23/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.0014	0.001	0.0023	0.001	ND	0.001	0.0017	0.001	0.0011	0.001	0.0027	0.001	ND	0.001	0.0016	0.001	0.0015
Barium	2	0.0025	0.064	0.0025	0.066	0.0025	0.11	0.0025	0.072	0.0025	0.08	0.0025	0.096	0.0025	0.1	0.0025	0.12	0.0025	0.1
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.67	0.05	0.6	0.25	1.2	0.5	0.99	0.5	0.82	0.05	0.62	0.25	0.96	0.05	0.72	0.05	0.58
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND ^	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	100	2	73	10	100	10	80	10	78	10	130	10	220	10	200	10	130
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	0.36	0.1	0.35	0.1	0.22	0.1	0.34	0.1	0.35	0.1	0.37	0.1	0.26	0.1	0.38	0.1	0.36
Iron	5	0.1	0.44	0.1	1.4	0.1	0.61	0.1	1.6	0.1	2.5	0.1	3.5 ^	0.1	2.5	0.1	4	0.1	4.6
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.32	0.0025	0.35	0.0025	0.5	0.0025	0.73	0.0025	0.77	0.0025	0.65	0.0025	0.65	0.0025	0.68	0.0025	0.74
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	0.0026	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	0.12	0.1	ND	0.1	ND
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	0.12	0.1	ND	0.1	ND
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	0.0053	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	130	130	5	88	20	280	5	110	5	59	25	86 H	25	110	15	88	25	69
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	780	10	640	10	950	10	700	10	610	10	680	60	880	10	740	10	630
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.13	NA	7.60	NA	6.92	NA	7.66	NA	7.43	NA	7.40	NA	7.09	NA	7.40	NA	7.70
Temperature	NA	NA	13.30	NA	14.30	NA	15.00	NA	13.04	NA	14.10	NA	13.80	NA	14.40	NA	14.60	NA	14.30
Conductivity	NA	NA	1.42	NA	0.70	NA	1.57	NA	1.14	NA	0.34	NA	0.23	NA	0.72	NA	1.37	NA	0.98
Dissolved Oxygen	NA	NA	0.06	NA	0.13	NA	0.31	NA	0.45	NA	0.16	NA	0.24	NA	2.16	NA	0.12	NA	0.56
ORP	NA	NA	-38.6	NA	-176.8	NA	-19.3	NA	-90.5	NA	-191.8	NA	-231.6	NA	-57.9	NA	-194.7	NA	-178.0

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620,
Subpart D, Section 620.410 - Groundwater Quality Standards for
Class I: Potable Resource Groundwater
All values are in mg/L (ppm) unless otherwise noted

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1- MS and/or MSD Recovery outside of limits
F2- MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-09	Date	2/27/2019		5/1/2019		8/28/2019		11/14/2019		2/25/2020		4/29/2020		8/12/2020		12/8/2020		2/24/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.051	0.0025	0.039	0.0025	0.04	0.0025	0.044	0.0025	0.03	0.0025	0.033	0.0025	0.034	0.0025	0.037	0.0025	0.032
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	4.5	1	4.8	0.5	3.8	0.5	2.4	0.5	2.4	0.05	2.1	0.5	1.8	0.25	2.2	0.25	2.2
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	2	37	2	39	2	36	2	32	2	38	2	35	2	34	2	33	2	32
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND *	0.005	ND
Fluoride	4	0.1	0.16	0.1	0.17	0.1	0.14	0.1	0.18	0.1	0.2	0.1	0.19	0.1	0.17	0.1	0.23	0.1	0.2
Iron	5	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.19	0.0025	0.077	0.0025	0.077	0.0025	0.1	0.0025	0.1	0.0025	0.11	0.0025	0.08	0.0025	0.069	0.0025	0.096
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	2.4	0.1	6.2	0.1	4.2	0.1	2.1	0.1	ND	0.1	1.7	0.1	5.9	0.1	0.83	0.1	1
Nitrogen/Nitrate, Nitrite	NA	0.5	2.4	0.5	6.2	0.5	4.2	0.5	2.1	0.5	ND	0.1	1.7	1	5.9	0.5	0.83	0.1	1
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	0.0028	0.0025	0.005	0.0025	0.0027	0.0025	ND	0.0025	ND	0.0025	ND ^	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	10	180	10	190	5	150	5	88	5	87	5	130 ^	25	120	15	64	25	80
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	630	10	630	10	610	10	500	10	400	10	520	30	480	10	220	10	360
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.13	NA	7.11	NA	7.34	NA	7.49	NA	7.23	NA	7.19	NA	7.22	NA	7.29	NA	7.35
Temperature	NA	NA	14.80	NA	14.80	NA	13.70	NA	14.87	NA	15.10	NA	13.20	NA	12.50	NA	15.60	NA	14.50
Conductivity	NA	NA	1.03	NA	0.64	NA	0.96	NA	0.79	NA	0.67	NA	0.72	NA	0.47	NA	0.24	NA	0.62
Dissolved Oxygen	NA	NA	0.05	NA	0.23	NA	0.34	NA	5.80	NA	0.35	NA	0.24	NA	3.26	NA	0.53	NA	0.42
ORP	NA	NA	22.5	NA	10.6	NA	38.5	NA	-36.5	NA	0.2	NA	-12.6	NA	112.4	NA	88.3	NA	4.7

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620,
Subpart D, Section 620.410 - Groundwater Quality Standards for
Class I: Potable Resource Groundwater
All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1- MS and/or MSD Recovery outside of limits
F2- MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation [illegible] Station, Pekin, IL

Sample: MW-10	Date	2/26/2019		5/1/2019		8/27/2019		11/12/2019		2/25/2020		4/28/2020		8/11/2020		12/8/2020		2/23/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.0013	0.001	ND	0.001	ND	0.001	0.0011	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.25	0.0025	0.19	0.0025	0.16	0.0025	0.24	0.0025	0.21	0.0025	0.21	0.0025	0.2	0.0025	0.22	0.0025	0.18
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.35	0.05	0.41	0.05	0.26	0.05	0.31	0.05	1.3	0.05	0.94	0.25	1	0.5	2.3	0.05	0.97
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	2	49	2	48	2	50	2	44	2	47	2	40	2	42	2	45	4	42
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	0.0028	0.001	0.0017	0.001	0.0015	0.001	0.0027	0.001	0.0023	0.001	0.0018	0.001	0.0021	0.001	0.002	0.001	0.0016
Copper	0.65	0.002	0.0027	0.002	ND	0.002	ND	0.002	0.0026	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND *	0.005	ND
Fluoride	4	0.1	0.22	0.1	0.22	0.1	0.19	0.1	0.24	0.1	0.21	0.1	0.23	0.1	0.19	0.1	0.26	0.1	0.25
Iron	5	0.1	1.5	0.1	0.1	0.1	ND	0.1	0.13	0.1	0.26	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	0.0015	0.0005	ND	0.0005	ND	0.0005	0.00068	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	2.6	0.0025	1.9	0.0025	1.3	0.0025	2.7	0.0025	1.9	0.0025	2	0.0025	1.9	0.0025	1.9	0.0025	1.3
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	0.0079	0.002	0.0042	0.002	0.0031	0.002	0.0055	0.002	0.0048	0.002	0.0041	0.002	0.0033	0.002	0.0039	0.002	0.0032
Nitrogen/Nitrate	10	0.1	ND	0.1	1.2	0.1	2.2	0.1	1.6	0.1	4	0.1	3.6	0.1	1.5	0.1	2.6	0.1	4.2
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.1	1.2	0.5	2.3	0.1	1.6	0.1	4.1	0.5	3.6	0.1	1.5	0.5	2.6	0.5	4.3
Nitrogen/Nitrite	NA	0.02	ND	0.02	0.036	0.02	0.053	0.02	0.02	0.02	0.061	0.02	0.046	0.02	ND	0.02	0.044	0.02	0.055
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	0.0062	0.0025	0.0056	0.0025	0.006	0.0025	0.0045	0.0025	0.0077	0.0025	0.0048	0.0025	0.0032	0.0025	0.0035
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	2	37	5	32	5	32	5	49	5	63	5	67 ^	25	57	15	71	10	64
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	500	10	470	10	420	10	530	10	520	10	460	30	480	10	450	10	430
Vanadium	0.049	0.005	0.008	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND ^	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	6.77	NA	6.81	NA	7.09	NA	7.72	NA	6.82	NA	6.80	NA	6.85	NA	7.11	NA	7.08
Temperature	NA	NA	11.80	NA	12.60	NA	14.10	NA	12.61	NA	11.80	NA	12.30	NA	12.90	NA	12.30	NA	12.80
Conductivity	NA	NA	0.96	NA	0.49	NA	0.19	NA	0.84	NA	0.79	NA	0.24	NA	0.90	NA	0.19	NA	0.71
Dissolved Oxygen	NA	NA	0.01	NA	0.24	NA	0.48	NA	1.30	NA	0.26	NA	0.22	NA	2.35	NA	0.16	NA	0.57
ORP	NA	NA	118.0	NA	7.2	NA	10.1	NA	-37.0	NA	-14.5	NA	8.6	NA	26.1	NA	33.9	NA	22.4

Notes. Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1- MS and/or MSD Recovery outside of limits.
F2- MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-11	Date	2/27/2019		5/1/2019		8/28/2019		11/14/2019		2/26/2020		4/29/2020		8/12/2020		12/8/2020		2/25/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.015	0.001	0.0068	0.001	0.0041	0.001	0.013	0.001	0.0087	0.001	0.0081	0.001	0.0075	0.001	0.0085	0.001	0.0073
Barium	2	0.0025	0.19	0.0025	0.11	0.0025	0.11	0.0025	0.14	0.0025	0.16	0.0025	0.14	0.0025	0.13	0.0025	0.15	0.0025	0.15
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	1.5	0.25	3.2	0.25	2.5	0.25	1.7	0.25	1.4	0.05	1.3	0.25	1.5	0.25	1.3	0.25	1.3
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	100	2	62	2	50	2	75	2	100	10	110	10	84	10	91	10	120
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	0.0022	0.001	0.0011	0.001	0.0016	0.001	0.0015	0.001	0.0018	0.001	0.0015	0.001	0.0015	0.001	0.0016	0.001	0.0017
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	0.0056	0.005	ND *	0.005	ND
Fluoride	4	0.1	0.54	0.1	0.62	0.1	0.53	0.1	0.54	0.1	0.55	0.1	0.6	0.1	0.52	0.1	0.67	0.1	0.64
Iron	5	0.1	1.7	0.1	0.23	0.1	ND	0.1	1.1	0.1	1.1	0.1	0.64	0.1	1.1	0.1	1.3	0.1	0.95
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	4	0.0025	2.1	0.0025	3	0.0025	3.2	0.0025	3.3	0.0025	2.7	0.0025	3.5	0.0025	3.4	0.0025	3.3
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	0.0037	0.002	0.0024	0.002	0.0028	0.002	0.0028	0.002	0.004	0.002	0.0033	0.002	0.0023	0.002	0.0034	0.002	0.0033
Nitrogen/Nitrate	10	0.1	ND	0.1	3.6	0.1	1.9	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.5	3.6	0.1	1.9	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND ^+	0.1	ND
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND ^	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	20	320	10	210	5	160	20	230	20	350	50	300	25	210	50	210	25	240
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	1100	10	740	10	710	10	880	10	1000	10	1100	30	750	10	780	10	890
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND ^	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.05	NA	7.08	NA	7.19	NA	7.43	NA	7.18	NA	7.08	NA	6.95	NA	7.26	NA	7.26
Temperature	NA	NA	12.90	NA	15.90	NA	17.00	NA	14.82	NA	15.20	NA	15.50	NA	16.50	NA	14.70	NA	15.50
Conductivity	NA	NA	1.53	NA	0.85	NA	1.25	NA	1.39	NA	1.39	NA	0.30	NA	0.60	NA	0.22	NA	1.21
Dissolved Oxygen	NA	NA	0.15	NA	0.26	NA	0.30	NA	0.58	NA	0.16	NA	0.20	NA	3.83	NA	0.16	NA	0.35
ORP	NA	NA	-83.6	NA	-50.1	NA	-23.5	NA	-105.0	NA	-131.1	NA	-126.3	NA	-98.6	NA	-154.4	NA	-109.5

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620,
Subpart D, Section 620.410 - Groundwater Quality Standards for
Class I: Potable Resource Groundwater
All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation

Sample: MW-12	Date	2/27/2019		5/1/2019		8/28/2019		11/14/2019		2/26/2020		4/29/2020		8/12/2020		12/8/2020		2/25/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.0015	0.001	0.002	0.001	0.0045	0.001	0.01	0.001	ND	0.001	ND ^	0.001	0.0059	0.001	0.0079	0.001	ND
Barium	2	0.0025	0.044	0.0025	0.052	0.0025	0.057	0.0025	0.058	0.0025	0.028	0.0025	0.035	0.0025	0.051	0.0025	0.053	0.0025	0.031
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.4	0.05	0.44	0.05	0.57	0.05	0.67	0.05	0.24	0.05	0.37	0.05	0.5	0.05	0.56	0.05	0.31
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	160	10	170	10	180	10	150	10	140	10	150 F1	10	150	10	160	10	130
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND *	0.005	ND
Fluoride	4	0.1	0.44	0.1	0.38	0.1	0.41	0.1	0.47	0.1	0.31	0.1	0.34	0.1	0.48	0.1	0.57	0.1	0.27
Iron	5	0.1	0.88	0.1	0.94	0.1	1	0.1	0.92	0.1	0.28	0.1	0.64	0.1	1.7	0.1	0.77	0.1	0.61
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.11	0.0025	0.042	0.0025	0.47	0.0025	0.69	0.0025	0.029	0.0025	0.043	0.0025	0.52	0.0025	0.55	0.0025	0.046
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	0.0029	0.002	ND	0.002	0.0043	0.002	0.0028	0.002	ND	0.002	ND	0.002	ND	0.002	0.002	0.002	ND
Nitrogen/Nitrate	10	0.1	ND	0.1	ND	0.1	0.13	0.1	ND	0.1	ND	0.1	ND	0.1	0.98	0.1	ND	0.1	ND
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.1	ND	0.1	0.13	0.1	ND	0.1	ND ^	0.1	ND	0.1	0.98	0.1	ND	0.1	ND
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	0.0025	0.0025	ND ^	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	20	390	20	360	20	390	20	360 F1	20	250	50	350	100	370	50	320	100	270
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	1000	10	1000	10	1200	10	1100	10	800	10	1000	60	1000	10	920	10	850
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.43	NA	7.68	NA	7.37	NA	7.61	NA	8.00	NA	7.96	NA	7.18	NA	7.36	NA	7.91
Temperature	NA	NA	12.20	NA	14.00	NA	15.10	NA	14.41	NA	8.80	NA	10.00	NA	13.20	NA	14.00	NA	9.90
Conductivity	NA	NA	1.60	NA	0.99	NA	1.70	NA	1.52	NA	1.16	NA	1.33	NA	0.63	NA	0.29	NA	0.95
Dissolved Oxygen	NA	NA	0.05	NA	0.25	NA	0.57	NA	1.10	NA	0.18	NA	0.24	NA	3.94	NA	0.16	NA	0.45
ORP	NA	NA	-110.4	NA	-179.2	NA	-0.3	NA	-60.7	NA	-193.5	NA	-220.4	NA	-79.4	NA	-78.8	NA	-160.7

Shallow

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater
All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-13	Date	2/28/2019		5/2/2019		8/28/2019		11/14/2019		2/26/2020		4/30/2020		8/11/2020		12/10/2020		2/24/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.022	0.001	0.024	0.001	0.022	0.001	0.024	0.001	0.02	0.001	0.027	0.001	0.022	0.001	0.022	0.001	0.023
Barium	2	0.0025	0.17	0.0025	0.12	0.0025	0.14	0.0025	0.095	0.0025	0.1	0.0025	0.17	0.0025	0.14	0.0025	0.19	0.0025	0.18
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	2.4	0.25	3.2	0.25	2.7	0.5	2.9	0.5	2.5	0.05	2.8	0.5	3.1	0.25	1.4	0.25	2.8
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	160	10	160	10	160	10	150	10	150	10	140	10	160	10	140	10	130
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	0.35	0.1	0.34	0.1	0.3	0.1	0.35	0.1	0.36	0.1	0.39	0.1	0.34	0.1	0.41	0.1	0.38
Iron	5	0.1	0.76	0.1	0.64	0.1	0.93	0.1	0.79	0.1	1	0.1	0.91	0.1	1.3	0.1	1.3	0.1	1
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	3.9	0.0025	3.8	0.0025	4.1	0.0025	4.4	0.0025	4.1	0.0025	3.9	0.0025	4.8	0.0025	4.4	0.0025	4.1
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.008	ND	0.008	ND	0.008	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	0.006	0.0025	ND	0.0025	ND	0.0025	0.017	0.0025	ND	0.0025	0.029	0.0025	0.0093	0.0025	ND	0.0025	0.011
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	1000	1700	40	1500	40	1700	50	1500	50	1300	50	1300 ^	250	1600	250	1300	250	1400
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	13	3000	10	2800	10	2800	10	2800	10	2500	10	2600	150	2700	10	2300	10	2500
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.74	NA	7.71	NA	7.71	NA	8.11	NA	7.75	NA	7.66	NA	7.43	NA	7.62	NA	7.79
Temperature	NA	NA	12.50	NA	13.60	NA	13.90	NA	12.68	NA	13.20	NA	14.10	NA	14.80	NA	14.30	NA	14.00
Conductivity	NA	NA	3.69	NA	2.25	NA	0.23	NA	3.24	NA	0.53	NA	0.36	NA	3.47	NA	3.27	NA	2.75
Dissolved Oxygen	NA	NA	0.04	NA	0.18	NA	0.30	NA	8.63	NA	0.18	NA	0.19	NA	7.18	NA	1.91	NA	0.44
ORP	NA	NA	-153.9	NA	-176.9	NA	-171.5	NA	-123.8	NA	-232.8	NA	-226.3	NA	-180.5	NA	-218.5	NA	-182.0

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit

NA - Not Applicable

ND - Not Detected

H - prep/analyzed past hold time.

V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits

^ - Denotes instrument related QC exceeds the control limits

F1 - MS and/or MSD Recovery outside of limits

F2 - MS/MSD RPD exceeds control limits.

^1+ - Initial Calibration Verification is outside acceptance limits, high biased

^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation

Metal Cleaning & Ash Surge

Shallow Unit

Sample: MW-14	Date	2/28/2019		5/2/2019		8/2/2019		11/14/2019		2/26/2020		4/30/2020		8/11/2020		12/10/2020		2/24/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.0013	0.001	0.0019	0.001	0.0014	0.001	0.002	0.001	ND	0.001	ND ^	0.001	0.001	0.001	ND	0.001	ND
Barium	2	0.0025	0.056	0.0025	0.053	0.0025	0.06	0.0025	0.049	0.0025	0.043	0.0025	0.04	0.0025	0.039	0.0025	0.039	0.0025	0.036
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	1.5	0.25	2	0.25	1.8	0.25	2	0.25	2	0.05	2.2	0.5	2.4	0.25	1.1	0.25	2.2
Cadmium	0.005	0.0005	0.00083	0.0005	0.00071	0.0005	0.001	0.0005	0.00073	0.0005	0.00064	0.0005	0.00062	0.0005	0.00076	0.0005	ND	0.0005	ND
Chloride	200	10	130	10	130	10	180	10	160	10	150	10	130	10	120	10	140	10	110
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	0.91	0.1	0.91	0.1	0.85	0.1	0.92	0.1	0.97	0.1	1	0.1	0.81	0.1	1.1	0.1	1.1
Iron	5	0.1	0.18	0.1	1.7	0.1	ND	0.1	0.42	0.1	0.83	0.1	0.35	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.89	0.0025	0.84	0.0025	0.26	0.0025	0.63	0.0025	0.75	0.0025	0.53	0.0025	0.59	0.0025	0.034	0.0025	ND
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	0.003	0.002	0.0031	0.002	0.0044	0.002	0.0034	0.002	0.0034	0.002	0.0031	0.002	0.0025	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	0.51	0.1	1.2	0.1	ND	0.1	0.11	0.1	ND	0.1	1.5	0.1	ND	0.1	0.16	0.1	ND
Nitrogen/Nitrate, Nitrite	NA	0.1	0.51	0.1	1.2	0.1	ND	0.1	0.11	0.1	ND ^	0.1	1.5	0.1	ND	0.1	0.16	0.1	ND
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	0.016	0.0025	0.019	0.0025	0.0036	0.0025	0.012	0.0025	0.007	0.0025	0.048	0.0025	0.0027	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	40	970	40	1100	40	990	50	990	50	980	50	790	100	720	250	760	250	700
Thallium	0.002	0.002	0.0046	0.002	0.0036	0.002	0.0072	0.002	0.0038	0.002	0.0035	0.002	0.0036	0.002	0.0042	0.002	0.0021	0.002	ND
Total Dissolved Solids	1,200	10	2200	10	2400	10	2300	10	2300	10	2200	10	2100	150	1700	10	1800	10	1800
Vanadium	0.049	0.005	0.0054	0.005	ND	0.005	0.0059	0.005	0.0058	0.005	ND	0.005	ND ^	0.005	0.0051	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	6.88	NA	6.86	NA	6.92	NA	7.33	NA	6.97	NA	6.82	NA	6.80	NA	6.73	NA	7.20
Temperature	NA	NA	13.60	NA	14.40	NA	15.70	NA	14.88	NA	14.80	NA	14.60	NA	16.00	NA	15.70	NA	15.20
Conductivity	NA	NA	3.58	NA	2.53	NA	0.26	NA	3.01	NA	2.54	NA	2.36	NA	0.78	NA	2.53	NA	2.07
Dissolved Oxygen	NA	NA	0.37	NA	0.39	NA	0.29	NA	0.48	NA	0.24	NA	0.27	NA	8.57	NA	1.73	NA	1.05
ORP	NA	NA	-18.4	NA	-72.3	NA	18.1	NA	-66.0	NA	-93.1	NA	-58.6	NA	60.6	NA	63.0	NA	-12.9

Notes: Standards obtained from IAC Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits.
F2 - MS/MSD RPD exceeds control limits.
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation

Ash Surge

Shallow

Sample: MW-15	Date	2/28/2019		5/2/2019		8/28/2019		11/14/2019		2/26/2020		4/29/2020		8/11/2020		12/8/2020		2/24/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	0.0018	0.001	0.0025	0.001	ND	0.001	0.0017	0.001	0.0012	0.001	0.0026	0.001	ND	0.001	0.0025	0.001	0.001
Barium	2	0.0025	0.058	0.0025	0.052	0.0025	0.055	0.0025	0.05	0.0025	0.057	0.0025	0.064	0.0025	0.084	0.0025	0.074	0.0025	0.057
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	1.4	0.25	1.8	0.25	1.8	0.25	1.7	0.25	1.4	0.05	1.2	0.5	2.6 ●	0.25	1.3	0.25	1.2
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	10	190	10	210 ●	10	170	10	160	10	160	10	190	10	210 ●	10	200	10	160
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.005	ND	0.005	0.0052 *	0.005	ND
Fluoride	4	0.1	0.55	0.1	0.53	0.1	0.5	0.1	0.51	0.1	0.5	0.1	0.55	0.1	0.41	0.1	0.56	0.1	0.52
Iron	5	0.1	0.83	0.1	0.49	0.1	0.11	0.1	0.39	0.1	0.5	0.1	0.65	0.1	ND	0.1	2.7	0.1	0.43
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.69	0.0025	0.43	0.0025	0.17 ●	0.0025	0.32 ●	0.0025	0.63 ●	0.0025	0.65 ●	0.0025	0.063	0.0025	1.1 ●	0.0025	0.45
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	0.0035	0.002	0.0048	0.002	0.0057	0.002	0.0043	0.002	0.0046	0.002	0.0044	0.002	0.0084	0.002	0.0049	0.002	0.0026
Nitrogen/Nitrate	10	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	1.6	0.1	0.12	0.1	0.13
Nitrogen/Nitrate, Nitrite	NA	0.1	ND	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND ^	0.1	ND	0.1	1.6	0.1	0.12	0.1	0.13
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	0.0046	0.0025	0.0031	0.0025	ND ^	0.0025	0.046	0.0025	0.0077	0.0025	0.025
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	20	330	20	450	40	420 ●	20	340	20	360	50	360	100	700 ●	100	550 ●	50	440
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	1300 ●	10	1500 ●	10	1400 ●	10	1200 ●	10	1200 ●	10	1300 ●	150	1800 ●	10	1500 ●	10	1300 ●
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.03	NA	6.89	NA	6.95	NA	7.24	NA	6.73	NA	6.90	NA	6.53	NA	7.04	NA	7.00
Temperature	NA	NA	14.20	NA	15.50	NA	16.30	NA	14.53	NA	15.00	NA	15.30	NA	16.00	NA	15.10	NA	15.60
Conductivity	NA	NA	1.98	NA	1.33	NA	0.23	NA	1.76	NA	1.67	NA	1.72	NA	2.62	NA	0.31	NA	1.67
Dissolved Oxygen	NA	NA	0.16	NA	0.29	NA	0.53	NA	1.06	NA	0.42	NA	0.22	NA	1.12	NA	0.64	NA	1.12
ORP	NA	NA	-58.7	NA	-65.7	NA	1.6	NA	-39.1	NA	-48.8	NA	-81.5	NA	111.7	NA	-84.7	NA	-27.4

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted

DL - Detection limit
NA - Not Applicable
ND - Not Detected
H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1- MS and/or MSD Recovery outside of limits.
F2- MS/MSD RPD exceeds control limits
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/l	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

Table 2. Groundwater Analytical Results - Midwest Generation LLC, Powerton Station, Pekin, IL

Sample: MW-16	Date	2/27/2019		5/2/2019		8/27/2019		11/14/2019		2/25/2020		4/27/2020		8/11/2020		12/10/2020		2/23/2021	
Parameter	Standards	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result
Antimony	0.006	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND	0.003	ND
Arsenic	0.01	0.001	ND	0.001	ND	0.001	ND	0.001	ND F1	0.001	ND	0.001	ND ^	0.001	ND	0.001	ND	0.001	ND
Barium	2	0.0025	0.045	0.0025	0.039	0.0025	0.039	0.0025	0.046	0.0025	0.042	0.0025	0.04	0.0025	0.04	0.0025	0.041	0.0025	0.038
Beryllium	0.004	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND ^1+	0.001	ND ^+
Boron	2	0.05	0.17	0.05	0.2	0.05	0.16	0.05	0.22	0.05	0.16	0.05	0.15	0.05	0.14	0.05	0.12	0.05	0.12
Cadmium	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Chloride	200	2	25	2	22	2	31	2	26	2	26	2	18	2	21	2	23	2	24
Chromium	0.1	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND
Cobalt	1	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND
Copper	0.65	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Cyanide	0.2	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND F1 F2	0.005	ND	0.005	ND	0.005	ND
Fluoride	4	0.1	ND	0.1	ND	0.1	ND	0.1	0.11	0.1	0.1	0.1	0.12	0.1	ND	0.1	0.11	0.1	0.1
Iron	5	0.1	0.23	0.1	ND	0.1	ND	0.1	0.13	0.1	ND ^	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Lead	0.0075	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Manganese	0.15	0.0025	0.014	0.0025	ND	0.0025	0.027	0.0025	0.019	0.0025	0.0051	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	0.0058
Mercury	0.002	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND	0.0002	ND
Nickel	0.1	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Nitrogen/Nitrate	10	0.1	23	0.1	20	0.1	12	0.1	19	0.1	22	0.1	23	0.1	18	0.1	29	0.1	22
Nitrogen/Nitrate, Nitrite	NA	2.5	23	2.5	20	2.5	12	2.5	19 ^	2.5	22	2	23	1	18	5	29	2	22
Nitrogen/Nitrite	NA	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND F1	0.02	ND	0.02	ND	0.02	ND
Perchlorate	0.0049	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND	0.004	ND
Selenium	0.05	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND F1	0.0025	ND	0.0025	ND ^	0.0025	ND	0.0025	ND	0.0025	ND
Silver	0.05	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
Sulfate	400	25	36	5	33	5	35	5	32	5	29	5	29	5	25	5	27	5	25
Thallium	0.002	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND	0.002	ND
Total Dissolved Solids	1,200	10	520	10	550	10	470	10	480	10	440	10	500	30	400	10	390	10	500
Vanadium	0.049	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND ^	0.005	ND	0.005	ND	0.005	ND
Zinc	5	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Benzene	0.005	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005	ND
BETX	11.705	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025	ND
pH	6.5 - 9.0	NA	7.00	NA	6.94	NA	7.03	NA	7.29	NA	7.02	NA	6.94	NA	6.94	NA	7.44	NA	7.21
Temperature	NA	NA	12.30	NA	12.40	NA	14.20	NA	12.45	NA	12.30	NA	12.70	NA	13.60	NA	13.30	NA	12.70
Conductivity	NA	NA	0.89	NA	0.53	NA	0.79	NA	0.82	NA	0.29	NA	0.72	NA	0.81	NA	0.84	NA	0.64
Dissolved Oxygen	NA	NA	8.16	NA	6.89	NA	8.33	NA	8.72	NA	7.14	NA	7.20	NA	7.04	NA	5.21	NA	8.19
ORP	NA	NA	81.3	NA	75.8	NA	106.6	NA	-18.7	NA	28.9	NA	13.6	NA	135.3	NA	97.9	NA	58.8

Notes: Standards obtained from IAC, Title 35, Chapter I, Part 620, Subpart D, Section 620.410 - Groundwater Quality Standards for Class I: Potable Resource Groundwater

All values are in mg/L (ppm) unless otherwise noted.

DL - Detection limit
NA - Not Applicable
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H - prep/analyzed past hold time.
V - Serial Dilution Exceeds Control Limits

* - LCS or LCSD is outside acceptance limits
^ - Denotes instrument related QC exceeds the control limits
F1 - MS and/or MSD Recovery outside of limits
F2 - MS/MSD RPD exceeds control limits
^1+ - Initial Calibration Verification is outside acceptance limits, high biased
^+ - Continuing Calibration Verification is outside acceptance limits, high biased

Temperature	°C	degrees Celsius
Conductivity	ms/cm³	millisiemens/centimeters
Dissolved Oxygen	mg/L	milligrams/liter
Oxygen Reduction Potential (ORP)	mV	millivolts

ATTACHMENT 1

Analytical Data Package(s)

eurofins

Environment Testing
America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-195149-1
Client Project/Site: Powerton Station CCA

For:
KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat

Diana Mockler

Authorized for release by:
3/22/2021 2:00:39 PM

Diana Mockler, Project Manager I
(219)252-7570
Diana.Mockler@Eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Job ID: 500-195149-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-195149-1

Comments
No additional comments.

Receipt
The samples were received on 2/23/2021 11:05 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 10 coolers at receipt time were 1.2° C, 1.9° C, 2.9° C, 2.9° C, 3.0° C, 3.1° C, 3.1° C, 3.4° C, 3.6° C and 3.7° C.

Receipt Exceptions

Received Cyanide bottle for sample 5, not marked on COC, Logged it in.

Received 3 VOA vials broken for sample 12.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 6020A: The low level continuing calibration verification (CCVL) associated with batch 500-586865 recovered above the upper control limit for Beryllium. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 4500 NO2 B: The initial calibration verification (ICV) associated with batch 500-586055 recovered above the upper control limit. The samples associated with this ICV were non-detects for the affected analyte, Nitrite; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
314.0	Perchlorate (IC)	EPA	TAL SAC
6020A	Metals (ICP/MS)	SW846	TAL CHI
7470A	Mercury (CVAA)	SW846	TAL CHI
9012B	Cyanide, Total andor Amenable	SW846	TAL CHI
9038	Sulfate, Turbidimetric	SW846	TAL CHI
9251	Chloride	SW846	TAL CHI
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL CHI
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CHI
SM 4500 F C	Fluoride	SM	TAL CHI
SM 4500 NO2 B	Nitrogen, Nitrite	SM	TAL CHI
SM 4500 NO3 F	Nitrogen, Nitrate	SM	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI
7470A	Preparation, Mercury	SW846	TAL CHI
9010C	Cyanide, Distillation	SW846	TAL CHI
Soluble Metals	Preparation, Soluble	None	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-195149-1	MW-02	Water	02/22/21 11:37	02/23/21 11:05	
500-195149-2	MW-03	Water	02/22/21 12:34	02/23/21 11:05	
500-195149-3	MW-04	Water	02/22/21 13:21	02/23/21 11:05	
500-195149-4	MW-05	Water	02/22/21 14:10	02/23/21 11:05	
500-195149-5	Duplicate	Water	02/22/21 00:00	02/23/21 11:05	
500-195149-6	MW-07	Water	02/23/21 09:30	02/24/21 10:40	
500-195149-7	MW-06	Water	02/23/21 10:16	02/24/21 10:40	
500-195149-8	MW-08	Water	02/23/21 11:11	02/24/21 10:40	
500-195149-9	MW-01	Water	02/23/21 12:41	02/24/21 10:40	
500-195149-10	MW-10	Water	02/23/21 13:34	02/24/21 10:40	
500-195149-11	MW-16	Water	02/23/21 14:27	02/24/21 10:40	
500-195149-12	Trip Blank	Water	02/23/21 00:00	02/24/21 10:40	
500-195149-13	MW-13	Water	02/24/21 09:26	02/25/21 10:40	
500-195149-14	MW-14	Water	02/24/21 10:38	02/25/21 10:40	
500-195149-15	MW-15	Water	02/24/21 13:33	02/25/21 10:40	
500-195149-16	MW-09	Water	02/24/21 14:28	02/25/21 10:40	
500-195149-17	MW-11	Water	02/25/21 09:38	02/26/21 11:05	
500-195149-18	MW-12	Water	02/25/21 10:38	02/26/21 11:05	

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-02
Date Collected: 02/22/21 11:37
Date Received: 02/23/21 11:05

Lab Sample ID: 500-195149-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/24/21 12:41	1
Toluene	<0.00050		0.00050		mg/L			02/24/21 12:41	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/24/21 12:41	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/24/21 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*02/24/21 12:41*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*02/24/21 12:41*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*		*02/24/21 12:41*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*02/24/21 12:41*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/16/21 17:27	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 14:57	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 14:57	1
Barium	**0.054**		0.0025		mg/L		03/01/21 13:37	03/01/21 14:57	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 14:57	1
Boron	**0.25**		0.050		mg/L		03/01/21 13:37	03/02/21 11:51	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 14:57	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 14:57	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 14:57	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 11:51	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 14:57	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 14:57	1
Manganese	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 14:57	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 14:57	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 14:57	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 14:57	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 14:57	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 14:57	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 14:57	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/24/21 09:35	02/25/21 08:42	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/24/21 09:47	02/24/21 13:08	1
Sulfate	**51**		15		mg/L			02/24/21 14:58	3
Chloride	**44**		4.0		mg/L			02/26/21 13:19	2
Nitrogen, Nitrate	**7.9**		0.10		mg/L			02/24/21 17:20	1
Total Dissolved Solids	**540**		10		mg/L			02/24/21 02:55	1
Fluoride	**0.15**		0.10		mg/L			03/03/21 13:32	1
Nitrogen, Nitrite	<0.020	^1+	0.020		mg/L			02/23/21 12:52	1
Nitrogen, Nitrate Nitrite	**7.9**		0.50		mg/L			03/05/21 16:14	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-03
Date Collected: 02/22/21 12:34
Date Received: 02/23/21 11:05

Lab Sample ID: 500-195149-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/24/21 13:07	1
Toluene	<0.00050		0.00050		mg/L			02/24/21 13:07	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/24/21 13:07	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/24/21 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*		*02/24/21 13:07*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*02/24/21 13:07*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*		*02/24/21 13:07*	*1*
Dibromofluoromethane	*92*		*75 - 120*		*02/24/21 13:07*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/16/21 17:50	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:15	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:15	1
Barium	**0.088**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:15	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:15	1
Boron	**0.60**		0.050		mg/L		03/01/21 13:37	03/02/21 12:08	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:15	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:15	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:15	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:08	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 15:15	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:15	1
Manganese	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:15	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:15	1
Selenium	**0.0032**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:15	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:15	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:15	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:15	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:15	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/24/21 09:35	02/25/21 08:45	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/24/21 09:47	02/24/21 13:10	1
Sulfate	**54**		25		mg/L			02/24/21 15:05	5
Chloride	**53**		4.0		mg/L			02/26/21 13:21	2
Nitrogen, Nitrate	**6.1**		0.10		mg/L			02/24/21 17:20	1
Total Dissolved Solids	**520**		10		mg/L			02/24/21 02:58	1
Fluoride	**0.24**		0.10		mg/L			03/03/21 13:39	1
Nitrogen, Nitrite	<0.020	^1+	0.020		mg/L			02/23/21 12:53	1
Nitrogen, Nitrate Nitrite	**6.1**		0.50		mg/L			03/05/21 16:17	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-04

Lab Sample ID: 500-195149-3

Date Collected: 02/22/21 13:21
Date Received: 02/23/21 11:05

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/24/21 13:33	1
Toluene	<0.00050		0.00050		mg/L			02/24/21 13:33	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/24/21 13:33	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/24/21 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*02/24/21 13:33*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*02/24/21 13:33*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*02/24/21 13:33*	*1*
Dibromofluoromethane	*93*		*75 - 120*		*02/24/21 13:33*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/17/21 17:02	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:18	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:18	1
Barium	**0.032**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:18	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:18	1
Boron	**0.47**		0.050		mg/L		03/01/21 13:37	03/02/21 12:12	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:18	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:18	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:18	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:12	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 15:18	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:18	1
Manganese	**0.059**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:18	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:18	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:18	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:18	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:18	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:18	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:18	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/24/21 09:35	02/25/21 09:06	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/24/21 09:47	02/24/21 13:12	1
Sulfate	**86**		15		mg/L			02/24/21 14:59	3
Chloride	**62**		6.0		mg/L			02/26/21 13:21	3
Nitrogen, Nitrate	**0.36**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**560**		10		mg/L			02/24/21 03:01	1
Fluoride	**0.31**		0.10		mg/L			03/03/21 13:42	1
Nitrogen, Nitrite	<0.020	^1+	0.020		mg/L			02/23/21 12:53	1
Nitrogen, Nitrate Nitrite	**0.36**		0.10		mg/L			03/05/21 14:05	1

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-05

Date Collected: 02/22/21 14:10
Date Received: 02/23/21 11:05

Lab Sample ID: 500-195149-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/24/21 13:59	1
Toluene	<0.00050		0.00050		mg/L			02/24/21 13:59	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/24/21 13:59	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/24/21 13:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*02/24/21 13:59*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*02/24/21 13:59*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*02/24/21 13:59*	*1*
Dibromofluoromethane	*93*		*75 - 120*		*02/24/21 13:59*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/17/21 17:24	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:21	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:21	1
Barium	**0.045**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:21	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:21	1
Boron	**0.53**		0.050		mg/L		03/01/21 13:37	03/02/21 12:15	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:21	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:21	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:21	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:15	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 15:21	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:21	1
Manganese	**0.0084**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:21	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:21	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:21	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:21	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:21	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:21	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:21	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/24/21 09:35	02/25/21 09:08	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**0.0069**		0.0050		mg/L		02/24/21 09:47	02/24/21 13:14	1
Sulfate	**110**		25		mg/L			02/24/21 14:59	5
Chloride	**70**		6.0		mg/L			02/26/21 13:21	3
Nitrogen, Nitrate	**0.33**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**650**		10		mg/L			02/24/21 03:04	1
Fluoride	**0.33**		0.10		mg/L			03/03/21 13:49	1
Nitrogen, Nitrite	<0.020	^1+	0.020		mg/L			02/23/21 12:54	1
Nitrogen, Nitrate Nitrite	**0.33**		0.10		mg/L			03/05/21 14:08	1

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: Duplicate
Date Collected: 02/22/21 00:00
Date Received: 02/23/21 11:05

Lab Sample ID: 500-195149-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/24/21 14:26	1
Toluene	<0.00050		0.00050		mg/L			02/24/21 14:26	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/24/21 14:26	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/24/21 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*02/24/21 14:26*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*02/24/21 14:26*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*02/24/21 14:26*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*02/24/21 14:26*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/17/21 17:46	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:32	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:32	1
Barium	**0.051**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:32	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:32	1
Boron	**0.26**		0.050		mg/L		03/01/21 13:37	03/02/21 12:29	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:32	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:32	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:32	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:29	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 15:32	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:32	1
Manganese	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:32	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:32	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:32	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:32	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:32	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:32	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:32	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/24/21 09:35	02/25/21 09:10	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**0.043**		0.0050		mg/L		02/24/21 09:47	02/24/21 13:15	1
Sulfate	**50**		25		mg/L			02/24/21 15:00	5
Chloride	**47**		10		mg/L			02/26/21 13:22	5
Nitrogen, Nitrate	**7.9**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**520**		10		mg/L			02/24/21 03:06	1
Fluoride	**0.15**		0.10		mg/L			03/03/21 13:55	1
Nitrogen, Nitrite	<0.020	^1+	0.020		mg/L			02/23/21 12:54	1
Nitrogen, Nitrate Nitrite	**7.9**		0.50		mg/L			03/05/21 16:17	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-07
Date Collected: 02/23/21 09:30
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 14:37	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 14:37	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 14:37	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 14:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*02/25/21 14:37*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*02/25/21 14:37*	*1*
4-Bromofluorobenzene (Surr)	*101*		*72 - 124*		*02/25/21 14:37*	*1*
Dibromofluoromethane	*99*		*75 - 120*		*02/25/21 14:37*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/18/21 17:02	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:35	1
Arsenic	**0.12**		0.0010		mg/L		03/01/21 13:37	03/01/21 15:35	1
Barium	**0.46**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:35	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:35	1
Boron	**0.47**		0.050		mg/L		03/01/21 13:37	03/02/21 12:33	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:35	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:35	1
Cobalt	**0.0051**		0.0010		mg/L		03/01/21 13:37	03/01/21 15:35	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:33	1
Iron	**12**		0.10		mg/L		03/01/21 13:37	03/01/21 15:35	1
Lead	**0.00054**		0.00050		mg/L		03/01/21 13:37	03/01/21 15:35	1
Manganese	**4.9**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:35	1
Nickel	**0.0061**		0.0020		mg/L		03/01/21 13:37	03/01/21 15:35	1
Selenium	**0.0035**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:35	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:35	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:35	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:35	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:35	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/25/21 10:00	02/26/21 08:56	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050	F1	0.0050		mg/L		02/25/21 10:10	02/25/21 12:12	1
Sulfate	**82**		10		mg/L			02/26/21 13:22	2
Chloride	**150**		10		mg/L			02/26/21 13:24	5
Nitrogen, Nitrate	<0.10		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**1000**		10		mg/L			02/25/21 05:21	1
Fluoride	**0.48**		0.10		mg/L			03/03/21 14:16	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:20	1
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:12	1

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-06
Date Collected: 02/23/21 10:16
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 15:02	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 15:02	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 15:02	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 15:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*02/25/21 15:02*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*02/25/21 15:02*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*02/25/21 15:02*	*1*
Dibromofluoromethane	*100*		*75 - 120*		*02/25/21 15:02*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/18/21 17:24	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:39	1
Arsenic	**0.0011**		0.0010		mg/L		03/01/21 13:37	03/01/21 15:39	1
Barium	**0.049**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:39	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:39	1
Boron	**0.25**		0.050		mg/L		03/01/21 13:37	03/02/21 12:36	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:39	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:39	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:39	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:36	1
Iron	**1.0**		0.10		mg/L		03/01/21 13:37	03/01/21 15:39	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:39	1
Manganese	**0.66**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:39	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:39	1
Selenium	**0.0069**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:39	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:39	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:39	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:39	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:39	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/25/21 10:00	02/26/21 09:21	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/25/21 10:10	02/25/21 12:18	1
Sulfate	**240**		50		mg/L			02/26/21 13:24	10
Chloride	**130**		10		mg/L			02/26/21 13:25	5
Nitrogen, Nitrate	<0.10		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**790**		10		mg/L			02/25/21 05:24	1
Fluoride	**0.41**		0.10		mg/L			03/03/21 14:22	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:20	1
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:14	1

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-08
Date Collected: 02/23/21 11:11
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 15:28	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 15:28	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 15:28	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*02/25/21 15:28*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*02/25/21 15:28*	*1*
4-Bromofluorobenzene (Surr)	*102*		*72 - 124*		*02/25/21 15:28*	*1*
Dibromofluoromethane	*101*		*75 - 120*		*02/25/21 15:28*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/18/21 17:46	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:42	1
Arsenic	**0.0015**		0.0010		mg/L		03/01/21 13:37	03/01/21 15:42	1
Barium	**0.10**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:42	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:42	1
Boron	**0.58**		0.050		mg/L		03/01/21 13:37	03/02/21 12:39	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:42	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:42	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:42	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:39	1
Iron	**4.6**		0.10		mg/L		03/01/21 13:37	03/01/21 15:42	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:42	1
Manganese	**0.74**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:42	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:42	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:42	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:42	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:42	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:42	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:42	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/25/21 10:00	02/26/21 09:28	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/25/21 10:10	02/25/21 12:19	1
Sulfate	**69**		25		mg/L			02/26/21 13:24	5
Chloride	**130**		10		mg/L			02/26/21 13:25	5
Nitrogen, Nitrate	<0.10		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**630**		10		mg/L			02/25/21 05:26	1
Fluoride	**0.36**		0.10		mg/L			03/03/21 14:25	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:22	1
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:16	1

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-01
Date Collected: 02/23/21 12:41
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 15:53	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 15:53	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 15:53	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*02/25/21 15:53*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*02/25/21 15:53*	*1*
4-Bromofluorobenzene (Surr)	*102*		*72 - 124*		*02/25/21 15:53*	*1*
Dibromofluoromethane	*101*		*75 - 120*		*02/25/21 15:53*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 19:52	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:46	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:46	1
Barium	**0.046**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:46	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:46	1
Boron	**0.34**		0.050		mg/L		03/01/21 13:37	03/02/21 12:43	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:46	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:46	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:46	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:43	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 15:46	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:46	1
Manganese	**0.0080**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:46	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:46	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:46	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:46	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:46	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:46	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:46	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/25/21 10:00	02/26/21 09:30	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/25/21 10:10	02/25/21 12:21	1
Sulfate	**41**		10		mg/L			02/26/21 13:25	2
Chloride	**61**		4.0		mg/L			02/26/21 13:27	2
Nitrogen, Nitrate	**5.5**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**430**		10		mg/L			02/25/21 05:29	1
Fluoride	**0.18**		0.10		mg/L			03/03/21 14:31	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:22	1
Nitrogen, Nitrate Nitrite	**5.5**		0.50		mg/L			03/05/21 14:22	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-10
Date Collected: 02/23/21 13:34
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 16:19	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 16:19	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 16:19	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 16:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 126*		*02/25/21 16:19*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*02/25/21 16:19*	*1*
4-Bromofluorobenzene (Surr)	*101*		*72 - 124*		*02/25/21 16:19*	*1*
Dibromofluoromethane	*100*		*75 - 120*		*02/25/21 16:19*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 20:14	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:49	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:49	1
Barium	**0.18**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:49	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:49	1
Boron	**0.97**		0.050		mg/L		03/01/21 13:37	03/02/21 12:46	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:49	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:49	1
Cobalt	**0.0016**		0.0010		mg/L		03/01/21 13:37	03/01/21 15:49	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:46	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 15:49	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:49	1
Manganese	**1.3**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:49	1
Nickel	**0.0032**		0.0020		mg/L		03/01/21 13:37	03/01/21 15:49	1
Selenium	**0.0035**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:49	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:49	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:49	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:49	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:49	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/25/21 10:00	02/26/21 09:32	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/25/21 10:10	02/25/21 12:26	1
Sulfate	**64**		10		mg/L			02/26/21 13:27	2
Chloride	**42**		4.0		mg/L			02/26/21 13:28	2
Nitrogen, Nitrate	**4.2**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**430**		10		mg/L			02/25/21 05:32	1
Fluoride	**0.25**		0.10		mg/L			03/03/21 14:51	1
Nitrogen, Nitrite	**0.055**		0.020		mg/L			02/25/21 15:22	1
Nitrogen, Nitrate Nitrite	**4.3**		0.50		mg/L			03/05/21 14:24	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-16
Date Collected: 02/23/21 14:27
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 16:44	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 16:44	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 16:44	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*02/25/21 16:44*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*02/25/21 16:44*	*1*
4-Bromofluorobenzene (Surr)	*105*		*72 - 124*		*02/25/21 16:44*	*1*
Dibromofluoromethane	*101*		*75 - 120*		*02/25/21 16:44*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 20:37	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:53	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:53	1
Barium	**0.038**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:53	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:53	1
Boron	**0.12**		0.050		mg/L		03/01/21 13:37	03/02/21 12:50	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:53	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:53	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:53	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 12:50	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 15:53	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:53	1
Manganese	**0.0058**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:53	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:53	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 15:53	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:53	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:53	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:53	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:53	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/25/21 10:00	02/26/21 09:34	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/25/21 10:10	02/25/21 12:28	1
Sulfate	**25**		5.0		mg/L			02/26/21 13:28	1
Chloride	**24**		2.0		mg/L			02/26/21 13:29	1
Nitrogen, Nitrate	**22**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**500**		10		mg/L			02/25/21 05:34	1
Fluoride	**0.10**		0.10		mg/L			03/03/21 15:05	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:23	1
Nitrogen, Nitrate Nitrite	**22**		2.0		mg/L			03/05/21 14:26	20

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-195149-12

Date Collected: 02/23/21 00:00

Matrix: Water

Date Received: 02/24/21 10:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 12:27	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 12:27	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 12:27	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 12:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*02/25/21 12:27*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*02/25/21 12:27*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*02/25/21 12:27*	*1*
Dibromofluoromethane	*100*		*75 - 120*		*02/25/21 12:27*	*1*

Client Sample ID: MW-13

Lab Sample ID: 500-195149-13

Date Collected: 02/24/21 09:26

Matrix: Water

Date Received: 02/25/21 10:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/26/21 12:13	1
Toluene	<0.00050		0.00050		mg/L			02/26/21 12:13	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/26/21 12:13	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/26/21 12:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*		*02/26/21 12:13*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*02/26/21 12:13*	*1*
4-Bromofluorobenzene (Surr)	*85*		*72 - 124*		*02/26/21 12:13*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*02/26/21 12:13*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 22:28	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 15:56	1
Arsenic	**0.023**		0.0010		mg/L		03/01/21 13:37	03/01/21 15:56	1
Barium	**0.18**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:56	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 15:56	1
Boron	**2.8**		0.25		mg/L		03/01/21 13:37	03/02/21 13:00	5
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:56	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:56	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 15:56	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 15:58	1
Iron	**1.0**		0.10		mg/L		03/01/21 13:37	03/01/21 15:56	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:56	1
Manganese	**4.1**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:56	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:56	1
Selenium	**0.011**		0.0025		mg/L		03/01/21 13:37	03/01/21 15:56	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 15:56	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 15:56	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 15:56	1

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-13
Date Collected: 02/24/21 09:26
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-13
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 15:56	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/26/21 09:30	03/01/21 09:01	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		03/01/21 10:01	03/01/21 11:41	1
Sulfate	**1400**		250		mg/L			02/26/21 13:31	50
Chloride	**130**		10		mg/L			02/26/21 13:33	5
Nitrogen, Nitrate	<0.10		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**2500**		10		mg/L			02/26/21 05:37	1
Fluoride	**0.38**		0.10		mg/L			03/03/21 15:22	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:23	1
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:29	1

Client Sample ID: MW-14
Date Collected: 02/24/21 10:38
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/26/21 12:41	1
Toluene	<0.00050		0.00050		mg/L			02/26/21 12:41	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/26/21 12:41	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/26/21 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*		*02/26/21 12:41*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*02/26/21 12:41*	*1*
4-Bromofluorobenzene (Surr)	*85*		*72 - 124*		*02/26/21 12:41*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*02/26/21 12:41*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 22:50	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 16:00	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 16:00	1
Barium	**0.036**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:00	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 16:00	1
Boron	**2.2**		0.25		mg/L		03/01/21 13:37	03/02/21 13:04	5
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:00	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:00	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 16:00	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 16:01	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 16:00	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:00	1

Client Sample ID: MW-14
Date Collected: 02/24/21 10:38
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-14
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 16:00	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:00	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 16:00	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:00	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:00	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:00	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 16:00	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/26/21 09:30	03/01/21 09:03	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		03/01/21 10:01	03/01/21 11:46	1
Sulfate	**700**		250		mg/L			02/26/21 13:32	50
Chloride	**110**		10		mg/L			02/26/21 13:34	5
Nitrogen, Nitrate	<0.10		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**1800**		10		mg/L			02/26/21 05:44	1
Fluoride	**1.1**		0.10		mg/L			03/03/21 15:24	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:24	1
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:31	1

Client Sample ID: MW-15
Date Collected: 02/24/21 13:33
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/26/21 13:09	1
Toluene	<0.00050		0.00050		mg/L			02/26/21 13:09	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/26/21 13:09	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/26/21 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*		*02/26/21 13:09*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*02/26/21 13:09*	*1*
4-Bromofluorobenzene (Surr)	*86*		*72 - 124*		*02/26/21 13:09*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*02/26/21 13:09*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 23:12	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 16:03	1
Arsenic	**0.0010**		0.0010		mg/L		03/01/21 13:37	03/01/21 16:03	1
Barium	**0.057**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:03	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 16:03	1
Boron	**1.2**		0.25		mg/L		03/01/21 13:37	03/02/21 13:07	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-15
Date Collected: 02/24/21 13:33
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-15
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:03	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:03	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 16:03	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 16:05	1
Iron	**0.43**		0.10		mg/L		03/01/21 13:37	03/01/21 16:03	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:03	1
Manganese	**0.45**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:03	1
Nickel	**0.0026**		0.0020		mg/L		03/01/21 13:37	03/01/21 16:03	1
Selenium	**0.025**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:03	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:03	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:03	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:03	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 16:03	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/26/21 09:30	03/01/21 09:05	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		03/01/21 10:01	03/01/21 11:48	1
Sulfate	**440**		50		mg/L			02/26/21 13:32	10
Chloride	**160**		10		mg/L			02/26/21 13:34	5
Nitrogen, Nitrate	**0.13**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**1300**		10		mg/L			02/26/21 05:50	1
Fluoride	**0.52**		0.10		mg/L			03/03/21 15:27	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:26	1
Nitrogen, Nitrate Nitrite	**0.13**		0.10		mg/L			03/05/21 14:33	1

Client Sample ID: MW-09
Date Collected: 02/24/21 14:28
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-16
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/26/21 13:37	1
Toluene	<0.00050		0.00050		mg/L			02/26/21 13:37	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/26/21 13:37	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/26/21 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*02/26/21 13:37*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*02/26/21 13:37*	*1*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*		*02/26/21 13:37*	*1*
Dibromofluoromethane	*113*		*75 - 120*		*02/26/21 13:37*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 23:35	1

Client Sample Results

Client Sample ID: MW-09 **Lab Sample ID: 500-195149-16**
Date Collected: 02/24/21 14:28 **Matrix: Water**
Date Received: 02/25/21 10:40

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 16:14	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 16:14	1
Barium	**0.032**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:14	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 16:14	1
Boron	**2.2**		0.25		mg/L		03/01/21 13:37	03/02/21 13:11	5
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:14	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:14	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 16:14	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 16:08	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 16:14	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:14	1
Manganese	**0.096**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:14	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:14	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 16:14	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:14	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:14	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:14	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 16:14	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/26/21 09:30	03/01/21 09:07	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		03/01/21 10:01	03/01/21 11:49	1
Sulfate	**80**		25		mg/L			02/26/21 13:33	5
Chloride	**32**		2.0		mg/L			02/26/21 13:35	1
Nitrogen, Nitrate	**1.0**		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**360**		10		mg/L			02/26/21 05:52	1
Fluoride	**0.20**		0.10		mg/L			03/03/21 15:34	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:27	1
Nitrogen, Nitrate Nitrite	**1.0**		0.10		mg/L			03/05/21 14:35	1

Client Sample ID: MW-11 **Lab Sample ID: 500-195149-17**
Date Collected: 02/25/21 09:38 **Matrix: Water**
Date Received: 02/26/21 11:05

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			03/01/21 16:33	1
Toluene	<0.00050		0.00050		mg/L			03/01/21 16:33	1
Ethylbenzene	<0.00050		0.00050		mg/L			03/01/21 16:33	1
Xylenes, Total	<0.0010		0.0010		mg/L			03/01/21 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 126*		*03/01/21 16:33*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*03/01/21 16:33*	*1*
4-Bromofluorobenzene (Surr)	*101*		*72 - 124*		*03/01/21 16:33*	*1*
Dibromofluoromethane	*96*		*75 - 120*		*03/01/21 16:33*	*1*

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-11

Lab Sample ID: 500-195149-17

Date Collected: 02/25/21 09:38
Date Received: 02/26/21 11:05

Matrix: Water

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 20:59	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 16:17	1
Arsenic	**0.0073**		0.0010		mg/L		03/01/21 13:37	03/01/21 16:17	1
Barium	**0.15**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:17	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 16:17	1
Boron	**1.3**		0.25		mg/L		03/01/21 13:37	03/02/21 13:14	5
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:17	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:17	1
Cobalt	**0.0017**		0.0010		mg/L		03/01/21 13:37	03/01/21 16:17	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 16:12	1
Iron	**0.95**		0.10		mg/L		03/01/21 13:37	03/01/21 16:17	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:17	1
Manganese	**3.3**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:17	1
Nickel	**0.0033**		0.0020		mg/L		03/01/21 13:37	03/01/21 16:17	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 16:17	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:17	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:17	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:17	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 16:17	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		03/01/21 10:20	03/02/21 08:59	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		03/01/21 10:01	03/01/21 11:51	1
Sulfate	**240**		25		mg/L			03/10/21 14:04	5
Chloride	**120**		10		mg/L			03/05/21 15:51	5
Nitrogen, Nitrate	<0.10		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**890**		10		mg/L			03/01/21 23:00	1
Fluoride	**0.64**		0.10		mg/L			03/03/21 15:37	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/26/21 13:37	1
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:37	1

Client Sample ID: MW-12

Lab Sample ID: 500-195149-18

Date Collected: 02/25/21 10:38
Date Received: 02/26/21 11:05

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			03/01/21 16:59	1
Toluene	<0.00050		0.00050		mg/L			03/01/21 16:59	1
Ethylbenzene	<0.00050		0.00050		mg/L			03/01/21 16:59	1
Xylenes, Total	<0.0010		0.0010		mg/L			03/01/21 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 126*		*03/01/21 16:59*	*1*

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-12
Date Collected: 02/25/21 10:38
Date Received: 02/26/21 11:05

Lab Sample ID: 500-195149-18
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*75 - 120*		*03/01/21 16:59*	*1*
4-Bromofluorobenzene (Surr)	*103*		*72 - 124*		*03/01/21 16:59*	*1*
Dibromofluoromethane	*99*		*75 - 120*		*03/01/21 16:59*	*1*

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 21:21	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 16:21	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 16:21	1
Barium	**0.031**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:21	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 16:21	1
Boron	**0.31**		0.050		mg/L		03/01/21 13:37	03/02/21 13:18	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:21	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:21	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 16:21	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 13:18	1
Iron	**0.61**		0.10		mg/L		03/01/21 13:37	03/01/21 16:21	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:21	1
Manganese	**0.046**		0.0025		mg/L		03/01/21 13:37	03/01/21 16:21	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:21	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 16:21	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 16:21	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 16:21	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 16:21	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 16:21	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		03/01/21 10:20	03/02/21 09:01	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		03/01/21 10:01	03/01/21 11:53	1
Sulfate	**270**		100		mg/L			03/10/21 14:11	20
Chloride	**130**		10		mg/L			03/05/21 15:51	5
Nitrogen, Nitrate	<0.10		0.10		mg/L			03/08/21 11:57	1
Total Dissolved Solids	**850**		10		mg/L			03/01/21 23:03	1
Fluoride	**0.27**		0.10		mg/L			03/03/21 15:40	1
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/26/21 13:37	1
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:39	1

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.

General Chemistry

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

GC/MS VOA

Analysis Batch: 586159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Total/NA	Water	8260B	
500-195149-2	MW-03	Total/NA	Water	8260B	
500-195149-3	MW-04	Total/NA	Water	8260B	
500-195149-4	MW-05	Total/NA	Water	8260B	
500-195149-5	Duplicate	Total/NA	Water	8260B	
MB 500-586159/7	Method Blank	Total/NA	Water	8260B	
LCS 500-586159/5	Lab Control Sample	Total/NA	Water	8260B	
500-195149-1 MS	MW-02	Total/NA	Water	8260B	
500-195149-1 MSD	MW-02	Total/NA	Water	8260B	

Analysis Batch: 586286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Total/NA	Water	8260B	
500-195149-7	MW-06	Total/NA	Water	8260B	
500-195149-8	MW-08	Total/NA	Water	8260B	
500-195149-9	MW-01	Total/NA	Water	8260B	
500-195149-10	MW-10	Total/NA	Water	8260B	
500-195149-11	MW-16	Total/NA	Water	8260B	
500-195149-12	Trip Blank	Total/NA	Water	8260B	
MB 500-586286/7	Method Blank	Total/NA	Water	8260B	
LCS 500-586286/5	Lab Control Sample	Total/NA	Water	8260B	
500-195149-11 MS	MW-16	Total/NA	Water	8260B	
500-195149-11 MSD	MW-16	Total/NA	Water	8260B	

Analysis Batch: 586474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-13	MW-13	Total/NA	Water	8260B	
500-195149-14	MW-14	Total/NA	Water	8260B	
500-195149-15	MW-15	Total/NA	Water	8260B	
500-195149-16	MW-09	Total/NA	Water	8260B	
MB 500-586474/7	Method Blank	Total/NA	Water	8260B	
LCS 500-586474/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 586664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-17	MW-11	Total/NA	Water	8260B	
500-195149-18	MW-12	Total/NA	Water	8260B	
MB 500-586664/7	Method Blank	Total/NA	Water	8260B	
LCS 500-586664/5	Lab Control Sample	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 470577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Total/NA	Water	314.0	
500-195149-2	MW-03	Total/NA	Water	314.0	
MB 320-470577/5	Method Blank	Total/NA	Water	314.0	
LCS 320-470577/6	Lab Control Sample	Total/NA	Water	314.0	
MRL 320-470577/4	Lab Control Sample	Total/NA	Water	314.0	

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

HPLC/IC

Analysis Batch: 470988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-3	MW-04	Total/NA	Water	314.0	
500-195149-4	MW-05	Total/NA	Water	314.0	
500-195149-5	Duplicate	Total/NA	Water	314.0	
MB 320-470988/5	Method Blank	Total/NA	Water	314.0	
LCS 320-470988/6	Lab Control Sample	Total/NA	Water	314.0	
MRL 320-470988/4	Lab Control Sample	Total/NA	Water	314.0	

Analysis Batch: 471554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Total/NA	Water	314.0	
500-195149-7	MW-06	Total/NA	Water	314.0	
500-195149-8	MW-08	Total/NA	Water	314.0	
MB 320-471554/5	Method Blank	Total/NA	Water	314.0	
LCS 320-471554/6	Lab Control Sample	Total/NA	Water	314.0	
MRL 320-471554/4	Lab Control Sample	Total/NA	Water	314.0	

Analysis Batch: 472167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-9	MW-01	Total/NA	Water	314.0	
500-195149-10	MW-10	Total/NA	Water	314.0	
500-195149-11	MW-16	Total/NA	Water	314.0	
500-195149-13	MW-13	Total/NA	Water	314.0	
500-195149-14	MW-14	Total/NA	Water	314.0	
500-195149-15	MW-15	Total/NA	Water	314.0	
500-195149-16	MW-09	Total/NA	Water	314.0	
500-195149-17	MW-11	Total/NA	Water	314.0	
500-195149-18	MW-12	Total/NA	Water	314.0	
MB 320-472167/13	Method Blank	Total/NA	Water	314.0	
LCS 320-472167/14	Lab Control Sample	Total/NA	Water	314.0	
MRL 320-472167/12	Lab Control Sample	Total/NA	Water	314.0	

Metals

Prep Batch: 586179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	7470A	
500-195149-2	MW-03	Dissolved	Water	7470A	
500-195149-3	MW-04	Dissolved	Water	7470A	
500-195149-4	MW-05	Dissolved	Water	7470A	
500-195149-5	Duplicate	Dissolved	Water	7470A	
MB 500-586179/12-A	Method Blank	Total/NA	Water	7470A	
LCS 500-586179/13-A	Lab Control Sample	Total/NA	Water	7470A	
500-195149-2 MS	MW-03	Dissolved	Water	7470A	
500-195149-2 MSD	MW-03	Dissolved	Water	7470A	
500-195149-2 DU	MW-03	Dissolved	Water	7470A	

Prep Batch: 586338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Dissolved	Water	7470A	
500-195149-7	MW-06	Dissolved	Water	7470A	
500-195149-8	MW-08	Dissolved	Water	7470A	

QC Association Summary

Metals (Continued)

Prep Batch: 586338 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-9	MW-01	Dissolved	Water	7470A	
500-195149-10	MW-10	Dissolved	Water	7470A	
500-195149-11	MW-16	Dissolved	Water	7470A	
MB 500-586338/12-A	Method Blank	Total/NA	Water	7470A	
LCS 500-586338/13-A	Lab Control Sample	Total/NA	Water	7470A	
500-195149-6 MS	MW-07	Dissolved	Water	7470A	
500-195149-6 MSD	MW-07	Dissolved	Water	7470A	
500-195149-6 DU	MW-07	Dissolved	Water	7470A	

Analysis Batch: 586345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	7470A	586179
500-195149-2	MW-03	Dissolved	Water	7470A	586179
500-195149-3	MW-04	Dissolved	Water	7470A	586179
500-195149-4	MW-05	Dissolved	Water	7470A	586179
500-195149-5	Duplicate	Dissolved	Water	7470A	586179
MB 500-586179/12-A	Method Blank	Total/NA	Water	7470A	586179
LCS 500-586179/13-A	Lab Control Sample	Total/NA	Water	7470A	586179
500-195149-2 MS	MW-03	Dissolved	Water	7470A	586179
500-195149-2 MSD	MW-03	Dissolved	Water	7470A	586179
500-195149-2 DU	MW-03	Dissolved	Water	7470A	586179

Prep Batch: 586541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-13	MW-13	Dissolved	Water	7470A	
500-195149-14	MW-14	Dissolved	Water	7470A	
500-195149-15	MW-15	Dissolved	Water	7470A	
500-195149-16	MW-09	Dissolved	Water	7470A	
MB 500-586541/12-A	Method Blank	Total/NA	Water	7470A	
LCS 500-586541/13-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 586559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Dissolved	Water	7470A	586338
500-195149-7	MW-06	Dissolved	Water	7470A	586338
500-195149-8	MW-08	Dissolved	Water	7470A	586338
500-195149-9	MW-01	Dissolved	Water	7470A	586338
500-195149-10	MW-10	Dissolved	Water	7470A	586338
500-195149-11	MW-16	Dissolved	Water	7470A	586338
MB 500-586338/12-A	Method Blank	Total/NA	Water	7470A	586338
LCS 500-586338/13-A	Lab Control Sample	Total/NA	Water	7470A	586338
500-195149-6 MS	MW-07	Dissolved	Water	7470A	586338
500-195149-6 MSD	MW-07	Dissolved	Water	7470A	586338
500-195149-6 DU	MW-07	Dissolved	Water	7470A	586338

Prep Batch: 586703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-17	MW-11	Dissolved	Water	7470A	
500-195149-18	MW-12	Dissolved	Water	7470A	
MB 500-586703/12-A	Method Blank	Total/NA	Water	7470A	
LCS 500-586703/13-A	Lab Control Sample	Total/NA	Water	7470A	

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Metals

Analysis Batch: 586704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-13	MW-13	Dissolved	Water	7470A	586541
500-195149-14	MW-14	Dissolved	Water	7470A	586541
500-195149-15	MW-15	Dissolved	Water	7470A	586541
500-195149-16	MW-09	Dissolved	Water	7470A	586541
MB 500-586541/12-A	Method Blank	Total/NA	Water	7470A	586541
LCS 500-586541/13-A	Lab Control Sample	Total/NA	Water	7470A	586541

Prep Batch: 586720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	Soluble Metals	
500-195149-2	MW-03	Dissolved	Water	Soluble Metals	
500-195149-3	MW-04	Dissolved	Water	Soluble Metals	
500-195149-4	MW-05	Dissolved	Water	Soluble Metals	
500-195149-5	Duplicate	Dissolved	Water	Soluble Metals	
500-195149-6	MW-07	Dissolved	Water	Soluble Metals	
500-195149-7	MW-06	Dissolved	Water	Soluble Metals	
500-195149-8	MW-08	Dissolved	Water	Soluble Metals	
500-195149-9	MW-01	Dissolved	Water	Soluble Metals	
500-195149-10	MW-10	Dissolved	Water	Soluble Metals	
500-195149-11	MW-16	Dissolved	Water	Soluble Metals	
500-195149-13	MW-13	Dissolved	Water	Soluble Metals	
500-195149-14	MW-14	Dissolved	Water	Soluble Metals	
500-195149-15	MW-15	Dissolved	Water	Soluble Metals	
500-195149-16	MW-09	Dissolved	Water	Soluble Metals	
500-195149-17	MW-11	Dissolved	Water	Soluble Metals	
500-195149-18	MW-12	Dissolved	Water	Soluble Metals	
MB 500-586720/1-A	Method Blank	Soluble	Water	Soluble Metals	
LCS 500-586720/2-A	Lab Control Sample	Soluble	Water	Soluble Metals	
500-195149-1 MS	MW-02	Dissolved	Water	Soluble Metals	
500-195149-1 MSD	MW-02	Dissolved	Water	Soluble Metals	
500-195149-1 DU	MW-02	Dissolved	Water	Soluble Metals	

Analysis Batch: 586865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	6020A	586720
500-195149-2	MW-03	Dissolved	Water	6020A	586720
500-195149-3	MW-04	Dissolved	Water	6020A	586720
500-195149-4	MW-05	Dissolved	Water	6020A	586720
500-195149-5	Duplicate	Dissolved	Water	6020A	586720
500-195149-6	MW-07	Dissolved	Water	6020A	586720
500-195149-7	MW-06	Dissolved	Water	6020A	586720
500-195149-8	MW-08	Dissolved	Water	6020A	586720
500-195149-9	MW-01	Dissolved	Water	6020A	586720
500-195149-10	MW-10	Dissolved	Water	6020A	586720
500-195149-11	MW-16	Dissolved	Water	6020A	586720
500-195149-13	MW-13	Dissolved	Water	6020A	586720
500-195149-14	MW-14	Dissolved	Water	6020A	586720
500-195149-15	MW-15	Dissolved	Water	6020A	586720
500-195149-16	MW-09	Dissolved	Water	6020A	586720
500-195149-17	MW-11	Dissolved	Water	6020A	586720
500-195149-18	MW-12	Dissolved	Water	6020A	586720

QC Association Summary

Metals (Continued)

Analysis Batch: 586865 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-586720/1-A	Method Blank	Soluble	Water	6020A	586720
LCS 500-586720/2-A	Lab Control Sample	Soluble	Water	6020A	586720
500-195149-1 MS	MW-02	Dissolved	Water	6020A	586720
500-195149-1 MSD	MW-02	Dissolved	Water	6020A	586720
500-195149-1 DU	MW-02	Dissolved	Water	6020A	586720

Analysis Batch: 586885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-17	MW-11	Dissolved	Water	7470A	586703
500-195149-18	MW-12	Dissolved	Water	7470A	586703
MB 500-586703/12-A	Method Blank	Total/NA	Water	7470A	586703
LCS 500-586703/13-A	Lab Control Sample	Total/NA	Water	7470A	586703

Analysis Batch: 587062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	6020A	586720
500-195149-2	MW-03	Dissolved	Water	6020A	586720
500-195149-3	MW-04	Dissolved	Water	6020A	586720
500-195149-4	MW-05	Dissolved	Water	6020A	586720
500-195149-5	Duplicate	Dissolved	Water	6020A	586720
500-195149-6	MW-07	Dissolved	Water	6020A	586720
500-195149-7	MW-06	Dissolved	Water	6020A	586720
500-195149-8	MW-08	Dissolved	Water	6020A	586720
500-195149-9	MW-01	Dissolved	Water	6020A	586720
500-195149-10	MW-10	Dissolved	Water	6020A	586720
500-195149-11	MW-16	Dissolved	Water	6020A	586720
500-195149-13	MW-13	Dissolved	Water	6020A	586720
500-195149-13	MW-13	Dissolved	Water	6020A	586720
500-195149-14	MW-14	Dissolved	Water	6020A	586720
500-195149-14	MW-14	Dissolved	Water	6020A	586720
500-195149-15	MW-15	Dissolved	Water	6020A	586720
500-195149-15	MW-15	Dissolved	Water	6020A	586720
500-195149-16	MW-09	Dissolved	Water	6020A	586720
500-195149-16	MW-09	Dissolved	Water	6020A	586720
500-195149-17	MW-11	Dissolved	Water	6020A	586720
500-195149-17	MW-11	Dissolved	Water	6020A	586720
500-195149-18	MW-12	Dissolved	Water	6020A	586720
MB 500-586720/1-A	Method Blank	Soluble	Water	6020A	586720
LCS 500-586720/2-A	Lab Control Sample	Soluble	Water	6020A	586720
500-195149-1 MS	MW-02	Dissolved	Water	6020A	586720
500-195149-1 MSD	MW-02	Dissolved	Water	6020A	586720
500-195149-1 DU	MW-02	Dissolved	Water	6020A	586720

General Chemistry

Analysis Batch: 586055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	SM 4500 NO2 B	
500-195149-2	MW-03	Dissolved	Water	SM 4500 NO2 B	
500-195149-3	MW-04	Dissolved	Water	SM 4500 NO2 B	
500-195149-4	MW-05	Dissolved	Water	SM 4500 NO2 B	

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

General Chemistry (Continued)

Analysis Batch: 586055 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-5	Duplicate	Dissolved	Water	SM 4500 NO2 B	
MB 500-586055/9	Method Blank	Total/NA	Water	SM 4500 NO2 B	
LCS 500-586055/10	Lab Control Sample	Total/NA	Water	SM 4500 NO2 B	
500-195149-1 MS	MW-02	Dissolved	Water	SM 4500 NO2 B	
500-195149-1 MSD	MW-02	Dissolved	Water	SM 4500 NO2 B	

Analysis Batch: 586109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	SM 2540C	
500-195149-2	MW-03	Dissolved	Water	SM 2540C	
500-195149-3	MW-04	Dissolved	Water	SM 2540C	
500-195149-4	MW-05	Dissolved	Water	SM 2540C	
500-195149-5	Duplicate	Dissolved	Water	SM 2540C	
MB 500-586109/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-586109/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Prep Batch: 586176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	9010C	
500-195149-2	MW-03	Dissolved	Water	9010C	
500-195149-3	MW-04	Dissolved	Water	9010C	
500-195149-4	MW-05	Dissolved	Water	9010C	
500-195149-5	Duplicate	Dissolved	Water	9010C	
MB 500-586176/1-A	Method Blank	Total/NA	Water	9010C	
HLCS 500-586176/2-A	Lab Control Sample	Total/NA	Water	9010C	
LCS 500-586176/3-A	Lab Control Sample	Total/NA	Water	9010C	
LLCS 500-586176/4-A	Lab Control Sample	Total/NA	Water	9010C	

Analysis Batch: 586216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	9038	
500-195149-2	MW-03	Dissolved	Water	9038	
500-195149-3	MW-04	Dissolved	Water	9038	
500-195149-4	MW-05	Dissolved	Water	9038	
500-195149-5	Duplicate	Dissolved	Water	9038	
MB 500-586216/15	Method Blank	Total/NA	Water	9038	
LCS 500-586216/16	Lab Control Sample	Total/NA	Water	9038	

Analysis Batch: 586220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	9012B	586176
500-195149-2	MW-03	Dissolved	Water	9012B	586176
500-195149-3	MW-04	Dissolved	Water	9012B	586176
500-195149-4	MW-05	Dissolved	Water	9012B	586176
500-195149-5	Duplicate	Dissolved	Water	9012B	586176
MB 500-586176/1-A	Method Blank	Total/NA	Water	9012B	586176
HLCS 500-586176/2-A	Lab Control Sample	Total/NA	Water	9012B	586176
LCS 500-586176/3-A	Lab Control Sample	Total/NA	Water	9012B	586176
LLCS 500-586176/4-A	Lab Control Sample	Total/NA	Water	9012B	586176

QC Association Summary

General Chemistry

Analysis Batch: 586231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	Nitrate by calc	
500-195149-2	MW-03	Dissolved	Water	Nitrate by calc	
500-195149-3	MW-04	Dissolved	Water	Nitrate by calc	
500-195149-4	MW-05	Dissolved	Water	Nitrate by calc	
500-195149-5	Duplicate	Dissolved	Water	Nitrate by calc	
500-195149-6	MW-07	Dissolved	Water	Nitrate by calc	
500-195149-7	MW-06	Dissolved	Water	Nitrate by calc	
500-195149-8	MW-08	Dissolved	Water	Nitrate by calc	
500-195149-9	MW-01	Dissolved	Water	Nitrate by calc	
500-195149-10	MW-10	Dissolved	Water	Nitrate by calc	
500-195149-11	MW-16	Dissolved	Water	Nitrate by calc	
500-195149-13	MW-13	Dissolved	Water	Nitrate by calc	
500-195149-14	MW-14	Dissolved	Water	Nitrate by calc	
500-195149-15	MW-15	Dissolved	Water	Nitrate by calc	
500-195149-16	MW-09	Dissolved	Water	Nitrate by calc	
500-195149-17	MW-11	Dissolved	Water	Nitrate by calc	
500-195149-18	MW-12	Dissolved	Water	Nitrate by calc	

Analysis Batch: 586264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Dissolved	Water	SM 2540C	
500-195149-7	MW-06	Dissolved	Water	SM 2540C	
500-195149-8	MW-08	Dissolved	Water	SM 2540C	
500-195149-9	MW-01	Dissolved	Water	SM 2540C	
500-195149-10	MW-10	Dissolved	Water	SM 2540C	
500-195149-11	MW-16	Dissolved	Water	SM 2540C	
MB 500-586264/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-586264/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Prep Batch: 586365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Dissolved	Water	9010C	
500-195149-7	MW-06	Dissolved	Water	9010C	
500-195149-8	MW-08	Dissolved	Water	9010C	
500-195149-9	MW-01	Dissolved	Water	9010C	
500-195149-10	MW-10	Dissolved	Water	9010C	
500-195149-11	MW-16	Dissolved	Water	9010C	
MB 500-586365/1-A	Method Blank	Total/NA	Water	9010C	
HLCS 500-586365/2-A	Lab Control Sample	Total/NA	Water	9010C	
LCS 500-586365/3-A	Lab Control Sample	Total/NA	Water	9010C	
LLCS 500-586365/4-A	Lab Control Sample	Total/NA	Water	9010C	
500-195149-6 MS	MW-07	Dissolved	Water	9010C	
500-195149-6 MSD	MW-07	Dissolved	Water	9010C	

Analysis Batch: 586382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Dissolved	Water	9012B	586365
500-195149-7	MW-06	Dissolved	Water	9012B	586365
500-195149-8	MW-08	Dissolved	Water	9012B	586365
500-195149-9	MW-01	Dissolved	Water	9012B	586365
500-195149-10	MW-10	Dissolved	Water	9012B	586365

QC Association Summary

General Chemistry (Continued)

Analysis Batch: 586382 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-11	MW-16	Dissolved	Water	9012B	586365
MB 500-586365/1-A	Method Blank	Total/NA	Water	9012B	586365
HLCS 500-586365/2-A	Lab Control Sample	Total/NA	Water	9012B	586365
LCS 500-586365/3-A	Lab Control Sample	Total/NA	Water	9012B	586365
LLCS 500-586365/4-A	Lab Control Sample	Total/NA	Water	9012B	586365
500-195149-6 MS	MW-07	Dissolved	Water	9012B	586365
500-195149-6 MSD	MW-07	Dissolved	Water	9012B	586365

Analysis Batch: 586397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Dissolved	Water	SM 4500 NO2 B	
500-195149-7	MW-06	Dissolved	Water	SM 4500 NO2 B	
500-195149-8	MW-08	Dissolved	Water	SM 4500 NO2 B	
500-195149-9	MW-01	Dissolved	Water	SM 4500 NO2 B	
500-195149-10	MW-10	Dissolved	Water	SM 4500 NO2 B	
500-195149-11	MW-16	Dissolved	Water	SM 4500 NO2 B	
500-195149-13	MW-13	Dissolved	Water	SM 4500 NO2 B	
500-195149-14	MW-14	Dissolved	Water	SM 4500 NO2 B	
500-195149-15	MW-15	Dissolved	Water	SM 4500 NO2 B	
500-195149-16	MW-09	Dissolved	Water	SM 4500 NO2 B	
MB 500-586397/33	Method Blank	Total/NA	Water	SM 4500 NO2 B	
MB 500-586397/9	Method Blank	Total/NA	Water	SM 4500 NO2 B	
LCS 500-586397/10	Lab Control Sample	Total/NA	Water	SM 4500 NO2 B	
LCS 500-586397/34	Lab Control Sample	Total/NA	Water	SM 4500 NO2 B	
500-195149-15 MS	MW-15	Dissolved	Water	SM 4500 NO2 B	
500-195149-15 MSD	MW-15	Dissolved	Water	SM 4500 NO2 B	

Analysis Batch: 586471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-13	MW-13	Dissolved	Water	SM 2540C	
500-195149-14	MW-14	Dissolved	Water	SM 2540C	
500-195149-15	MW-15	Dissolved	Water	SM 2540C	
500-195149-16	MW-09	Dissolved	Water	SM 2540C	
MB 500-586471/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-586471/2	Lab Control Sample	Total/NA	Water	SM 2540C	
500-195149-13 MS	MW-13	Dissolved	Water	SM 2540C	
500-195149-13 DU	MW-13	Dissolved	Water	SM 2540C	
500-195149-14 DU	MW-14	Dissolved	Water	SM 2540C	

Analysis Batch: 586582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-17	MW-11	Dissolved	Water	SM 4500 NO2 B	
500-195149-18	MW-12	Dissolved	Water	SM 4500 NO2 B	
MB 500-586582/9	Method Blank	Total/NA	Water	SM 4500 NO2 B	
LCS 500-586582/10	Lab Control Sample	Total/NA	Water	SM 4500 NO2 B	

Analysis Batch: 586601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-6	MW-07	Dissolved	Water	9038	
500-195149-7	MW-06	Dissolved	Water	9038	
500-195149-8	MW-08	Dissolved	Water	9038	

QC Association Summary

General Chemistry (Continued)

Analysis Batch: 586601 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-9	MW-01	Dissolved	Water	9038	
500-195149-10	MW-10	Dissolved	Water	9038	
500-195149-11	MW-16	Dissolved	Water	9038	
500-195149-13	MW-13	Dissolved	Water	9038	
500-195149-14	MW-14	Dissolved	Water	9038	
500-195149-15	MW-15	Dissolved	Water	9038	
500-195149-16	MW-09	Dissolved	Water	9038	
MB 500-586601/44	Method Blank	Total/NA	Water	9038	
LCS 500-586601/49	Lab Control Sample	Total/NA	Water	9038	

Analysis Batch: 586602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	9251	
500-195149-2	MW-03	Dissolved	Water	9251	
500-195149-3	MW-04	Dissolved	Water	9251	
500-195149-4	MW-05	Dissolved	Water	9251	
500-195149-5	Duplicate	Dissolved	Water	9251	
500-195149-6	MW-07	Dissolved	Water	9251	
500-195149-7	MW-06	Dissolved	Water	9251	
500-195149-8	MW-08	Dissolved	Water	9251	
500-195149-9	MW-01	Dissolved	Water	9251	
500-195149-10	MW-10	Dissolved	Water	9251	
500-195149-11	MW-16	Dissolved	Water	9251	
500-195149-13	MW-13	Dissolved	Water	9251	
500-195149-14	MW-14	Dissolved	Water	9251	
500-195149-15	MW-15	Dissolved	Water	9251	
500-195149-16	MW-09	Dissolved	Water	9251	
MB 500-586602/46	Method Blank	Total/NA	Water	9251	
LCS 500-586602/47	Lab Control Sample	Total/NA	Water	9251	

Prep Batch: 586709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-13	MW-13	Dissolved	Water	9010C	
500-195149-14	MW-14	Dissolved	Water	9010C	
500-195149-15	MW-15	Dissolved	Water	9010C	
500-195149-16	MW-09	Dissolved	Water	9010C	
500-195149-17	MW-11	Dissolved	Water	9010C	
500-195149-18	MW-12	Dissolved	Water	9010C	
MB 500-586709/1-A	Method Blank	Total/NA	Water	9010C	
LCS 500-586709/3-A	Lab Control Sample	Total/NA	Water	9010C	
LLCS 500-586709/4-A	Lab Control Sample	Total/NA	Water	9010C	

Analysis Batch: 586718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-13	MW-13	Dissolved	Water	9012B	586709
500-195149-14	MW-14	Dissolved	Water	9012B	586709
500-195149-15	MW-15	Dissolved	Water	9012B	586709
500-195149-16	MW-09	Dissolved	Water	9012B	586709
500-195149-17	MW-11	Dissolved	Water	9012B	586709
500-195149-18	MW-12	Dissolved	Water	9012B	586709
MB 500-586709/1-A	Method Blank	Total/NA	Water	9012B	586709

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

General Chemistry (Continued)

Analysis Batch: 586718 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 500-586709/3-A	Lab Control Sample	Total/NA	Water	9012B	586709
LLCS 500-586709/4-A	Lab Control Sample	Total/NA	Water	9012B	586709

Analysis Batch: 586782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-17	MW-11	Dissolved	Water	SM 2540C	
500-195149-18	MW-12	Dissolved	Water	SM 2540C	
MB 500-586782/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-586782/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 587127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	SM 4500 F C	
500-195149-2	MW-03	Dissolved	Water	SM 4500 F C	
500-195149-3	MW-04	Dissolved	Water	SM 4500 F C	
500-195149-4	MW-05	Dissolved	Water	SM 4500 F C	
500-195149-5	Duplicate	Dissolved	Water	SM 4500 F C	
500-195149-6	MW-07	Dissolved	Water	SM 4500 F C	
500-195149-7	MW-06	Dissolved	Water	SM 4500 F C	
500-195149-8	MW-08	Dissolved	Water	SM 4500 F C	
500-195149-9	MW-01	Dissolved	Water	SM 4500 F C	
500-195149-10	MW-10	Dissolved	Water	SM 4500 F C	
500-195149-11	MW-16	Dissolved	Water	SM 4500 F C	
500-195149-13	MW-13	Dissolved	Water	SM 4500 F C	
500-195149-14	MW-14	Dissolved	Water	SM 4500 F C	
500-195149-15	MW-15	Dissolved	Water	SM 4500 F C	
500-195149-16	MW-09	Dissolved	Water	SM 4500 F C	
500-195149-17	MW-11	Dissolved	Water	SM 4500 F C	
500-195149-18	MW-12	Dissolved	Water	SM 4500 F C	
MB 500-587127/3	Method Blank	Total/NA	Water	SM 4500 F C	
MB 500-587127/31	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 500-587127/32	Lab Control Sample	Total/NA	Water	SM 4500 F C	
LCS 500-587127/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
500-195149-10 MS	MW-10	Dissolved	Water	SM 4500 F C	
500-195149-10 MSD	MW-10	Dissolved	Water	SM 4500 F C	

Analysis Batch: 587472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-17	MW-11	Dissolved	Water	9251	
500-195149-18	MW-12	Dissolved	Water	9251	
MB 500-587472/111	Method Blank	Total/NA	Water	9251	
LCS 500-587472/112	Lab Control Sample	Total/NA	Water	9251	

Analysis Batch: 587491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-1	MW-02	Dissolved	Water	SM 4500 NO3 F	
500-195149-2	MW-03	Dissolved	Water	SM 4500 NO3 F	
500-195149-3	MW-04	Dissolved	Water	SM 4500 NO3 F	
500-195149-4	MW-05	Dissolved	Water	SM 4500 NO3 F	
500-195149-5	Duplicate	Dissolved	Water	SM 4500 NO3 F	
500-195149-6	MW-07	Dissolved	Water	SM 4500 NO3 F	

QC Association Summary

General Chemistry (Continued)

Analysis Batch: 587491 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-7	MW-06	Dissolved	Water	SM 4500 NO3 F	
500-195149-8	MW-08	Dissolved	Water	SM 4500 NO3 F	
500-195149-9	MW-01	Dissolved	Water	SM 4500 NO3 F	
500-195149-10	MW-10	Dissolved	Water	SM 4500 NO3 F	
500-195149-11	MW-16	Dissolved	Water	SM 4500 NO3 F	
500-195149-13	MW-13	Dissolved	Water	SM 4500 NO3 F	
500-195149-14	MW-14	Dissolved	Water	SM 4500 NO3 F	
500-195149-15	MW-15	Dissolved	Water	SM 4500 NO3 F	
500-195149-16	MW-09	Dissolved	Water	SM 4500 NO3 F	
500-195149-17	MW-11	Dissolved	Water	SM 4500 NO3 F	
500-195149-18	MW-12	Dissolved	Water	SM 4500 NO3 F	
MB 500-587491/51	Method Blank	Total/NA	Water	SM 4500 NO3 F	
MB 500-587491/79	Method Blank	Total/NA	Water	SM 4500 NO3 F	
LCS 500-587491/52	Lab Control Sample	Total/NA	Water	SM 4500 NO3 F	
LCS 500-587491/80	Lab Control Sample	Total/NA	Water	SM 4500 NO3 F	
LCSD 500-587491/81	Lab Control Sample Dup	Total/NA	Water	SM 4500 NO3 F	
500-195149-18 MS	MW-12	Dissolved	Water	SM 4500 NO3 F	
500-195149-18 MSD	MW-12	Dissolved	Water	SM 4500 NO3 F	

Analysis Batch: 588004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-195149-17	MW-11	Dissolved	Water	9038	
500-195149-18	MW-12	Dissolved	Water	9038	
MB 500-588004/39	Method Blank	Total/NA	Water	9038	
LCS 500-588004/67	Lab Control Sample	Total/NA	Water	9038	

Surrogate Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-195149-1	MW-02	95	96	97	94
500-195149-1 MS	MW-02	96	97	93	97
500-195149-1 MSD	MW-02	96	98	94	97
500-195149-2	MW-03	94	97	92	92
500-195149-3	MW-04	95	98	95	93
500-195149-4	MW-05	97	98	93	93
500-195149-5	Duplicate	95	96	94	94
500-195149-6	MW-07	102	101	101	99
500-195149-7	MW-06	102	100	98	100
500-195149-8	MW-08	102	99	102	101
500-195149-9	MW-01	104	99	102	101
500-195149-10	MW-10	107	99	101	100
500-195149-11	MW-16	103	97	105	101
500-195149-11 MS	MW-16	104	98	102	103
500-195149-11 MSD	MW-16	106	97	100	103
500-195149-12	Trip Blank	104	97	100	100
500-195149-13	MW-13	96	91	85	112
500-195149-14	MW-14	96	91	85	112
500-195149-15	MW-15	94	92	86	112
500-195149-16	MW-09	95	93	87	113
500-195149-17	MW-11	109	99	101	96
500-195149-18	MW-12	109	98	103	99
LCS 500-586159/5	Lab Control Sample	94	95	92	95
LCS 500-586286/5	Lab Control Sample	105	98	101	101
LCS 500-586474/5	Lab Control Sample	92	95	86	107
LCS 500-586664/5	Lab Control Sample	106	100	97	97
MB 500-586159/7	Method Blank	96	98	96	95
MB 500-586286/7	Method Blank	105	98	100	101
MB 500-586474/7	Method Blank	94	92	87	110
MB 500-586664/7	Method Blank	108	99	99	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-586159/7
Matrix: Water
Analysis Batch: 586159

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/24/21 12:14	1
Toluene	<0.00050		0.00050		mg/L			02/24/21 12:14	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/24/21 12:14	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/24/21 12:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*		*02/24/21 12:14*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*02/24/21 12:14*	*1*
4-Bromofluorobenzene (Surr)	*96*		*72 - 124*		*02/24/21 12:14*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*02/24/21 12:14*	*1*

Lab Sample ID: LCS 500-586159/5
Matrix: Water
Analysis Batch: 586159

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0497		mg/L		99	70 - 120
Toluene	0.0500	0.0474		mg/L		95	70 - 125
Ethylbenzene	0.0500	0.0498		mg/L		100	70 - 123
Xylenes, Total	0.100	0.0925		mg/L		93	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*
Toluene-d8 (Surr)	*95*		*75 - 120*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*
Dibromofluoromethane	*95*		*75 - 120*

Lab Sample ID: 500-195149-1 MS
Matrix: Water
Analysis Batch: 586159

Client Sample ID: MW-02
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00050		0.0500	0.0503		mg/L		101	70 - 120
Toluene	<0.00050		0.0500	0.0488		mg/L		98	70 - 125
Ethylbenzene	<0.00050		0.0500	0.0506		mg/L		101	70 - 123
Xylenes, Total	<0.0010		0.100	0.0931		mg/L		93	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*
Toluene-d8 (Surr)	*97*		*75 - 120*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*
Dibromofluoromethane	*97*		*75 - 120*

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-195149-1 MSD
Matrix: Water
Analysis Batch: 586159

Client Sample ID: MW-02
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00050		0.0500	0.0516		mg/L		103	70 - 120	3	20
Toluene	<0.00050		0.0500	0.0500		mg/L		100	70 - 125	2	20
Ethylbenzene	<0.00050		0.0500	0.0515		mg/L		103	70 - 123	2	20
Xylenes, Total	<0.0010		0.100	0.0958		mg/L		96	70 - 125	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*
Toluene-d8 (Surr)	*98*		*75 - 120*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*
Dibromofluoromethane	*97*		*75 - 120*

Lab Sample ID: MB 500-586286/7
Matrix: Water
Analysis Batch: 586286

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/25/21 11:36	1
Toluene	<0.00050		0.00050		mg/L			02/25/21 11:36	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/25/21 11:36	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/25/21 11:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 126*		*02/25/21 11:36*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*02/25/21 11:36*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*02/25/21 11:36*	*1*
Dibromofluoromethane	*101*		*75 - 120*		*02/25/21 11:36*	*1*

Lab Sample ID: LCS 500-586286/5
Matrix: Water
Analysis Batch: 586286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0446		mg/L		89	70 - 120
Toluene	0.0500	0.0435		mg/L		87	70 - 125
Ethylbenzene	0.0500	0.0449		mg/L		90	70 - 123
Xylenes, Total	0.100	0.0901		mg/L		90	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 126*
Toluene-d8 (Surr)	*98*		*75 - 120*
4-Bromofluorobenzene (Surr)	*101*		*72 - 124*
Dibromofluoromethane	*101*		*75 - 120*

QC Sample Results

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-195149-11 MS
Matrix: Water
Analysis Batch: 586286

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00050		0.0500	0.0484		mg/L		97	70 - 120
Toluene	<0.00050		0.0500	0.0471		mg/L		94	70 - 125
Ethylbenzene	<0.00050		0.0500	0.0479		mg/L		96	70 - 123
Xylenes, Total	<0.0010		0.100	0.0968		mg/L		97	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*
Toluene-d8 (Surr)	*98*		*75 - 120*
4-Bromofluorobenzene (Surr)	*102*		*72 - 124*
Dibromofluoromethane	*103*		*75 - 120*

Lab Sample ID: 500-195149-11 MSD
Matrix: Water
Analysis Batch: 586286

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00050		0.0500	0.0465		mg/L		93	70 - 120	4	20
Toluene	<0.00050		0.0500	0.0454		mg/L		91	70 - 125	4	20
Ethylbenzene	<0.00050		0.0500	0.0458		mg/L		92	70 - 123	5	20
Xylenes, Total	<0.0010		0.100	0.0936		mg/L		94	70 - 125	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 126*
Toluene-d8 (Surr)	*97*		*75 - 120*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*
Dibromofluoromethane	*103*		*75 - 120*

Lab Sample ID: MB 500-586474/7
Matrix: Water
Analysis Batch: 586474

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			02/26/21 11:44	1
Toluene	<0.00050		0.00050		mg/L			02/26/21 11:44	1
Ethylbenzene	<0.00050		0.00050		mg/L			02/26/21 11:44	1
Xylenes, Total	<0.0010		0.0010		mg/L			02/26/21 11:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*		*02/26/21 11:44*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*02/26/21 11:44*	*1*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*		*02/26/21 11:44*	*1*
Dibromofluoromethane	*110*		*75 - 120*		*02/26/21 11:44*	*1*

QC Sample Results

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-586474/5
Matrix: Water
Analysis Batch: 586474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0499		mg/L		100	70 - 120
Toluene	0.0500	0.0487		mg/L		97	70 - 125
Ethylbenzene	0.0500	0.0484		mg/L		97	70 - 123
Xylenes, Total	0.100	0.0942		mg/L		94	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*
Toluene-d8 (Surr)	*95*		*75 - 120*
4-Bromofluorobenzene (Surr)	*86*		*72 - 124*
Dibromofluoromethane	*107*		*75 - 120*

Lab Sample ID: MB 500-586664/7
Matrix: Water
Analysis Batch: 586664

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00050		0.00050		mg/L			03/01/21 11:20	1
Toluene	<0.00050		0.00050		mg/L			03/01/21 11:20	1
Ethylbenzene	<0.00050		0.00050		mg/L			03/01/21 11:20	1
Xylenes, Total	<0.0010		0.0010		mg/L			03/01/21 11:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 126*		*03/01/21 11:20*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*03/01/21 11:20*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*03/01/21 11:20*	*1*
Dibromofluoromethane	*96*		*75 - 120*		*03/01/21 11:20*	*1*

Lab Sample ID: LCS 500-586664/5
Matrix: Water
Analysis Batch: 586664

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0482		mg/L		96	70 - 120
Toluene	0.0500	0.0490		mg/L		98	70 - 125
Ethylbenzene	0.0500	0.0474		mg/L		95	70 - 123
Xylenes, Total	0.100	0.0942		mg/L		94	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 126*
Toluene-d8 (Surr)	*100*		*75 - 120*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*
Dibromofluoromethane	*97*		*75 - 120*

QC Sample Results

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 320-470577/5
Matrix: Water
Analysis Batch: 470577
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/16/21 11:32	1

Lab Sample ID: LCS 320-470577/6
Matrix: Water
Analysis Batch: 470577
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0566		mg/L		113	85 - 115

Lab Sample ID: MRL 320-470577/4
Matrix: Water
Analysis Batch: 470577
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	<4.0		ug/L		94	75 - 125

Lab Sample ID: MB 320-470988/5
Matrix: Water
Analysis Batch: 470988
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/17/21 11:29	1

Lab Sample ID: LCS 320-470988/6
Matrix: Water
Analysis Batch: 470988
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0566		mg/L		113	85 - 115

Lab Sample ID: MRL 320-470988/4
Matrix: Water
Analysis Batch: 470988
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	4.20		ug/L		105	75 - 125

Lab Sample ID: MB 320-471554/5
Matrix: Water
Analysis Batch: 471554
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/18/21 11:29	1

Lab Sample ID: LCS 320-471554/6
Matrix: Water
Analysis Batch: 471554
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0562		mg/L		112	85 - 115

QC Sample Results

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MRL 320-471554/4
Matrix: Water
Analysis Batch: 471554
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	<4.0		ug/L		90	75 - 125

Lab Sample ID: MB 320-472167/13
Matrix: Water
Analysis Batch: 472167
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	<0.0040		0.0040		mg/L			03/19/21 18:01	1

Lab Sample ID: LCS 320-472167/14
Matrix: Water
Analysis Batch: 472167
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0528		mg/L		106	85 - 115

Lab Sample ID: MRL 320-472167/12
Matrix: Water
Analysis Batch: 472167
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	<4.0		ug/L		96	75 - 125

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: 500-195149-1 MS
Matrix: Water
Analysis Batch: 586865
Client Sample ID: MW-02
Prep Type: Dissolved
Prep Batch: 586720

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0030		0.500	0.524		mg/L		105	75 - 125
Arsenic	<0.0010		0.100	0.105		mg/L		104	75 - 125
Barium	0.054		0.500	0.584		mg/L		106	75 - 125
Beryllium	<0.0010	^+	0.0500	0.0465	^+	mg/L		93	75 - 125
Cadmium	<0.00050		0.0500	0.0513		mg/L		103	75 - 125
Chromium	<0.0050		0.200	0.205		mg/L		103	75 - 125
Cobalt	<0.0010		0.500	0.491		mg/L		98	75 - 125
Iron	<0.10		1.00	1.00		mg/L		100	75 - 125
Lead	<0.00050		0.100	0.106		mg/L		106	75 - 125
Manganese	<0.0025		0.500	0.502		mg/L		100	75 - 125
Nickel	<0.0020		0.500	0.500		mg/L		100	75 - 125
Selenium	<0.0025		0.100	0.111		mg/L		109	75 - 125
Silver	<0.00050		0.0500	0.0424		mg/L		85	75 - 125
Thallium	<0.0020		0.100	0.108		mg/L		108	75 - 125
Vanadium	<0.0050		0.500	0.497		mg/L		99	75 - 125
Zinc	<0.020		0.500	0.508		mg/L		102	75 - 125

QC Sample Results

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 500-195149-1 MS
Matrix: Water
Analysis Batch: 587062

Client Sample ID: MW-02
Prep Type: Dissolved
Prep Batch: 586720

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.25		1.00	1.20		mg/L		94	75 - 125
Copper	<0.0020		0.250	0.260		mg/L		104	75 - 125

Lab Sample ID: 500-195149-1 MSD
Matrix: Water
Analysis Batch: 586865

Client Sample ID: MW-02
Prep Type: Dissolved
Prep Batch: 586720

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.0030		0.500	0.517		mg/L		103	75 - 125	1	20
Arsenic	<0.0010		0.100	0.103		mg/L		102	75 - 125	1	20
Barium	0.054		0.500	0.590		mg/L		107	75 - 125	1	20
Beryllium	<0.0010	^+	0.0500	0.0480	^+	mg/L		96	75 - 125	3	20
Cadmium	<0.00050		0.0500	0.0509		mg/L		102	75 - 125	1	20
Chromium	<0.0050		0.200	0.207		mg/L		103	75 - 125	1	20
Cobalt	<0.0010		0.500	0.497		mg/L		99	75 - 125	1	20
Iron	<0.10		1.00	1.01		mg/L		101	75 - 125	1	20
Lead	<0.00050		0.100	0.106		mg/L		106	75 - 125	1	20
Manganese	<0.0025		0.500	0.507		mg/L		101	75 - 125	1	20
Nickel	<0.0020		0.500	0.501		mg/L		100	75 - 125	0	20
Selenium	<0.0025		0.100	0.109		mg/L		108	75 - 125	1	20
Silver	<0.00050		0.0500	0.0472		mg/L		94	75 - 125	11	20
Thallium	<0.0020		0.100	0.109		mg/L		109	75 - 125	1	20
Vanadium	<0.0050		0.500	0.502		mg/L		100	75 - 125	1	20
Zinc	<0.020		0.500	0.521		mg/L		104	75 - 125	2	20

Lab Sample ID: 500-195149-1 MSD
Matrix: Water
Analysis Batch: 587062

Client Sample ID: MW-02
Prep Type: Dissolved
Prep Batch: 586720

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.25		1.00	1.28		mg/L		102	75 - 125	6	20
Copper	<0.0020		0.250	0.272		mg/L		109	75 - 125	4	20

Lab Sample ID: 500-195149-1 DU
Matrix: Water
Analysis Batch: 586865

Client Sample ID: MW-02
Prep Type: Dissolved
Prep Batch: 586720

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.0030		<0.0030		mg/L		NC	20
Arsenic	<0.0010		<0.0010		mg/L		NC	20
Barium	0.054		0.0512		mg/L		6	20
Beryllium	<0.0010	^+	<0.0010	^+	mg/L		NC	20
Cadmium	<0.00050		<0.00050		mg/L		NC	20
Chromium	<0.0050		<0.0050		mg/L		NC	20
Cobalt	<0.0010		<0.0010		mg/L		NC	20
Iron	<0.10		<0.10		mg/L		NC	20
Lead	<0.00050		<0.00050		mg/L		NC	20
Manganese	<0.0025		<0.0025		mg/L		NC	20
Nickel	<0.0020		<0.0020		mg/L		NC	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 500-195149-1 DU
Matrix: Water
Analysis Batch: 586865

Client Sample ID: MW-02
Prep Type: Dissolved
Prep Batch: 586720

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Selenium	<0.0025		<0.0025		mg/L		NC	20
Silver	<0.00050		<0.00050		mg/L		NC	20
Thallium	<0.0020		<0.0020		mg/L		NC	20
Vanadium	<0.0050		<0.0050		mg/L		NC	20
Zinc	<0.020		<0.020		mg/L		NC	20

Lab Sample ID: 500-195149-1 DU
Matrix: Water
Analysis Batch: 587062

Client Sample ID: MW-02
Prep Type: Dissolved
Prep Batch: 586720

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Boron	0.25		0.240		mg/L		5	20
Copper	<0.0020		<0.0020		mg/L		NC	20

Lab Sample ID: MB 500-586720/1-A
Matrix: Water
Analysis Batch: 586865

Client Sample ID: Method Blank
Prep Type: Soluble
Prep Batch: 586720

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0030		0.0030		mg/L		03/01/21 13:37	03/01/21 14:50	1
Arsenic	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 14:50	1
Barium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 14:50	1
Beryllium	<0.0010	^+	0.0010		mg/L		03/01/21 13:37	03/01/21 14:50	1
Cadmium	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 14:50	1
Chromium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 14:50	1
Cobalt	<0.0010		0.0010		mg/L		03/01/21 13:37	03/01/21 14:50	1
Iron	<0.10		0.10		mg/L		03/01/21 13:37	03/01/21 14:50	1
Lead	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 14:50	1
Manganese	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 14:50	1
Nickel	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 14:50	1
Selenium	<0.0025		0.0025		mg/L		03/01/21 13:37	03/01/21 14:50	1
Silver	<0.00050		0.00050		mg/L		03/01/21 13:37	03/01/21 14:50	1
Thallium	<0.0020		0.0020		mg/L		03/01/21 13:37	03/01/21 14:50	1
Vanadium	<0.0050		0.0050		mg/L		03/01/21 13:37	03/01/21 14:50	1
Zinc	<0.020		0.020		mg/L		03/01/21 13:37	03/01/21 14:50	1

Lab Sample ID: MB 500-586720/1-A
Matrix: Water
Analysis Batch: 587062

Client Sample ID: Method Blank
Prep Type: Soluble
Prep Batch: 586720

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.050		0.050		mg/L		03/01/21 13:37	03/02/21 11:44	1
Copper	<0.0020		0.0020		mg/L		03/01/21 13:37	03/02/21 11:44	1

Lab Sample ID: LCS 500-586720/2-A
Matrix: Water
Analysis Batch: 586865

Client Sample ID: Lab Control Sample
Prep Type: Soluble
Prep Batch: 586720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.492		mg/L		98	80 - 120

QC Sample Results

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 500-586720/2-A
Matrix: Water
Analysis Batch: 586865
Client Sample ID: Lab Control Sample
Prep Type: Soluble
Prep Batch: 586720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.100	0.0959		mg/L		96	80 - 120
Barium	0.500	0.518		mg/L		104	80 - 120
Beryllium	0.0500	0.0521	^+	mg/L		104	80 - 120
Cadmium	0.0500	0.0487		mg/L		97	80 - 120
Chromium	0.200	0.207		mg/L		104	80 - 120
Cobalt	0.500	0.502		mg/L		100	80 - 120
Iron	1.00	1.00		mg/L		100	80 - 120
Lead	0.100	0.102		mg/L		102	80 - 120
Manganese	0.500	0.506		mg/L		101	80 - 120
Nickel	0.500	0.510		mg/L		102	80 - 120
Selenium	0.100	0.0950		mg/L		95	80 - 120
Silver	0.0500	0.0470		mg/L		94	80 - 120
Thallium	0.100	0.105		mg/L		105	80 - 120
Vanadium	0.500	0.498		mg/L		100	80 - 120
Zinc	0.500	0.486		mg/L		97	80 - 120

Lab Sample ID: LCS 500-586720/2-A
Matrix: Water
Analysis Batch: 587062
Client Sample ID: Lab Control Sample
Prep Type: Soluble
Prep Batch: 586720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.00		mg/L		100	80 - 120
Copper	0.250	0.257		mg/L		103	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 500-586179/12-A
Matrix: Water
Analysis Batch: 586345
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586179

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/24/21 09:35	02/25/21 08:34	1

Lab Sample ID: LCS 500-586179/13-A
Matrix: Water
Analysis Batch: 586345
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586179

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00200	0.00197		mg/L		98	80 - 120

Lab Sample ID: MB 500-586338/12-A
Matrix: Water
Analysis Batch: 586559
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586338

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/25/21 10:00	02/26/21 08:39	1

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 500-586338/13-A
Matrix: Water
Analysis Batch: 586559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586338

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00200	0.00177		mg/L		88	80 - 120

Lab Sample ID: MB 500-586541/12-A
Matrix: Water
Analysis Batch: 586704

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586541

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		02/26/21 09:30	03/01/21 08:55	1

Lab Sample ID: LCS 500-586541/13-A
Matrix: Water
Analysis Batch: 586704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586541

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00200	0.00222		mg/L		111	80 - 120

Lab Sample ID: MB 500-586703/12-A
Matrix: Water
Analysis Batch: 586885

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586703

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		03/01/21 10:20	03/02/21 08:55	1

Lab Sample ID: LCS 500-586703/13-A
Matrix: Water
Analysis Batch: 586885

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586703

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00200	0.00199		mg/L		99	80 - 120

Lab Sample ID: 500-195149-2 MS
Matrix: Water
Analysis Batch: 586345

Client Sample ID: MW-03
Prep Type: Dissolved
Prep Batch: 586179

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.00020		0.00100	0.000948		mg/L		95	75 - 125

Lab Sample ID: 500-195149-2 MSD
Matrix: Water
Analysis Batch: 586345

Client Sample ID: MW-03
Prep Type: Dissolved
Prep Batch: 586179

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.00020		0.00100	0.000923		mg/L		92	75 - 125	3	20

Lab Sample ID: 500-195149-2 DU
Matrix: Water
Analysis Batch: 586345

Client Sample ID: MW-03
Prep Type: Dissolved
Prep Batch: 586179

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	<0.00020		<0.00020		mg/L		NC	20

QC Sample Results

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 500-195149-6 MS
Matrix: Water
Analysis Batch: 586559
Client Sample ID: MW-07
Prep Type: Dissolved
Prep Batch: 586338

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.00020		0.00100	0.000851		mg/L		85	75 - 125

Lab Sample ID: 500-195149-6 MSD
Matrix: Water
Analysis Batch: 586559
Client Sample ID: MW-07
Prep Type: Dissolved
Prep Batch: 586338

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.00020		0.00100	0.000857		mg/L		86	75 - 125	1	20

Lab Sample ID: 500-195149-6 DU
Matrix: Water
Analysis Batch: 586559
Client Sample ID: MW-07
Prep Type: Dissolved
Prep Batch: 586338

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	<0.00020		<0.00020		mg/L		NC	20

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 500-586176/1-A
Matrix: Water
Analysis Batch: 586220
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586176

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/24/21 09:47	02/24/21 12:48	1

Lab Sample ID: HLCS 500-586176/2-A
Matrix: Water
Analysis Batch: 586220
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586176

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.500	0.484		mg/L		97	90 - 110

Lab Sample ID: LCS 500-586176/3-A
Matrix: Water
Analysis Batch: 586220
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0994		mg/L		99	85 - 115

Lab Sample ID: LLCS 500-586176/4-A
Matrix: Water
Analysis Batch: 586220
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586176

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0487		mg/L		97	75 - 125

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: MB 500-586365/1-A
Matrix: Water
Analysis Batch: 586382

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586365

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		02/25/21 10:10	02/25/21 12:06	1

Lab Sample ID: HLCS 500-586365/2-A
Matrix: Water
Analysis Batch: 586382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586365

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.500	0.528		mg/L		106	90 - 110

Lab Sample ID: LCS 500-586365/3-A
Matrix: Water
Analysis Batch: 586382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586365

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0940		mg/L		94	85 - 115

Lab Sample ID: LLCS 500-586365/4-A
Matrix: Water
Analysis Batch: 586382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586365

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0499		mg/L		100	75 - 125

Lab Sample ID: MB 500-586709/1-A
Matrix: Water
Analysis Batch: 586718

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586709

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0050		0.0050		mg/L		03/01/21 10:01	03/01/21 11:26	1

Lab Sample ID: LCS 500-586709/3-A
Matrix: Water
Analysis Batch: 586718

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0871		mg/L		87	85 - 115

Lab Sample ID: LLCS 500-586709/4-A
Matrix: Water
Analysis Batch: 586718

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586709

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0440		mg/L		88	75 - 125

Lab Sample ID: 500-195149-6 MS
Matrix: Water
Analysis Batch: 586382

Client Sample ID: MW-07
Prep Type: Dissolved
Prep Batch: 586365

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	<0.0050	F1	0.0500	0.0464		mg/L		84	75 - 125

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: 500-195149-6 MSD
Matrix: Water
Analysis Batch: 586382

Client Sample ID: MW-07
Prep Type: Dissolved
Prep Batch: 586365

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	<0.0050	F1	0.0500	0.0415	F1	mg/L		74	75 - 125	11	20

Method: 9038 - Sulfate, Turbidimetric

Lab Sample ID: MB 500-586216/15
Matrix: Water
Analysis Batch: 586216

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/24/21 14:56	1

Lab Sample ID: LCS 500-586216/16
Matrix: Water
Analysis Batch: 586216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	21.4		mg/L		107	80 - 120

Lab Sample ID: MB 500-586601/44
Matrix: Water
Analysis Batch: 586601

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/26/21 13:11	1

Lab Sample ID: LCS 500-586601/49
Matrix: Water
Analysis Batch: 586601

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	22.3		mg/L		112	80 - 120

Lab Sample ID: MB 500-588004/39
Matrix: Water
Analysis Batch: 588004

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			03/10/21 12:32	1

Lab Sample ID: LCS 500-588004/67
Matrix: Water
Analysis Batch: 588004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	22.4		mg/L		112	80 - 120

QC Sample Results

Method: 9251 - Chloride

Lab Sample ID: MB 500-586602/46
Matrix: Water
Analysis Batch: 586602

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<2.0		2.0		mg/L			02/26/21 13:13	1

Lab Sample ID: LCS 500-586602/47
Matrix: Water
Analysis Batch: 586602

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	21.1		mg/L		105	80 - 120

Lab Sample ID: MB 500-587472/111
Matrix: Water
Analysis Batch: 587472

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<2.0		2.0		mg/L			03/05/21 15:45	1

Lab Sample ID: LCS 500-587472/112
Matrix: Water
Analysis Batch: 587472

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	22.5		mg/L		112	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 500-586109/1
Matrix: Water
Analysis Batch: 586109

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			02/24/21 02:31	1

Lab Sample ID: LCS 500-586109/2
Matrix: Water
Analysis Batch: 586109

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	250	238		mg/L		95	80 - 120

Lab Sample ID: MB 500-586264/1
Matrix: Water
Analysis Batch: 586264

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			02/25/21 04:58	1

QC Sample Results

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 500-586264/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 586264

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			250	244		mg/L		98	80 - 120		

Lab Sample ID: MB 500-586471/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 586471

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			02/26/21 05:32	1

Lab Sample ID: LCS 500-586471/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 586471

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			250	234		mg/L		94	80 - 120		

Lab Sample ID: MB 500-586782/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 586782

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			03/01/21 22:40	1

Lab Sample ID: LCS 500-586782/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 586782

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			250	242		mg/L		97	80 - 120		

Lab Sample ID: 500-195149-13 MS **Client Sample ID: MW-13**
Matrix: Water **Prep Type: Dissolved**
Analysis Batch: 586471

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids	2500		250	2790	4	mg/L		110	75 - 125		

Lab Sample ID: 500-195149-13 DU **Client Sample ID: MW-13**
Matrix: Water **Prep Type: Dissolved**
Analysis Batch: 586471

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	2500			2480		mg/L				1	5

Lab Sample ID: 500-195149-14 DU **Client Sample ID: MW-14**
Matrix: Water **Prep Type: Dissolved**
Analysis Batch: 586471

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1800			1750		mg/L				3	5

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 500-587127/3
Matrix: Water
Analysis Batch: 587127

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			03/03/21 12:08	1

Lab Sample ID: MB 500-587127/31
Matrix: Water
Analysis Batch: 587127

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			03/03/21 14:38	1

Lab Sample ID: LCS 500-587127/32
Matrix: Water
Analysis Batch: 587127

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	11.5		mg/L		115	80 - 120

Lab Sample ID: LCS 500-587127/4
Matrix: Water
Analysis Batch: 587127

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	11.1		mg/L		111	80 - 120

Lab Sample ID: 500-195149-10 MS
Matrix: Water
Analysis Batch: 587127

Client Sample ID: MW-10
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.25		5.00	5.94		mg/L		114	75 - 125

Lab Sample ID: 500-195149-10 MSD
Matrix: Water
Analysis Batch: 587127

Client Sample ID: MW-10
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.25		5.00	6.00		mg/L		115	75 - 125	1	20

Method: SM 4500 NO2 B - Nitrogen, Nitrite

Lab Sample ID: MB 500-586055/9
Matrix: Water
Analysis Batch: 586055

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrite	<0.020	^1+	0.020		mg/L			02/23/21 12:51	1

QC Sample Results

Method: SM 4500 NO2 B - Nitrogen, Nitrite (Continued)

Lab Sample ID: LCS 500-586055/10
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 586055

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrite	0.100	0.109	^1+	mg/L		109	80 - 120

Lab Sample ID: MB 500-586397/33
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 586397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:25	1

Lab Sample ID: MB 500-586397/9
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 586397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/25/21 15:14	1

Lab Sample ID: LCS 500-586397/10
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 586397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrite	0.100	0.112		mg/L		112	80 - 120

Lab Sample ID: LCS 500-586397/34
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 586397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrite	0.100	0.112		mg/L		112	80 - 120

Lab Sample ID: MB 500-586582/9
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 586582

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrite	<0.020		0.020		mg/L			02/26/21 13:36	1

Lab Sample ID: LCS 500-586582/10
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 586582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrite	0.100	0.110		mg/L		110	80 - 120

Lab Sample ID: 500-195149-1 MS
Client Sample ID: MW-02
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 586055

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrite	<0.020	^1+	0.100	0.0842	^1+	mg/L		84	75 - 125

QC Sample Results

Method: SM 4500 NO2 B - Nitrogen, Nitrite

Lab Sample ID: 500-195149-1 MSD
Matrix: Water
Analysis Batch: 586055
Client Sample ID: MW-02
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Nitrite	<0.020	^1+	0.100	0.0861	^1+	mg/L		86	75 - 125	2	20

Lab Sample ID: 500-195149-15 MS
Matrix: Water
Analysis Batch: 586397
Client Sample ID: MW-15
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrite	<0.020		0.100	0.104		mg/L		104	75 - 125

Lab Sample ID: 500-195149-15 MSD
Matrix: Water
Analysis Batch: 586397
Client Sample ID: MW-15
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Nitrite	<0.020		0.100	0.107		mg/L		107	75 - 125	3	20

Method: SM 4500 NO3 F - Nitrogen, Nitrate

Lab Sample ID: MB 500-587491/51
Matrix: Water
Analysis Batch: 587491
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 13:57	1

Lab Sample ID: MB 500-587491/79
Matrix: Water
Analysis Batch: 587491
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate Nitrite	<0.10		0.10		mg/L			03/05/21 14:56	1

Lab Sample ID: LCS 500-587491/52
Matrix: Water
Analysis Batch: 587491
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrate Nitrite	1.00	0.949		mg/L		95	80 - 120

Lab Sample ID: LCS 500-587491/80
Matrix: Water
Analysis Batch: 587491
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrate Nitrite	1.00	0.992		mg/L		99	80 - 120

QC Sample Results

Method: SM 4500 NO3 F - Nitrogen, Nitrate (Continued)

Lab Sample ID: LCSD 500-587491/81
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 587491

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Nitrate Nitrite			1.00	0.964		mg/L		96	80 - 120	3	20

Lab Sample ID: 500-195149-18 MS
Client Sample ID: MW-12
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 587491

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Nitrate Nitrite	<0.10		1.00	1.08		mg/L		108	75 - 125

Lab Sample ID: 500-195149-18 MSD
Client Sample ID: MW-12
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 587491

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Nitrate Nitrite	<0.10		1.00	1.11		mg/L		111	75 - 125	2	20

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-02

Lab Sample ID: 500-195149-1

Date Collected: 02/22/21 11:37
Date Received: 02/23/21 11:05

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586159	02/24/21 12:41	PMF	TAL CHI
Total/NA	Analysis	314.0		1	470577	03/16/21 17:27	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 14:57	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 11:51	FXG	TAL CHI
Dissolved	Prep	7470A			586179	02/24/21 09:35	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586345	02/25/21 08:42	MJG	TAL CHI
Dissolved	Prep	9010C			586176	02/24/21 09:47	MS	TAL CHI
Dissolved	Analysis	9012B		1	586220	02/24/21 13:08	MS	TAL CHI
Dissolved	Analysis	9038		3	586216	02/24/21 14:58	MS	TAL CHI
Dissolved	Analysis	9251		2	586602	02/26/21 13:19	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	02/24/21 17:20	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586109	02/24/21 02:55	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 13:32	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586055	02/23/21 12:52	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		5	587491	03/05/21 16:14	PFK	TAL CHI

Client Sample ID: MW-03

Lab Sample ID: 500-195149-2

Date Collected: 02/22/21 12:34
Date Received: 02/23/21 11:05

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586159	02/24/21 13:07	PMF	TAL CHI
Total/NA	Analysis	314.0		1	470577	03/16/21 17:50	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:15	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:08	FXG	TAL CHI
Dissolved	Prep	7470A			586179	02/24/21 09:35	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586345	02/25/21 08:45	MJG	TAL CHI
Dissolved	Prep	9010C			586176	02/24/21 09:47	MS	TAL CHI
Dissolved	Analysis	9012B		1	586220	02/24/21 13:10	MS	TAL CHI
Dissolved	Analysis	9038		5	586216	02/24/21 15:05	MS	TAL CHI
Dissolved	Analysis	9251		2	586602	02/26/21 13:21	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	02/24/21 17:20	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586109	02/24/21 02:58	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 13:39	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586055	02/23/21 12:53	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		5	587491	03/05/21 16:17	PFK	TAL CHI

Lab Chronicle

Client Sample ID: MW-04
Lab Sample ID: 500-195149-3
Date Collected: 02/22/21 13:21
Matrix: Water
Date Received: 02/23/21 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586159	02/24/21 13:33	PMF	TAL CHI
Total/NA	Analysis	314.0		1	470988	03/17/21 17:02	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:18	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:12	FXG	TAL CHI
Dissolved	Prep	7470A			586179	02/24/21 09:35	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586345	02/25/21 09:06	MJG	TAL CHI
Dissolved	Prep	9010C			586176	02/24/21 09:47	MS	TAL CHI
Dissolved	Analysis	9012B		1	586220	02/24/21 13:12	MS	TAL CHI
Dissolved	Analysis	9038		3	586216	02/24/21 14:59	MS	TAL CHI
Dissolved	Analysis	9251		3	586602	02/26/21 13:21	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586109	02/24/21 03:01	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 13:42	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586055	02/23/21 12:53	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:05	PFK	TAL CHI

Client Sample ID: MW-05
Lab Sample ID: 500-195149-4
Date Collected: 02/22/21 14:10
Matrix: Water
Date Received: 02/23/21 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586159	02/24/21 13:59	PMF	TAL CHI
Total/NA	Analysis	314.0		1	470988	03/17/21 17:24	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:21	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:15	FXG	TAL CHI
Dissolved	Prep	7470A			586179	02/24/21 09:35	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586345	02/25/21 09:08	MJG	TAL CHI
Dissolved	Prep	9010C			586176	02/24/21 09:47	MS	TAL CHI
Dissolved	Analysis	9012B		1	586220	02/24/21 13:14	MS	TAL CHI
Dissolved	Analysis	9038		5	586216	02/24/21 14:59	MS	TAL CHI
Dissolved	Analysis	9251		3	586602	02/26/21 13:21	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586109	02/24/21 03:04	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 13:49	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586055	02/23/21 12:54	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:08	PFK	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: Duplicate
Date Collected: 02/22/21 00:00
Date Received: 02/23/21 11:05

Lab Sample ID: 500-195149-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586159	02/24/21 14:26	PMF	TAL CHI
Total/NA	Analysis	314.0		1	470988	03/17/21 17:46	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:32	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:29	FXG	TAL CHI
Dissolved	Prep	7470A			586179	02/24/21 09:35	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586345	02/25/21 09:10	MJG	TAL CHI
Dissolved	Prep	9010C			586176	02/24/21 09:47	MS	TAL CHI
Dissolved	Analysis	9012B		1	586220	02/24/21 13:15	MS	TAL CHI
Dissolved	Analysis	9038		5	586216	02/24/21 15:00	MS	TAL CHI
Dissolved	Analysis	9251		5	586602	02/26/21 13:22	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586109	02/24/21 03:06	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 13:55	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586055	02/23/21 12:54	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		5	587491	03/05/21 16:17	PFK	TAL CHI

Client Sample ID: MW-07
Date Collected: 02/23/21 09:30
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586286	02/25/21 14:37	PMF	TAL CHI
Total/NA	Analysis	314.0		1	471554	03/18/21 17:02	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:35	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:33	FXG	TAL CHI
Dissolved	Prep	7470A			586338	02/25/21 10:00	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586559	02/26/21 08:56	MJG	TAL CHI
Dissolved	Prep	9010C			586365	02/25/21 10:10	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586382	02/25/21 12:12	CMC	TAL CHI
Dissolved	Analysis	9038		2	586601	02/26/21 13:22	MS	TAL CHI
Dissolved	Analysis	9251		5	586602	02/26/21 13:24	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586264	02/25/21 05:21	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 14:16	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:20	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:12	PFK	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-06
Date Collected: 02/23/21 10:16
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586286	02/25/21 15:02	PMF	TAL CHI
Total/NA	Analysis	314.0		1	471554	03/18/21 17:24	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:39	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:36	FXG	TAL CHI
Dissolved	Prep	7470A			586338	02/25/21 10:00	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586559	02/26/21 09:21	MJG	TAL CHI
Dissolved	Prep	9010C			586365	02/25/21 10:10	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586382	02/25/21 12:18	CMC	TAL CHI
Dissolved	Analysis	9038		10	586601	02/26/21 13:24	MS	TAL CHI
Dissolved	Analysis	9251		5	586602	02/26/21 13:25	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586264	02/25/21 05:24	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 14:22	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:20	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:14	PFK	TAL CHI

Client Sample ID: MW-08
Date Collected: 02/23/21 11:11
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586286	02/25/21 15:28	PMF	TAL CHI
Total/NA	Analysis	314.0		1	471554	03/18/21 17:46	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:42	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:39	FXG	TAL CHI
Dissolved	Prep	7470A			586338	02/25/21 10:00	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586559	02/26/21 09:28	MJG	TAL CHI
Dissolved	Prep	9010C			586365	02/25/21 10:10	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586382	02/25/21 12:19	CMC	TAL CHI
Dissolved	Analysis	9038		5	586601	02/26/21 13:24	MS	TAL CHI
Dissolved	Analysis	9251		5	586602	02/26/21 13:25	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586264	02/25/21 05:26	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 14:25	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:22	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:16	PFK	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-01
Date Collected: 02/23/21 12:41
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586286	02/25/21 15:53	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 19:52	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:46	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:43	FXG	TAL CHI
Dissolved	Prep	7470A			586338	02/25/21 10:00	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586559	02/26/21 09:30	MJG	TAL CHI
Dissolved	Prep	9010C			586365	02/25/21 10:10	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586382	02/25/21 12:21	CMC	TAL CHI
Dissolved	Analysis	9038		2	586601	02/26/21 13:25	MS	TAL CHI
Dissolved	Analysis	9251		2	586602	02/26/21 13:27	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586264	02/25/21 05:29	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 14:31	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:22	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		5	587491	03/05/21 14:22	PFK	TAL CHI

Client Sample ID: MW-10
Date Collected: 02/23/21 13:34
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586286	02/25/21 16:19	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 20:14	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:49	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:46	FXG	TAL CHI
Dissolved	Prep	7470A			586338	02/25/21 10:00	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586559	02/26/21 09:32	MJG	TAL CHI
Dissolved	Prep	9010C			586365	02/25/21 10:10	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586382	02/25/21 12:26	CMC	TAL CHI
Dissolved	Analysis	9038		2	586601	02/26/21 13:27	MS	TAL CHI
Dissolved	Analysis	9251		2	586602	02/26/21 13:28	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586264	02/25/21 05:32	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 14:51	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:22	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		5	587491	03/05/21 14:24	PFK	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-16
Date Collected: 02/23/21 14:27
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586286	02/25/21 16:44	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 20:37	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:53	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 12:50	FXG	TAL CHI
Dissolved	Prep	7470A			586338	02/25/21 10:00	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586559	02/26/21 09:34	MJG	TAL CHI
Dissolved	Prep	9010C			586365	02/25/21 10:10	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586382	02/25/21 12:28	CMC	TAL CHI
Dissolved	Analysis	9038		1	586601	02/26/21 13:28	MS	TAL CHI
Dissolved	Analysis	9251		1	586602	02/26/21 13:29	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586264	02/25/21 05:34	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 15:05	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:23	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		20	587491	03/05/21 14:26	PFK	TAL CHI

Client Sample ID: Trip Blank
Date Collected: 02/23/21 00:00
Date Received: 02/24/21 10:40

Lab Sample ID: 500-195149-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586286	02/25/21 12:27	PMF	TAL CHI

Client Sample ID: MW-13
Date Collected: 02/24/21 09:26
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586474	02/26/21 12:13	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 22:28	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 15:56	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		5	587062	03/02/21 13:00	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 15:58	FXG	TAL CHI
Dissolved	Prep	7470A			586541	02/26/21 09:30	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586704	03/01/21 09:01	MJG	TAL CHI
Dissolved	Prep	9010C			586709	03/01/21 10:01	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586718	03/01/21 11:41	CMC	TAL CHI
Dissolved	Analysis	9038		50	586601	02/26/21 13:31	MS	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Client Sample ID: MW-13
Date Collected: 02/24/21 09:26
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	9251		5	586602	02/26/21 13:33	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586471	02/26/21 05:37	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 15:22	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:23	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:29	PFK	TAL CHI

Client Sample ID: MW-14
Date Collected: 02/24/21 10:38
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586474	02/26/21 12:41	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 22:50	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 16:00	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		5	587062	03/02/21 13:04	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 16:01	FXG	TAL CHI
Dissolved	Prep	7470A			586541	02/26/21 09:30	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586704	03/01/21 09:03	MJG	TAL CHI
Dissolved	Prep	9010C			586709	03/01/21 10:01	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586718	03/01/21 11:46	CMC	TAL CHI
Dissolved	Analysis	9038		50	586601	02/26/21 13:32	MS	TAL CHI
Dissolved	Analysis	9251		5	586602	02/26/21 13:34	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586471	02/26/21 05:44	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 15:24	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:24	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:31	PFK	TAL CHI

Client Sample ID: MW-15
Date Collected: 02/24/21 13:33
Date Received: 02/25/21 10:40

Lab Sample ID: 500-195149-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586474	02/26/21 13:09	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 23:12	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 16:03	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		5	587062	03/02/21 13:07	FXG	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc. Job ID: 500-195149-1
Project/Site: Powerton Station CCA

Client Sample ID: MW-15 **Lab Sample ID: 500-195149-15**
Date Collected: 02/24/21 13:33 **Matrix: Water**
Date Received: 02/25/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 16:05	FXG	TAL CHI
Dissolved	Prep	7470A			586541	02/26/21 09:30	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586704	03/01/21 09:05	MJG	TAL CHI
Dissolved	Prep	9010C			586709	03/01/21 10:01	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586718	03/01/21 11:48	CMC	TAL CHI
Dissolved	Analysis	9038		10	586601	02/26/21 13:32	MS	TAL CHI
Dissolved	Analysis	9251		5	586602	02/26/21 13:34	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586471	02/26/21 05:50	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 15:27	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:26	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:33	PFK	TAL CHI

Client Sample ID: MW-09 **Lab Sample ID: 500-195149-16**
Date Collected: 02/24/21 14:28 **Matrix: Water**
Date Received: 02/25/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586474	02/26/21 13:37	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 23:35	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 16:14	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		5	587062	03/02/21 13:11	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 16:08	FXG	TAL CHI
Dissolved	Prep	7470A			586541	02/26/21 09:30	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586704	03/01/21 09:07	MJG	TAL CHI
Dissolved	Prep	9010C			586709	03/01/21 10:01	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586718	03/01/21 11:49	CMC	TAL CHI
Dissolved	Analysis	9038		5	586601	02/26/21 13:33	MS	TAL CHI
Dissolved	Analysis	9251		1	586602	02/26/21 13:35	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586471	02/26/21 05:52	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 15:34	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586397	02/25/21 15:27	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:35	PFK	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc. Job ID: 500-195149-1
Project/Site: Powerton Station CCA

Client Sample ID: MW-11 Lab Sample ID: 500-195149-17

Date Collected: 02/25/21 09:38 **Matrix: Water**
Date Received: 02/26/21 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586664	03/01/21 16:33	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 20:59	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 16:17	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		5	587062	03/02/21 13:14	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 16:12	FXG	TAL CHI
Dissolved	Prep	7470A			586703	03/01/21 10:20	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586885	03/02/21 08:59	MJG	TAL CHI
Dissolved	Prep	9010C			586709	03/01/21 10:01	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586718	03/01/21 11:51	CMC	TAL CHI
Dissolved	Analysis	9038		5	588004	03/10/21 14:04	MS	TAL CHI
Dissolved	Analysis	9251		5	587472	03/05/21 15:51	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586782	03/01/21 23:00	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 15:37	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586582	02/26/21 13:37	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:37	PFK	TAL CHI

Client Sample ID: MW-12 Lab Sample ID: 500-195149-18

Date Collected: 02/25/21 10:38 **Matrix: Water**
Date Received: 02/26/21 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	586664	03/01/21 16:59	PMF	TAL CHI
Total/NA	Analysis	314.0		1	472167	03/19/21 21:21	TCS	TAL SAC
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	586865	03/01/21 16:21	FXG	TAL CHI
Dissolved	Prep	Soluble Metals			586720	03/01/21 13:37	FXG	TAL CHI
Dissolved	Analysis	6020A		1	587062	03/02/21 13:18	FXG	TAL CHI
Dissolved	Prep	7470A			586703	03/01/21 10:20	MJG	TAL CHI
Dissolved	Analysis	7470A		1	586885	03/02/21 09:01	MJG	TAL CHI
Dissolved	Prep	9010C			586709	03/01/21 10:01	CMC	TAL CHI
Dissolved	Analysis	9012B		1	586718	03/01/21 11:53	CMC	TAL CHI
Dissolved	Analysis	9038		20	588004	03/10/21 14:11	MS	TAL CHI
Dissolved	Analysis	9251		5	587472	03/05/21 15:51	MS	TAL CHI
Dissolved	Analysis	Nitrate by calc		1	586231	03/08/21 11:57	PFK	TAL CHI
Dissolved	Analysis	SM 2540C		1	586782	03/01/21 23:03	CLB	TAL CHI
Dissolved	Analysis	SM 4500 F C		1	587127	03/03/21 15:40	MS	TAL CHI
Dissolved	Analysis	SM 4500 NO2 B		1	586582	02/26/21 13:37	TMS	TAL CHI
Dissolved	Analysis	SM 4500 NO3 F		1	587491	03/05/21 14:39	PFK	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: KPRG and Associates, Inc.
Project/Site: Powerton Station CCA

Job ID: 500-195149-1

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Illinois	NELAP	IL00035	04-29-21

Laboratory: Eurofins TestAmerica, Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Illinois	NELAP	200060	03-18-22

TestAmerica Chicago
2417 Bond Street
University Park IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	Project Manager: Rich Gnat	Site Contact Mitchel Dolan	Date 2/22/21	COC No
KPRG and Associates Inc	Tel/Fax: (262) 781-0475	Lab Contact Diana Mockler	Carrier FedEx	1 of 1 COCs
14665 West Lisbon Road Suite 1A	**Analysis Turnaround Time**			Sampler:
Brookfield WI 53154	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only**
(262) 781-0475 Phone	TAT if different from Below ______			Walk in Client
(262) 781-0478 FAX	☐ 2 weeks			Lab Sampling
Project Name Powerton Station CCA	☐ 1 week			
Site Powerton Station - Pekin IL	☐ 2 days			Job / SDG No
P O # 4501908159	☐ 1 day			500-195149

500-195149 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	6020A, 7470A	8260B - BTEX	2540C, 4500_F_C, 9038, 9251	SM4500_NO3_F-Nitrogen, Nitrate Nitrite	Perchlorate	Cyanide, dissolved	Radium 226/228										Sample Specific Notes
1	MW-02	2/22	1137	G	W	8	Y	N	X	X	X	X	X	X											
2	MW-03	↓	1234	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓											
3	MW-04	↓	1321	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓											
4	MW-05	↓	1410	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓											
5	Duplicate	2/22	—	G	W	8			X	X	X	X	X												
	Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______								4	2	1	3	2	5	4										

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments Lab Project #500008027

2.6→2.9, 2.8→3.1

Custody Seals Intact ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd ______ Corr'd ______ Therm ID No ______		
Relinquished by **Mitchel Dolan**	Company **KPRG**	Date/Time	Received by **FedEx**	Company	Date/Time
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company ETA-Chi	Date/Time 2/23/21 1105

Form No CA-C-WI-002, Rev 4.18, dated 9/5/2018

13

Electronic Filing: Received, Clerk's Office 06/25/2021

TestAmerica Chicago
2417 Bond Street

University Park IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	**Project Manager: Rich Gnat**	**Site Contact: Mitchel Dolan**	**Date** 2/22/21	COC No
KPRG and Associates Inc	**Tel/Fax (262) 781-0475**	**Lab Contact Diana Mockler**	**Carrier FedEx**	1 of 1 COCs
14665 West Lisbon Road Suite 1A	**Analysis Turnaround Time**			Sampler
Brookfield WI 53154	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only**
(262) 781-0475 Phone	TAT if different from Below ______			Walk in Client
(262) 781-0478 FAX	☐ 2 weeks			Lab Sampling
Project Name Powerton Station CCA	☐ 1 week			
Site Powerton Station - Pekin IL	☐ 2 days			Job / SDG No
P O # 4501908159	☐ 1 day			500-195149

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NO2, dissolved	Sample Specific Notes
1	MPD MW-02	2/22	1137	G	W	1	Y	N	x	
2	MW-03	↓	1234	↓	↓	↓	↓	↓	↓	
3	MW-04	↓	1321	↓	↓	↓	↓	↓	↓	
4	MW-05	↓	1410	↓	↓	↓	↓	↓	↓	
5	Duplicate	↓	—	↓	↓	↓	↓	↓	↓	
	Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______								1	

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for Months

Special Instructions/QC Requirements & Comments Lab Project #500008027 **48-HOUR HOLD TIME**

Custody Seals Intact ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd ______ Corr'd ______		Therm ID No ______
Relinquished by **Mitchel Dolan** MPD	Company **KPRG**	Date/Time 2/22/21 /1700	Received by **FedEx**	Company	Date/Time 2/22/21 /1700
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company ETA CHI	Date/Time 2/23/21 1105

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

TestAmerica Chicago
2417 Bond Street

University Park IL 60484 3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

500-195149 COC

Client Contact	
KPRG and Associates Inc	
14665 West Lisbon Road Suite 1A	
Brookfield WI 53154	
(262) 781-0475	Phone
(262) 781-0478	FAX
Project Name Powerton Station CCA	
Site Powerton Station - Pekin IL	
P O # 4501908159	

Project Manager Rich Gnat
Tel/Fax. (262) 781-0475
Site Contact Mitchel Dolan
Lab Contact. Diana Mockler
Date 2/23/21
Carrier. FedEx
COC No
1 of 1 COCs
Sampler

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below ______
☐ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For Lab Use Only
Walk in Client
Lab Sampling

Job / SDG No. 500-195149

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	6020A, 7470A	8260B - BTEX	2540C, 4500_F_C, 9038, 9251	SM4500_NO3_F-Nitrogen Nitrate Nitrite	Perchlorate	Cyanide, dissolved	Radium 226/228	Sample Specific Notes
6	MW-07	2/23/21	0930	G	W	8	Y	N	X	X	X	X	X	X		
7	MW-06	↓	1016	G	W	8	↓	↓	X	X	X	X	X	X		
8	MW-08	↓	1111	G	W	8	↓	↓	X	X	X	✓	X	X		
9	MW-01	↓	1241	G	W	8	↓	↓	X	X	X	X	X	X		
10	MW-10	↓	1334	G	W	8	↓	↓	X	X	X	X	X	X		
11	MW-16	↓	1427	G	W	8	↓	↓	X	X	X	X	X	X		
12	TRIP BLANK	–	–	–	W	6	N	N		X						
	Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______								4	2	1	3	2	5	4	

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments Lab Project #500008027

2,8→3,1, 3,4→3,7, 1,1→1,2

Custody Seals Intact ☐ Yes ☐ No
Custody Seal No
Cooler Temp (°C) Obs'd ______ Corr'd ______ Therm ID No ______

Relinquished by Mitchel Dolan MD	Company KPRG	Date/Time 2/23/21 / 1630	Received by FedEx	Company	Date/Time 2/23/21 / 1630
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by:	Company ETA CHI	Date/Time 2/24/21 1040

Form No CA-C-WI-002, Rev 4.18, dated 9/5/2018

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TestAmerica Chicago
2417 Bond Street
University Park IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	**Project Manager** Rich Gnat	**Site Contact.** Mitchel Dolan	**Date** 2/23/21	COC No
KPRG and Associates Inc	**Tel/Fax** (262) 781-0475	**Lab Contact** Diana Mockler	**Carrier** FedEx	1 of 1 COCs
14665 West Lisbon Road Suite 1A	**Analysis Turnaround Time**			Sampler
Brookfield WI 53154	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only**
(262) 781-0475 Phone	TAT if different from Below			Walk in Client
(262) 781-0478 FAX	☐ 2 weeks			Lab Sampling
Project Name Powerton Station CCA	☐ 1 week			
Site Powerton Station Pekin IL	☐ 2 days			Job / SDG No
P O # 4501908159	☐ 1 day			500-195149

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp G=Grab)	Matrix	# of Cont	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NO2, dissolved	Sample Specific Notes
6	MW-07	2/23/21	0930	G	W	1	Y	N	x	
7	MW-06		1016	G	W	1			X	
8	MW-08		1111	G	W	1			X	
9	MW-01		1241	G	W	1			X	
10	MW-10		1334	G	W	1			X	
11	MW-16		1427	G	W	1			X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________ 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments Lab Project #500008027 **48-HOUR HOLD TIME**

Custody Seals Intact ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd ______ Corr'd ______		Therm ID No ______
Relinquished by **Mitchel Dolan** MPD	Company **KPRG**	Date/Time 2/23/21/1630	Received by **FedEx**	Company	Date/Time 2/23/21 / 1630
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company [illegible]	Date/Time 2/24/21 1040

Form No CA-C-WI-002, Rev. 4.18, dated 9/5/2018

TestAmerica Chicago
2417 Bond Street
University Park IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact
KPRG and Associates Inc
14665 West Lisbon Road Suite 1A
Brookfield WI 53154
(262) 781-0475 Phone
(262) 781-0478 FAX
Project Name Powerton Station CCA
Site Powerton Station - Pekin IL
P O # 4501908159

500-195149 COC

Project Manager Rich Gnat
Tel/Fax. (262) 781-0475

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below ______
☐ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Site Contact Mitchel Dolan
Lab Contact. Diana Mockler

Date 2/24/21
Carrier FedEx

COC No
1 of 1 COCs
Sampler
For Lab Use Only
Walk in Client
Lab Sampling
Job / SDG No
500-195149

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	6020A, 7470A	8260B - BTEX	2540C, 4500_F_C, 9038, 9251	SM4500_NO3_F-Nitrogen Nitrate Nitrite	Perchlorate	Cyanide, dissolved	Radium 226/228	Sample Specific Notes
13	MW-13	2/24/21	0926	G	W	11	Y	N	X	X	X	X	X	X	X	
14	MW-14	↓	1038	↓	↓	↓	↓	↓	X	X	X	X	X	X	X	
15	MW-15		1333						X	X	X	X	X	X	X	
16	MW-09		1428						X	X	X	X	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______ 4 2 1 3 2 5 4

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for Months

Special Instructions/QC Requirements & Comments: Lab Project #500008027
3.3→3.6, 2.6→2.9, 3.1→3.4, 2.7→3.0

Custody Seals Intact ☐ Yes ☐ No
Custody Seal No
Cooler Temp (°C) Obs'd ______ Corr'd ______ Therm ID No ______

Relinquished by **Mitchel Dolan** MPD	Company **KPRG**	Date/Time 2/24/21 /1630	Received by **FedEx**	Company	Date/Time 2/24/21 /1630
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company ETA-CHI	Date/Time 2/25/21 1040

Form No. CA-C-WI-002, Rev 4.18, dated 9/5/2018

TestAmerica Chicago
2417 Bond Street

University Park IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	**Project Manager** Rich Gnat	**Site Contact** Mitchel Dolan	**Date** 2/24/21	COC No
KPRG and Associates Inc	**Tel/Fax** (262) 781-0475	**Lab Contact.** Diana Mockler	**Carrier.** FedEx	1 of 1 COCs
14665 West Lisbon Road Suite 1A	**Analysis Turnaround Time**			Sampler:
Brookfield WI 53154	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only.**
(262) 781-0475 Phone	TAT if different from Below ______			Walk in Client
(262) 781-0478 FAX	☐ 2 weeks			Lab Sampling
Project Name Powerton Station CCA	☐ 1 week			
Site Powerton Station - Pekin IL	☐ 2 days			Job / SDG No.
P O # 4501908159	☐ 1 day			500-195149

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp G=Grab)	Matrix	# of Cont	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NO2, dissolved	Sample Specific Notes
13	MW-13	2/24/21	0926	G	W	1	Y	N	x	
14	MW-14	2/24/21	1038	G	W	1	Y	N	x	
	mPD ~~[illegible]~~									
15	MW-15	2/24/21	1333	G	W	1	Y	N	x	
16	MW-04	2/24/21	1428	G	W	1	Y	N	x	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______ 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments Lab Project #500008027 **48-HOUR HOLD TIME**

Custody Seals Intact ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd ______ Corr'd ______ Therm ID No ______

Relinquished by **Mitchel Dolan** MPD	Company **KPRG**	Date/Time: 2/24/21 /1630	Received by **FedEx**	Company	Date/Time 2/24/21 /1630
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company ETA-CHI	Date/Time 2/25/21 1040

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

TestAmerica Chicago
2417 Bond Street
University Park IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact
KPRG and Associates Inc
14665 West Lisbon Road Suite 1A
Brookfield WI 53154
(262) 781-0475 Phone
(262) 781-0478 FAX
Project Name Powerton Station CCA
Site Powerton Station - Pekin IL
P O # 4501908159

500-195149 COC

Project Manager Rich Gnat
Tel/Fax (262) 781-0475

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below
☐ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Site Contact Mitchel Dolan
Lab Contact. Diana Mockler

Date 2/25/21
Carrier FedEx

COC No
1 of 1 COCs
Sampler
For Lab Use Only
Walk in Client
Lab Sampling

Job / SDG No
500-195149

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	6020A, 7470A	8260B - BTEX	2540C, 4500_F_C, 9038, 9251	SM4500_NO3_F-Nitrogen Nitrate Nitrite	Perchlorate	Cyanide, dissolved	Radium 226/228	Sample Specific Notes
17	MW-11	2/25/21	0938	G	W	11	Y	N	X	X	X	X	X	X	X	
18	MW-12	2/25/21	1038	G	W	11	Y	N	X	X	X	X	X	X	X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									4	2	1	3	2	5	4	

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for Months

Special Instructions/QC Requirements & Comments: Lab Project #500008027

Custody Seals Intact ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd 1.9 Corr'd 1.9 Therm ID No		
Relinquished by Mitchel Dolan MD	Company KPRG	Date/Time 2/25/21 /1200	Received by FedEx	Company	Date/Time 2/25/21 /1200
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company ETA-CHI	Date/Time 2/26/21 1105

Form No CA-C-WI-002, Rev. 4.18, dated 9/5/2018

TestAmerica Chicago
2417 Bond Street
University Park IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	**Project Manager Rich Gnat**	**Site Contact Mitchel Dolan**	**Date** 2/25/21	COC No
KPRG and Associates Inc	**Tel/Fax (262) 781-0475**	**Lab Contact Diana Mockler**	**Carrier FedEx**	1 of 1 COCs
14665 West Lisbon Road Suite 1A	**Analysis Turnaround Time**			Sampler
Brookfield WI 53154	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only**
(262) 781-0475 Phone	TAT if different from Below ______			Walk in Client
(262) 781-0478 FAX	☐ 2 weeks			Lab Sampling
Project Name Powerton Station CCA	☐ 1 week			
Site Powerton Station - Pekin IL	☐ 2 days			Job / SDG No
P O # 4501908159	☐ 1 day			500-195149

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp G=Grab)	Matrix	# of Cont	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NO2, dissolved	Sample Specific Notes
	MM			~~G~~	~~W~~	~~1~~	~~Y~~	~~N~~	~~x~~	
17	MW-11	2/25/21	0938	G	W	1	Y	N	X	
18	MW-12	2/25/21	1038	G	W	1	Y	N	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______ 1

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments. Lab Project #500008027 **48-HOUR HOLD TIME**

Custody Seals Intact ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd ______ Corr'd ______ Therm ID No ______

Relinquished by **Mitchel Dolan** MPD	Company **KPRG**	Date/Time 2/25/21 /1200	Received by **FedEx**	Company	Date/Time 2/25/21 /1200
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company ETA CHI	Date/Time 2/26/21 1105

Form No. CA-C-WI-002, Rev 4.18, dated 9/5/2018

ORIGIN ID:PIAA (262) 622-1143
MITCHEL DOLAN
414 PLAZA DR STE 106
WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: 22FEB21
ACTWGT: 37.80 'B
CAD: 6994779/SSFE2121
DIMS: 23x13x13 IN
BILL THIRD PARTY

TO
TESTAMERICA CHICAGO
2417 BOND ST

UNIVERSITY PARK IL 60484
(000) 000-0000 REF:
INV:
PO: DEPT:

500-195149 Wayb

FedEx
Express
E

J211121011901uv

1 of 2
RK# 201 7839 9458 8175
MASTER
[illegible] TA

TUE - 23 FEB 4:30P
STANDARD OVERNIGHT
AHS
60484
IL-US ORD

ORIGIN ID:PIAA (262) 622-1143
MITCHEL DOLAN
414 PLAZA DR STE 106
WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: 22FEB21
ACTWGT: 37.80 LB
CAD: 6994779/SSFE2121
DIMS: 23x13x13 IN
BILL THIRD PARTY

TO
TESTAMERICA CHICAGO
2417 BOND ST

UNIVERSITY PARK IL 60484
(000) 000-0000 REF:
INV:
PO: DEPT:

FedEx
Express
E

J211121011901uv

2 of 2
MPS# 0263 7839 9458 8186
Mstr# 7839 9458 8175 0201
XH JOTA

TUE - 23 FEB 4:30P
STANDARD OVERNIGHT
60484
IL-US ORD

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ST 25 16:30 A
6345
02 24

ORIGIN ID:PIAA (000) 000-0000
EUROFINS TEST AMERICA

414 PLAZA DR STE 106

WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: 23FEB21
ACTWGT: 36.90 LB
CAD: 6994779/SSFE2121
DIMS: 24x18x12 IN

BILL THIRD PARTY

Part # 15629 EXP 07/21

TO **SAMPLE RECEIVING**
EUROFINS TEST AMERICA
2417 BOND ST

UNIVERSITY PARK IL 60484
(999) 999-9999 REF:
INV:
PO: DEPT:

FedEx
Express
E

J211121011801as

3 of 3
MPS# 0263 **7840 4056 6345**
Mstr# 7840 4056 6323 0201

WED - 24 FEB 4:30P
STANDARD OVERNIGHT

XH JOTA

60484
IL-US **ORD**

500-195149 Wayb

ORIGIN ID:PIAA (000) 000-0000
EUROFINS TEST AMERICA

414 PLAZA DR STE 106

WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: 23FEB21
ACTWGT: 43.70 LB
CAD: 6994779/SSFE2121
DIMS: 24x18x12 IN

BILL THIRD PARTY

Part # 15629 EXP 07/21

SAMPLE RECEIVING
EUROFINS TEST AMERICA
2417 BOND ST

UNIVERSITY PARK IL 60484
(999) 999-9999 REF:
INV:
PO: DEPT:

FedEx
Express
E

J211121011801as

1 of 3
TRK# 0201 **7840 4056 6323**
MASTER

WED - 24 FEB 4:30P
STANDARD OVERNIGHT

XH JOTA

60484
IL-US **ORD**

13

ORIGIN ID:PIAA (000) 000-0000
EUROFINS TEST AMERICA

414 PLAZA DR STE 106

WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: 23FEB21
ACTWGT: 34.00 LB
CAD: 6994779/SSFE2121
DIMS: 24x18x12 IN

BILL THIRD PARTY

Part # 15629[illegible]P 07/21

TO **SAMPLE RECEIVING**
EUROFINS TEST AMERICA
2417 BOND ST

UNIVERSITY PARK IL 60484
(999) 999 - 9999 REF:
DEPT:

FedEx
Express

E

J21112101[illegible]

2 of 3
MPS# 0263 **7840 4056 6334**
Mstr# 7840 4056 6323 0201

WED - 24 FEB 4:30P
STANDARD OVERNIGHT

XH JOTA

60484
IL-US **ORD**

13

500-195149 Wayt

ORIGIN ID:PIAA (262) 622-1143
MITCHEL DOLAN

414 PLAZA DR STE 106

WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: 24FEB21
ACTWGT: 48.50 LB
CAD: 6994779/SSFE2121
DIMS: 24x13x13 IN

BILL THIRD PARTY

Part # 1562[illegible] EXP 07/21

TO **TESTAMERICA CHICAGO**
TESTAMERICA CHICAGO
2417 BOND ST

UNIVERSITY PARK IL 60484
(000) 000-0000 REF:
INV:
PO: DEPT:

FedEx
Express
E

THU - 25 FEB 4:30P
STANDARD OVERNIGHT
AHS
60484
IL-US ORD

TRK# 0201 7840 8442 6359

XH JOTA

ORIGIN ID:PIAA (262) 622-1143
MITCHEL DOLAN

414 PLAZA DR STE 106

WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: 24FEB21
ACTWGT: 43.80 LB
CAD: 6994779/SSFE2121
DIMS: 24x13x13 IN

BILL THIRD PARTY

Part # 15629[illegible] EXP 07/21

TO **TESTAMERICA CHICAGO**
TESTAMERICA CHICAGO
2417 BOND ST

UNIVERSITY PARK IL 60484
(000) 000-0000 REF:
INV:
PO: DEPT:

FedEx
Express
E

THU - 25 FEB 4:30P
STANDARD OVERNIGHT
AHS
60484
IL-US ORD

TRK# 0201 7840 8448 8026

XH JOTA

ORIGIN ID:PIAA (262) 622-114
MITCHEL DOLAN
414 PLAZA DR STE 106
WESTMONT, IL 60559
UNITED STATES US

RT 519
ST 28
5
16:30
A
5218
02 25

Part # 1562[illegible] EXP 07/21

TO **TESTAMERICA CHICAGO**
TESTAMERICA CHICAGO
2417 BOND ST

UNIVERSITY PARK IL 60484
(000) 000 – 0000 REF:
INV:
PO: DEPT:

FedEx

E

THU – 25 FEB 4:30P
STANDARD OVERNIGHT

TRK# 0201 **7840 8451 5218**

AHS
60484
IL-US **ORD**

XH JOTA

RT 519
ST 2[illegible]

ORIGIN ID:PIAA (262) 622-1143
MITCHEL DOLAN
414 PLAZA DR STE 106
WESTMONT, IL 60559
UNITED STATES US

SHIP DATE: [illegible]B21
ACTWGT: 46[illegible] LB
CAD: 6994779/SSFE2121
DIMS: 24x13x13 IN

BILL THIRD PARTY

Part # 1562[illegible] EXP 07/21

TO **TESTAMERICA CHICAGO**
TESTAMERICA CHICAGO
2417 BOND ST

UNIVERSITY PARK IL 60484
(000) 000 – 0000 REF:
INV:
PO: DEPT:

FedEx
Express

E

THU – 25 FEB 4:30P
STANDARD OVERNIGHT

TRK# 0201 **7840 8446 0056**

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60484
IL-US **ORD**

XH JOTA

13

519 16 30 A 0879

ORIGIN ID:PIAA (
EUROFINS TEST AME
414 PLAZA DR STE 106
WESTMONT, IL 60559
UNITED STATES US

25FEB21
ACTWGT: 51.30 LB
CAD: 6994779/SSFE2121
DIMS: 24x18x12 IN
BILL THIRD PARTY

TO **SAMPLE RECEIVING**
EUROFINS TEST AMERICA
2417 BOND ST

UNIVERSITY PARK IL 60484 500-195149 Wayb
(000) 000-0000 REF:
INV:
PO: DEPT:

Part # 156297 ... EXP 07/21

FedEx
Express
E

J211121011801uv

FRI - 26 FEB 4:30P
TRK# 0201 **7841 1130 0879** **STANDARD OVERNIGHT**

XH JOTA
60484
IL-US **ORD**

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)

Client Contact: Shipping/Receiving	Sampler:	Lab PM: Mockler, Diana J	Carrier Tracking No(s):	COC No: 500-145841.1
	Phone:	E-Mail: Diana.Mockler@Eurofinset.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 500-195149-2
Address: 13715 Rider Trail North,	Due Date Requested: 3/23/2021			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Powerton Station CCA	Project #: 50008027			
Site: MWG - Powerton	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
				Preservation Code:						
MW-13 (500-195149-13)	2/24/21	09:26 Central		Water			X	X	3	Batch QC must be performed (dup, spikes, etc) - no NCMs concerning limited volume;
MW-14 (500-195149-14)	2/24/21	10:38 Central		Water			X	X	3	Batch QC must be performed (dup, spikes, etc) - no NCMs concerning limited volume;
MW-15 (500-195149-15)	2/24/21	13:33 Central		Water			X	X	3	Batch QC must be performed (dup, spikes, etc) - no NCMs concerning limited volume;
MW-09 (500-195149-16)	2/24/21	14:28 Central		Water			X	X	3	Batch QC must be performed (dup, spikes, etc) - no NCMs concerning limited volume;

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed
Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For ________ Months*
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by: Sheri Scott	Date/Time: 2/25/21 1500	Company: ETA-CHI	Received by: FED EX	Date/Time:	Company
Relinquished by: FED EX	Date/Time:	Company:	Received by: Melley Osu	Date/Time: 2/26/21 1255	Company
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Ver: 11/01/2020

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Mockler, Diana J	Carrier Tracking No(s):	COC No: 500-145876.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Diana.Mockler@Eurofinset.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 500-195149-1

Address: 13715 Rider Trail North, ,
City: Earth City
State, Zip: MO, 63045
Phone: 314-298-8566(Tel) 314-298-8757(Fax)
Email:
Project Name: Powerton Station CCA
Site: MWG - Powerton
Due Date Requested: 3/15/2021
TAT Requested (days):
PO #:
WO #:
Project #: 50008027
SSOW#:

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
				Preservation Code:						
MW-11 (500-195149-17)	2/25/21	09:38 Central		Water			X	X	3	Batch QC must be performed (dup, spikes, etc) - no NCMs concerning limited volume;
MW-12 (500-195149-18)	2/25/21	10:38 Central		Water			X	X	3	Batch QC must be performed (dup, spikes, etc) - no NCMs concerning limited volume;

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:
Date:
Time:
Method of Shipment:

Relinquished by: Sheri Scott	Date/Time: 2/26/21 1500	Company: ETA-CHI	Received by: FED EX	Date/Time:	Company
Relinquished by: FED EX	Date/Time:	Company	Received by: Sierra Wottger	Date/Time: 3/3/21 1010	Company: ETASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Ver: 11/01/2020

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)
Sampler:
Lab PM: Mockler, Diana J
Carrier Tracking No(s):
COC No: 500-145736.1
Client Contact: Shipping/Receiving
Phone:
E-Mail: Diana.Mockler@Eurofinset.com
State of Origin: Illinois
Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.
Accreditations Required (See note): NELAP - Illinois
Job #: 500-195149-1
Address: 880 Riverside Parkway,
Due Date Requested: 3/23/2021
City: West Sacramento
TAT Requested (days):
State, Zip: CA, 95605
Phone: 916-373-5600(Tel) 916-372-1059(Fax)
PO #:
Email:
WO #:
Project Name: Powerton Station CCA
Project #: 50008027
Site: MWG - Powerton
SSOW#:

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	314.0/ Perchlorate	Total Number of containers	Special Instructions/Note:
			Preservation Code:		☒	☒		☒	
MW-02 (500-195149-1)	2/22/21	11:37 Central		Water			X	1	
MW-03 (500-195149-2)	2/22/21	12:34 Central		Water			X	1	
MW-04 (500-195149-3)	2/22/21	13:21 Central		Water			X	1	
MW-05 (500-195149-4)	2/22/21	14:10 Central		Water			X	1	
Duplicate (500-195149-5)	2/22/21	Central		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed
Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*
Special Instructions/QC Requirements.

Empty Kit Relinquished by:
Date:
Time:
Method of Shipment:

Relinquished by: Stephanie Hernandez
Date/Time: 2/23/21 1630
Company: ETA-CHI
Received by:
Date/Time: 2/25/21 1050
Company: ETA-S

Relinquished by:
Date/Time:
Company:
Received by: ✓
Date/Time:
Company:

Relinquished by:
Date/Time:
Company:
Received by:
Date/Time:
Company:

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.: 1447689
0.1/0.4°C
Cooler Temperature(s) °C and Other Remarks:

Ver: 11/01/2020

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Mockler, Diana J	Carrier Tracking No(s):	COC No: 500-145797.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Diana.Mockler@Eurofinset.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 500-195149-1

Address: 880 Riverside Parkway,
City: West Sacramento
State, Zip: CA, 95605
Phone: 916-373-5600(Tel) 916-372-1059(Fax)
Email:
Project Name: Powerton Station CCA
Site: MWG - Powerton
Due Date Requested: 3/14/2021
TAT Requested (days):
PO #:
WO #:
Project #: 50008027
SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	314.0/ Perchlorate	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-07 (500-195149-6)	2/23/21	09:30 Central		Water			X	1	
MW-06 (500-195149-7)	2/23/21	10:16 Central		Water			X	1	
MW-08 (500-195149-8)	2/23/21	11:11 Central		Water			X	1	
MW-01 (500-195149-9)	2/23/21	12:41 Central		Water			X	1	
MW-10 (500-195149-10)	2/23/21	13:34 Central		Water			X	1	
MW-16 (500-195149-11)	2/23/21	14:27 Central		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:
Date:
Time:
Method of Shipment:

Relinquished by: Chris Scott	Date/Time: 2/24/21 1500	Company: ETA-CHI	Received by:	Date/Time: 2/25/21 1030	Company: EEts.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: [✓ Δ Yes] Δ No
Custody Seal No.: 1447697
Cooler Temperature(s) °C and Other Remarks: 1.5°C

Ver: 11/01/2020

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins
Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Mockler, Diana J	Carrier Tracking No(s):	COC No: 500-145837.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Diana.Mockler@Eurofinset.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 500-195149-1
Address: 880 Riverside Parkway,	**Due Date Requested:** 3/15/2021	**Analysis Requested**		**Preservation Codes:**
City: West Sacramento	**TAT Requested (days):**			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Powerton Station CCA	Project #: 50008027			
Site: MWG - Powerton	SSOW#:			Other:

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	314.0/ Perchlorate	Total Number of containers	Special Instructions/Note:
			Preservation Code:		☒	☒		☒	
MW-13 (500-195149-13)	2/24/21	09:26 Central		Water			X	1	
MW-14 (500-195149-14)	2/24/21	10:38 Central		Water			X	1	
MW-15 (500-195149-15)	2/24/21	13:33 Central		Water			X	1	
MW-09 (500-195149-16)	2/24/21	14:28 Central		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification *Unconfirmed*	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ________ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by: Shari Scott	Date/Time: 2/25/21 1500	Company: ETA CHI	Received by:	Date/Time: 03/01/21 950	Company: eta Sac
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: [✓ Δ Yes] Δ No	Custody Seal No.: 1447728		Cooler Temperature(s) °C and Other Remarks: 1.8		

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-195149-1

Login Number: 195149
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9,3.1,3.1,3.7,1.2,3.6,2.9,3.4,3.0,1.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-195149-1

Login Number: 195149
List Number: 2
Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, Sacramento
List Creation: 02/25/21 07:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1447697/1447689
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.5c & obs 0.1c cor 0.4c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	False	Method requires headspace.
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-195149-1

Login Number: 195149
List Number: 4
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/01/21 09:09 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1447728
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-195149-1

Login Number: 195149
List Number: 5
Creator: Cahill, Nicholas P

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/02/21 03:54 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1447732
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	12.3c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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TestAmerica

Sacramento
Sample Receiving Notes

500-195149 Field Sheet

Job: ______

Tracking # : 1893 4451 0812

SO / [✓ PO] / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other ______

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC.

Therm. ID: AK-6 Corr. Factor: ([✓ +] / -) 3 °C

Ice ✓ Wet ✓ Gel ______ Other ______

Cooler Custody Seal: 1447689

Cooler ID: ______

Temp Observed: 01 °C Corrected: 0.4 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Frozen samples show signs of thaw?	☐	☒	☐

Initials: ______ Date: 2/25/21

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☐	☒	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☒	☐	☐
Multiphasic samples are not present?	☒	☐	☐

Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: So Date: 2/25/21

Notes: ______

Trizma Lot #(s): ______

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☒	☐	☐
Samples received within hold time?	☒	☐	☐
NCM Filed?	☐	☐	☒
Log Release checked in TALS?	☐	☐	☒

Initials: So Date: 2/25/21

4/1 So

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TestAmerica

Sacramento
Sample Receiving Notes

500-195149 Field Sheet

Job:

Tracking #: 1893 4451 0845

SO / [✓ PO] / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC.

Therm. ID: LO2 Corr. Factor: (+ / -) N/A °C

Ice ✓ Wet ✓ Gel Other

Cooler Custody Seal: 1447697

Cooler ID: –

Temp Observed: 1.5 °C Corrected: 1.5 °C
From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	**Yes**	**No**	**NA**
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Frozen samples show signs of thaw?	☐	☐	☒

Initials: SO Date: 2/25/21

Unpacking/Labeling The Samples	**Yes**	**No**	**NA**
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☐	☒	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? SO 2/25/21 (Methods 314, 331, 6850)	☒	~~☒~~ SO 2/25/21	☐
Multiphasic samples are not present?	☒	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: SO Date: 2/25/21

Notes:

Trizma Lot #(s):

Login Completion	**Yes**	**No**	**NA**
Receipt Temperature on COC?	☒	☐	☐
Samples received within hold time?	☒	☐	☐
NCM Filed?	☐	☐	☒
Log Release checked in TALS?	☐	☐	☒

Initials: SO Date: 2/25/21

WISB

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TestAmerica

Sacramento
Sample Receiving Notes

500-195149 Field Sheet

Job:

Tracking # : 1893 4451 1050

MAN 03/01/21

SO / [✓ PO] / FO / SAT / 2-Day / Ground / UPS / ~~CDO~~ / Courier
GSO / OnTrac / Goldstreak / USPS / Other

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: L-01 Corr. Factor: (+ / -) 0 °C

Ice ✓ Wet ✓ Gel Other

Cooler Custody Seal: 1447728

Cooler ID: –

Temp Observed: 1.8 °C Corrected: 1.8 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	**Yes**	**No**	**NA**
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☒

Initials: MAN Date: 03/01/21

Unpacking/Labeling The Samples	**Yes**	**No**	**NA**
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: JL Date: 3/1/21

Notes:

Trizma Lot #(s):

Login Completion	**Yes**	**No**	**NA**
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☑	☐
Log Release checked in TALS?	☐	☐	☑

Initials: JL Date: 3/1/21

WR3-26C

Exhibit
H

ILLINOIS POLLUTION CONTROL BOARD
June 20, 2019

SIERRA CLUB, ENVIRONMENTAL LAW)
AND POLICY CENTER, PRAIRIE RIVERS)
NETWORK, and CITIZENS AGAINST)
RUINING THE ENVIRONMENT,)
)
Complainants,)
)
v.) PCB 13-15
) (Enforcement – Water, Land)
MIDWEST GENERATION, LLC,)
)
Respondent.)

GREG WANNIER OF SIERRA CLUB; FAITH BUGELAND LINDSAY DUBIN OF ENVIRONMENTAL LAW AND POLICY CENTER; ABEL RUSS AND SYLVIA LAM OF ENVIRONMENTAL INTEGRITY CENTER APPEARED ON BEHALF OF COMPLAINANTS;

JENNIFER T. NIJMAN AND KRISTEN GALE APPEARED ON BEHALF OF RESPONDENT.

INTERIM OPINION AND ORDER OF THE BOARD (by K. Papadimitriu)[1]:

On October 3, 2012, Sierra Club, Environmental Law and Policy Center, Prairie Rivers Network, and Citizens Against Ruining the Environment (collectively, Environmental Groups) filed a seven-count complaint against Midwest Generation, LLC (MWG). The complaint alleges groundwater contamination and open dumping in violation of the Environmental Protection Act (Act) and Board regulations. The Environmental Groups allege that MWG discarded contaminants into the environment through the coal ash disposal ponds and historical coal ash storage sites at MWG's four electric generation stations (EGUs or Stations) in Illinois: (1) the Joliet #29 Station, in Joliet, Will County (Joliet 29); (2) the Powerton Station, in Pekin, Tazewell County (Powerton); (3) the Will County Station, in Romeoville, Will County (Will County); and (4) the Waukegan Station, in Waukegan, Lake County (Waukegan).

After partially granting and partially denying MWG's motion to dismiss, the Board held 10 days of hearings. In today's order, the Board finds that the Environmental Groups met their burden in establishing that it is more probable than not that MWG violated the Act and Board regulations as alleged in the amended complaint. Specifically, the Board finds that MWG

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[1] Daniel Pauley, who externed at Chicago Legal Clinic while a law student and prior to joining the Board as a staff attorney, took no part in the Board's drafting or deliberation of any order or issue in this matter.

violated Section 12(a) of the Act at all four Stations. 415 ILCS 5/12(a) (2016). The Board finds that MWG caused or allowed discharge of coal ash constituents into groundwater at all four Stations, thereby causing exceedances of the Board's Class I antimony (Joliet 29, Will County), arsenic (Powerton, Will County), boron (Powerton, Will County, and Waukegan), sulfate (Joliet 29, Powerton, Will County, and Waukegan) and TDS (Joliet 29, Powerton, Will County, and Waukegan) GQS during 2010-2017, violating Sections 620.115, 620.301(a), and 620.405 of the Board's regulations (35 Ill. Adm. Code 620.115, 620.301(a), 620.405). 415 ILCS 5/12(a) (2016).).

The Board also finds that MWG violated Section 12(a) of the Act at all four Stations by causing or allowing discharge of contaminants into groundwater causing water pollution. Specifically, the Board finds that MWG exceeded the statewide 90th percentile levels for sulfate and boron at all four Stations between 2010 and 2017. 415 ILCS 5/12(a)(2016). The Board, however, finds no violation of Section 12(a) of the Act at Joliet 29, Powerton, and Will County during the performance of corrective actions in October 2013 under the GMZs established at those three Stations.

The Board finds that MWG also violated Section 12(d) of the Act at Powerton Station by depositing coal ash cinders directly upon the land, thereby creating a water pollution hazard. 415 ILCS 5/12(d) (2016). The Board, however, finds that the Environmental Groups did not establish violations of Section 12(d) of the Act at Joliet 29, Will County, or Waukegan Stations.

Lastly, the Board finds that MWG violated Section 21(a) of the Act at all four Stations by allowing coal ash to consolidate in the fill areas around the ash ponds and in historical coal ash storage areas. The Board finds that MWG did not take measures to remove it or prevent its leaking of contaminants into the groundwaters.

The Board finds the record is insufficient to determine the appropriate relief in this proceeding. Therefore, the Board directs the hearing officer to hold additional hearings to determine the appropriate relief.

GUIDE TO THE BOARD'S OPINION

The Board first summarizes the procedural history of this case at page 4, before providing the relevant legal background including the standard of review and applicable law at page 10. The Board then summarizes the parties' positions starting at page 15. Next, the Board makes its factual findings, both regarding the general facts relating to all four MWG Stations (page 15) and separate facts specific to each of the Stations beginning on: page 22 for Joliet 29, page 35 for Powerton, page 51 for Will County, and page 63 for Waukegan. The Board then discusses and makes its legal findings regarding the alleged violations starting 77. After summarizing its conclusions at page 92, the Board issues its order page 92.

TABLE OF CONTENTS

I. PROCEDURAL HISTORY

i. Complaint

The Environmental Groups filed a seven-count complaint on October 3, 2012 (Comp.). The complaint alleges that MWG caused open dumping and water pollution, violating Sections 12(a), 12(d) and Section 21(a) of the Act (415 ILCS 5/12(a), 12(d), 21(a) (2016)), as well as Sections 620.115, 620.301(a), 620.405 of the Board's regulations (35 Ill. Adm. Code 620.115, 620.301(a), 620.405). Counts 1-3 also alleged violations of United States Environmental Protection Agency's regulations (40 C.F.R. §§ 257.1 and 257.3-4) implementing the federal Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §§ 6901 *et seq*.). The complaint alleges that through coal ash disposal ponds at its four stations, MWG has caused or contributed to contamination of groundwater, discarded contaminants into the environment and caused water pollution and exceedances of Illinois' Class I and II Groundwater Quality Standards (GQS). The Environmental Groups ask that the Board order MWG to cease and desist from the violations, modify its coal ash disposal practices, and remediate contaminated groundwater. The complaint also calls for civil penalties on MWG.

ii. Motion to Dismiss

On November 5, 2012, MWG filed a motion to dismiss the complaint (Mot. Dis.). In the motion, MWG argues that the complaint is duplicative and frivolous because, among other things, in 2012, MWG entered into compliance commitment agreements (CCAs) with the Illinois Environmental Protection Agency (IEPA or Agency) regarding the ash ponds at each of the four Stations. Mot. Dis. at 5. MWG contended that because there is no disagreement with IEPA, the complaint fails to meet requirements of Section 31(d) of the Act (415 ILCS 5/32(d) (2016)). *Id*. MWG also moved to strike parts of counts 1-3 alleging violations of federal regulations.

iii. Stay of the Proceedings

On December 28, 2012, the Environmental Groups and MWG separately notified the Board that, due to the December 17, 2012 filing of a bankruptcy petition, this enforcement proceeding was automatically stayed under Section 362(a) of the Bankruptcy Code (11 U.S.C. § 362(a)). On February 7, 2013, the Board issued an order that acknowledged the automatic stay and granted the Environmental Groups' motion for extension of time to reply to MWG's dismissal motion. Sierra Club, PCB 13-15, slip op. at 1, 4 (Feb. 7, 2013). The Board directed parties to notify the Board within 30 days of the stay's expiration. *Id*. at 4. On May 22, 2013, the Environmental Groups filed a notice stating that on April 22, 2013, the Bankruptcy Court partially lifted the automatic stay solely to permit the Board to rule on MWG's motion to dismiss.

On October 3, 2013, the Board partially denied and partially granted MWG's motion to dismiss. Specifically, the Board partially granted the motion by striking those portions of counts 1-3 alleging violations of federal regulations. Sierra Club, PCB 13-15, slip op. at 23-25 (Oct. 3, 2013). In partially denying the motion to dismiss, the Board found that the existence of CCAs does not render the complaint frivolous or duplicative. *Id*. at 18-23, 27 (Oct. 3, 2013). The Board stated that it "never treated as an additional requirement for citizen's suits the existence of a disagreement between the Agency and the person complained against" and that "the existence of a CCA does not preclude the filing by the People or any citizen of an enforcement action." *Id*. at 18. The Board also noted that "because a CCA resolves and is an inextricable part of a non-adjudicatory process, it is not akin to a settlement agreement in an actual enforcement proceeding." *Id*. at 22. The Board also refused to dismiss the open dumping counts as insufficiently pled. The Board rejected MWG's arguments that ash ponds cannot be open dumps because they are properly "permitted and regulated as water pollution treatment units" under MWG's NPDES permit. *Id*. at 8. The Board concluded that "Section 21(a) [of the Act] may apply to permitted or otherwise lawful facilities that improperly fail to contain waste." *Id*. at 25-27.

On January 10, 2014, the Environmental Groups filed a copy of the Bankruptcy Court's order of December 11, 2013, lifting the automatic stay as to this enforcement proceeding but prohibiting enforcement of any monetary penalty award. On January 23, 2014, the Board accepted the complaint for hearing, finding the complaint, as modified by the order striking parts of counts 1-3, neither duplicative nor frivolous. Sierra Club, PCB 13-15, slip op. at 3 (Jan. 23, 2014).

On February 19, 2014, MWG filed a motion to stay the enforcement proceeding for at least one year. MWG argued that a stay was necessary to: (1) avoid potential conflicts from the coal ash rulemaking initiated by USEPA as well as the IEPA's proposed coal ash rules; (2) allow the pending acquisition of MWG by NRG Energy, Inc. to proceed; and (3) allow continued groundwater monitoring to assess the effect of MWG's actions taken under the CCAs. MWG further asserted that no ongoing environmental harm is occurring, and a stay would not prejudice the Environmental Groups. The Environmental Groups opposed the motion. On April 17, 2014, the Board denied the stay.

On May 5, 2014, MWG filed its answer and defenses to the complaint. On May 27, 2014, the Environmental Groups filed a reply to MWG's defenses.

iv. Amended Complaint

On December 15, 2014, the Environmental Groups moved to amend the complaint, attaching a first amended complaint. The Environmental Groups stated that, during discovery, they "have become aware of additional coal ash storage, disposal, and/or fill areas at each site that may be contributing to the coal ash-related contamination alleged in the Complaint." Sierra Club, PCB 13-15, slip op. at 5 (Feb. 19, 2017). After the Environmental Groups withdrew that motion, they filed another motion to amend, and a second amended complaint on January 30, 2015. On February 19, 2015, the Board granted the Environmental Groups' motion to file the second amended complaint. *Id*. at 6. For brevity, today's order refers to the second amended complaint, as the "amended complaint" (Am. Comp.). On April 20, 2015, MWG filed its answer and defenses to the second amended complaint (MWG 2nd Ans. Def.).

v. Summary Judgment

On June 1, 2016, the Environmental Groups filed a motion for partial summary judgment regarding coal ash areas outside of the ash ponds, referred to as "Historic Ash Areas." Sierra Club, PCB 13-15, slip op. at 4 (Jan. 19, 2017). MWG responded on July 19, 2016. The Board denied the motion on January 19, 2017. At that time, the Board found genuine issues of material facts precluding summary judgment: whether the evidence confirms the presence of coal ash in the historic ash areas; whether coal ash constituents are present at all four Stations; and whether historic ash areas are the source of contamination. The Board added that weighing competing evidence to resolve a dispute over material facts was appropriate not at summary judgment but after hearing. Sierra Club, PCB 13-15, slip op. at 5 (Jan. 19, 2017).

vi. Hearings and Testimony

The Board held two sets of hearings before Board Hearing Officer Bradley Halloran, the first from October 23 through October 27, 2017 (10/23/17 Tr. - 10/27/17 Tr.), and the second from January 29 through February 2, 2018 (1/30/18 Tr. - 2/2/18 Tr.). Hearing Officer Halloran listed all hearing exhibits admitted into evidence in his April 25, 2018 order.[2]

The Environmental Groups presented a July 2015 expert report of James R. Kunkel, Ph.D., P.E. (EG Exhs. 401, 407, 408), who testified at the hearings. Dr. Kunkel is a licensed professional civil engineer (not in Illinois) and a retired registered professional hydrologist. *See* EG Exh. 400; 10/26/17 p.m. Tr. 24-144; 10/27/17 Tr. at 87 (Kunkel Test.). He holds a Ph.D. in Hydrology and Water Resources from the University of Arizona, an M.S. in Civil Engineering from the University of Connecticut, and a B.S.C.E in Civil Engineering from St. Martin's University. *Id*. Dr. Kunkel has about 40 years of relevant professional experience. *Id*.

MWG presented an expert report on the condition of the four Stations by John Seymour (MWG Exh. 903, 901), who testified at the hearings. *See e.g*. 2/1/18 Tr. at 213-214 (Seymour Test.); MWG Statement of Facts (SOF) at 1-2 ¶¶ 8-11. Mr. Seymour is a Senior Principal at Geosyntec Consultants and a geotechnical engineering and remediation practices specialist, with about 40 years of relevant experience. MWG Exh. 900. He holds an M.S. in Geotechnical Engineering from the University of Michigan and a B.S. in Civil Engineering from Michigan Technological University. *Id.*

The following expert witnesses also testified at the hearings:

- Maria Race, MWG's Director of Federal Environmental Programs, former manager of general environmental compliance for the Stations, and former Asset Manager. 10/23/17 Tr. at 29-211; 10/24/17 Tr. at 8-32 (Race Test.); SOF at ¶ 2.
- Mark Kelly, MWG's Chemical Specialist at the Powerton Station since 1992, responsible for water related matters. 1/31/18 Tr. at 67-68 (Kelly Test.); SOF at ¶ 6.
- Richard Gnat, Principal at MWG's consultant KPRG & Associates (KPRG), which performed relevant projects at the four Stations. 10/25/17 Tr. at 39-234; 10/26/17 a.m. Tr. at 5-84; 10/26/17 p.m. Tr. at 4-22; 2/1/18 Tr. at 82-83 (Gnat Test.); SOF at ¶ 5.
- Christopher Lux, MWG's Engineering Manager at the Waukegan Station, who has worked at the Station since 1992, before MWG began operating the Station in 1999. 10/24/17 Tr. 33-172 (Lux Test.); SOF at ¶ 3.

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[2] All admitted hearing exhibits are available in the Board's website (pcb.illinois.gov) in the sub-docket "PCB 2013-015Exh".

- Rebecca Maddox, former MWG Environmental Specialist at the Will County Station between 2008 and April 2015. 10/24/17 Tr. 173-315; 10/25/17 Tr. at 10-38 (Maddox Test.); SOF at ¶ 4.
- Fredrick Veenbaas, MWG's Senior Compliance Specialist at the Waukegan Station since 2012; he had been the Chemistry Systems Specialist at the Will County Station since 1999. 1/31/18 Tr. at 221-222 (Veenbaas Test.); SOF at ¶ 7.

vii. Evidentiary Appeals

After the first set of hearings, the Environmental Groups and MWG objected to certain hearing officer's evidentiary rulings. On January 25, 2018, the Board granted the parties' respective motions for interlocutory appeal and affirmed the hearing officer's rulings to exclude Environmental Groups' Exhibit 37 from the evidence and to admit the Environmental Groups' Exhibits 5.5, 6, 7, 16, 204G–209G, 210H–215H, 222J–228J, and 236L–241L. In the same order, the Board reversed the hearing officer's ruling to admit the Environmental Groups' Exhibit 261 and excluded it from the record. *See* Sierra Club, PCB 13-15, slip op. at 5 (Jan. 25, 2018).

The parties also appealed certain hearing officer's evidentiary rulings made during the second set of hearings. On April 26, 2018, the Board affirmed the hearing officer's rulings to admit MWG's Exhibit 649 and to exclude MWG's Exhibit 662. *See* Sierra Club, PCB 13-15, slip op. at 2-4 (Apr. 26, 2018).

During the hearings, the hearing officer allowed 1998 Phase I and Phase II Environmental Site Assessment reports, prepared by ENSR for the previous owner of the Stations, into evidence over MWG's objections. At the same time, the hearing officer limited the use of the exhibits to the questions asked of, and the responses elicited from, the witness. 10/23/17 Tr. at 126-127; Hearing Officer Order, PCB 13-15 (Jan. 11, 2018); EG Exhs. 17D (1998 Phase II report for the Powerton Station), 18D (Phase II Will County), 19D (Phase II Waukegan) 20D (Phase II Joliet 29), 21 (Phase I Joliet 29), and 38 (Phase I Waukegan); MWG Exhs. 632 (Phase I Powerton), and 652 (Phase I Will County).

On February 26, 2018, the Environmental Groups filed a motion, amended on March 21, 2018, asking the Board to strike parts of the expert report and related testimony and demonstrative exhibit of Mr. Seymour, MWG's expert. On March 20, 2018, MWG filed a motion for sanctions, arguing that the Environmental Groups' motion to strike was untimely and their appeal of a hearing officer ruling was meritless. On May 10, 2018, the Board denied both motions. The Board found the evidence presented by Mr. Seymour to be reliable, given his professional qualifications. The Board also found that MWG had not demonstrated any unreasonable failure by the Environmental Groups to comply with a Board procedural rule or a hearing officer order. On October 2, 2017, the parties filed joint stipulations of facts (Joint Stip.).

viii. Post-Hearing Briefs

On July 20, 2018, the Environmental Groups and MWG filed their respective post-hearing briefs (EG Br. and MWG Br.). On August 30, 2018, the parties filed their respective response briefs (Env. Gr. Rep. Br. and MWG Rep. Br.). MWG' post hearing brief includes, as an Appendix A, MWG's "Statement of Facts" (SOF), setting forth what MWG believes are the facts established at hearing.

ix. Table of Abbreviations Used in this Opinion

"Act"	Illinois Environmental Protection Act
"Agency"	Illinois Environmental Protection Agency
"Am. Comp."	The Environmental Groups' second amended complaint, filed with the January 30, 2015 motion for leave to reply
"ASTM"	ASTM International
"CCAs"	2012 compliance commitment agreements between MWG and IEPA for each of the four Stations
"CCB"	"Coal combustion by-product" as defined in the Act (415 ILCS 5/3.135 (2016))
"CCR Rules"	USEPA's Coal Combustion Residual Rule at 40 C.F.R. Part 257 Subpart D
"C.F.R."	Code of Federal Regulations
"Proposed CCR regulations"	IEPA's rulemaking proposal in Coal Combustion Waste (CCW) Ash Ponds and Surface Impoundments at Power Generating Facilities: Proposed New 35 Ill. Adm. Code 841, R14-10
"EG. Br."	The Environmental Groups' initial post-hearing brief
"EG. Rep. Br."	The Environmental Groups' post-hearing response brief
"ELUC"	Environmental Land Use Control
"Exh."	Hearing Exhibit; due to a large variety and inconsistency of page numbering though the documents in the record, page numbers of the exhibits refer to the consecutive page number as displayed in electronic document opened in PDF; page numbers starting with "#" refer to the document bates numbers, if available.
"GMZ"	Groundwater Management Zone
"GQS"	Groundwater Quality Standards
'IDOT"	Illinois Department of Transportation
"IEPA"	Illinois Environmental Protection Agency

“Joint Stip.”	The parties’ October 2, 2017 Joint Agreed Stipulations
“MWG Br.”	MWG’s initial post-hearing brief
“MWG Rep. Br.”	MWG’s post-hearing response brief
“NLET”	Neutral Leaching Extraction Test
“SOF”	MWG’s “Statement of Facts” attached as Appendix A to MWG’s initial post-hearing brief
“Tr.”	Transcript
“VN”	Violation Notice
USEPA	United States Environmental Protection Agency

II. LEGAL FRAMEWORK

1. Standard of Review

In an enforcement proceeding before the Board, the complainant must prove by a preponderance of evidence that the respondent violated the Act, Board rules, or permits. People v. Packaging Personified, Inc., PCB 04-16, slip op. at 11 (Sept. 8, 2011); People v. General Waste Services, Inc., PCB 07-45, slip. op. at 12 (Apr. 7, 2011); Nelson v. Kane County Forest Preserve, PCB 94-244, slip op. at 5 (July 18, 1996); Lefton Iron & Metal Company, Inc. v. City of East St. Louis, PCB 89-53 slip op. at 3 (Apr. 12, 1990); Industrial Salvage Inc. v. County of Marion, PCB 83-173 slip op. at 3-4, (Aug. 2, 1984) *citing* Arlington v. Water E. Heller International Corp., 30 Ill. App. 3d 631, 640, 333 N.E.2d 50, 58 (1st Dist. 1975). A proposition is proved by a preponderance of evidence when it is more probably true than not. Nelson v. Kane County Forest Preserve, PCB 94-244, slip op. at 5 (July 18, 1996); Village of South Elgin v. Waste Management of Illinois, PCB 03-106, slip op. at 2 (Feb. 20, 2003); Industrial Salvage at 4, 59, 233, 236, *citing* Estate of Ragen, 79 Ill. App. 3d 8, 13, 198 N.E.2d 198, 203 (1st Dist. 1979). Once the complainant presents sufficient evidence to make a *prima facie* case, the burden of going forward shifts to the respondent to disprove the propositions. People v. Packaging Personified, Inc., PCB 04-16, slip op. at 11 (Sept. 8, 2011).

2. Applicable Law

In this case, the Environmental Groups allege violations of Sections 12(a). 12(d), and 21(a) of the Act (415 ILCS 5/12(a), (d), 21(a) (2016)). To establish these violations, the Board and the courts set specific elements that the Environmental Groups must prove. Below are the legal standards at issue in this proceeding.

A. Water pollution

Sections 12(a) and (d) of the Act state no person shall:

> (a) Cause or threaten or allow the discharge of any contaminants into the environment in any State so as to cause or tend to cause *water pollution* in Illinois, either alone or in combination with matter from other sources, or so as to *violate regulations or standards* adopted by the Pollution Control Board under this Act.
>
> * * *
>
> (d) Deposit any contaminants upon the land in such place and manner so as to create a *water pollution* hazard. 415 ILCS 5/12(a), (d) (2016) (emphasis added).

"**Contaminant**" is defined as "any solid, liquid, or gaseous matter, any odor, or any form of energy, from whatever source." 415 ILCS 5/3.165 (2016); 35 Ill. Adm. Code 620.110. "**Waters**" are defined as "all accumulations of water, surface and underground, natural, and artificial, public and private, or parts thereof, which are wholly or partially within, flow through, or border upon this State." 415 ILCS 5/3.550 (2016). "**Water pollution**" is defined as:

> such alteration of the physical, thermal, chemical, biological or radioactive properties of any *waters* of the State, or such discharge of any contaminant into any waters of the State, as will or is likely to create a *nuisance* or render such waters *harmful* or *detrimental* or *injurious* to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate uses, or to livestock, wild animals, birds, fish, or other aquatic life. 415 ILCS 5/3.545 (2016) (emphasis added).

To find a violation of Section 12(a) of the Act, the Board must find that a contaminant was discharged, or threatened to be discharged that is likely to render waters harmful, detrimental, or injurious to public health. People v. CSX, PCB 7-16, slip op at 16 (July 12, 2007). A violation of the Board's GQS constitutes violation of Section 12(a) of the Act. International Union, at all v. Caterpillar, PCB 94-420 slip op. at 33-34 (Aug. 1, 1996).

To establish a violation of Section 12(d), evidence must demonstrate that contaminants deposited upon land are in "particular quantity and concentration . . . likely to create a nuisance or to render the waters harmful, detrimental, or injurious." Jerry Russell Bliss, Inc. v. IEPA., 138 Ill. App. 3d 699, 704 (5th Dist. 1985).

To find a violation of Section 12(d) of the Act (415 ILCS 5/12(d) (2016)), the Board must find that a contaminant is placed on land in such a place and manner as to create a water pollution hazard. CSX, PCB 7-16, slip op. at 17. If a site's hydrology and geology would allow migration of the contaminants left in the soil to groundwater, a violation of Section 12(d) is found. *Id*.

Section 620.115 of the Board's rules (35 Ill. Adm. Code 620.115) states:

> No person shall cause, threaten or allow a violation of the Act, the [Illinois Groundwater Protection Act] or regulations adopted by the Board thereunder, including but not limited to this Part. 35 Ill. Adm. Code 620.115.

Section 620.301(a) of the Board's rules (35 Ill. Adm. Code 620.301(a)) states:

> a) No person shall cause, threaten or allow the release of any contaminant to a resource groundwater such that:
>
> 1) Treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater; or
>
> 2) An existing or potential use of such groundwater is precluded. 35 Ill. Adm. Code 620.301(a).

Section 620.405 of the Board's rules (35 Ill. Adm. Code 620.405) states:

> No person shall cause, threaten or allow the release of any contaminant to groundwater so as to cause a groundwater quality standard set forth in this Subpart to be exceeded. 35 Ill. Adm. Code 620.405.

The Act and Board rules define "**groundwater**" as "underground water which occurs within the saturated zone and geologic materials where the fluid pressure in the pore space is equal to or greater than atmospheric pressure." 415 ILCS 5/3.210; 35 Ill. Adm. Code 620.110. "**Resource groundwater"** is defined as "groundwater that is presently being, or in the future is capable of being, put to beneficial use by reason of being of suitable quality." 415 ILCS 5/3.430; 35 Ill. Adm. Code 620.110.

For the pollutants alleged in the complaints, Section 620.410 sets the following standards:

> a) Inorganic Chemical Constituents
> Except due to natural causes or as provided in Section 620.450, concentrations of the following chemical constituents must not be exceeded in Class I groundwater:

Constituent	Units	Standard
Antimony	mg/L	0.006
Arsenic*	mg/L	0.010
…		
Boron	mg/L	2.0
…		
Chloride	mg/L	200.0
…		
Iron	mg/L	5.0
Lead	mg/L	0.0075
Manganese	mg/L	0.15
Mercury	mg/L	0.002
…		
Nitrate as N	mg/L	10.0
…		
Selenium	mg/L	0.05
…		

Sulfate	mg/L	400.0
Thallium	mg/L	0.002
Total Dissolved Solids (TDS)	mg/L	1,200
…		

*Denotes a carcinogen. 35 Ill. Adm. Code 620.410(a).

Class I Potable Resource Groundwater include "[g]roundwater located 10 feet or more below the land surface" that meets requirements of Section 620.210. 35 Ill. Adm. Code 620.210. Class I Potable Resource Groundwater excludes groundwater specified in Sections 620.230 (Class III Special Resource Groundwater), Section 620.240 (Class IV Other Groundwater), or Section 620.250 (Groundwater Management Zone). *Id*.

Section 620.250(a) of the Board's rules specifies that:

> a) Within any class of groundwater, a groundwater management zone may be established as a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site:
>
> 1) That is subject to a corrective action process approved by the Agency; or
>
> 2) For which the owner or operator undertakes an adequate corrective action in *a timely and appropriate manner* and provides a written confirmation to the Agency. Such confirmation must be provided in a form as prescribed by the Agency. 35 Ill. Adm. Code 620.250(a).

Section 620.250(b) states that a GMZ is established when conditions of subsection (a) are met and "for a period of time consistent with the action described in that subsection." 35 Ill. Adm. Code 620.250(b).

Section 620.250(c) further states:

> A groundwater management zone *expires* upon the Agency's receipt of appropriate documentation which confirms the completion of the action taken pursuant to subsection (a) and which confirms the attainment of applicable standards as set forth in Subpart D. The Agency shall review the on-going adequacy of controls and continued management at the site if concentrations of chemical constituents, as specified in Section 620.450(a)(4)(B), remain in groundwater at the site following completion of such action. The review must take place no less often than every 5 years and the results shall be presented to the Agency in a written report. 35 Ill. Adm. Code 620.250(c).

Section 620.450(a) establishes quality standards for groundwater within a GMZ. Section 620.450(a) states:

> 1) Any chemical constituent in groundwater within a groundwater management zone is subject to this Section.
>
> 2) Except as provided in subsections (a)(3) or (a)(4), the standards as specified in Sections 620.410, 620.420, 620.430, and 620.440 apply to any chemical constituent in groundwater within a groundwater management zone. 35 Ill. Adm. Code 620.450(a)(1)-(2).

Section 620.450(a)(3) and (4) further define standards that apply to groundwater in a GMZ before and after completion of the corrective action:

> 3) Prior to completion of a corrective action described in Section 620.250(a), the standards as specified in Sections 620.410, 620.420, 620.430, and 620.440 are not applicable to such released chemical constituent, provided that the initiated action proceeds in a timely and appropriate manner.
>
> 4) After completion of a corrective action as described in Section 620.250(a), the standard for such released chemical constituent is:
>
> A) The standard as set forth in Section 620.410, 620.420, 620.430, or 620.440, if the concentration as determined by groundwater monitoring of such constituent is less than or equal to the standard for the appropriate class set forth in those Sections; or
>
> B) The concentration as determined by groundwater monitoring, if such concentration exceeds the standard for the appropriate class set forth in Section 620.410, 620.420, 620.430, or 620.440 for such constituent, and:
>
> i) To the extent practicable, the exceedance has been minimized and beneficial use, as appropriate for the class of groundwater, has been returned; and
>
> ii) Any threat to public health or the environment has been minimized. 35 Ill. Adm. Code 620.450(a)(3)-(4).

Section 620.450(a)(5) specifies the actions the IEPA must take with respect to standards applicable under subsection (a)(4)(B):

> The Agency shall develop and maintain a listing of concentrations derived pursuant to subsection (a)(4)(B). This list shall be made available to the public and be updated periodically, but no less frequently than semi-annually. This listing shall be published in the Environmental Register. 35 Ill. Adm. Code 620.450(a)(5).

B. ***<u>Open dumping</u>***

Section 21(a) of the Act states “no person shall: cause or allow the open dumping of any waste.” 415 ILCS 5/21(a) (2016).

The Act defines “**open dumping**” as “the consolidation of refuse from one or more sources at a disposal site that does not fulfill the requirements of a sanitary landfill.” 415 ILCS 5/3.305 (2016). “**Refuse”** is defined as “waste” (415 ILCS 5/3.385 (2016)) and “**waste**” is defined as:

> any garbage, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility or *other discarded material*, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations, and from community activities, *but does not include* solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows, or *coal combustion by-products as defined in Section 3.135*, or industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as now or hereafter amended, or source, special nuclear, or by-product materials as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 921) or any solid or dissolved material from any facility subject 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. 415 ILCS 5/3.535 (2016).

“**Coal combustion by-product**” (CCB) is defined as “coal combustion waste when used beneficially in any of the [ways listed in this section].” 415 ILCS 5/3.135 (2016). The Act also defines “**Coal combustion waste**” as “any fly ash, bottom ash, slag, or flue gas or fluid bed boiler desulfurization by-products generated as a result of the combustion of … coal, or … coal in combination with [other material].” 415 ILCS 5/3.140 (2016).

“**Disposal**” means “discharge, deposit, injection, dumping, spilling, leaking or placing of any waste or hazardous waste into or on any land or water or into any well so that such 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.” 415 ILCS 5/3.185 (2016).

“**Sanitary landfill**” means “a facility permitted by the Agency for the disposal of waste on land meeting the requirements of the Resource Conservation and Recovery Act, P.L. 94-580, and regulations thereunder, and without creating nuisances or hazards to public health or safety, by confining the refuse to the smallest practical volume and covering it with a layer of earth at the conclusion of each day's operation, or by such other methods and intervals as the Board may provide by regulation. 415 ILCS 5/3.445 (2016).

For a violation of Section 21(a), although knowledge is not an element of a violation, the Environmental Groups “must show that the alleged polluter has the capability of control over the pollution or that the alleged polluter was in control of the premises where the pollution occurred.” Gonzalez v. Pollution Control Bd., 2011 IL App (1st) 093021, ¶ 33; People v. A.J. Davinroy Contractors, 249 Ill. App. 3d 788, 793, 618 N.E.2d 1282, 1286 (5th Dist. 1993). Property owners are responsible for the pollution on their land unless the facts establish that the owners either "lacked the capability to control the source" or "had undertaken extensive precautions to prevent vandalism or other intervening causes." *Id*; Perkinson v. Pollution Control Bd., 187 Ill. App. 3d 689, 695, 543 N.E.2d 901, 904 (3rd Dist. 1989).

III. PARTIES' ALLEGATIONS

1. Environmental Groups' Allegations

The Environmental Groups allege that MWG violated Sections 12(a), 12(d), and 21(a) of the Act (415 ILCS 5/12(a), 12(d), 21(a) (2016)) and Sections 620.115, 620.301(a) and 620.405 of the Board's groundwater quality rules (35 Ill. Adm. Code 620.115, 620.301(a) and 620.405). Am. Comp. at 17, ¶ 51; EG Br. at 4. The Environmental Groups allege that MWG discharged contaminants into the environment "through coal ash disposal ponds, landfills, unconsolidated coal ash fills, and/or other coal ash and coal combustion waste repositories" at all four Stations. Am. Comp. at 17, ¶ 51.

The Environmental Groups allege that at "all MWG Plants coal ash can be found in onsite impoundments (or 'ash ponds') and in ash landfills and other coal ash fill areas outside of the ash ponds." EG Br. at 4. The Environmental Groups allege that MWG has owned and operated the Stations since 1999, has known about coal ash both in and outside ash ponds, and has not exercised adequate control to prevent groundwater contamination. *Id*.

Historical sites. The Environmental Groups allege that all four Stations include large onsite historical coal ash storage areas, or landfills. In support of this allegation, the Environmental Groups rely on the 1998 Phase I and Phase II reports and Dr. Kunkel's testimony and reports to establish historic locations at the four Stations. EG Br. at 26, 29, 31; EG Resp. Br. at 37; EG Exh. 20D at Fig. 2 (#23339); EG Exh. 21 at 12 (#25150); 10/26/17 p.m. Tr. at 34-36, 39, 83 (Kunkel Test.); 10/27/17 Tr. at 12, 25-26 (Kunkel Test.); 1/29/18 Tr. at 73 (Kunkel Test.); EG Exh. 401 at 2. The Environmental Groups assert that MWG employees and consultants were well aware of these areas. 10/25/17 Tr. at 81-82, 95 (Gnat Test.); 10/23/17 Tr. at 100, 103-104, 110-114, 121-122, 134-137, 226 (Race Test.); 1/29/18 Tr. at 183; 2/1/18 Tr. at 193-194; 2/2/18 Tr. at 142, 158-160, 172, 184, 192 (Seymour Test.), MWG Exh. 903 at 43.

The Environmental Groups also allege that contaminants are leaking from the berms of the ash ponds, and, that certain Stations were constructed in part with coal ash and contain ash as deep as 10-120 feet as evidenced by soil borings. EG Br. at 59 *citing* EG Exh. 14C at 19 (#7166-7174); EG Exh. 401 at 24-25, Tab. 7; 27/10/17 Tr. 24:9-26:3.

The Environmental Groups argue that historic ash caused some or all of the groundwater contamination. EG Br. at 33. They argue that MWG expert Mr. Seymour confirmed that MWG is aware of the coal-ash related constituents in the monitoring wells, noting in his testimony that "[i]t's a power plant and so there's ash-related constituents at the site. It's just that we haven't identified a specific source." 2/2/18 Tr. at 46, 158; EG Br. at 33-34. "The power plant is over 50 years old and there are many historic uses at the site that may have caused the impacts that we're seeing, and they have caused the impacts that we're seeing, and they may be related to coal ash from historic uses." *Id*. at 158-160; EG Br. at 34. The Environmental Groups also note that MWG's experts cannot rule out historic coal ash landfills as the cause of contamination because MWG has not taken samples or borings from many of these sites, did not conduct leachate testing there, and did not monitor groundwater close to those areas. EG Br. at 34; 2/2/18 Tr. at 21, 160-165; 1/30/18 Tr. at 258-260; 10/23/17 Tr. at 77.

Coal Ash Constituents. The Environmental Groups maintain that many of the pollutants exceeding GQS are "constituents" of coal ash. Am. Comp. at 4, ¶ 11; EG Br. at 4. Boron and sulfate are primary indicators of potential coal ash. *Id*. These pollutants make groundwater unusable when "at the concentrations found in MWG's wells." Am. Comp. at 4. The Environmental Groups argue that concentrations of these pollutants present human health risk or endanger aquatic ecosystems. Am. Comp. at 4-8, ¶¶ 13-27. The Environmental Groups argue this poses a significant concern because contaminated groundwater is migrating into adjacent surface water bodies. *Id*.

Class I GQS Exceedances. The Environmental Groups assert that groundwater at the four Stations has exceeded Illinois Class I GQS for coal ash constituents since monitoring began in 2010:

1) 69 times at Joliet 29, including eight exceedances in 2016 and four exceedances in the first half of 2017 (EG Br. at 29);

2) 406 times at Powerton, including 81 exceedances in 2016 and 45 exceedances in the first half of 2017 (EG Br. at 39);

3) 443 times at Will County, including 70 exceedances in 2016 and 37 exceedances in the first half of 2017 (EG Br. at 63, App. A);

4) 396 times at Waukegan, including 87 exceedances in 2016 and 55 exceedances in the first half of 2017 (EG Br. at 52, App. A).

Background Exceedances. Additionally, the Environmental Groups contend that onsite concentrations of coal ash constituents are higher than IEPA's state wide background values (both statewide median[3] and 90th percentile) from the IEPA ambient monitoring network and are not naturally occurring. EG Br. at 29. The Environmental Groups' expert, Dr. Kunkel, explained that "there are specific Illinois ground-water quality data which are representative of background on a state-wide level for the three indicator pollutants." EG Exh. 401 at 8. Dr. Kunkel compared median concentrations of coal ash constituents in each well at Joliet 29, Will County, and Waukegan to the statewide background values developed by IEPA. Env. Br. at 21. At Powerton, Dr. Kunkel employed MW-16 as the background well. EG Exh. 401 at 8. The Environmental Groups rely on IEPA's Technical Support Document filed in R14-10 in 2013 to establish statewide median and upper-bound 90th percentile values for boron, sulfate, and other pollutants. EG Br. at 21; EG Exh. 405 at 5 (#19071).

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[3] Median is determined by arranging all the data in the background dataset from highest value to lowest and taking the center value of that dataset. 2/1/18 Tr. at 103 (Gnat Test.); EG Exh. 405 at 5-9 (#19071-75). 90th percentile is a statistical representation of monitoring data expected by the Illinois EPA that indicates the level of confidence above which a value can be considered above background. If a number is above the 90th percentile level, then it can be said with 90 percent confidence that the value is above background. 2/2/18 TR. at 32-33 (Seymour Test.)

The Environmental Groups allege that, at Joliet 29, boron and sulfate concentrations exceed the median background values in all 11 monitoring wells, as well as upper-bound 90th percentile background value for boron in MW-11 and sulfate in MW-09. EG Br. at 30. At Powerton, the concentrations of boron and sulfate were exceeded in 15 downgradient wells (MW-1 through MW-15) and the upper-bound 90th percentile background values were exceeded for sulfate in nine wells (MW-4, 5, 8, 9, and 11 through 15) and boron in seven wells (MW-6, 8, and 11 through 15). EG Br. at 40-41. At Will County, boron concentrations exceed the upper-bound 90th percentile background values in all ten wells. *Id.* at 64. Although monitoring well MW-04 is the only well's whose sulfate concentration exceeded the upper-bound 90th percentile value, the sulfate concentrations in all ten wells are three to five times higher than the statewide median value. *Id.* At Waukegan, the boron and sulfate concentrations in most of the wells are higher than the statewide upper-bound 90th percentile background value and not naturally occurring. EG Br. at 53.

Dr. Kunkel noted that all four Stations' sites overlay sand and gravel or shallow bedrock aquifers that are the same aquifers from which the IEPA's background community water supply wells (CWS) are drawing water. EG Exh. 401 at 8. Dr. Kunkel further notes that the actual background median for sulfate at Powerton's background well (MW-16), which is completed in the sand and gravel aquifer, was within a few milligrams per liter of the median statewide sulfate value. Thus, Dr. Kunkel argued that the statewide median background values may be used to evaluate groundwater monitoring results even though the statewide CWS wells were not located in counties with MWG plants. 1/29/18 Tr. 83-84; EG Exh. 401 at 8.

The Environmental Groups note that MWG's expert concurred that, if the groundwater concentration is greater than the 90th percentile of the statewide background values, then the value is above the background value. EG Br. at 21 *citing* 2/2/18 Tr. at 32-33 (Seymour Test.).

GMZs and CCAs. The Environmental Groups also noted that although MWG established Groundwater Management Zones (GMZ) at the three Stations, groundwater monitoring recorded exceedances of GQS in violation of Sections 620.301(a) and 620.405, on many occasions before the GMZs were established. EG Br. at 5. No GMZ was established at the Waukegan Station. The Environments Groups also argued that MWG's four Compliance Commitment Agreements (CCAs) failed to address all possible sources of coal ash contamination because they did not address coal ash outside of the coal ash ponds. The CCAs also failed, according to the Environmental Groups, to provide for any controls to prevent contamination from any historic coal ash landfills or fill areas. EG Br. at 25-26.

2. MWG Response

MWG denied the Environmental Groups' allegations and believed that alleged exceedances are random, inconsistent, and do not show a connection to the ash ponds. MWG 2nd Ans. Def. at 23; MWG Br. at 4. MWG stated that all ash ponds are permitted under its NPDES permits as part of its wastewater treatment systems and are lined with HDPE liners. MWG 2nd Ans. Def. at 1-2; SOF ¶ 91.

Historical Sites. MWG asserted that any historical sites at the four Stations that may contain historical coal combustion debris were not created, filled, or used for storage or disposal by MWG. MWG 2nd Ans. Def. at 22. MWG experts testified that the Phase II Reports were prepared for the previous owner of the Stations, before MWG began operating them. MWG Exh. 901 at 23 (Seymour); EG Exhs. 17D-20D; SOF at 12 ¶ 119; MWG Br. at 11. When MWG acquired the Stations, MWG assessed these historic areas and concluded, based on the Phase I and Phase II Reports, that no further remediation was necessary. MWG Resp. Br at 28; SOF ¶¶ 78-85, 121, 122, 162-165, 272, 368-370; 1/29/18 Tr. at 185, 205-207 (Race Test.). Neither USEPA nor IEPA asked MWG to investigate these areas. *Id*. MWG also noted that, between 2004 and 2015, MWG investigated and tested historic ash in fill materials at Joliet 29, Powerton, Will County, and Waukegan Stations to confirm that the historic ash met the Act's requirements for beneficial reuse. MWG Br. at 7. The results showed that the historic ash met the "CCB criteria and can be used for beneficial reuse" under 415 ILCS 5/3.135. *Id*. at 7-8.

Class I GQS Exceedances. MWG believed that no concentrations of constituents related to coal ash above the groundwater standards exist at the Joliet 29 or Powerton Stations. MWG Br. at 12. According to MWG, Seymour established that the groundwater conditions at the Stations do not pose a risk to public health or water receptors in the neighboring surface waters. MWG Br. at 29. Seymour concluded that ash ponds are not the source of the Part 620 standards exceedances. In fact, Seymour suggested that exceedances may be due to the historic contamination that remains at the site. 2/2/18 Tr. at 80.

MWG stated that, since sampling groundwater began in 2010, boron has been detected above the Class I GQS at Joliet 29 in one of the eleven wells in 2011 once and never since. MWG Br. at 9. Moreover, MWG maintained that groundwater monitoring around the known former ash area at Powerton shows no coal ash constituents above the Class I GQS. MWG Res Br. at 2. MWG's expert Seymour also stated that, based on the groundwater concentrations in the monitoring wells, no groundwater plume exists at any of the Stations, evidenced by a lack of spatial trend in the indicator constituents' concentrations in the direction of the groundwater flow. Accordingly, MWG contended that no evidence exists to indicate that the source area remaining at the site can be remediated. MWG Exh. 903 at 15, 18, 21, 23. MWG's expert, Seymour, however, admitted that key indicator constituents intermittently exceeded Class I groundwater standards. MWG Exh. 903 at 18. MWG's consultants performed Neutral Leaching Extraction Test (NLET) analyses of the bottom ash from ponds at Powerton (2007), Waukegan (2004) and Will County (2010). *Id*. at 41; MWG Exh. 901 at 8. According to Seymour, the results of the NLET analyses indicate whether the leachate in the ponds has the potential to cause groundwater impacts above the Class I groundwater standards. MWG Exh. 903 at 41. Based on the NLET results, he concluded that the leachate in ponds at all four stations does not have the potential to impact groundwater above the Class I standard. *Id*.

Mr. Seymour compared the groundwater monitoring results from 2014 with the results of the NLET analyses of the bottom ash leachate. He noted a low percentage of constituents in the monitoring wells that match leachate indicator constituents (including barium, boron, sulfate, TDS and several metals): 11-37% at Joliet 29; 5-37% at Powerton; 16-26% at Waukegan; and 21-37% at Will County. Exh. 903 at 42-43. Mr. Seymour claimed that low matching percentages show substantial and widespread mismatch between the characteristics of recent groundwater analyzed near the ash ponds and the characteristics of leachate from ash currently stored in the ash basins. *Id*. at 43. Thus, he contended that the likely sources of groundwater impacts are not the ash stored in the ash basins but, rather, historical uses of the sites and surrounding industrial sites . *Id*.

Background Exceedances. MWG also disagreed with the Environmental Groups use of statewide median background values. MWG's expert Mr. Seymour asserted that the background levels employed by the Environmental Groups are based upon monitoring data from community water supply wells that are not representative of site-specific groundwater quality. 2/2/18 Tr. at 31-32 (Seymour Test.). He maintained that it is inaccurate to consider statewide background as representative of background at the sites where upgradient monitoring data is available. Mr. Seymour maintained that background concentrations must be evaluated based upon site specific data from monitoring wells installed at upgradient site boundaries in locations without the presence of ash materials in fill. MWG Exh. 903 at 60.

Mr. Seymour also noted that the IEPA's proposed CCR regulations explain the procedure for establishing background on site specific basis. The IEPA's proposal in R14-10 specifies that the groundwater monitoring system must include wells to represent the quality of groundwater at the site not affected by activities and units (background) and sets forth requirements for establishing background. EG Exh. 405 at 25-28. Additionally, MWG's consultant, Gnat, explained why a direct comparison of the median values from a monitoring well with the statewide median value is inappropriate. He noted that a monitoring well median above the statewide median means the well median value is above the median of community water supply wells' background values and not above background itself because the statewide median has a range of median values. 2/1/18 Tr. at 105-106. Mr. Seymour agreed that the comparison, according to the IEPA, must be based upon a statistical evaluation that employs a 90 percent confidence level, (i.e. a value above the 90 percent confidence level is considered above background levels with 90 percent assurance). 2/2/18 Tr. at 32-33 (Seymour Test.).

GMZ, ELUC, and CCA Compliance. MWG argued that Illinois law does not establish strict liability for water pollution and "simply being an owner or operator of a facility is not enough to find liability in this case." MWG Br. at 4. MWG noted that it took extensive precautions, including extensive corrective actions required by the CCAs: relined ash ponds, established GMZs and ELUCs, and performed regular inspections and repairs to the ash ponds' lining. MWG Br. at 3, 4. MWG believed that the law "is clear that a party does not cause or allow contamination if it took extensive precautions, as MWG did." MWG Br. at 4. MWG established ELUCs under 35 Ill. Adm. Code 742.1010 at Powerton, Will County, and Waukegan. MWG Br. at 29; SOF 646. An ELUC "is another institutional control tool in which a designated parcel of land has certain use restrictions, such as not allowing the placement of any potable water wells within the area." MWG Br. at 29; SOF 647.

MWG, further, argued that, because it performed all measures required by the IEPA, even if the Board finds violations of the Act, "no penalty or other response is warranted, and no further proceedings are warranted." MWG Br. at 5. MWG maintained that the Board may not grant relief requested by the Environmental Groups to modify MWG coal ash disposal practices and to remediate contamination because it has no enforcement powers and cannot grant injunctive relief. MWG 2nd Ans. Def. at 23.

MWG also asserted the following affirmative defenses:

I. MWG did not violate Board's Class I GQS[4] standards and Sections 620.301(a) and 620.405 because the groundwater at the Stations is within the GMZ which, under Section 620.450(a)(3), is exempt from those standards; and

II. There is no nuisance, harm or injury to public health, safety or welfare at or around the Stations because of low level of constituents in the groundwater and absence of human and environmental receptors. MWG 2nd Ans. Def. at 24-26 ¶¶ 82-97; 2/1/18 Tr. at 107.

IV. FACTS

1. General Facts Applicable to all Stations

x. Coal Ash and Constituents

The parties agreed that coal combustion for electricity generation creates two types of coal ash - fly ash and bottom ash. Joint Stip. at 4; MWG Br. at 6; 10/26/18 Tr. p.m. at 31 (Kunkel Test.). While fly ash consists of lightweight particles that go up the stack, the bottom ash consists of heavy particles that fall to the bottom of the furnace. Bottom ash is mixed with water, then removed by transporting out of the plant through a pipe to the ash ponds or a settling basin. MWG Br. at 6; EG Br. at 18; 2/1/18 Tr. at 7 (Veenbaas Test.); 10/26/18 Tr. p.m. at 31 (Kunkel Test.); *see also* EG Exh. 43; 10/24/17 Tr. at 38. "Slag" is a form of bottom ash that is a bi-product of coal combustion. 10/23/17 Tr. at 128 (Race Test.); 10/24/17 Tr. at 38, 179 (Lux Test.). The terms "coal ash" and "slag" are used interchangeably in the record by the parties and experts to refer to bottom ash.

Constituents found in the bottom ash depend on the source of coal and the combustion process. 10/23/17 Tr. at 13. The parties agreed that all four MWG Stations burned the same coal in a similar manner, thus the resulting coal ash from each Station possessed similar constituents. Joint Stip. at 4; MWG Br. at 6; 10/27/18 Tr. at 177 (Kunkel Test., noting that he heard that "there may have been some Illinois coal mixed in with the coal from one of the plants"); 2/1/18 Tr. at 266 (Seymour Test.); MWG Exh. 903 at 41 (Seymour Test.).

The parties agreed that boron and sulfate are typical indicators of coal ash and are constituents typically found in bottom ash. Env. Gr. Br at 4, 17, 28 and MWG Br. at 6. Coal ash indicators may also include other contaminants recognized by the USEPA in 40 CFR 257, App. III, such as, calcium, chloride, fluoride, pH, and total dissolved solids (TDS). Env. Gr. Br at 17, 20 and MWG Br. at 6. Environmental Groups note that 40 CFR 257, Appendix IV, also lists antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, mercury, molybdenum, selenium, thallium, and radium.

The Environmental Group's expert Dr. Kunkel noted that coal ash leachate is characterized by one or more of the following constituents: boron, molybdenum, lithium, sulfate, bromide, potassium, sodium, fluoride, chloride, or calcium. EG Exh. 401 at 7. However, boron,

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[4] MWG refers to 35 Ill. Adm. Code 620.410, 620.420, 620.430 and 620.440. *See* MWG 2nd Ans. Def. at 25 ¶ 86.

manganese, sulfate, and TDS were chosen as indicators of GW contamination from coal ash ponds. *Id*. Dr. Kunkel stated that it is highly unlikely that the combination of boron, sulfate, and manganese in concentrations above groundwater standards or background water quality concentrations beneath or down-gradient from ash ponds would be caused by any source other than coal ash. *Id.* MWG's expert concurred that indicator constituents for coal ash in MWG's ash ponds, at a minimum, include barium, boron, and sulfate; and may also include antimony, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, and zinc. MWG Exh. 901 at 21-25.

xi. <u>Hydrogeological Assessment and 2012 Violation Notices</u>

In 2010 MWG agreed to the IEPA's request to perform hydrogeological assessments around the ash ponds at the four Stations, even though MWG believed it "was under no legal obligation to do so." EG Exh. 8B at 1; MWG Answer and Defenses 5/5/14 at 21; MWG Br. at 3; EG Exhs. 12C, 13C, 14C, and 15C.

Upon completion of the assessments, on June 11, 2012, the IEPA issued Violation Notices (VN) to MWG under Section 31(a)(1) of the Act (415 ILCS 5/31(a)(1) (2016)), alleging violation of groundwater quality standards at all four Stations. MWG 2nd Ans. Def. at 4, 22; Joint Stip. at 4. The VNs alleged violations of Section 12 of the Act (415 ILCS 5/12 (2016)) and Sections 620.115, 620.301, 620.401, 620.405 and 620.410 of the Board's regulations (35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, 620.410). EG Exhs. 3A, 4A. VNs alleged that "operations at ash impoundments have resulted in violations of Groundwater Quality Standards" between 2010 - 2012. *Id*.

xii. <u>CCAs for All Four Stations</u>

On July 27, 2012, MWG responded to the IEPA by requesting a meeting to discuss the VNs and included a proposed Compliance Commitment Agreements (CCA) for each of the four Stations. EG Exhs. 8B and 9B. MWG did not admit to any alleged violations and disagreed with the VNs. MWG argued that the VNs provided no information as to why the IEPA concluded that the ash ponds caused alleged groundwater impacts. EG Exhs. 8B at 2 and 9B at 2. "[A]lleged violations in the VN are based solely on the results of the hydrologic assessment" which "do not show that the coal ash ponds at the [Stations] are impacting the groundwater and do not provide the necessary evidence to support the alleged violations." *Id*. On August 14, 2012, the IEPA met with MWG to discuss the VNs. MWG Exh. 622 at 1. In August and September 2012, the IEPA received MWG's supplemental response to the VNs at the four Stations; MWG's supplemental response proposed revised terms for four CCAs based upon the August 14th discussions. MWG Exhs. 626 at 3; 624 at 2; 625 at 1; 622 at 1; 623 at 1.

On October 24, 2012, MWG entered into separate CCAs with IEPA with respect to the four Stations. MWG 2nd Ans. Def. at 24. The CCAs stated that, "pursuant to [VNs] the Illinois IEPA contends that Respondent has violated" Section 12 of the Act (415 ILCS 5/12 (2016)) and Sections 620.115, 620.301, 620.401, 620.405, and 620.410 (35 Ill. Adm. Code 620.115, 620.301, 620.401, 620.405, 620.410). MWG Exhs. 626 at 2 ¶ 3; 636 at 2 ¶ 3; 656 at 2 ¶ 3; 647 at 2 ¶ 3.

xiii. <u>Groundwater Monitoring</u>

In 2010 MWG installed groundwater monitoring wells around the ash ponds at the four Stations. The wells were screened to ensure collection of representative groundwater samples from the uppermost aquifer. EG Exh. 12C at 4. Beginning in the fourth quarter of 2010, MWG undertook a quarterly sampling program. MWG Exh. 809. The groundwater samples were analyzed for 35 parameters. *Id*. These parameters included the indicator constituents associated with coal ash. MWG Br. at 6. The quarterly monitoring reports, included in the record, for all four Stations provide results from December 2010 through April 2017 for 35 parameters, including antimony, arsenic, boron, manganese, and other indicator constituents associated with coal ash. MWG Exh. 809-812; s*ee also* EG Br. at 17 and App. A; MWG Br. App. A/SOF ¶¶508, 509, 520-523, 526, 528.

2. Joliet 29

A. Uncontested Facts

xiv. The Station

MWG leases and operates Joliet 29 Electric Generating Station, located in Joliet, Will County (Joliet 29). Joint Stip. at 1; MWG 2nd Ans. Def. at 1; 1/29/18 Tr. at 178-179 (Race Test.). The Station is located in a primarily industrial area, bordered on the west by a former Caterpillar, Inc. manufacturing facility. 1/29/18 Tr. at 179 (Race Test.). The north side of Joliet 29 is bordered by Channahon Road (East James St), beyond which are Illinois and Michigan Canal Trail, industrial facilities, and neighborhoods of Rockdale. 1/29/18 Tr. at 179-180 (Race Test.). The east side is bordered by Brandon Road, and the south side is bordered by the Des Plaines River. 1/29/18 Tr. 179-180 (Race test); MWG Exh. 667 at 2; EG Exh. 20D at 28 (Fig.1); MWG Exh. 246M at 4 (Fig.1); SOF at 8 ¶ 68, 69, 73; 10/26/17 Tr. A.m. at 36-37 (Gnat Test.).

The Station has operated since the mid-1960s. EG Exh. 201 at 2-4 (#24265-24267); EG Exh. 242 at 7; MWG Exh. 663 at 1; MWG Exh. 901 at 14; 1/29/18 Tr. at 182 (Race Test.). MWG operated the Station as a coal-fired plant from 1999 until March 18, 2016, when it ceased burning coal. Joint Stip. at 1-2; SOF ¶ 67; 1/29/18 Tr. at 186 (Race Test.). On May 26, 2016, Joliet 29 began generating electricity with natural gas. Joint Stip. at 2; MWG Br. at 11; SOF at ¶ 67; 1/29/18 Tr. at 186 (Race Test.). Joliet 29 Station burned subbituminous coal from Wyoming's Power River Basin until it ceased burning coal for electricity generation. Joint Stip. at 4.

xv. Ash Ponds

Three active coal ash ponds exist at Joliet 29: Pond 1, 2, and 3, all constructed in 1978 with a poz-o-pac liner. Joint. Stip. at 1; MWG 2nd Ans. Def. at 1; SOF ¶ 86; MWG Exh. 901 at 16; MWG Exh. 667 at 4. All three ponds were relined with a 60 mil. high density polyethylene (HDPE) liner: Pond 1 in 2007, pond 2 in 2008, and pond 3 in 2013. Joint Stip. at 1. All three ash ponds are included in the MWG's NDPES Permit #IL0064254, issued September 30, 2014, (effective November 1, 2014,) as part of the wastewater treatment system. MWG Exh. 603 at 1, (Joliet 29 NPDES Permit); MWG 2nd Ans. Def. at 1-2; SOF ¶ 91.

At the time MWG began operating Joliet 29, and until 2016, the majority of the bottom ash was conveyed automatically by an enclosed pipe system across the Des Plaines River to a permanent permitted landfill operated by Lincoln Stone Quarry. 1/29/18 Tr. at 192-194 (Race Test.). When the enclosed pipe system was not operating, on rare occasions bottom ash from Joliet 29 was pumped to either Ash Pond 1 or Ash Pond 2. *Id*. at 194.

Ash Ponds 1 and 2 were operated one at a time and were emptied in succession, every two to four years, with the removed ash taken to a permitted landfill. MWG Exh. 901 at 16 (Seymour test); MWG Exh. 903 at 15-16, 30; MWG Exh. 500 at 30-31; 1/29/18 Tr. at 194. Ponds 1 and 2 were dredged regularly, approximately every year or every other year. Joint Stip. at 1. The ponds' lining includes (described bottom up): 12" poz-o-pac on the bottom, a bottom geotextile cushion, the 60 mil HDPE liner, a top geotextile cushion, a sand cushion and a limestone warning layer. MWG Exh. 901 at 17. The ponds' bottom elevation is at 516 ft; the average groundwater elevation is at 505.5 – 506 feet (about 10 feet below the pond's bottom). *Id*. By October 12, 2015, MWG removed Pond 1 from service with all coal ash removed from it. Joint Stip. at 2; 1/29/18 Tr. at 198 (Race Test.). Ash pond 2 closed as well, and, at the time of the January 29 hearing, MWG was in the process of removing the remaining ash was in the process of being removed to the Lincoln Stone Quarry landfill, scheduled to complete in 2018. 1/29/18 Tr. at 198-199 (Race Test.).

Ash Pond 3 was used as a finishing pond and received only a *de minimis* amount of ash. Because no ash accumulated in the pond, Pond 3 never needed to be emptied between 1978, when it was placed into operation, and 2013, when it was emptied and relined. 1/29/18 Tr. at 188-191 (Race Test.); 1/30/18 Tr. at 39-40 (Race Test.). The pond's lining is the same as Ash Ponds 1 and 2 and includes (described bottom up): 12" poz-o-pac on the bottom, a bottom geotextile cushion, the 60 mil HDPE liner, a top geotextile cushion, a sand cushion and a limestone warning layer. MWG Exh. 901 at 18. The pond's bottom elevation is at 517.5 ft; the average groundwater elevation is at 505.5 feet (about 12.5 feet below the pond's bottom). *Id*. The effluent entering Ash Pond 3 from Ash Pond 2 was sampled in 2015 for total suspended solids. The samples showed only 20 mg/L of total suspended soils in the water, which means that "influent looked like a clear water." 1/29/18 Tr. at 190-191 (Race Test.); MWG Exh. 602 at 6 (bates #49747). MWG removed coal ash from Pond 3 for the first time in 2013 when it was relined. Joint Stip. at 2; EG Br at 29; 1/29/19 Tr. at 191-192 (Race Test.).

xvi. Joliet 29 Violation Notice

The, IEPA issued Violation Notice W-2012-00059for Joliet 29 Station (Joliet 29 VN) which alleged that "operations at ash impoundments have resulted in violations of Groundwater Quality Standards" during 2010 - 2012 at monitoring wells MW-2 through MW-11, including for Chloride (all monitoring wells), Antimony (MW-2), manganese (MW-4, 7, 9), and boron (MW-11). EG Exh. 3A at 3-6. MW-9 also included sulfate, iron, and TSD. *Id*. at 5-6.

xvii. Joliet 29 CCA

The Joliet 29 CCA (MWG Exh. 626) states that:

> Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10 and MW-11. MWG Exh. 626 at 2 ¶ 3.

The Joliet 29 CCA notes that "respondent agrees to undertake the following actions, which the Illinois EPA has determined are necessary to attain compliance" with the Act and Board rules. MWG Exh. 626 at 3 ¶ 5. Subsections (a) through (h) of paragraph 5 list activities MWG must undertake, that include:

5(a) prohibiting the use of ash ponds as permanent disposal sites, but only as treatment ponds to precipitate ash, and to continue periodic removal of ash;
5(b) maintaining and operating ponds in a manner that protects integrity of their liners;
5(c) conducting visual inspections of the ponds during ash removal to identify breach of liners integrity and to promptly inform IEPA and repair (implement corrective action plan approved by IEPA) if signs of breach are found;
5(d) continuing quarterly monitoring of the 11 monitoring wells "for constituents in 35 Ill. Adm. Code 620.410(a)" and record and report elevations to IEPA;
5(e) apply to IEPA for a construction permit to reline Ash Pond 3 with HDPE liner;
5(f), (g) submitting an application to IEPA to establish and establish a GMZ under section 620.250 within one year from the date of CCA; and
5(h) within one year of the date of CCA, and upon realigning Ash Pond 3 and establishing GMZ, submit a certification of compliance. MWG Exh. 626 at 3 ¶ 5.

On October 9, 2013, MWG filed a certification with the IEPA that all Joliet 29 CCA measures were completed. Joint Stip. at 4; MWG Exh. 630.

xviii. Joliet 29 GMZ

As required by the Section 5 of the Joliet 29 CCA, on January 18, 2013, MWG submitted an application to establish a GMZ (Joliet 29 GMZ Application, EG Exh. 242), that would include the area around the ash ponds. EG Exh. 242 at 1; MWG Exh. 901 at 23 (Seymour Pres.). The IEPA approved the application on August 8, 2013. Joint Stip. at 4; MWG Exh. 627; MWG 2nd Ans. Def. at 25. The application describes the GMZ borders:

> groundwater flow in the vicinity of the subject ash ponds is in southerly direction with discharge to the adjourning station water intake channel of the Des Plaines River. The southern (downgradient) extent of the proposed GMZ corresponds with this hydraulic boundary. The northern (upgradient) boundary is defined by the placement of the three upgradient monitoring wells (MW-8, MW-10 and MW-11). The east and west sides of the proposed GMZ are based on the flow system and location of the three ash ponds. EG Exh. 242 at 1.

The application noted that "Class I" is the groundwater classification "the facility will be subject to at the completion of the remediation." *Id*. Att. 2 Part I, ¶ 10. The GMZ application noted that:

> The agreed upon remedy is specified in Item 5(a) through (h) of the executed [CCA]… The remedy includes lining of Ash Pond 3 with HDPE. This [GMZ] application fulfills requirements set forth under Item 5(f) of the CCA. EG Exh. 242 Att. 2, Part III ¶ 1.

The application also noted that "[at] the completion of the corrective process, a final report is to be filed which includes the confirmation statement included in Part IV." *Id*. Att. 2 at 1, Note 1.

B. __Contested Facts__

i. ***__Ash Ponds Dredging and Liner Ruptures__***

The record shows that three ash ponds at Joliet 29 have been lined and regularly dredged as needed. The liners are prone to damage in certain conditions. MWG took actions to identify and repair any damages to the liners, or to avoid rapturing the liners while dredging the ponds.

The three ash ponds at Joliet 29 were all constructed in 1978 with a poz-o-pac liner before they were relined with the HDPE (high-density polyethylene) liner in 2007 - 2013 (Ash Pond 1 in 2007, Ash Pond 2 in 2008, and Ash Pond 3 in 2013). Joint. Stip. at 1; MWG 2nd Ans. Def. at 1; SOF ¶ 86; MWG Exh. 901 at 16; MWG Exh. 667 at 4.

Poz-o-pac is a material that can crack in certain weather conditions or leak. 2/2/18 Tr. at 148; *see also e.g*. EG Exh. 303, 286 at 2; 10/24/18 at 215; 10/26/17 p.m. Tr. at 34-35 (Kunkel Test.). MWG relined the ponds on the assumption that they were in a "poor" condition. EG Exh. 34 at (#23614); MWG Exh. 606 at (#23647); *see also* 10/23/17 Tr, at 16; 10/24/17 Tr. at 12-13. In 2005 and 2006 MWG consultant, NRT, investigated the liners at Joliet 29 ponds and rated the condition of all three ponds as "poor." EG Exh. 34 at (#23614); MWG Exh. 606 at #23644. The report also rated these ponds as "high" for "contamination potential." *Id*. The same report rated a poz-o-pac liner in the "Environmental Criteria" as "1" on the scale of 0-10, with "0" being no liner (worth more than asphalt in unknown condition, which has "2" rating). MWG Exh. 606 at (#23631); EG Exh. 34 at (#23608). It also noted that "Poz-O-Pac liner systems were constructed more than 25 years ago and are reportedly in poor condition." *Id*. Race testified, however, that when the ponds were relined, the original 1978 poz-o-pac liner was found to be in a "good condition." 10/24/17 Tr. at 12-14 (Race Test.); 1/29/18 Tr. at 236 (Race Test.). When relining ponds in 2007, NRT suggested leaving bottom ash between poz-o-pac and HDPE liner at Joliet 29, noting that "this will make an excellent bedding layer for the geomembrane". EG Exh. 22. Maria Race agreed to that, noting "[i]t is fine to leave the ash there—it is poz o pac and is stable enough-and I agree with your assessment of risk/benefits." *Id*.

An HDPE liner is designed to prevent releases to soil and groundwater and is "the least permeable type of liner, resistant to chemicals, and is the same liner used for hazardous waste landfills." 1/29/18 Tr. at 224-226 (Race Test.); 2/1/18 Tr. at 243, 256 (Seymour Test.); MWG 2nd Ans. Def. at 1-2; SOF ¶¶ 26, 91. An HDPE liner, however, can be damaged during the pond dredging process by the heavy equipment. *See e.g.* EG Exh. 306, 307; 10/26/17 p.m. Tr. at 35 (Kunkel Test.). Ash Ponds 1 and 2 were dredged approximately every one to two years. Joint Stip. at 1. The record indicates that MWG consultants took actions to avoid, identify, and repair any damage to the liners during ash removal and during the relining process. MWG Exh. at 903 at 38-39 (Seymour Test.).

After a careful review of the facts, the Board finds that the Environmental Groups established that both poz-o-pac and HDPE liners at Joliet 29 can and do crack or become damaged on occasions. Based upon the preponderance of the evidence in the instant record, including the quarterly groundwater monitoring results, MWG practices in pond relining and dredging, the Board concludes that it is more likely than not that the ash ponds did leach contaminants into the groundwater.

ii. Historical Coal Ash Sites

Three historical unlined areas exist at Joliet 29 where coal ash was deposited before MWG began operating: 1) the Northeast Area; 2) the Southwest Area; and 3) Northwest Area. 1/30/18 Tr. at 259-264, 272-273 (Race Test.); 2/1/18 Tr. at 193-198 (Gnat Test.); EG Exh. 21 at 12 (#25150) (noting that "the site was used for coal ash disposal by Joliet #9 Station prior to the construction of Joliet #29 in 1964-65. Coal ash was primarily disposed in a landfill on the eastern portion of the site. A second abandoned ash disposal landfill lies on the southwest portion of the site between the coal pile and Caterpillar, Inc. site.").

Unlined areas that contain coal ash pose a risk of groundwater contamination due to the water moving through the coal ash, thereby increasing the risk of leaching and contamination. EG Br. at 19; 10/24/17 Tr. at 39 (Lux Test.); 10/26/17 Tr. p.m. at 34-35, 83-84 (Kunkel test); 1/29/18 Tr. at 208 (Race Test.); 1/30/18 at 29 (Race Test.); MWG Exh. 636 at 4 (#555) (sec. 5(m) of the Joliet 29 CCA, stating that MWG "shall not use any unlined areas for permanent or temporary ash storage or ash handling."). No monitoring wells are installed around any of these areas. 2/1/18 Tr. at 196-198 (Gnat Test.); MWG Exh. 901 at 19; MWG Exh. 667 at 3. MWG possesses only partial knowledge of the content of these areas or their potential to contaminate the groundwater.

The Northeast Area is part of the Station's NPDES stormwater permit. MWG Br. at 11; MWG Exh. 603 at 1, 9, and 15; 1/29/18 Tr. at 183 (Race Test.). MWG admits, and the record indicates, that this area contains historic coal ash. MWG Br. at 11; 2/2/18 Tr. at 323 (Seymour Test.); EG Exh. 248N at 1 (#19442); EG Exh. 20D at (#23342; 23357); EG Exh. 401 at 11. MWG's experts testified that, as required by the NPDES permit, MWG consistently inspected the area, the soils, and seeding grasses growing in the area, to make sure it is properly covered. 1/29/18 Tr. at 185 (Race Test); 1/30/18 Tr. at 258 (Race test); MWG Br. at 11; SOF at 12-13. MWG's consultants conduct annual visual walk-over inspections of the area to identify "erosional features" and repair any issues within a few weeks of each inspection. *Id*., SOF at 13 ¶ 127; EG Exhs. 248-251 (2009-2012 Joliet 29 Northeast Area Inspections); MWG Exh. 803-805 (2012 - 2014 Joliet 29 Northeast Area Repair Documentations); 2/1/18 Tr. at 115-123 (Gnat Test.). The record shows that, in 2009 - 2012 these inspections on various occasions identified erosional features that required repairs (e.g. five areas identified in 2009 "where either sheet wash erosion or rilling has exposed the underlying ash slag and may transport the material to the Des Plaines River" (10/25/17 Tr. at Tr. 116; EG Exh. 248N) and suggested repairs were performed. No issues requiring repairs were identified and no repairs were performed in 2013 - 2016. *See e.g*. SOF at 13 ¶¶ 129-135; 2/1/18 Tr. at 115-124, 204-205; 10/25/17 Tr. at 116 (Gnat Test.); 10/26/17 A.m. Tr. at 31-32 (Gnat Test.); 1/30/18 Tr. at 259; MWG Exh. 800-805; EG Exh. 248N-251N. No monitoring wells exist in this area. 2/2/18 Tr. at 21 (Seymour test); 10/23/17 Tr. at 77; EG Br. at 37. The closest monitoring well is MW-1 or MW-08 but considering the groundwater flow and the distance to this historic area, MW-01 or 08 are unlikely to show conclusive results of any contaminants emanating from this historical area. MWG Exh. 901 at 19 and 23. Other than visual inspections, MWG did not investigate the area or the soil cover to determine if it was impermeable. Moreover, MWG did not cap it with an impermeable cap did not investigate if it had a liner, and did not install a liner. 1/30/18 Tr. at 259-260; 272-273 (Race Test.); 2/1/18 Tr. at 193-195 (Gnat Test.). MWG also never took samples from this area. 1/29/18 Tr. at 184 (Race Test.); 1/30/18 Tr. at 259-260 (Race Test.).

The Southwest Area is adjacent to the former "Caterpillar/Center Point" site and is covered by the ELUC established by the Caterpillar's property owners. SOF 136-140. MWG Exh. at 611. MWG Br. at 12. MWG admits, and the records indicates, that this area contains historic coal ash. MWG Br. at 11; 2/2/18 Tr. at 293:3-294:24, 323:12-20 (Seymour Test.); EG Exh 248N at 1 (#19442); EG Exh. 20D at (#23342; 23357); EG Exh. 401 at 11. Several investigations have indicated that soils at the former Caterpillar site are contaminated with various heavy metals, including barium, chromium, selenium, and thallium. Further modeling has shown the potential for metals contamination to leach into groundwater and migrate to Joliet Station. MWG Exh. 611 at 1. Center Point established the ELUC on August 5, 2010. The ELUC restricts MWG from using any soil and groundwater from the ELUC area. *Id*. at 2; 1/30/18 Tr. at 6-12 (Race Test.); MWG Exh. 612 at 1-2; MWG Exh. 667 at 6; MWG Exh. 901 at 23. No monitoring wells exist in this area. 2/2/18 Tr. at 21 (Seymour Test.); 10/23/17 Tr. at 77. The closest monitoring well is MW-7, but considering the groundwater flow and the distance to this historic area, it is unlikely that MW-07 can show conclusive results of any contaminants emanating from this historical area. MWG Exh. 901 at 19, 20. In 2005, as part of the geotechnical testing at the four Stations, KPRG took six soil borings at Joliet 29, one of which was from this historical area. EG Exh. 201 at 1, 27 (#24264, 90); 2/2/18 Tr. at 161: 11-14, 164:22-24 and 293:5, 294:17-24 (Seymour Test.). The soil borings indicated a layer of coal ash mixed with gravel at the level zero to one foot below surface (GT-6). EG Exh. 201 at 27, 34 (#24290, 97). MWG did not take leach tests, did not evaluate the volume of ash in this area, did not cap it, and did not install a liner. 1/30/18 Tr. at 260-261, 273-274 (Race Test.).[5] MWG has not fully evaluated the content of the area and its potential to contaminate the groundwater. 1/30/18 Tr. at 260-61; 273 (Race Test.); 2/1/18 Tr. at 196-198 (Gnat Test.). Although the ELUC includes measures aimed to protect against exposure to contaminated soil and groundwater at the former Caterpillar site, the ELUC does not include measures to prevent contamination and migration of coal ash constituents from MWG's property. MWG Exh. 611 at 4-5.

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[5] In parts of his testimony during the hearings, Mr. Seymour stated that KPRG conducted tests at the north (2/2/18 Tr. at 163:7) or southwest (Id. at 293:3-9) areas. It appears from his own reports and presentations that he misspoke, or referred to geotechnical testing referred above, because he relies upon KPRG's 2005 report in all his conclusions EG Exh. 293. This indicates that the only CCB samples taken at Joliet 29 were from the Northwest area. *See* EG Exh. 293 #19585; MWG Exh. 901 at 23; EG Exh. 201.

__The Northwest Area__ is another area at Joliet 29 that contains coal ash fill material, as admitted by MWG and supported by the record. MWG Br. at 11; 2/2/18 Tr. at 323 (Seymour Test.); EG Exh. 20D at (#23342; 23357); MWG Exh. at 401 at 11. In 2005, MWG had the fill material analyzed by its consultant to determine if it meets the requirements of CCB and could be used beneficially. EG Exh. 293 at 1 (#19576). The testing report indicates that the area is appropriately 13.2 acres in size and contains interlayered fly ash and bottom ash and slag from the bottom of the coal combustion process. The borings indicate a coal ash layer as deep as 17 feet below the surface, lowest layers of which indicated as "moist" on some borings. *Id*. at 1-2, 7, 16-34 (#19576-77, 582, 591-609). The report indicates, and MWG experts testified, that most of the evaluated samples showed that the materials met the Act's criteria for beneficial use, had levels of boron, manganese and barium below Class I GQS and leached less metals than allowed by the Act. 10/26/17 A.m. Tr. at 39-40 (Gnat Test.); 1/29/18 Tr. at 184-185, 210-213 (Race Test.); 2/1/18 Tr. at 275-276 (Seymour Test.); MWG Exh. 901 at 9 (Seymour Test.); MWG Exh. 293 at 7, 10 (#19582, 85). The report, however, also states that NLET metal data from certain sample locations (GP-14A) "displayed elevated levels of lead and coper at concentrations at least two times higher than the Class I groundwater standards. The ash from this portion of the site should not be considered for potential beneficial reuse." MWG Exh. 293 at 7 (#19582). The record does not include information as to whether MWG separated or removed this part of the material from the sampled area. No monitoring wells exist in this area. 2/2/18 Tr. at 21 (Seymour Test.); 10/23/17 Tr. at 77 (Race Test.). The closest monitoring well is MW-11 or 07 but, considering the groundwater flow and the distance to this historic area, it is unlikely that MW-011 or 07 can show conclusive results of any contaminants coming from this historical area. MWG Exh. 901 at 19, 20; MWG Exh. 667 at 3.

__Coal Ash in Fill Areas Outside Ash Ponds__. During the 2005 geotechnical testing, KPRG also took five soil borings around the coal ash ponds. EG Exh. 201 at 1, 27 (#24264, 90); 2/2/18 Tr. at 164:23 and 293:5, 294:17-24. The soil borings indicated a layer of coal ash mixed with gravel at the level zero to one foot below surface in the areas near MW-11 and between MW-09 and 10 (GT-1, GT-3). EG Exh. 201 at 27, 29, 31 (#24290, 92, 94).

The Board finds that the evidence establishes that it is more probable than not that these historical coal ash storage and fill areas are contributing to the groundwater contamination. It is also more likely than not, however, that the exceedances appearing in the monitoring wells are not representing contamination from the historic coal ash storage areas, but, do show contaminants leaking from historic fill areas outside of the ash ponds and historic storage areas.

iii. __Monitoring Wells__

MWG installed 11 groundwater monitoring wells around the three ash ponds at Joliet 29 (MW-1 through MW-11) in 2010 and monitored groundwater quality since the final quarter of 2010. Env. MWG 2nd Ans. Def. at 2. Gr. Br. at 16-17, 29; MWG Br. at 3; MWG Exh. 667 at 2; 2/1/18 Tr at 86-87, 110 (Gnat Test.); MWG Exh. 809. Quarterly monitoring reports for Joliet 29 monitoring wells MW-1 through MW-11 from December 2010 through April 2017 tested for 35 parameters, including antimony, arsenic, boron, manganese, and other indicator constituents associated with coal ash. These quarterly reports are in the record. MWG Exh. 809; s*ee also* EG Br. at 17; EG Br., Att. A at 76-116; SOF ¶¶ 508, 509, 520-523, 526, 528.

Monitoring wells MW-8, 10 and 11 are located upgradient (north) of the ash ponds with respect to direction of groundwater flow and, thusly, are considered “upgradient” or “background” wells. MWG Exh. 901 at 19; 2/1/18 Tr. at 19 (Gnat Test.). These wells indicate potential chemicals that might migrate with the groundwater from outside of MWG’s property. *See e.g.* 1/29/18 Tr. at 30-31 (Kunkel Test.); 2/1/18 Tr. at 109 (Gnat Test.); 2/2/18 Tr. at 8 (Seymour Test.);EG Exh. 12C at 3 and MWG Exh. 667 at 3. The other wells – MW-02, 03, 04, 05, 06, 07 and 09 - are located downgradient of the ponds. These wells measure the impact of the ash ponds on the groundwater quality. *Id.*; 10/23/17 Tr. at 220. No potable water wells are downgradient of Joliet 29. 10/27/17 Tr. at 181 (Kunkel Test.).

The record indicates that groundwater in the area has a potential to reverse the direction of groundwater flow, which can alter the monitoring wells treated as upgradient. The record, however, does not support the argument that a groundwater flow directional reversal occurred during the time-frame at issue in this proceeding. MWG’s hydrogeological assessment determined that the direction of flow of groundwater in the shallow aquifer at the Joliet #29 Station is in the southerly direction towards the Des Plaines River. MWG Exh. 621 at 4-5 (#296297) (2009 Hydrogeological Assessment of MWG Electric Generating Stations); 1/29/18 Tr. at 253 (Race Test.); EG Exh 12C at 2; 2/1/18 Tr. at 97-98, 109-110 (Gnat Test.) and 2/2/18 Tr. at 13 (Seymour Test.). Dr. Kunkel testified that groundwater at the Joliet #29 site is strongly influenced by changes in Des Plaines River surface water elevations as well as potentially leaking ash ponds. EG Exh. 401 at 12. He stated that the Des Plaines River water-surface elevations strongly influences the groundwater elevations and groundwater gradients at site, causing seasonal flow from the River into the unconsolidated materials beneath the ash ponds. *Id.* at 13; 1/29/18 at 30-31 (Kunkel Test.); Exh. 411.

MWG witness Mr. Gnat testified that although reversal of flow described by Dr. Kunkel is a well-known phenomenon, more than 27 quarterly rounds of groundwater measurements do not indicate a reversal of groundwater flow beneath the ash ponds at Joliet Station. He noted that the flow directions, from quarter to quarter, is consistent from the north to the south towards the Des Plaines River. 2/1/18 Tr. at 109-110, 124-127 (Gnat Test.). The groundwater monitoring results support his position. MWG Exh. 809. The Board finds, therefore, that the record does not support consideration of the upgradient monitoring wells as downgradient wells, and vise versa, when interpreting the groundwater monitoring results.

iv. Exceedances of Part 620 Standards

Groundwater monitoring results in the record indicate 69 exceedances of the Board’s Part 620 GQS for coal ash constituents at Joliet 29. MWG Exh. 809. The 69 exceedances are based upon the monitoring results from December 6, 2010, to April 25, 2017. *Id*. The constituents above the Class I GQS are as follows with number of exceedances shown in parenthesis: sulfate (29), TDS (32), antimony (4), boron (2), lead (1) and cadmium (1). The monitoring results indicate that, during the seven-year period, 53 of the 69 exceedances (78%) occurred in MW-09, while the remaining 16 exceedances occurring in MW-2, 3, 4, 8 and 11.

Among the 16 exceedances in the wells other than MW-09, nine were in the upgradient (background) wells MW-08 and MW-11. These wells exceeded standards for boron, cadmium, lead, sulfate and TDS once or twice during the seven-year monitoring period. During the same period, the downgradient wells MW-02, 03, and 04 exceeded antimony 7 times and TDS once.

Thus, monitoring well MW-09 is the only downgradient well that shows levels of sulfate and TDS consistently above the groundwater standards during the seven years of monitoring data considered by the Environmental Groups. A summary of the groundwater monitoring data exceeding Part 620 GQS standards for Joliet 29 is presented below in Table 1. EG Br. App. A; MWG Exh. 809; MWG Exh 901 at 20.

Table 1. Joliet 29 Groundwater Monitoring Results Summary

Monitoring Wells	**Closest Ash Pond (AP)**	**Location**	**Constituents**	**Number of Exceedances of Part 620 Standards**	**Year(s)**
MW-02	AP 3	Downgradient	Antimony	1	2010
MW-03	AP 2	Downgradient	Antimony	3	2011-2012
			TDS	1	2013
MW-04	AP 2	Downgradient	Antimony	2	2013
MW-08	AP 3	Upgradient	Sulfate	2	2014, 2015
			TDS	2	2014, 2015
MW-09	Between AP 3 and 2	Downgradient	Sulfate	26	2010 - 2017
			TDS	27	2010 -2017
MW-11	AP 1	Upgradient	Boron	2	2011
			Cadmium	1	2015
			Lead	1	2015
			TDS	1	2015

Table 1.B: Joliet 29 Groundwater Monitoring Results Summary (by year)

Year	**Monitoring Wells**	**MW-2**	**MW-3**	**MW-4**	**MW-8**	**MW-9**	**MW-11**
	Constituent						
2010	Antimony	1					
	Sulfate					1	
	TDS					1	
2011	Antimony		2	1			
	Boron						2
	Sulfate					3	
	TDS					4	
2012	Antimony		1				
	Sulfate					4	
	TDS					4	
2013	Antimony			1			
	Sulfate					4	
	TDS		1			4	
	Sulfate				1	4	

2014	TDS				1	4	
2015	Cadmium						1
	Lead						1
	Sulfate				1	4	
	TDS				1	4	1
2016	Sulfate					4	
	TDS					4	
2017	Sulfate					2	
	TDS					2	
Total		1	4	2	4	53	5

Table 1.C: Joliet 29 Groundwater Monitoring Results Summary (by wells)

Chemical Constituent	**Antimony**	**Boron**	**Cadmium**	**Lead**	**Sulfate**	**TDS**	**Total**
Monitoring Wells	**Number of Exceedances**						
MW-2	1						1
MW-3	3					1	4
MW-4	2						2
MW-8					2	2	4
MW-9					26	27	53
MW-11		2	1	1		1	5
Total	6	2	1	1	28	31	69

Antimony. As noted above six exceedances of the antimony standard occurred in downgradient wells MW-02, 03, and 04, during the early monitoring period of 2010 - 13. MWG Exh. 809. Since 2013, no exceedance of the antimony standard has occurred in any of the downgradient wells. *Id*. Dr. Kunkel stated that antimony may be present in coal ash leachate. EG Exh. 401 at 7. Both the Environmental Groups and Mr. Seymour identified antimony as one of the indicators for leachate from MWG's ash ponds. MWG Exh. 903 at 42. Also, all three ash ponds were operational during the period of observed exceedances, i.e., 2010 - 2013. The long-term monitoring data, however, shows that, during the seven-year monitoring period, all three wells had no exceedances of other coal ash indicator constituents such as boron, sulfate, or manganese. Also, because no exceedances of antimony were recorded after 2013, relining Ash Pond 3 and other measures required by the CCA might have eliminated antimony contamination. However, the monitoring results show that antimony was not detected in the upgradient wells, which indicates that upgradient off-site sources did not contribute to the exceedances of the antimony standard. Accordingly, the Board finds that the Environmental Groups have not proven that it is more likely than not that the coal ash stored at the site in the ash ponds or outside of the ash ponds is causing or contributing to the exceedances of antimony standard in Joliet 29's downgradient wells MW-02, 03, and 04 during 2010 - 13.

Cadmium and Lead. The monitoring results indicate a single exceedance of cadmium and lead standards in the upgradient monitoring well MW-11 in 2015. These metals were not detected in any of the other monitoring wells. MWG Exh. 809. Although Dr. Kunkel included these metals in his list of coal ash associated chemical constituents, Seymour includes both metals in his "maximum" criteria of the second tier list of coal ash leachate constituents. MWG Exh. 901 at 42. Accordingly, there is a likelihood that an exceedance of cadmium and lead may be associated with coal ash leachate. Given that a single exceedance of both metals occurred during the seven-year monitoring period and both occurred in one upgradient well, the Board finds that the Environmental Groups have not proven that it is more likely than not that the coal ash stored at the site in the ash ponds or outside the ash ponds caused or contributed to the exceedances of cadmium and lead standards in monitoring well MW-11 at Joliet 29.

Boron. Both the Environmental Groups and MWG agree that boron is an indicator of coal ash contamination. *Id;* MWG SOF 57. The monitoring results indicate two exceedances of the Part 620 boron standard during the seven-year monitoring period, both occurring in the upgradient well MW-11 in 2011. Since then, the monitoring results do not indicate any exceedance of boron standard in any of the monitoring wells. Although the Environmental Groups asserted that Joliet 29 exceeded the boron standard, their expert, Dr. Kunkel, admitted that it would be difficult to draw conclusions for the overall site based upon the results from one well. 1/29/18 Tr. at 65.

MWG asserted that boron is below Class I standards at all monitoring wells around the Joliet 29 ponds. MWG Rep Br. at 6. Further, MWG's expert Seymour stated, based upon the analytical results of bottom ash taken from the ash ponds, the leachate from MWG ash ponds does not have the potential to cause groundwater impact above the GQS because the leachate levels were below such standard. MWG Exh. 903 at 41. Given that the seven-year monitoring results show only two exceedances of the boron standard in one upgradient monitoring well and no exceedances in any of the other wells, the Board finds that the Environmental Groups have not proven that it is more likely than not that the coal ash stored at the site in the ash ponds or outside the ash ponds caused or contributed to the exceedances of the boron standard in the upgradient well at Joliet 29.

Sulfate and TDS. As noted earlier, except for five exceedances in the upgradient wells MW-08 and 11 and one exceedance in MW-03 (in 2013), all exceedances of sulfate and TSD standards occurred in one downgradient well, MW-09 (2010-2017). MW-09 is located between Ash Pond 2 and Ash Pond 3 at the southwest edge of Ash Pond 3. Additionally, MW-09 exceeded sulfate and TDS standards every quarter of the seven-year groundwater monitoring period. Regarding the elevated levels of sulfate and TDS in monitoring well MW-09, the Environmental Groups' expert, Dr. Kunkel, stated that the groundwater elevation data from third quarter 2012 indicated that Ash Pond 3 must have been leaking because of groundwater mounding.[6] He noted that the ground-water elevation in MW-9 was higher (505.66 feet) than in MW-8 (505.22 feet) which is generally upgradient from MW-9. EG Exh. 401 at 12-13. He further asserted an alternative explanation that coal ash deposits outside of the ash pond may be affecting the groundwater. *Id.*

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[6] "Ground-water mounding" is a phenomenon usually created by the recharge to groundwater from a manmade structure, such as a surface impoundment, into a permeable geologic material, resulting in outward and upward expansion of the free water table. EG Exh. 401 at 5.

MWG's expert Seymour argued that Dr. Kunkel's assertion regarding groundwater elevation is based on selection of the single highest water level in MW-09, even though years of data show the average level in MW-09 is lower than in MW-08. MWG Exh. 903 at 8. Seymour noted that the groundwater elevation in MW-08 was higher than MW-09 in the 11 of the 16 quarterly monitoring events. *Id.* at 59. Additionally, Seymour maintained that any groundwater mounding would be too subtle to detect because of the accuracy of the elevation readings combined with small differences and variations of groundwater elevations at the site. *Id.*; 2/2/18 Tr. at 12-13 (Seymour Test.).

The monitoring results continue to show exceedances of sulfate and TDS standards even after relining Ash Pond 3 in 2013, as well as after MWG removed Ash Pond 1 from operation in 2015. MWG experts testified that no ash was found in Ash Pond 3 when it was drained for relining in 2013 and that the poz-o-pac liner was intact. 1/30/18 Tr. at 39 (Race Test.). MWG experts admitted that they considered leaving coal ash between layers when relining some of the ponds at some of the Stations. *See e.g.* EG Exh. 32; 10/23/17 Tr. at 156:18-162:21 (Race Test.). The consistent exceedance of Class I GQS as it appears in the groundwater monitoring results for MW-9 suggest that some active source of contamination persists. This persistent source of contamination may be coal ash remaining in Ash Pond 3, between its layers, or coal ash deposited outside the ash ponds. The sulfate and TDS also exceeded Class I GQS in 2014 and 2015 in monitoring well MW-08, which, although generally upgradient, is located near the northern side of Ash Pond 3.

Sulfate and TDS are indicators of coal ash contamination in groundwater. The monitoring results show consistent exceedances of the GQS of both constituents during the seven-year monitoring period at MW-09. Also, the record does not indicate that contamination has been caused by an off-site source because upgradient monitoring wells show no exceedances of the groundwater standards. Therefore, the Board finds that it is more probable than not that the source of the exceedances of sulfate and TDS in well MW-09 at Joliet 29 is either coal ash stored in Ash Pond 3 or any coal ash deposited in fill areas outside of but close to that pond.

v. Exceedance of Background Concentrations

The Environmental Groups asserted that the median[7] concentrations of boron and sulfate in all eleven monitoring wells exceed the statewide median background values developed by the IEPA. EG Br. at 30-31. Additionally, the median concentration of sulfate in MW-09, and boron in MW-11 exceeded the upper-bound 90th percentile background values. *Id.* at 31.

Regarding the use of IEPA's statewide background, Dr. Kunkel noted that the Joliet 29 site overlays the sand and gravel/shallow bedrock aquifers, which are the same aquifers from which the IEPA's background community water supply wells are drawing water. EG Exh. 401 at 8. Moreover, he noted that the actual background median for sulfate from a background well at the Powerton Station was within a few milligrams per liter of the median statewide sulfate value. Thus, Dr. Kunkel argued that the statewide median background values may be used to evaluate groundwater monitoring results at Joliet 29 even though the statewide CWS wells were not located in counties with MWG plants. 1/29/18 Tr. at 83-84 (Kunkel Test.).

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[7] Median is determined by arranging all the data in the background dataset from highest value to lowest and taking the center value of that dataset. 2/1/18 Tr. at 103.

Additionally, Dr. Kunkel asserted that statewide median background values can be utilized to assess the severity of groundwater contamination because there are no background wells at Joliet 29. EG Exh. 401 at 8-9. He explained the upgradient wells (MW-8, 10 and 11) at Joliet 29 are not "background" wells because not only are the wells too close to the ash ponds, but they are also completed in areas where screened interval showed ash from construction of the dikes. 1/29/18 Tr. at 82 (Kunkel Test.). He asserted that the close proximity of the wells to the ponds makes them vulnerable to impact from the ponds, especially if the gradient reverses due to rise in Des Plaines River. *Id.* Kunkel asserts that the wells in question "are not background, but during certain times, maybe the majority of the time, they are upgradient but they're clearly not background." *Id.* at 83.

MWG's consultant, Seymour, disagreed. He argued that the IEPA's statewide background values are based on monitoring data from CWS wells and, therefore, are not representative of the site-specific groundwater quality because few CWS are sited wells near the Joliet 29 site. 2/2/18 Tr. at 31-32 (Seymour Test.). He maintained that it is inaccurate to consider statewide background as representative of background values at the sites where upgradient monitoring data is available. Additionally, MWG's consultant, Gnat, explained why a direct comparison of the median values from a monitoring well with the statewide median value is inappropriate. He noted that a monitoring well median above the statewide median means that the well median value is above the median of CWS wells' background values and not above background itself because the statewide median has a range of median values. 2/1/18 Tr. at 105-106 (Gnat Test.). Seymour explained that the comparison, according to the IEPA, must be based upon statistical evaluation using a 90 percent confidence level, i.e. a value above the 90 percent confidence level, which is considered above background with 90 percent assurance. 2/2/18 Tr. at 32-33 (Seymour Test.).

Seymour stated, however, that at MWG sites, background concentrations must be evaluated based upon site-specific data from monitoring wells installed at upgradient site boundaries in locations without the presence of ash materials in fill. MWG Exh. 903 at 60. Here, Seymour noted that the IEPA's proposed CCR regulations explain the procedure for establishing background on site-specific basis. The IEPA proposal specifies that the groundwater monitoring system must include wells to represent the quality of groundwater at the site not impacted by activities and units (background) and sets forth requirements for establishing background. EG Exh. 405 at 25-28.

Seymour maintained that the procedure followed by MWG at Joliet 29 is consistent with the IEPA's proposal in R14-10. 2/2/18 Tr. at 34-35 (Seymour Test.). Hence, the background at the site is the concentration in the upgradient wells MW-8, 10, and 11. *Id.* at 35. He asserted that the background concentrations at Joliet reflect sources other than the ponds and historical ash fill affected groundwater because the monitoring wells near the upgradient site boundary exceed Class I groundwater standards prior to migrating below the ponds. MWG Exh. 903 at 61. Seymour also clarified that all three upgradient wells are not installed in ash fill, as noted by Dr. Kunkel. *Id.*; 2/2/18 Tr. at 36-37 (Seymour Test.).

Although Dr. Kunkel raised concerns regarding the validity of background values from the upgradient wells, as noted by Seymour, the long-term groundwater elevation measurements do not indicate a reversal of groundwater flow. MWG Exh. 903 at 101 (Table 4.1). Thus, given the availability of site-specific upgradient groundwater monitoring data, the evaluation of any potential groundwater contamination at the site would have benefitted from the use of such data rather than statewide background levels, which may not represent the groundwater at the site. Here, the Board notes that neither the Environmental Groups nor MWG experts can establish background values on a site-specific basis by using the groundwater monitoring results from upgradient wells MW-8, 9, and 11.

Because the Environmental Groups claim exceedance of the statewide background, such exceedance must be evaluated by using appropriate statistical measure. MWG's consultants, Gnat and Seymour, stated that the comparison must be done using the upper bound 90th percentile background value. Because the parties agreed that the appropriate comparison for background values is the upper bound 90th percentile value, the Board limits the groundwater monitoring results comparison to the 90th percentile statewide values.

The Environmental Groups provided a comparison of the median values of boron and sulfate in the monitoring wells with the 90th percentile statewide values from the statewide database. This comparison indicated exceedances of 90th percentile statewide value of: boron in well MW-11; and sulfate in well MW-09. EG Br. at 31. All other wells have no exceedances of either boron or sulfate above the 90th percentile values.

The exceedances of the statewide background are consistent with the exceedances of groundwater standards of sulfate and boron in MW-09 and MW-11, respectively. As noted above, seven years of monitoring showed two exceedances of the boron standard in the upgradient well MW-11 in 2011 and none thereafter in any of the monitoring wells. The median value of boron of 1.20 mg/L is below the groundwater standard of 2.0 mg/L. The Board finds that, given that MW-11 is an upgradient well and no exceedances of 90th percentile statewide value for boron occurred in any other well, the coal ash stored in ash ponds or coal ash deposits outside of the ash ponds at the Joliet 29 site are not the likely sources causing boron exceedances in MW-11.

Regarding sulfate, as noted above, the monitoring results show consistent exceedances of the groundwater standard during the seven-year monitoring period in well MW-09. Although two sulfate exceedances occurred in the upgradient well MW-08 (one in 2014 and one in 2015), a comparison of the sulfate levels in MW-08 (460 -600 mg/L) to MW-09 (560-1900 mg/L) clearly shows that the contamination in MW-09 is not caused by an off-site source. Therefore, the Board finds it more probable than not that the exceedances in MW-09 at Joliet 29 of the 90th percentile Statewide value for sulfate is either coal ash stored in Ash Pond 3 or any coal ash deposited in fill areas outside the pond.

3. **Powerton**

A. Uncontested Facts

i. The Station

MWG leases and operates Powerton Electric Generating Station, located in Pekin, Tazewell County, Illinois since 1999. Joint Stip. at 2; MWG Answer and Defenses 5/5/14 at 2. The plant began operations in the 1920s with four coal-fired units, which were replaced in the early 1970s by the currently operating Units 5 and 6. Joint Stip. No. 18, MWG Exh. 664 at 1, 1/30/18 Tr. at 51:21-52 (Race Test.); MWG Exh. 635 at 1 (#11305).

The plant is bordered on the north by the Illinois River. MWG Exh. 901 at 33. The Powerton Lake and Wild Life Area surround the Station on the west. *Id.* Industrial and residential areas border the Station on the east, and agricultural land borders the Station on the south. EG Exh. 13C at 1; MWG Exh. 901 at 27, 33; 1/31/18 Tr. at 68:5-8 (Kelly Test.); MWG Exh. 667 at 10.

The fly ash at the station is collected through a dry system by electrostatic precipitators and then collected at silos and hauled off-site to Buckheart Mines for mine reclamation. The fly ash is never directed to the ash ponds. 1 /31/18 Tr. at 69:18-70:7 (Kelly Test.). The bottom ash from the bottom of the boilers and slag tanks is quenched with water and sluiced out to dewatering bins. The bottom ash is then decanted and sent to the ash surge basin. *Id*. at 70:8-14. The water from the Ash Surge Basin is either recycled back to the cooling pond or is discharged into the Illinois River through the NPDES permitted outfalls. *Id*. at 70:18-71:2. The ash is collected in the basin and periodically removed to the mines for mines reclamation. *Id*. at 71:3-11. The ash sent to the mines is periodically sampled. *Id*. at 71:9-73; MWG Exh. 700 at (#10965). The February 27, 2007, samples from the Ash Surge Basin identified barium at 0.027. 1/31/18 Tr. at 73:21-74:11; MWG Exh. 700 at (#10951).

ii. Ash Ponds

Powerton Station has four ash ponds, all under the Station's NPDES permit (#IL0002232): 1) the Ash Surge Basin, 2) the Ash Bypass Basin; 3) the Secondary Ash Settling Basin and 3) the Metal Cleaning Basin. Joint Stip. at 2; MWG Answer and Defenses 5/5/14 at 2; MWG Exh. 901 at 27, and SOF 166. The Station also has a Limestone Runoff Basin. MWG Exh. 901 at 27.

All four ponds were constructed in 1978; the Surge Basin, Bypass Basin, and the Metal Cleaning Basin with a poz-o-pac liner on the bottom and a Hypalon liner on the sides: the Secondary Settling Basin only was lined with a Hypalon liner. Joint Stip. at 2; MWG Exh. 901 at 28. All ponds were relined with HDPE liners in 2010 - 2013: the Bypass Basin and Metal Cleansing Basin in 2010, and the other two ponds in 2013. Joint Stip. at 2; MWG Exh. 901 at 28.

The Ash ***Surge Basin's*** is a primary ash basin, used to collect and settle bottom ash and hold it until removal. 1/30/18 Tr. at 58. The pond's lining includes (described bottom up): 12" poz-o-pac on the bottom, a bottom geotextile cushion, a 60 mil HDPE liner, a top geotextile cushion, a sand cushion and a limestone warning layer. MWG Exh. 901 at 30. The pond's bottom elevation is at 452 ft; average groundwater elevation is at 447 feet (about 5 feet below the pond's bottom). *Id*.

The ***Bypass Basin*** receives ash when the Station empties the Surge Basin. Joint Stip. at 2. The pond's lining includes (described bottom up): 12" poz-o-pac on the bottom, a bottom geotextile cushion, a 60 mil HDPE liner, a top geotextile cushion, a sand cushion and a limestone warning layer. MWG Exh. 901 at 31. The pond's bottom elevation is at 459 ft; average groundwater elevation is at 450.5 feet (about 8.5 feet below the pond's bottom). *Id*. MWG removes the ash in the Surge Basin and Bypass Basin when the basins are full, every 6 to 8 years. MWG Exh. 901 at 28; SOF 174, 179; Joint Stip. at 2; 1/30/18 Tr. at 58:22-59:6 (Race Test.).; 1/31/18 Tr. at 78:2-3 (Kelly Test.). MWG last removed coal ash from the Surge Basin in 2013 before relining. MWG Exh. 901 at 28.

The ***Secondary Settling Basin*** is used as a finishing pond and receives *de minimis* ash from the Surge Basin. 1/31/18 Tr. at 126-127; Joint Stip. at 2. The pond's lining includes (described bottom up): a geotextile separator fabric, gravel underdrain system 18-24" thick, another geotextile separator fabric, a sand cushion layer, a bottom geotextile cushion, and a 60 mil HDPE liner. The sides also have prepared subgrade rip-rap on the very bottom. MWG Exh. 901 at 32. The pond's bottom elevation is at 440 ft; average groundwater elevation is at 441.5 feet (about 1.5f t above the pond's bottom). *Id*. It was only emptied for relining; when emptied, MWG found "less than a foot of material and it really want ash." 1/31/18 Tr. at 127:17-128:2 (Kelly Test.). MWG Exh. 901 at 28; 1/31/18 Tr. at 127:17-128:2 (Kelly Test.); 1/30/18 Tr. at 60:15-19 (Race Test.). It has never been dredged because no dredging was needed. 1/31/18 Tr. at 128:8-15 (Kelly Test.).

The ***Metal Cleaning Basin*** is not a part of the ash sluice system and is used during temporary outages to temporarily laydown ash removed from boiler tubes. 1/31/18 Tr. at 115; MWG Exh. 901 at 28. The pond's lining includes (described bottom up): 12" poz-o-pac on the bottom, a bottom geotextile cushion, a 60 mil HDPE liner, a top geotextile cushion, and a sand cushion and limestone warning layer. MWG Exh. 901 at 29. The pond's bottom elevation is at 457.5 ft; average groundwater elevation is at 445 feet (about 12.5 feet below the pond's bottom). *Id*. Ash is removed from the Metal Cleaning Basin approximately annually. Joint Stip. at 2.

iii. Powerton VN

The IEPA issued Violation Notice #W-2012-00057 (Powerton VN) for the Powerton Station (EG Exh. 4A) that alleged that "operations at ash impoundments have resulted in violations of Groundwater Quality Standards" during 2010-2012 at monitoring wells MW-1 through MW-15, including for Chloride (MW-6, 8, 12, 14, 15), Antimony (MW-2), manganese (MW-4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15), boron (MW-1, 9, 11, 13), arsenic (MW-7), iron (MW-7, 11, 12), sulfate (MW-13, 14, 15), TDS (MW-7, 13, 14, 15), and selenium (MW-7, 9, 13, 14), as well as pH, mercury, thallium, and nitrate. EG Exh. 4A at 3-11.

iv. Powerton CCA

The Powerton CCA (MWG Exh. 636) states that:

> Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14 and MW-15. MWG Exh. 636 at 2 (#553) ¶ 3.

The CCA notes that "respondent agrees to undertake the following actions, which the Illinois EPA has determined are necessary to attain compliance" with the statute and Board rules. MWG Exh. 636 at 3 (#554) ¶ 5. Subsections (a) through (m) of paragraph 5 list activities MWG must undertake, subsections (a) though (d) are identical to Joliet 29 CCA. The other subsections require:

5(e)	apply to IEPA for a construction permit to reline Ash Surge Basin and the Secondary Ash Settling Basin with HDPE liner;
5(f)	installing additional monitoring well south of MW-9 in a location approved by IEPA to better define upgradient groundwater quality;
5(g), (j)	submitting an application to IEPA to establish and establishing a GMZ under section 620.250 within one year from the date of CCA; and
5(h), (i)	entering into an Environmental Land Use Control (ELUC) to cover area underlying GMZ, submit proposed ELUC to IEPA and record ELUC upon its approval;
5(k)	submitting a certification of compliance upon completing CCA requirements within one year of the date of CCA;
5(l)	not allowing East Yard Run-off to be part of the ash sluicing flow system and submitting monitoring results, for constituents in sec. 620.410(a)-(d), from water contained in it close to the outfall monitoring point 003 within 60 days from the date of CCA and for at least four monitoring quarters;
5(m)	not using any unlined areas for permanent or temporary ash storage or ash handling. MWG Exh. 636 at 3-4 (#554-5) ¶ 5.

On October 17, 2013, MWG filed a certification with the IEPA that all CCA measure were completed. Joint Stip. at 4; MWG Exh. 637.

v. <u>Powerton GMZ and ELUC</u>

As required by the CCA, on January 18, 2013, MWG filed applications with the IEPA to establish a GMZ (MWG Exh. 254) and also an ELUC (MWG Exh. 253) at the Powerton Station. Joint Stip. at 4; MWG Answer and Defenses 5/5/14 at 23; MWG Exhs. 253 and 254. IEPA approved the ELUC on August 26, 2013 and the GMZ on October 3, 2013. MWG Exhs. 638 and 639.

Both the GMZ and the ELUC cover the same area that includes all of the ash ponds. EG Exh. 253 at 1, 12; EG Exh. 254 at 1; MWG Exh. 901 at 39-40; MWG Exhs. 638 and 639. The borders of the GMZ and the ELUC are defined as follows:

> the western (downgradient) extent corresponds with the hydraulic boundary formed by the intake channel. The northern extent corresponds with the hydraulic boundary formed by the Illinois River. The southern and eastern boundaries are defined by the property boundary. The vertical extent of the GMZ is defined by the top of the Carbondale Formation which is approximately 70 feet below ground surface. EG Exh. 254 at 1; MWG Exh. 639.

The GMZ is established under 35 Ill. Adm. Code 620.250(a). EG Exh. 254 Att. 2 at 1, Note 1. The application notes that “Class I” is the groundwater classification “the facility will be subject to at the completion of the remediation”. EG Exh. 254, Att. 2 ,Part I ¶ 10. The GMZ application notes the following:

> The agreed upon remedy is specified in Item 5(a) through (m) of the executed [CCA]… The remedy includes lining of the Ash Surge Basin and Ash Settling Basin with HDPE. This [GMZ] application fulfills requirements set forth under Item 5(g) of the CCA. EG Exh. 254 Att 2, Part III ¶ 1.

The application also notes that "[at] the completion of the corrective process, a final report is to be filed which includes the confirmation statement included in Part IV." *Id.* Att. 2 at 1, Note 1.

B. <u>Contested Facts</u>

i. <u>Ash Ponds Dredging, Liner Ruptures and Flooding</u>

Both poz-o-pac and HDPE liners are prone to damage in certain conditions, i.e. severe weather or rupture by heavy equipment during dredging. In 2005 and 2006 MWG consultant investigated the liners at Powerton ponds and rated the condition of the Ash Surge and Metal Cleaning Basin as "poor", the Secondary Ash Settling Basin as "no liner" and Bypass Basin as "unknown." Comp Exh. 34 at #23615; MWG Exh. 606 at 23646. MWD took precautions to ensure that dredging the Ash Surge Basin, Bypass Basin or the Metal Cleaning Basin was performed by trained MWG personnel instructed on the liners' safety procedures. 1/31/18 Tr. at 99:23-100:2, 116:15-22 (Kelly Test.). However, there were occasional issues with the liners, or the liners weren't installed correctly. EG Exh. 109 at 1, 3 ("several areas if liner to the north of the weir wall pulled the backing strips away and the liner is loose."); EG Exh. 108 ("couple of issues have emerged while de-watering the Secondary Basin . . . the liner on the east wall of the basin may not have been constructed as designed or it may have been damaged in the past or altered…."); *see also* EG Exh. 107. MWG's witness, Mr. Kelly, Powerton's Chemical Specialist, testified that the tears in the pond liners did happen, although not very often. 1/31/18 Tr. 146:12-21 (Kelly Test.). He noted that they mostly happened at the very top of the basin and above the water line. *Id.* Station operators inspected ponds regularly and reported any issues to Mr. Kelly. Any issues with the liners were repaired within one to two weeks. 1/31/18 Tr. at 80:9-12, 80:22-81:1, 101:11-13, 146:4-145:5 (Kelly Test.). Some coal ash might have been left between the layers when relining the Former Ash Basin. EG Exh. 32; 10/23/17 Tr. at 156:18-162:21 (Race Test.).

In addition, MWG employees recalled ash ponds and historical ash storage flooded on several occasions, with water rising 30 feet above the bottom of the Secondary Ash Settling Basin, and the Illinois River flowing in and out of the Former Ash Basin. EG Exh. 33; 10/23/17 Tr. at 164:18-21; 1/31/18 Tr. at 211:10-21 (Race Test.); 1/31/18 Tr. at 211:10-21 (Kelly Test.); 10/24/18 Tr. at 95:24-96:3 (Lux Test.); EG Exh. 107 10/24/17 Tr. at 94:0-11, 93:7. MWG confirmed that the area of the Secondary Ash Basin has high groundwater levels. MWG Br. at 15; SOF 606-609. To address this issue, MWG installed an underdrain system around the Secondary Ash Basin, composed of stones, drain tiles and riprap on the sides, "to move any water that may seep near the pond, away from the pond liner." MWG Br. at 15; SOF 606-609. MWG also noted that since the relining of the Secondary Ash Basin "there have not been any issues related to the river water impacting or moving the liner." MWG Br. at 15; SOF 616-617.

After a careful review of the facts, the Board finds that the Environmental Groups established that both poz-o-pac and HDPE liners at Powerton can and do crack or experience damage on occasions. Based on preponderance of all the evidence in the record, including the groundwater monitoring results, MWG practices in ponds relining and dredging, and flooding at the area, the Board concludes that it is more likely than not that the ash ponds did leach contaminants into the groundwater.

ii. Historical Coal Ash Sites

The record indicates three historical coal ash storage areas at Powerton: 1) East Yard Run-off Basin; 2) Limestone Runoff Basin; and 3) Former Ash Basin. Only the Limestone Runoff Basin is lined, and had its content tested for CCB. The record, however, shows no evidence that material from the Limestone Runoff Basin that was successfully tested for CCB, was ever beneficially used in compliance with 415 ILCS 5/3.135.

East Yard Run-off Basin is located southwest of the Ash Surge Basin and west of the Ash Bypass Basin and is neither part of the ash sluicing flow system, nor used by MWG to store or receive ash. MWG Exh. 254 at 4; 1/31/18 Tr. at 138:5-22 (Kelly Test.); MWG Exh. 667 at 12. It is used for stormwater run-off from east half of the Station. 1/31/18 Tr. 138:12-14 (Kelly Test.). The closest monitoring wells are MW-12 and MW-13. The record does not provide information about the content or condition of this basin. However, the consistent exceedances of the Class I GQS for coal ash indicators in the wells MW-12 and MW-13 that are downgradient to this area indicate that this basin may contain coal ash that is leaking into groundwater.

Limestone Runoff Basin is located east of the Ash Surge Basin. MWG Exh. 901 at 27. It is lined with poz-o-pac on the bottom and Hypalon liner on the sides. Joint Stip. at 2. There is no evidence in the record showing the condition of this liner. The closest downgradient monitoring well is MW-18; MW-10 might act as an upgradient well for this basin. MWG Exh. 901 at 33, 38. The basin has been used historically to temporarily store fly ash during equipment changes at the station. 1/30/18 Tr. at 70:2-7 (Race Test.);1/31/18 Tr. at 144:2-6, 144:13-24, 183:13-24 (Kelly Test.). It has been used twice to temporarily store coal ash during equipment changes, last time in 2013. MWG Br. at 17; SOF 237-238. In 2004, there was coal ash in the basin from when equipment was taken off service. 1/30/18 Tr. at 70:2-71:4 (Race Test.);1/31/18 Tr. at 144:2-6, 144:13-24 (Kelly Test.); MWG Exh. 635. The basin was empty since 2013. 1/31/18 Tr. 144:7-145:1 (Kelly Test.). In 2004, Anders Engineering analyzed samples from the test pits in the nine locations in the basin using the NLET method to confirm that the historic ash met the criteria for beneficial reuse as CCB. MWG Br. at 7-8; MWG Exh. 901 at 9; MWG Exh. 635 at 1 (#11305); 1/30/18 Tr. at 74:7-76:14 (Race Test.). The report identified that the basin contains 8,250 cubic yards of material. MWG Exh. 635 at 8 (#11312). The report concluded that MWG should either remove the material to a landfill or enroll the Basin in the IEPA's Site Remediation Program. *Id*. at 8 (#11312). Tested samples indicated boron levels ranging from 0.1 to 1.5 mg/L. MWG Exh. 635 at App. B Table 1 (#11341). Barium and zinc were also detected in the samples; selenium and chromium were detected above Class I GQS in two of the test pits (TP-03 and TP-15). 1/30/18 Tr. at 74:11-19 (Race Test.); MWG Exh. 635 at 10 (#11314), App. B Table 2 (#11342). The report noted that "material in the grid sections containing test pits TP-03 and TP-15 would need to be disposed at a permitted landfill." MWG Exh. 635 at 10 (#11314). If MWG wanted to use material as CCB, it had to separate it from the non-CCW material found in three pits (TP-16, 25 and 29)[8] and from the material found in two pits that did not meet Class I GQS (Tp-03 and 15). *Id*. The record does not provide evidence that MWG separated it. The record also does not provide evidence that MWG used material from this basin as CCB under 415 ILCS 5/3.135. It appears from the record that due to easily cracked poz-o-pac liner, material from this basin may be leaking contaminants into groundwater.

Former Ash Basin is located northeast of the ash ponds and is part of the Station's NPDES permit as emergency overflow for Ash Surge Basin. MWG Exh. 901 at 38. 1/30/18 Tr. at 142:14-18 (Race Test.). It was previously used as ash impoundment. 1/30/18 Tr. at 61:14-22 (Race Test.); 1/31/18 Tr. at 142:14-18 (Kelly Test.); EG Br. at 39. Ms. Race testified that on rare occasions water from Ash Surge Basin may flow to this former basin, which happened once in 2015 and at the end of 2017. 10/23/17 Tr. at 164:18-21; 1/31/18 Tr. at 158:23-160:3; see also 1/31/18 Tr. at 143:19-144:2 (Kelly Test.). MWG has not sent coal ash to this basin since taking over the Station in 1999. 1/31/18 Tr. 142:10-13 (Kelly Test.). The closest downgradient monitoring well is MW-2 through 5, and MW-1 is side-gradient to this basin. MW-18 is also located close to the east side of the basin. MWG Exh. 667 at 11; MWG Exh. 901 at 33, 38 (Seymour); 10/27/18 Tr. at 205:20-206:9 (Kunkel Test.). MWG Exh. 901 at 38. Groundwater samples taken downgradient of this basin showed no coal ash constituents. SOF 248-251; MWG Br. at 17; 10/27/17 Tr. at 206:12-210:22; 2/1/18 Tr. at 277:1-13; 2/2/18 Tr. at 70:17-71:22. Thus, the board find that the Environmental Groups did not prove that it is more likely than not that this basin is a source of contamination at the Station.

Coal Ash Fill through the site. Environmental Groups also allege that numerous soil borings taken at Powerton at different times show extensive presence of coal ash in fill at elevation that allows up to nine feet of buried ash to be saturated with groundwater. EG Br. at 44. The record supports this. EG Exh. 401 at 48-49 (Table 6). Powerton's Phase II Environmental Site Assessment show that nine borings taken in 1998 showed coal ash "in fill that extends from the surface to as deep as sixteen feet below surface." MWG Exh. 17D at 57-72 (#3309-3324). Another five borings taken in 2005 by KPRG during the geotechnical testing showed coal ash fill starting at around two feet below surface and going as deep as 14 feet, mainly in areas around Secondary Basin, Ash Surge Basin and Ash Bypass Basin. The deepest coal ash fill coming from the area between the Ash Surge Basin and Ash Bypass Basin. MWG Exh. 201 at 37, 41, 43-46 (#24300, #24304, 06-09, -24310) (*see* GT-7 (2-12 feet deep), GT-8 (2.5-12 feet deep), GT-9 (3-14 feet deep)). Soil borings from December 2010, when MWG installed monitoring wells, particularly borings for wells MW-9, 11 and 12, show cinders "in fill that extends from the surface to as much as 24.5 feet below the surface." EG Br. at 44; EG Exh. 13C at 22-41 (#7102-7121); EG Exh. 30.5E; EG Exh. 24E at 16-19 (#40059-40062); 10/23/17 Tr. at 77:20-86:1. Also, Environmental Groups argue that coal ash is buried as low as 443 feet above mean seas level (MSL), which allows it to be saturated with groundwater at times up to nine feet, based on groundwater elevation fluctuations at the site between 430 to 452 feet above MSL. EG Exh. 13C at 33 (#7113); MWG Exh. 903 at 17 (Table 403); EG Br. at 44. Thus, the Board finds that the Environmental Groups proved that it is more likely than not that the coal ash is spread out across the Stations in the fill and is contributing to the exceedances in the Stations' monitoring wells.

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[8] The report finds that material in TP-16, 25 and 29 was not a coal combustion waste (CCW).

Ash Cinders Stored on Land. MWG's employee, Mr. Kelly, testified that coal ash cinders at some point were temporarily stored on the ground in an open area directly south of the Bypass Basin for two to three months during the winter before 2012, because a contractor, Reed Mineral, could not get them offsite. 1/31/18 Tr. 184:20-185:21 (Kelly Test.); MWG Exh. 667 at 12; EG Br. at 45. When the cinders were removed, they went to Reed Mineral to be used in shingles and as sandblasting material. *Id.* at 187:23-188:3 (Kelly Test.). The closest downgradient monitoring wells to the area identified by Kelly at that time frame are MW-13, 12 and 14. An intermediate or side gradient well is MW-9. MWG Exh. 903 at 33; MWG Exh. 667 at 11-12. The groundwater monitoring results for these wells show exceedances of arsenic, sulfate, boron, TDS in 2011 - 2012. MWG Exh. 810. The Board, thus finds, that temporary storage of the cinders contributed to contamination at the Station.

Weighing the facts presented, the Board finds that Environmental Groups have proven that it is more likely than not that the historic areas and fill containing coal ash are causing or contributing to GQS exceedances at the Station.

iii. Monitoring Wells

Powerton Station's groundwater monitoring system consists of 19 monitoring wells (MW-1 through 19). MWG Exh. 901 at 33. MWG installed initial 15 groundwater monitoring wells (MW-1 through MW-15) in 2010. MWG Answer and Defenses 5/5/14 at 2. MWG installed MW-16 in a location south of MW-9, to comply with section 5(f) of the Powerton CCA, which requires the well "in a location approved by IEPA to better define upgradient groundwater quality." MWG Exh. 636 at 3 ¶ 5(f). Additional wells, MW-17, 18 and 19, were installed later to comply with proposed CCR rules. 2/1/18 Tr. at 135:6-9.

The groundwater monitoring through the initial 15 monitoring wells (MW-1 though MW-15) was conducted from the last quarter of 2010 through second quarter of 2017. 2/1/18 Tr. at 85:24-86:14, 110:2-20; MWG Exh. 810. The monitoring in MW-16 began in last quarter of 2012. MWG Exh. 810 at 31. Monitoring at wells MW-17 and MW-18 started in November 2015, and at MW-19 in November 2016. *Id.*; 2/1/18 Tr. at 135.

While wells MW-6, 8, 12, 14 and 15 are screened in the shallow silt/clay unit, the other wells are screened in the deeper sand/gravel unit. EG Exh. 401 at 17, 2/1/18 Tr at 130. The monitoring wells MW-1 through MW-10 wells were also used to characterize the site hydrogeology. These wells were spaced approximately 400 feet apart around the perimeter of ash ponds and screened approximately 10 feet past the intersection of the groundwater table to ensure collection of representative groundwater samples. EG Exh. 13C at 3.

Monitoring well MW-16, which is located outside of the area of groundwater impact associated with ash handling activities, is identified as an "**upgradient well**" with respect to direction of groundwater flow, or a "background" well, showing potential impact from off-site sources. EG Exh. 255 at 2. EG Br. at 40, 1/30/18 Tr. at 83. Monitoring wells MW-1, MW-9 and M-10 that are located upgradient of specific ash basins but are considered "intermediate" or "side gradient" wells because they are within area of impacted groundwater from historical ash related activities. MWG Exh. 639 at 1 ("Illinois EPA does not agree that MW-1, MW-9 and MW-10 are readily up gradient of historical ash related activities that may impact groundwater quality proximate to these wells…would characterize [them] as side gradient or intermediate wells");

EG Br. at 40, EG Exh. 255 at 2. All other wells (MW-2 through MW-8, MW-11 though MW15, and MW-17 through MW-19) are considered "downgradient" wells, showing the impact of MWG's operations on the groundwater quality. EG Exh. 255 at 2. A potable water well survey indicates six wells within 2,500-foot radius of the ash pond, but none of the wells are located downgradient from the ash ponds. MWG Exh. 621 at 14.

Starting from December 2010, quarterly groundwater samples from monitoring wells MW-1 through MW-16 were analyzed for 35 parameters. MWG Exh. 810. Monitoring wells MW-17 through 19 were analyzed for 22 parameters, including coal ash indicator constituents. 2/1/18 Tr. at 33-35. The monitored parameters from all 19 wells included coal ash indicator constituents – boron, chloride, sulfate, and TDS. MWG Br. at 6.

The site hydrogeologic conditions at the Powerton station were determined by Patrick Engineering using the soil boring logs of ten groundwater monitoring wells installed around the perimeter of the ash pond. EG Exh. 13C at 3. The site is predominantly fine sand fill underlain by sand and gravel with a silt seam running through a portion of the site. *Id.* at 7. There are two groundwater flow units at the Powerton Station that are distinct and hydraulically connected. 2/1/18 Tr. at 129-130, MWG Exh. 901 at 34. The first is on a discontinuous silty-clay unit with groundwater flowing from east to west. *Id*. The second is a sandy gravel unit at depths ranging from 18 to 28 feet below surface, with groundwater flow north towards the Illinois River. *Id.*; 2/1/18 Tr. at 133. The Board finds that hydrogeologic investigation performed by MWG consultants adequately represents the groundwater flow conditions at the Powerton Station and support designation of the wells as upgradient and downgradient.

iv. <u>Exceedances of Part 620 Standards</u>

The groundwater monitoring results at Powerton indicate 403 exceedances of the Board's Part 620 groundwater quality standards for coal ash constituents between December 2010 and April 2017 in 14 of the 19 monitoring wells. MWG Exh. 810. These include wells MW-2, MW-6 through MW-15, and MW-17 through MW-19. The groundwater monitoring results show no comparative exceedances of the standards in the upgradient monitoring well MW-16, as well as MW-1 (intermediate well) or wells MW-3, MW-4 and MW-5 (that show whether contamination may be moving north of the Former Ash Basin). Further, the results indicate the number of exceedances ranging from:

a) 1 to 3 in wells MW-2, MW-10, MW-18 and MW-19; and
b) 12 to 101 in wells MW-6 through MW-9, MW-11 through MW-15, MW-17 and MW-18.

The constituents above the Class I standard are as follows with number of exceedances shown in parenthesis: antimony (1), arsenic (83), boron (64), lead (2), selenium (4), sulfate (104), thallium (26) and TDS (119). A summary of the exceedances is presented in Tables 2.A-2.C, below. MWG Exh. 810; MWG Exh. 901 at 33.

Table 2.A: Powerton Groundwater Monitoring Results Summary

Monitoring Wells	Closest Ash Pond, hist storage	Location	Constituents	Number of Exceedances of Part 620 Standards	Year(s)
MW-02	ASB, FAB	Downgradient	Antimony	1	2013
MW-06	SSB	Downgradient	Arsenic	1	2014
			TDS	7	2012-2016
			Sulfate	9	2012-2017
MW-07	SSB	Downgradient	Arsenic	26	2010-2017
			TDS	12	2011-2016
			Lead	1	2010
MW-08	ASB	Downgradient	Sulfate	3	2012-2015
			TDS	9	2013-2017
MW-09	ABB	Intermediate	Boron	21	2010-2017
MW-10	ASB, LRB	Intermediate	Boron	2	2014
			Lead	1	2013
MW-11	ASB, LRB	Downgradient	Arsenic	15	2012-2016
			Boron	2	2012
			Sulfate	1	2017
			TDS	1	2017
MW-12	ASB, ABB, EYRB	Downgradient	Arsenic	7	2011-2016
			Boron	1	2013
			Sulfate	14	2012-2017
			TDS	10	2014-2016
MW-13	ASB, MCB, EYRB	Downgradient	Arsenic	22	2010-2017
			Boron	26	2014-2017
			Sulfate	27	2010-2017
			TDS	26	2010-2017
MW-14	MCB	Downgradient	Arsenic	3	2010-2011
			Boron	7	2014-2017
			Selenium	2	2011-2013
			Sulfate	26	2010-2017
			Thallium	20	2011-2017
			TDS	27	2010-2017
MW-15	ASB, MCB	Downgradient	Arsenic	2	2011-2012
			Boron	1	2016
			Selenium	2	2015
			Sulfate	16	2011-2017

			TDS	18	2011-2017
MW-17	ASB, MCB	Downgradient	Arsenic	7	2016-2017
			Sulfate	8	2015-2017
			Thallium	6	2016-2017
			TDS	8	2015-2017
MW-18	ASB, FAB	Downgradient	TDS	1	2016
MW-19	ABB, EYRB	Downgradient	Boron	3	2017

Table 2.B: Powerton Groundwater Monitoring Results Summary (by year)

Year	**Monitoring Wells**	**MW-2**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-10**	**MW-11**
	Constituent	**# of Exceedances Above Part 620 Class I Groundwater Standards**						
2010	Arsenic			1				
	Boron					1		
	Lead			1				
2011	Arsenic			4				
	Boron					2		
	TDS			3				
2012	Arsenic			4				1
	Boron					4		2
	Sulfate		2		1			
	TDS		1	3				
2013	Antimony	1						
	Arsenic			4				4
	Boron	1				3		
	Lead						1	
	Sulfate		2		1			
	TDS		1	1	3			
2014	Arsenic		1	3				4
	Boron					2	2	
	Sulfate		2					
	TDS		2	2	2			
2015	Arsenic			4				4
	Boron					4		
	Sulfate		1		1			
	TDS		2	1				
2016	Arsenic			4				2
	Boron					3		
	Sulfate		1					
	TDS		1	2	2			
2017	Arsenic			2				
	Boron					2		
	Sulfate		1					1
	TDS				2			1

Total	2	17	39	12	21	3	19

Table 2.B: S Powerton Groundwater Monitoring Results Summary (by year) (contd)

Year	Monitoring Wells	MW-12	MW-13	MW-14	MW-15	MW-17	MW-18	MW-19
	Constituent	**# of Exceedances Above Part 620 Class I Groundwater Standards**						
2010	Arsenic		1	1				
	Boron		1					
	Sulfate		1	1				
	TDS		1	1				
2011	Arsenic	1	1	2	1			
	Boron		6					
	Selenium			1				
	Sulfate		6	6	1			
	Thallium			3				
	TDS		5	6	1			
2012	Arsenic	3	2		1			
	Boron		2					
	Sulfate	1	2	2				
	Thallium			2				
	TDS		2	2				
2013	Arsenic	2	4					
	Boron	1	3					
	Selenium			1				
	Sulfate	2	4	3	3			
	Thallium			4				
	TDS		4	4	3			
2014	Arsenic		4					
	Boron		4	1				
	Sulfate	3	4	4	2			
	Thallium			3				
	TDS	2	4	4	4			
2015	Arsenic		4					
	Boron		4	2				
	Selenium				2			
	Sulfate	3	4	4	4	1		
	Thallium			3				
	TDS	4	4	4	4	1		
2016	Arsenic	1	4			4		
	Boron		4	2	1			
	Sulfate	3	4	4	4	4		
	Thallium			4		3		
	TDS	4	4	4	4	4	1	

2017	Arsenic		2			3		
	Boron		2	2				3
	Sulfate	2	2	2	2	3		
	Thallium			1		3		
	TDS		2	2	2	3		
Total Exceedances		32	101	85	39	29	1	3

Table 2.C: Powerton Groundwater Monitoring Results Summary (by wells)

Chemical Constituent	**Antimony**	**Arsenic**	**Boron**	**Lead**	**Selenium**	**Sulfate**	**Thallium**	**TDS**	**Total**
Class I GWQS (mg/L)	**0.006**	**0.01**	**2**	**0.0075**	**0.05**	**400**	**0.002**	**1200**	
Monitoring Well	**Number of Exceedances**								
MW-2	1		1						2
MW-6		1				9		7	17
MW-7		26		1				12	39
MW-8						3		9	12
MW-9			21						21
MW-10			2	1					3
MW-11		15	2			1		1	19
MW-12		7	1			14		10	32
MW-13		22	26			27		26	101
MW-14		3	7		2	26	20	27	85
MW-15		2	1		2	16		18	39
MW-17		7				8	6	8	29
MW-18								1	1
MW-19			3						3
Total exceedances	1	83	64	2	4	104	26	119	403

Antimony. Over the entire seven-year monitoring period, only one exceedance of antimony Class I GQS was registered in all monitoring wells: in MW-2, during the second quarter of 2013. MWG Exh 810. Except for this event, the antimony level in MW-2 was below detection level at all other sampling periods. MWG Exh 810. Environmental Groups' expert, Dr. Kunkel, states that antimony may be present in coal ash leachate. EG Exh. 401 at 7. Further, MWG's expert Seymour identifies antimony as one of the indicators for leachate from MWG's ash ponds. MWG Exh. 903 at 42. However, MWG's bottom ash NLET results indicate that the level of antimony in the ash leachate was below the Part 620 Class I standard of 0.006 mg/L. MWG 903 (Table 5-3). Other than the one exceedance in MW-2, there were none observed in any of the remaining 18 monitoring wells. Thus, the single exceedance maybe attributable to sampling or analytical error rather than by coal ash storage or handling activities at the site. Also, given that MW-2 is located at the north/northeast edge of the northern most former ash basin and had only two exceedances of Part 620 standards (1 antimony and 1 boron) during the seven-year monitoring period, the well may not be in area of impacted groundwater. MWG Exh. 810; MWG Exh. 901 at 35. The Board finds that the Environmental Groups have not proven that it is more likely than not that this single exceedance is caused by MWG operations.

Arsenic. The monitoring results indicate 83 exceedances of the Part 620 Class I arsenic standard in 6 monitoring wells from 2010 through 2017. These wells include (the number of exceedances shown in parenthesis): MW- 6 (1), MW-7 (26), MW-11 (15), MW-12 (7), MW-13 (22), MW-14 (3), MW-15 (2), and MW-17 (7). These wells are all located downgradient of the ash basins. While some of the wells (MW-6, 12, 14, and 15) had intermittent exceedances of the arsenic standard over the seven-year monitoring period, the results for wells MW-7, MW-11 and MW-13 indicate exceedances over a period of four to six years.

Like antimony, arsenic is listed by both Dr. Kunkel and Mr. Seymour as a constituent that may be present in coal ash leachate. EG Exh 401 at 7; EG Exh. 903 at 42. In this regard, MWG’s bottom ash Neutral Leaching Extraction Test (NLET) result of 0.05 mg/L or less for arsenic suggests the presence of arsenic in the ash leachate at levels higher than the Part 620 Class I standard of 0.01 mg/L. MWG 903 (Table 5-3). While there were 83 exceedances in the downgradient wells, arsenic was not detected in the upgradient well MW-16 during the seven-year period. This indicates that upgradient off-site sources did not contribute to the exceedances of the arsenic standard. Given these observations, the Board finds that the Environmental Groups have proven that it is more probable than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to exceedances of arsenic standard in wells MW-6, MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, and MW-17.

Boron. The groundwater monitoring results indicate 64 exceedances of the Part 620 boron standard during the seven-year monitoring period in nine monitoring wells. EG Br. at 77-110 (App A); MWG Exh 810, also see Table 2 above. Most of the exceedances (shown in parenthesis) were observed in three monitoring wells MW-9 (21), MW-13 (26), and MW-14 (7). The other six wells had one to three exceedances over the seven-year period. Also, the upgradient well MW-16 with boron levels ranging from 0.13 mg/L to 1.0 mg/L did not have any exceedances of the boron standard of 2.0 mg/L. However, the boron levels in monitoring wells MW- 9, 13 and 14 ranging between 1.5 mg/L to 4.3 mg/L were higher than the upgradient well. This indicates that onsite sources, rather than any offsite sources, are contributing to groundwater exceedances.

Both the Environmental Groups and MWG agree that boron is an indicator of coal ash contamination. EG Exh 401 at 7, Exh. 903 at 42. Further, Seymour’s comparison of the monitoring results from 2014 with indicator constituents in leachate shows that boron is an indicator of leachate from Powerton ash ponds. MWG Exh 903 (Table 5-4). However, Seymour argues that the leachate from MWG ash ponds does not have the potential to cause groundwater impact above the GWQS because the leachate levels were below such standard. MWG Exh. 903 at 41. Here, MWG’s bottom ash NLET results indicate that the level of boron ranged from less than 0.1 mg/L to 2.0 mg/L, which the Part 620 Class I standard. MWG 903, Table 5-3. Dr. Kunkel asserts that boron is present in concentrations above Class I standard in wells sampling lower sand and gravel unit (MW-2, 9, 10, 11, and 13), as well as the upper silt/clay unit (MW-12 and 14). EG Exh. 403 at 42. He maintains that exceedances remain even after relining four of the ash ponds in 2010 and 2013, suggesting contribution from a leak in the new liner or coal ash deposited historically outside the basins. *Id.*

As noted above, MW-9, MW-13, and MW-14 had boron exceedances over four or more years and accounted for 83% of the exceedances. While MW-9 is located upgradient of the ash ponds, it is not considered an "upgradient" well because it is within an area of impacted groundwater from historical ash related activities. EG Br. at 41; EG Exh. 255 at 2 (#11236). Other wells (e.g. MW-11, 12, 15, and 19) had few intermittent exceedances that correlated with exceedances of other constituents in other wells in the same area and time. With respect to boron, exceedances in other wells appear to be less representative. The MW-2 single exceedance in 2013, and two exceedances in MW-10 in 2014, appear to be more random and not correlating to any other comparative exceedances in the same time. Given that any offsite boron contribution was below the groundwater standards and significantly lower than the levels in the onsite wells, the Board finds that the Environmental Groups have proven that it is more probable than not that the coal ash stored at the site in the ash ponds or outside the ash ponds is causing or contributing to exceedances of boron standard in wells MW-9, MW-11, MW-12, MW-13, MW-14 and MW-19 at Powerton.

__Lead__. The monitoring results indicate two exceedances of the Part 620 lead standard during the seven-year monitoring period: first in 2010 in MW-7 located on the western edge of ash settling basin; and second in 2013 in MW-10 located east of ash surge basin. EG Br. App. A., MWG Exh 901 at 35. In all other monitoring wells lead was either below detection level or below the Part 620 standard. MWG Exh. 810. While lead is not included in Dr. Kunkel's list of coal ash constituents, Seymour includes it in his "maximum" or second tier list of coal ash leachate constituents. MWG Exh. 901 at 42. MWG's bottom ash NLET results indicate that the level of lead in the coal ash leachate was below the Part 620 Class I standard of 0.0075 mg/L. MWG 903 (Table 5-3). Thus, the Board finds that the Environmental Groups have not proven that it is more likely than not that the coal ash stored at the site in the ash ponds or outside the ash ponds is causing or contributing to the two exceedances of the lead standard at the Powerton Station.

__Selenium__. There were two exceedances of the Class I GQS selenium standard in MW-14 (in 2011 and 2013), and one in MW-15 (in 2015) during the seven-year monitoring period. Selenium levels were below the groundwater standard in all other monitoring wells. MWG's bottom ash NLET results indicate that the level of selenium was below the Part 620 Class I standard of 0.050 mg/L. MWG 903, Table 5-3. Also, selenium is not considered as a primary indicator of coal ash leachate. Therefore, the Board finds that the Environmental Groups have not proven that it is more likely than not that the coal ash stored at the site in the ash ponds or outside the ash ponds is causing or contributing to the few sporadic selenium exceedances at Powerton.

__Thallium__. The monitoring results show that there were 20 exceedances of the Class I thallium standard in MW-14 (2011 through 2017) and 6 in MW-17 (2016-17). Neither Environmental Groups' experts nor MWG's experts consider thallium as a coal ash leachate indicator. EG Exh. 401 at 7 and MWG Exh. 903 at 42. Further, MWG's bottom ash NLET results indicate that the level of thallium was below the Part 620 Class I standard of 0.0020 mg/L. MWG 903, Table 5-3. Thus, the Board finds that the Environmental Groups have not proven that it is more likely than not that the coal ash stored at the site in the ash ponds or outside the ash ponds is causing or contributing to the thallium exceedances at Powerton.

__Sulfate and TDS__. There were 104 exceedances of sulfate standard and 119 exceedances of TDS standard during the seven-year monitoring period. MWG Exh. 810. All exceedances occurred in downgradient wells, with sulfate in nine wells (MW-6, 8, 11 through 15 and 17) and TDS in 10 wells (same as sulfate wells plus MW-7 and 18). While some wells had intermittent exceedances, wells MW-12, 13, 14, and 15 had sulfate and/or TDS exceedances over a period of four or more years. *Id.* There were no exceedance of sulfate or TDS in the upgradient monitoring well MW-16 during the seven-year monitoring period.

Both Environmental Groups and MWG list sulfate as an indicator constituent of coal ash, and Dr. Kunkel notes that higher concentration of sulfate may be accompanied by high concentrations of TDS. EG Exh. 401 at 7; MWG Exh. 903 at 40. Further, Seymour's comparison of the monitoring results from 2014 with indicator constituents in leachate shows that sulfate is an indicator of leachate from Powerton ash ponds. MWG Exh 903, Table 5-4. However, Seymour argues that the leachate from MWG ash ponds does not have the potential to cause groundwater impact above the sulfate and TDS standards because the leachate levels are below the standards. He relies on MWG's Will County Station bottom ash NLET results of sulfate at 49 mg/L and TDS at 200 mg/L. MWG Exh. 903 at 41 and MWG Exh. 901 at 8.

Sulfate and TDS are indicators of coal ash contamination in groundwater. Further, the monitoring results show consistent exceedance of the Class I standard for both constituents during the seven-year monitoring period at multiple downgradient monitoring wells. Also, there is no indication of contamination being caused by an off-site source since upgradient monitoring well show no exceedances of either sulfate and TDS groundwater standards. The Board, therefore, finds that the Environmental Groups have proven that it is more likely than not that the coal ash stored at the site in the ash ponds or outside the ash ponds is causing or contributing to the 104 sulfate (wells MW-6, 8, 11, 12, 13,14, 15 and 17) and 119 TDS (MW-6, 7, 8, 11, 12, 13, 14, 15, 17 and 18) exceedances at Powerton Station.

v. __Background Concentrations Exceedance__

Environmental Groups allege that at Powerton, the median concentrations of boron and sulfate in fifteen downgradient wells (MW-1 through MW-15) exceeded the median concentration of those constituents in the upgradient well (MW-16). EG Exh. 405 at 7. They also assert that the median concentration of sulfate in nine wells (MW-4, 5, 8, 9, 11, 12, 13, 14, and 15), and boron in seven wells (MW-6, 8, 11, 12, 13, 14, and 15) exceed the upper-bound 90th percentile background values from the IEPA's statewide background data. *Id.* at 40-41. Dr. Kunkel also notes that Powerton site overlays the sand and gravel/shallow bedrock aquifers, which are the same aquifers from which the IEPA's background community water supply wells are drawing water. EG Exh. 401 at 8. Further, he notes that the actual background median for sulfate from the background well (MW-16) at the Powerton Station was within a few milligrams of the median statewide sulfate value. Thus, Dr. Kunkel argues that the statewide median background values may be used to evaluate groundwater monitoring results even though the statewide community water supply wells were not located in counties with MWG plants. 1/29/18 Tr. 83-84.

Dr. Kunkel asserts that the groundwater monitoring data at Powerton allows the comparison of the downgradient well concentrations of indicator constituents, boron and sulfate, with both the statewide area background and site-specific background (MW-16). EG Exh. 405 at 7. While the median values of sulfate and boron in all fifteen downgradient wells are above the median values of those constituents in the upgradient well, neither the Environmental Groups' nor MWG's experts established the 90th percentile upper bound background value for well MW-16. The parties agree that the appropriate comparison for background values would the upper bound 90th percentile value. Thus, the Board limits the groundwater monitoring results comparison to the 90th percentile statewide values. The Board finds that, as asserted by the Environmental Groups, a comparison of the median values of boron and sulfate in the downgradient wells with the 90th percentile statewide values indicate exceedances in 10 wells: boron (MW-04, 05, 08, 09, 11, 12, 13,14 and 15) and sulfate (MW-06, 08, 11, 12, 13, 14, and 15). The Board finds that these exceedances of the statewide background and site-specific upgradient median appear to be consistent with the exceedances of groundwater standards of sulfate and boron in many of the downgradient wells.

Given that there is no indication of contamination being caused by an off-site source, the Board finds that the Environmental Groups have proven that it is more probable than not that the coal ash stored at the site in the ash ponds or outside the ash ponds is causing or contributing to the exceedances of the upper-bound 90th percentile background values of boron (in wells MW-4, 5, 8, 9, 11, 12, 13, 14 and 15) and sulfate (in wells MW-6, 8, 11, 12, 13, 14 and 15) at Powerton Station.

4. **Will County**

A. Uncontested Facts

i. **The Station**

The Will County Station began operations in 1955 with four coal-fired electric generating units, Units 1-3 were deactivated between 2010 and 2015. Only one active unit, Unit 4, constructed in 1963, operates now. Joint Stip. No. 40, MWG Exh. 666 at 1, 1/30/18 Tr. at 188:20-22, 189:19 (Race Test.); MWG Exh. 903 at 21. MWG has been operating the plant since 1999. Joint. Stip. No. 41.

The Station is located on a peninsula, between the Chicago Sanitary and Ship Canal (CSSC) on the east and the Des Plaines River on the west, with surface water on either side. 2/2/18 Tr. at 172:5-20; MWG Exhs. 901 59 and 903 at 21. The Station is bordered on the north by Romeo Road and on the south Hanson Materials (f/k/a Material Services Corp.). EG Exh. 15C , SOF 358. There is also ComEd switchyard further west across the Des Plaines River. MWG Exh. 903 at 21, 901 at 59; MWG Exh. 652 at 2-1 (#29509).

At Will County, fly ash is collected using electrostatic precipitators and transported off-site for beneficial use. 1/29/18 Tr. at 177-178; MWG Exh. 903 at 21 (Seymour citing Phase I Wil County Environmental Site Assessment report at #28 (#29516)). Bottom ash that falls to the bottom of the furnace is mixed with water to form a slurry and is pumped to Ash Ponds 2S and 3S for settling. MWG Exh. 903 at 21-22 (Seymour report, citing Phase I Will County Environmental Site Assessment report at #28 (#29516)); 1/29/18 Tr. at 192. Bottom ash is then collected from the ponds and transported off-site for beneficial reuse. The slurry water is recycled back to the Station for treatment. MWG Exh. 903 at 22 (Seymour report).

ii. Ash Ponds

Will County has four ash ponds: 1N, 1S, 2S and 3S. All ponds were constructed in 1977 with 36” thick Poz-o-Pac liners. MWG Exh. 901 at 5; MWG Exh. 500 at #5-9; 1/30/18 Tr. at 191:9-19 (Race Test.). Ponds 2S and 3S also had bituminous seal coat. *Id*. The ponds are regulated under NPDES permit #IL0064254. MWG Exhs. 652; 653, 655; 1/30/18 Tr. at 202:3-20 (Race Test.).

Ponds 1N and 1S were removed from service in 2010. MWG Exh. 901 at 60; 903 at 22. These ponds are further discussed in the Contested Facts section below.

Ponds 2S and 3S remain in operation and have been relined, 2S in 2013 and 3S in 2009. MWG Exh. 901 at 60; MWG Exh. 510 (2S line replacement documentation). Seymour described the ponds lining as (described bottom up): 36+” poz-o-pac, a bottom geotextile cushion, a 60 mil HDPE liner, a top geotextile cushion, and a sand cushion and limestone warning layer on the bottom 2S also has geocell liner on the sides. MWG Exh. 901 at 61; MWG Exh. 903 at 34-35. The ponds’ bottom elevation is at 582 ft; average groundwater elevation at 3S is at 581 (about 1.5 feet below the ponds’ bottom) and at 2S at 282.5 feet (about the same level as the pond’s bottom). *Id*. The two active ash ponds are used interchangeably, only on in service at a time, while the other is designated for cleaning. MWG Exh. 903 at 35. These ponds are dredged approximately on an annual basis. In 2010 MWG performed the ASTM D3987-85 analysis of bottom ash taken from Will County ash pond 3S, the results of which indicate presence of boron, sulfate and TDS. MWG Exh. 901 at 8.

iii. Will County VN

The IEPA issued Violation Notice #W-2012-00058 (Will County VN) for the Will County Station (EG Exh. 2A) alleging that “operations at ash impoundments have resulted in violations of Groundwater Quality Standards” during 2010-2012 at monitoring wells MW-1 through MW-10, including for chloride (MW-1, 2, 3, 6, 7, and 8), antimony (MW-1, 2), manganese (MW-1, 3, 4, 7, 8, and 10), boron (MW-2, 4, 5, 6, 7, 8, 9, and 10), arsenic (MW-7), sulfate (MW-1, 2, 4, 5, 6, 7, 8, 9, and 10), TDS (MW-4, 5, 7 and 8), as well as pH (MW-5, 6). EG Exh. 2A at 3-9.

iv. Will County CCA

The Will County CCA (MWG Exh. 656) states that:

> Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, and MW-10. MWG Exh. 656 at 2 ¶ 3.

The CCA notes that “respondent agrees to undertake the following actions, which the Illinois EPA has determined are necessary to attain compliance” with the statute and Board rules. MWG Exh. 636 at 3 ¶ 5. Subsections (a) through (m) of paragraph 5 list activities MWG must undertake, subsections (a) though (d) are identical as in the Joliet 29 and Powerton CCAs. The other subsections require:

5(e)	removing ponds 1 North (1N) and 1 South (1S) from service and diverting all water from these ponds to the existing ponds 2 South (2S) and 3 South (3S); and developing and implementing a dewatering system which will not allow water to exceed a depth of one foot above the bottom of ponds 1N and 1S;
5(f)	apply to IEPA for a construction permit to reline 2S with HDPE liner;
5(g), (i)	submitting application to IEPA to establish and establishing a GMZ under section 620.250 within one year from the date of CCA;
5(h), (i)	entering into ELUC to cover area underlying GMZ, except for ComEd owned area, submit proposed and final ELUC to IEPA; and
5(j)	submitting certification of compliance upon completing CCA requirements within one year of the date of CCA. MWG Exh. 656 at 3-4 ¶ 5.

On October 17, 2013, MWG filed a certification with the IEPA that all CCA measure were completed. Joint Stip. at 4; MWG Exh. 661.

v. <u>Will County GMZ and ELUC</u>

As required by Items 5(g), (h) and (i) of the Will County CCA,MWG on January 18, 2013, filed applications with the IEPA to establish a GMZ (MWG Exh. 276) and also a proposed an ELUC (MWG Exh. 659). Joint Stip. at 4; MWG Answer and Defenses 5/5/14 at 23; MWG Exhs. 276 and 659.

Both the GMZ and the ELUC cover the same area, including ash ponds and the eastern part of the site, with the following borders:

> Groundwater flow in the vicinity of the subject ash ponds is in a westerly direction with discharge to the adjoining Des Plaines River. The western (downgradient) extent of the proposed corresponds with this hydraulic boundary. The eastern boundary is defined by the Chicago Sanitary and Ship Canal (CSSC) which forms a hydraulic boundary on the east side of the facility. The north and south sides of the proposed ELUC are based on the flow system and location of the four ash ponds. The vertical extent of the ELUC would be the first underlying aquitard identified as the Maquoketa Shale, approximately 140 feet below ground surface. The ELUC would therefore vertically include the unconsolidated overburden and the Silurian dolomite, both of which are hydraulically connected and overlie the Maquoketa Shale. EG Exh. 276 at 1 and MWG Exh. 659 at 1-2.

On July 2, 2013, IEPA replied, approving GMZ with several modifications and requesting that MWG submit the revised ELUC. MWG Exh. 658 at 1. IEPA modifications required excluding of the non-community wells from the ELUC area and ensuring that any unused non-community wells are properly. *Id*.

On September 4, 2013 KPRG (Mr. Gnat) on behalf of MWG submitted requested modifications to the ELUC and GMZ boundary map and on September 26, 2013 IEPA approved the modification. MWG Exh. 660.

The GMZ is established under 35 Ill. Adm. Code 620.250(a). EG Exh. 276 Att. 2, at 1 Note 1. The application notes that "Class I" is the groundwater classification "the facility will be subject to at the completion of the remediation". EG Exh. 276, Att. 2, Part I ¶ 10 (#630). The GMZ application notes the following selected remedy:

> The agreed upon remedy is specified in Item 5(a) through (j) of the executed [CCA]… The remedy includes lining of the Ash Pond 2S with HDPE, removing Ash Ponds 1S and IN from service and installing a dewatering system within those ponds to keep liquid levels to within no more than one foot of the bottoms of those units. This [GMZ] application fulfills requirements set forth under Item 5(g) of the CCA. EG Exh. 276 Att. 2, Part III ¶ 1 (#637).

The application also notes that "[at] the completion of the corrective process, a final report is to be filed which includes the confirmation statement included in Part IV." *Id*. Att. 2, at 1 Note 1.

B. __Contested Facts__

i. __Ash Ponds Dredging, Liner Ruptures and Flooding__

Dr. Kunkel asserts that boron is present at Will County in concentrations above Class I standard because of past and current leaks in the liners of the four ash ponds and past and ongoing leachate from ash utilized for fill or construction materials outside of the ponds. EG Exh. 401 at 32. He also argues that "there has been ground-water table mounding beneath the ash ponds, as shown on ground-water table contour maps in the MWG quarterly monitoring reports, and all ground-water monitoring wells at the site should be considered down-gradient." *Id.* He maintains that exceedances remain even after relining the four ash ponds between 2010 and 2013, suggesting a leak in a new liner or contribution from coal ash deposited historically outside the basins. *Id*.

As noted with all other Stations, both poz-o-pac and HDPE liners are prone to damage in certain conditions, i.e. severe weather or rupture by heavy equipment during dredging. MWG relined the ponds at Will County on the assumption they were in a "poor" condition. MWG Exh. 607; EG Exh. 34 at 7 (#23614); MWG Exh. 606 at 18 (#23647); *see also* 10/23/17 Tr, at 16; 10/24/17 Tr. at 12-13. In 2005 and 2006 MWG consultant, NRT, investigated the liners at Will County ponds and rated condition of all four ponds as "poor." EG Exh. 34 at #23614; MWG Exh. 606 at 23647. The reports also rated these ponds as "high" for "contamination potential". *Id*. When the ponds were relined, however, the original poz-o-pac liners in 2S and 3S were found to be in a "good condition." 10/24/17 Tr. at 304:7-10 (Maddox Test.); SOF at ¶ 621. When relining the 2S pond, MWG employees discovered that "existing poz-o-pac floor is different than the sites drawing" and commissioned NRT to take borings. EG Exh. 300. Boring taken at 2S in 2013 during relining showed that the bottom poz-o-pac layer goes deeper than 36". MWG Exh. 510 at 4 (#34271); 1/30/18 Tr. at 200:2-201:1 (Race Test.). Further, the record also suggests that some coal ash may have been left between the poz-o-pac and HDPE layers when relining the ponds, since that was a practice approved by MWG employees at that time. *See e.g.* EG Exhs. 22, 32; 10/23/17 Tr. at 156:18-162:21 (Race Test.).

MWG employees were also concerned that even after relining with HDPE, the liners will be easily damaged by equipment during dredging. Rebecca Maddox noted in 2008 to Christopher Lux that LaFarge employees have "serious apprehension about working on this liner" and that MWG employees had to "reiterate over and over to be careful." She further noted that "[n]o matter how much we would reiterate to them to be careful, the possibility of the liner being punctured is much greater now than w/ just a poz-o-pac type "liner." We really feel this liner, even w/ the cushion and warning layers, will not be able to withstand the constant heavy equipment traffic that will continue." EG Exh. 306 at 1. The record shows that the liner in at least one of the ponds had cracked. An inspection of 3S in October 2009 during the liner replacement indicated that the liner cracked, and the water was seeping in. EG Exh. 303 at 1; 10/24/17 Tr. at 214:5-215:12. In 2012 KPRG did permeability testing and found hairline cracks in the poz-o-pac liner of one of the ponds. EG Exh. 286 at 2 (#14745); 10/25/17 Tr. at 221:6-223:2. In July 2010, Maddox noted that repairs were needed on 2S weir because there were "numerous breaks within the weir that is compromising the effectiveness of it." EG Exh. at 311. In June 2012, Ms. Maddox found the south section of the HDPE liner in the 3S pond "extremely damaged," with the felt lining and the HDPE "completely torn up" and "buried under some of the ash for a bit." MWG Exh 307 at 1. She attributed the damage to the cleaning performed by LaFarge "many months ago". *Id*.

Will County also had at least one instance of ash sluice water getting out of the ponds and into the nearby waterbody. In 2008 MWG also notified IEPA and Illinois Emergency Management Agency that on November 3, 2008, water was "flowing over the concrete barrier of the Unit 1 & 2 ash pond and traveling into a ravine that leads to the Des Plaines River" on the northwest part of the property. EG Exh. 309.

The record also indicates dewatering coal ash in areas outside of the ponds. In July 2010, Pond 3S got very close to overflowing on the east side, with "water and material … running to the east." EG Exh. 311 at 2. The contractor suggested that MWG "take the material from Pond 2S and pile it on our property until it dewaters." *Id*. at 1. MWG's Rebecca Maddox instead suggested to put the material from Pond 2S "in the area south of the contractor parking lot," noting that "[w]e used that area last year to dewater the material from 3S." She further noted that the water from that runoff "should make its way eventually to the south area runoff," noting that the "material will be there for a while until it dewaters - like it was last year." *Id*.

After a careful review of the facts, the Board finds that the Environmental Groups established that both poz-o-pac and HDPE liners at Will County can and do crack or get damaged on occasions. Based on preponderance of all the evidence in the record, including the groundwater monitoring results, MWG practices in ponds relining and dredging, storing coal ash from the ponds outside of the ponds, the Board concludes that it is more likely than not that the ash ponds and the material from those ash ponds did leach contaminants into the groundwater.

ii. Historical Coal Ash Sites

The record shows that there are several areas that have been historically used to store coal ash: 1) ponds 1N and 1S; 2) fill areas outside of the ponds; and 3) alleged Slag and Bottom Ash Placement Area.

Ponds 1N and 1S still contain one inch of water. MWG Exh. 901 at 58. The water level in the ponds is not allowed to exceed one foot above the base. MWG Exh. 903 at 22. Mr. Seymour notes that no additional ash was deposited in these ponds since they were removed from operation in 2010. *Id*. They also still contain ash and are not capped. 10/23/17 Tr. at 169:18-21, 170:1-19; 10/24/17 Tr. at 14:2-15:19. The ponds have 36-inch-thick poz-o-pac liners with bituminous carrying coat. MWG Exh. 500 at 5, 7; 1/30/18 Tr. at 193:11-23 (Race Test.). MWG admitted that ponds liners are in poor condition being 40 year old poz-o-pac. EG Exh. 34 at (#23614); MWG Exh. 606 at (#23647); EG Exh. 15C at 22-27 (#7251-7256); 1/30/18 Tr. at 191:20-23; EG Exh. 201 at 19-24 (#24282-24287). In June and August of 2015 KPRG took 20 soil borings of "historical ash samples" at an area right outside the east side of 1N to test for compliance with CCB. EG Exh. 284 at 1; MWG Exh. 901 at 59; MWG Exh. 903 at 48. The report indicates that the ash deposits consist of bottom ash and slag from the coal combustion process. The study area was four by seven squares, with each square equaling 25 feet. EG Exh. 284 at 4 (#49568). The samples were analyzed using the NLET method (ASTM D3987-85) for metals. EG Exh. 284 at 1-2 (#49565-66). The test concluded that ash deposits consist of bottom ash or slag from coal combustion process and the 20 samples taken meet the criteria of Section 3.135 of the Act to be considered CCB for beneficial use and there were no outlier samples. *Id.*; EG Exh. 284 at 4 (#49568).

Ponds 1N and 1S are at least one foot below average groundwater elevations. 2/2/18 Tr. at 309:21-310:19, 143:5-148:4. Because the bottom of these ponds is sitting below the water table, the cracks in the poz-o-pac liners allow groundwater to seep into the ponds and for ash constituents to leak out into the groundwater. 2/2/18 Tr. at 149:15-18. Groundwater leaked through poz-o-pac at 1N and 1S ponds. EG Exh. 302; 10/24/17 Tr. at 211:18-213:20, 213:1-6 (contractors were requested to "cut holes in liner to pump out groundwater" and "then patch the holes").

Coal ash buried around the ash ponds. The coal ash has been buried here since at least 2005. EG Exh. 34 at 7 (#23614); MWG Exh. 606 at 18 (#23647); EG Exh. 15C at 22-27 (#7251-7256); 1/30/18 Tr. at 191:20-23; EG Exh. 201. In 2005, MWG consultant KPRG, took five soil borings around the ash ponds and the samples identified "slag/bottom ash/coal" in four of the borings, at depths ranging from zero to two feet through eight to nine and a half feet deep beneath the surface. EG Exh. 201 at 4, 29-24 (#24267, 24282-24287). In 2010 and 2011, when installing groundwater monitoring wells MW-01 through 10 around the ash ponds, Patrick Engineering took the borings for the wells, that also showed a thick layers of coal ash buried along the eastern edge of the four ponds to a depth of 12 feet. EG Exh. 15C at 5, 22-25, 27 (#7234, 7251-54, 7256). Layers of fill, going down to six to twelve feet, containing ash cinders were found in borings for MW-1, 2, 3, 4 and 6, all along the eastern edge of the ash ponds. EG Exh. 15C at 22-25, 2727 (#7251-54, 7256). Borings for MW-02 showed black coal cinders a depth of up to 12 feet as "wet." *Id*. at 27 (#7256).

Former Slag and Bottom Ash Placement Area is located on the southeast corner of the Station. MWG Exh. 901 at 59; 2/2/18 Tr. at 119:21-120:1 (Seymour Test.). This area was identified in the 1998 Phase II Environmental Site Assessment report as ash disposal area. EG

Exh. 18D at 6, Fig. 5 (#5708, 5742). Borings taken from this area in 1998 (B-1 through B-4) show coal ash mixed with gravel as deep as three feet below surface. EG Exh. 18D at 6, Fig. 5, App. A B-1- B-4 (#5708, 5747-50). Although, there was a monitoring well (MW-1) in this area in 1998, there are no current monitoring wells in this area. EG Exh. 18D at 6, Fig. 5 (#5708, 5742). is the area is not covered by ELUC or GMZ. *Id.* at 67 and 68.

Weighing the facts presented, the Board finds that Environmental Groups have proven that it is more likely than not that the historic areas and coal ash in the fill areas at the Station are causing or contributing to GQS exceedances at the Station.

iii. Monitoring Wells

The groundwater monitoring network at Will County consist of 12 monitoring wells. Ten monitoring wells (MW-01 through MW-10) were installed in 2010. They are located around the perimeter of the four ash ponds. EG Exh. 15C at 2, 19 (#7234, 7248). These wells were spaced approximately 150 – 300 feet apart and screened approximately 10 feet past the intersection of the groundwater table to ensure collection of representative groundwater samples. EG Exh. 15C at 3 (#7234). Two additional monitoring wells (MW-11 and 12), referred to as CCR wells, were installed in 2015 to address the new USEPA's Coal Combustion Residual (CCR) rule. 2/1/18 Tr. at 89:13-90:7, 165:17-166:4. Starting from December 2010, quarterly groundwater samples from monitoring wells MW-1 through MW-10 were analyzed for 35 constituents. MWG Exh. 812. The additional CCR wells, MW-11 and 12, were sampled quarterly from November 2015. *Id.* at 21-23. These samples were analyzed for 15 constituents, and did not include boron, sulfate and TDS. *Id.* at 21.

The site hydrogeologic conditions at the Will County station were determined in 2011 by Patrick Engineering using the soil boring logs of ten groundwater monitoring wells installed around the perimeter around all four the ash ponds. EG Exh. 15C at 3 (#7234). The site geology consists of approximately 1 to 5 feet of unconsolidated deposits or fill, underlain by Silurian Dolomite to approximately 140 feet below ground surface, underlain by the Maquoketa shale, which is generally considered to be an aquitard that separates the shallow groundwater in the unconsolidated units and the Silurian dolomite from the underlying aquifers. EG Exh. 15C at 2 (#7233). While the groundwater flow in the shallow aquifer is controlled by the Des Plaines River and the CSSC with groundwater likely flowing towards either of the rivers, the flow direction in the deep aquifer is towards the southeast. *Id.* However, the groundwater contour map prepared by KPRG in 2016 indicates flow towards the Des Plaines river. EG Br. App. F, MWG Exh. 901 at 63, 2/1/18 Tr. at 163:20-164:22. Seymour noted, "groundwater generally flows west to the Des Plaines River on the western portion of the site and is understood to flow east to the Chicago Sanitary and Ship Canal on the eastern portion of the site." MWG Exh. 903 at 23. Will County GMZ and ELUC also note that "[g]roundwater flow in the vicinity of the subject ash ponds is in a westerly direction with discharge to the adjoining Des Plaines River." MWG Exh. 659 at 1 (ELUC proposal); EG Exh. 276 at 1 (GMZ application).

While the Will County hydrogeologic report notes that the well locations were selected to represent both upgradient and downgradient with respect to direction of groundwater flow, the report does not identify specific wells as being up gradient or downgradient. EG Exh. 15C at (#7234). However, Mr. Gnat states that since the groundwater flow is to the west towards the Des Plaines River, the upgradient wells are MW-01 through MW-06. MWG Exh. 901 at 63, 2/1/18 Tr. at 164:18-22. The other six wells are considered downgradient wells (MW-07, 8, 9, 10, 11, and 12). 2/1/18 Tr. at 164:14-17. Seymour indicates that the highest groundwater elevation during each quarterly monitoring event varied between wells MW-01, 02, 03, 05 and 09; the lowest was in MW-10. MWG Exh. 903 at 23. Environmental Groups' expert Dr. Kunkel argues that "there has been ground-water table mounding beneath the ash ponds, as shown on ground-water table contour maps in the MWG quarterly monitoring reports, and all ground-water monitoring wells at the site should be considered down-gradient." EG Exh. 401 at 32.

Groundwater flow to the east on the eastern portion of the site towards CSSC, as well as the large number of exceedances of coal ash constituents (boron, sulfate and TDS) in the wells Mr. Gnat designates as upgradient (MW-1 through MW-6), indicate that these wells are in the area where groundwater is affected by either the ash ponds or historic ash disposal activities. *See. e.g.* EG Exh. 15C at 2, MWG Exh. 903 at 23. The Board, thus, finds that the Environmental Groups have proven that it is more likely than not that the wells MW-1 through MW-6 should not be treated as upgradient for the Station.

iv. <u>Exceedances of Part 620 Standards</u>

The groundwater monitoring results at Will County indicate 441 exceedances of the Board's Part 620 Class I GQS for coal ash constituents in all 10 initial monitoring wells (MW-1 through 10) installed in 2010. MWG Exh. 812. There were 281 exceedances in the wells (MW-1 through MW-6) and 159 exceedances in the down gradient wells (MW-7 through MW-10). No exceedances were observed in the two newly installed CCR wells (MW-11 and 12). *Id*. While MW-9 had the least number of exceedances (7), MW-4 had the most (81). The number of exceedances in the other 8 wells ranged from 15 to 66. *See* Tables 3.A. – 3.C below. The constituents above the Class I standards are: antimony (3 exceedances), arsenic (18), boron (207), selenium (1), sulfate (131), and TDS (80). As noted above, given the large number of exceedances of coal ash constituents (boron, sulfate and TDS) in the wells MW-1 through MW-6, the Board does not consider these wells as background wells.

Based on review of groundwater data, Seymour noted that historic use of property was causing the impacts. 2/2/18 Tr. at 122. The Board notes, however, that ash ponds may also be contributing to the impacts because the record indicates the groundwater flow in the shallow aquifer underlying the site is controlled by the Des Plaines River and the CSSC with groundwater flowing likely flowing towards the rivers. *See. e.g.* EG Exh. 15 C at 2 (#7233).

A summary of the groundwater monitoring data exceeding Part 620 standards for Will County is presented in Tables 3.A-3.C, below. EG Br. at 77-110 (App. A); MWG Exh. 812.

Table 3.A: Will County Groundwater Monitoring Results Summary

Monitoring Wells	Closest Ash Pond, historical storage	Location	Constituents	Number of Exceedances of Part 620 Standards	Year(s)
MW-01	AP1-N	Upgradient	Antimony	1	2011
			Boron	6	2012-2014
			Sulfate	5	2012-2013
			TDS	3	2013-2014
MW-02	AP1-N	Upgradient	Arsenic	5	2014-2016
			Antimony	2	2011
			Boron	19	2011-2017
			Sulfate	11	2010-2017
			TDS	7	2015-2017
MW-03	AP1-S	Upgradient	Boron	27	2010-2017
			Sulfate	12	2012-2017
			TDS	1	2012
MW-04	AP1-S	Upgradient	Boron	27	2010-2017
			Sulfate	27	2010-2017
			TDS	27	2010-2017
MW-05	AP2-S	Upgradient	Boron	27	2010-2017
			Selenium	1	2013
			Sulfate	23	2010-2017
			TDS	15	2013-2017
MW-6	AP3-S	Upgradient	Arsenic	1	2017
			Boron	27	2010-2017
			Sulfate	8	2010-2014
MW-7	AP1-N	Downgradient	Boron	27	2010-2017
			Sulfate	22	2010-2017
			TDS	14	2010-2017
MW-8	AP1-S	Downgradient	Arsenic	6	2011-2014
			Boron	17	2011-2017
			Sulfate	19	2010-2017
			TDS	13	2011-2017
MW-9	AP2-S	Downgradient	Boron	4	2010-2016
			Sulfate	3	2010-2014
MW-10	AP3-S	Downgradient	Arsenic	7	2013-2017
			Boron	26	2010-2017

			Sulfate	1	2011

Table 3.B: Will County Groundwater Monitoring Results Summary (by year)

Year	Monitoring Wells	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10
	Constituent	# of Exceedances Above Part 620 Class I Groundwater Standards									
2010	Boron			1	1	1	1	1		1	1
	Sulfate	1	1		1	1	1	1	1	1	
	TDS				1			1			
2011	Antimony	1	2								
	Arsenic								2		
	Boron		2	4	4	4	4	4	1		3
	Sulfate				4	4	4	4	3	1	1
	TDS				4	3		4	1		
2012	Arsenic								2		
	Boron	1	1	4	4	4	4	4	2		4
	Sulfate	1		3	4	2	2	4	1		
	TDS			1	4			2			
2013	Arsenic								1		1
	Boron	3	2	4	4	4	4	4	2	1	4
	Selenium					1					
	Sulfate	3		3	4	3		2	2		
	TDS	2			4	2			1		
2014	Arsenic		1						1		
	Boron	2	4	4	4	4	4	4	3		4
	Sulfate		1	4	4	4	1	3	3	1	
	TDS	1			4	4		4	3		
2015	Arsenic		2								3
	Boron		4	4	4	4	4	4	4	1	4
	Sulfate		3	1	4	4		3	4		
	TDS		1		4	3			3		
2016	Arsenic		2								2
	Boron		4	4	4	4	4	4	4	1	4
	Sulfate		4		4	3		3	4		
	TDS		4		4	2		1	4		
2017	Arsenic						1				1
	Boron		2	2	2	2	2	2	1		2
	Sulfate		2	1	2	2		2	1		
	TDS		2		2	1		2	1		
	Total	15	44	40	81	66	36	63	55	7	34

Table 3.C: Will County Groundwater Monitoring Results Summary (by wells)

Chemical	Antimony	Arsenic	Boron	Selenium	Sulfate	TDS	Total

Constituent							
Monitoring Well	**Number of Exceedances**						
MW-1	1		6		5	3	15
MW-2	2	5	19		11	7	44
MW-3			27		12	1	40
MW-4			27		27	27	81
MW-5			27	1	23	15	66
MW-6		1	27		8		36
MW-7			27		22	14	63
MW-8		6	17		19	13	55
MW-9			4		3		7
MW-10		7	26		1		34
Total	3	19	207	1	131	80	441

Antimony. The Board notes that here were three exceedances of the antimony standard over the entire seven-year monitoring period, one in MW-1 and two in MW-2. All three exceedances were observed in 2011. Both Environmental Groups' expert, Dr. Kunkel, and MWG's expert Seymour agree that antimony is one of the indicators for leachate from MWG's ash ponds. EG Exh. 401 at 7; MWG Exh. 903 at 42. However, MWG's bottom ash Neutral Leaching Extraction Test (NLET) results indicate that the level of antimony in the ash leachate was below the Part 620 Class I standard of 0.006 mg/L. MWG Exh. 903 at 117 (Table 5-3). The single exceedance in MW-1 at a level of 0.0063 mg/L when rounded is at the same level as the standard. Thus, the groundwater data indicates two exceedances in MW-2 over two consecutive quarters in 2011. Given that MW-2 had 42 exceedances of other coal ash indicator constituents, the antimony exceedance may be due to coal ash storage or handling activities at the site. The Board, thus, finds that the Environmental Groups have proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to the three antimony exceedances in MW-2 at the Will County Station in 2011.

Arsenic. The monitoring results indicate 18 exceedances of the Part 620 Class I arsenic standard of 0.01 mg/L in three monitoring wells from 2011 through 2017: MW- 2 (5), MW-8 (6) and MW-10 (7). While the arsenic levels in the upgradient well MW-2 ranged from 0.013 to 0.018 mg/L, the levels in downgradient wells MW-8 and 10 ranged from 0.012 to 0.025 mg/L. MWG Exh. 812, *see* Tables 3.A-3.C above. Also, the results indicate the exceedances in the four wells were intermittent during a period of one to four years. Both Dr. Kunkel and Mr. Seymour list arsenic as a constituent that may be present in coal ash leachate. EG Exh 401 at 7; MWG Exh. 903 at 42. MWG's bottom ash NLET result of 0.05 mg/L or less for arsenic suggests the presence of arsenic in the ash leachate at levels higher than the Part 620 Class I standard of 0.01 mg/L. MWG 903 at 117 (Table 5-3). All three arsenic-impacted wells also had exceedances of other coal ash constituents, including boron, sulfate and TDS. The Board, thus, finds that the Environmental Groups have proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to 18 arsenic exceedances in MW-02, 8 and 10 at Will County.

Boron. The monitoring results indicate 207 exceedances of the Part 620 Class I boron standard during the seven-year monitoring period in all ten initial monitoring wells: MW-1 (6),

MW- 2 (19), MW-3 (27), MW-4 (27), MW-5 (27), MW-6 (27), MW-7 (27), MW-8 (17), MW-9 (4) and MW-10 (26). EG Br. at 77-110 (App. A); MWG Exh. 812; *see* Tables 3.A-3.C above. Most of the wells had continuing exceedances over the seven-year monitoring period. Both parties agree that boron is an indicator of coal ash contamination. EG Exh. 401 at 7; MWG Exh. 903 at 42. Further, Seymour's comparison of the monitoring results from 2014 with indicator constituents in leachate shows that boron is an indicator of leachate from Will County ash ponds. MWG Exh. 903 at 118 (Table 5-4). However, Seymour argues that the leachate from MWG ash ponds does not have the potential to cause groundwater impact above the GQS because the leachate levels were below such standard. MWG Exh. 903 at 41. Here, MWG's bottom ash NLET results indicate that the level of boron ranged from less than 0.1 mg/L to 2.0 mg/L, which is at the same level as the Part 620 Class I standard. MWG Exh. 903 at 117, (Table 5-3). The Board finds that monitoring results indicate continuing exceedance of Class I boron standard in most of the wells. As noted above, the record indicates that groundwater flow at the site in both directions, toward the Des Plaines River and CSSC. This discounts the position that some of these wells are upgradient and show off-site impacts. Also, the peninsular location of the Will County Station suggests that contamination is not caused by an off-site source. Considering that boron is an indicator constituent of coal ash, the Board, thus, finds that the Environmental Groups have proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to the 207 boron exceedances in all ten monitoring wells at Will County.

Selenium. There was one exceedance of the Class I selenium standard in well MW-5 (2013) during the seven-year monitoring period. MWG Exh. 812 at 9-10. Selenium levels were below the groundwater standard in all other monitoring wells. MWG's bottom ash NLET results indicate that the level of selenium was below the Part 620 Class I standard of 0.050 mg/L. MWG Exh. 903 at 117 (Table 5-3). Also, selenium is not considered as a primary indicator of coal ash leachate. Therefore, the Board finds that the Environmental Groups have not proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to the single selenium exceedance at Will County.

Sulfate and TDS. There were 131 exceedances of the Class I sulfate standard and 80 exceedances of the Class I TDS standard during the seven-year monitoring period. MWG Exh. 812. While sulfate exceedances occurred in all ten initial monitoring wells (MW-01 through 10), TDS exceedances were observed in seven (MW-01, 02, 03, 04, 05, 07, and 08). While some wells had intermittent exceedances, wells MW-02, 04, 05, 07 and 08 had sulfate or TDS exceedances over a period of five or more years. *Id.*

Both parties list sulfate as an indicator constituent of coal ash leachate. Dr. Kunkel notes that higher concentration of sulfate may also be accompanied by higher concentrations of TDS. EG Exh. 401 at 7 and MWG Exh. 903 at 40. Further, Seymour's comparison of the monitoring results from 2014 with indicator constituents in leachate shows that sulfate is an indicator of leachate from Will County ash ponds. MWG Exh. 903 (Table 5-4). However, Seymour argues that the leachate from MWG ash ponds does not have the potential to cause groundwater impact above the sulfate and TDS standards because the leachate levels are below the standards. He relies on MWG's Will County Station bottom ash NLET results showing sulfate at 49 mg/L and TDS at 200 mg/L. MWG Exh. 903 at 41; MWG Exh. 901 at 8. Dr. Kunkel argues that except at MW-4 and MW-5, the sulfate concentrations in the monitoring wells have remained steady but higher than Class I, thus, indicating that the ash pond liners continue to leak, or coal ash deposits located outside the ash ponds are leaching. EG Exh. 401 at 34.

The Board finds that sulfate and TDS are indicators of coal ash contamination in groundwater. The monitoring results show consistent exceedance of the Class I standard of both constituents during the seven-year monitoring period at multiple wells and, given the peninsular location of the Will County Station, there is no indication of contamination being caused by an off-site source. Therefore, the Board, finds that the Environmental Groups have proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to the 131 sulfate and 80 TDS exceedances in Will County monitoring wells (MW-6 through 8, 11 through 15, 17 and 18).

v. <u>Background Concentrations Exceedance</u>

The Environmental Groups assert that onsite groundwater concentrations of the coal ash indicators boron and sulfate are higher than background values developed by IEPA, and not naturally occurring. EG Br. at 64. The median concentrations of boron exceed the upper-bound 90th percentile background values all ten wells. *Id.* at 40. The Environmental Groups also note that while only monitoring well MW-04 median sulfate concentration exceeded the upper-bound 90th percentile value, the median concentrations of sulfate in all ten wells are three to five times more than the statewide median value. *Id.*

The Board finds that because upgradient wells at the Will County Station are in areas of impacted groundwater, the groundwater monitoring results of indicator constituents, boron and sulfate may be compared with the statewide area background. EG Exh. 405 at 7. Thus, the Board finds that a comparison of the median values of boron and sulfate in the down gradient wells with the 90th percentile statewide values indicate exceedances of boron above background in all 10 wells and sulfate in one well (MW-4). Further, the median values of sulfate and boron in all ten wells are above the statewide median values of those constituents in the upgradient well. MWG Exh. 812. These exceedances of the statewide background are consistent with the exceedances of Class I groundwater standards of sulfate and boron in most monitoring wells.

Given that there is no indication of contamination being caused by an off-site source, the Board finds that the Environmental Groups have proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to boron and sulfate statewide background exceedances at Will County.

5. <u>Waukegan</u>

A. <u>Uncontested Facts</u>

i. <u>The Station</u>

The Waukegan Station began operations in 1920s with five coal-fired electric generating units and later expanded to 8 generating units. MWG Exh. 901 at 44; 1/30/18 Tr. at 121:11-15 (Race Test.). However, at present the station has two active units which began operation in 1958 and 1962. MWG Exh. 665 at 1-2; 1/30/18 Tr. at 121:16-122:8. MWG has owned and operated the Station since 1999. Joint. Stip. No. 32, 33.

The area around the Station has been primarily industrial from 1930s. The Station uses salt on the roads in winter for safety. 1/31/18 Tr. at 240:16-241:12 (Veenbaas Test.). Mr. Veenbaas testified that this “is probably one of the highest density urban sites in the country right now.” 1/31/18 Tr. at 223:20-21 (Veenbaas Test.). On the north, the Station is bordered by Johns Manville Company’s property that is now a Superfund site, with cleanup operations ongoing but no industrial operations. 1/31/18 Tr. at 223:10-14 (Veenbaas Test.); 1/30/17 Tr. at 123:11-124:2 (Race Test.). To the south of the Station is the North Shore Sanitary District; further south is the Johnson Marine Plant, another active Superfund, and also liquified gas Superfund sites. 1/31/18 Tr. at 223:10-21 (Veenbaas Test.). On the east side of the Station is the Lake Michigan. MWG Exh. 667 at 25; 1/31/18 Tr. at 223:10-21 (Kelly Test.); 2/1/18 Tr. at 162:13-163:8 (Gnat Test.); MWG Exh. 667 at 27; MWG Exh. 807.

Fly ash at the Stations is collected using electrostatic precipitators and transported off-site for beneficial use. 1/31/18 Tr. at 224-225. The heavier bottom ash that falls to the bottom of the furnace is generally mixed with water and sluiced to the ash. *Id.* at 225. The results of the ASTM D3987-85 analysis of bottom ash taken from Waukegan ash pond 2010 indicate presence of barium and boron, however, samples were not analyzed for sulfate and TDS. MWG Exh. 901 at 8.

ii. Ash Ponds

Waukegan has two ash ponds: 1) East Pond and 2) West Pond. Both were constructed in 1977 with Hypalon liners. MWG Exh. 901 at 44. The ponds are in the southern portion of the site. EG Exh. 19D at 6, EG Br. (App. E). Both ponds were relined, the East Pond in 2003 and West Pond in 2004, with a 60 mil HDPE. MWG Exh. 901 at 46-47; 903 at 34. The East and West Ponds lining includes (described bottom up) a sand cushion and limestone warning layer on the bottom. MWG Exh. 901 at 47. The ponds’’ bottom elevation is at 585 ft; average groundwater elevation is at 582-583 feet (about 2-3 feet below the ponds’ bottom). *Id*. The ash ponds are regulated under an NPDES permit (#IL0002259). MWG Exh. 642. One pond is used at a time while the other is being dredged to remove the settled coal ash. 1/31/18 Tr. 230-231. Ash removal from the pond is scheduled every three to four years. *Id.*; MWG Exh. 901 at 46.

iii. Waukegan VN

The IEPA issued Violation Notice #W-2012-00056 (Waukegan VN) for the Waukegan Station (EG Exh. 1A) alleging that “operations at ash impoundments have resulted in violations of Groundwater Quality Standards” from 2010 to2012 at monitoring wells MW-1 through 5, including for chloride (MW-5), antimony (MW-1), manganese (MW-4 and 5), boron (MW-1 through 5), arsenic (MW-1), iron (MW-5), sulfate (MW-5), TDS (MW-5), as well as pH (MW-1, 2, and 3). EG Exh. 1A at 3-5.

iv. Waukegan CCA

The Waukegan CCA (MWG Exh. 647) states that:

> Operations at ash impoundments have resulted in violations of the Groundwater Quality Standards at monitoring wells MW-1, MW-2, MW-4, and MW-5. MWG Exh. 647 at 2 ¶ 3.

The CCA notes that "respondent agrees to undertake the following actions, which the Illinois EPA has determined are necessary to attain compliance" with the statute and Board rules. MWG Exh. 647 at 3 ¶5. Subsections (a) through (i) of paragraph 5 list activities MWG must undertake, subsections (a) though (c) are identical to all other CCAs. The other subsections require:

5(d)	installing two additional monitoring wells at locations approved by IEPA;
5(e)	continuing quarterly monitoring of the existing five and the newly installed additional two monitoring wells "for constituents in 35 Ill. Adm. Code 620.410(a)" and record and report elevations to IEPA;
5(f), (g)	entering into an Environmental Land Use Control (ELUC) to cover remaining area at the Station to the east not covered by existing ComEd Former Tannery Site ELUC, submit proposed ELUC to IEPA and record ELUC upon its approval;
5(i)	submitting a certification of compliance upon completing CCA requirements within one year of the date of CCA. MWG Exh. 647 at 3-4 ¶ 5.

On October 22, 2013, MWG filed a certification with the IEPA that all CCA measure were completed. Joint Stip. at 4; MWG Exh. 651.

v. <u>Waukegan ELUC</u>

On June 23, 2003, MWG recorded ELUC covering western part of the Waukegan Station, including the railway tracks north west of the ash ponds, "to protect against exposure to contaminated soil or groundwater, or both, that may be present on the property as a result of past industrial activities on adjacent property known as the Griess-Pfleger Tannery site." MWG Exh. 646 at 1, 7 and 9. On January 18, 2013, MWG submitted to IEPA proposed extension of ELUC to cover eastern part of the Station including the ash ponds, as required by Item 5(f) of the CCA. MWG Exh. 263. On August 26, 2013, IEPA approved MWG's request for ELUC extension, directly adjacent to the 2003 Griess-Pfleger Tannery ELUC. MWG Exh. 650; MWG Exh. 901 at 52; EG Exh. 263 at 8-12. The ELUC extension borders are:

> The western boundary of the ELUC extension abuts the boundary of the existing ELUC. The south boundary is defined by the existing property line. The east boundary is Lake Michigan and the north boundary is defined by the northern extent of the ash pond system. The proposed vertical extent of the ELUC is the unconsolidated overburden deposits overlying the Silurian dolomite bedrock beneath the site. The estimated vertical thickness of the unconsolidated deposits is 100 feet below ground surface based on information provided in the Hydrogeologic Assessment Report dated February 2011 that was submitted to the EPA. MWG Exh. 263 at 1.

The record indicates that MWG did not establish a GMZ at Waukegan. MWG Exh. 649.

B. Contested Facts

i. Ash Ponds Dredging, Liner Ruptures and Migrating Contaminants

As with all other Stations, the liners at Waukegan are prone to damage in certain conditions, particularly by the heavy equipment during dredging. In 2005 and 2006 MWG consultant, NRT, investigated the liners at Waukegan ponds and rated condition of West and East Ponds as "excellent" and the "Coal Pit Runoff Basin" as "unknown" with "high" for "contamination potential." EG Exh. 34 at 9 (#23616); MWG Exh. 606 at (#23645). MWG experts and employees testified that each pond was historically dredged approximately every other year; but only every 3-4 years lately, because less bottom ash has been generated recently. MWG Exh. 901 at 46; 10/24/17 Tr. at 162:10-163:4 (Lux Test.); 1/30/18 Tr. at 118:19-24 (Race Test.); 1/31/18 Tr. at 230:15-231:4 (Veenbaas Test.). Waukegan ponds are inspected at least once per day as part of operator's rounds, with any damage reported to supervisors and promptly repaired. 10/24/17 Tr. at 126:20-128:21, 143:11-144:1 (Lux Test.); 1/31/18 Tr. at 228:23-239:8 (Veenbaas Test.). MWG employees also testified to a system in place during the ponds dredging to ensure that heavy equipment operators do not damages the liners. The ponds have 20-foot tall warning posts at the edge of the bottom of the ponds to identify the bottom of the slope for the equipment operators. 10/24/17 Tr. at 131:23-132:11 (Lux Test.); 1/31/18 Tr. at 236:11-15 (Veenbaas Test.). Upon completion of dredging, Waukegan manager walks though the pond to ensure that contractors did not damage the liners or protective layers. Ponds are released for operations upon confirmation that the liners are intact. 10/24/17 Tr. at 131:17-132:11, 167:3-14 (Lux Test.); 1/31/18 Tr. at 235:20-237:11-17 (Veenbaas Test.).

The record, however, shows that liners in Waukegan ponds did have tears occasionally. About five to six tears were found since 2003, all above the water line in the ponds. All of the tears were typically repaired within one to two weeks. 10/24/17 Tr. at 144:2-145:17 (Lux Test.); 1/31/18 Tr. at 239:9-11 (Veenbaas Test.). In 2005, KPRG performed inspection of the liners in both ponds and found one tear on the south side of the East Ash Pond, which was shortly repaired. 10/25/18 Tr. at 193:10-15 (Gnat Test.); 10/26/18 A.m. Tr. at 52:9-53:24 (Gnat Test.); EG Exh. 274 at 6 (#12832).

After a careful review of the facts, the Board finds that the Environmental Groups established that the liners at Waukegan can and do crack or get damaged on occasions. Based on the preponderance of the evidence in the record, including the groundwater monitoring results, MWG practices in ponds relining and dredging, the Board concludes that it is more likely than not that the ash ponds did leach contaminants into the groundwater.

ii. Historical Coal Ash Sites

The record indicates at least one area where coal ash has been historically stored at the Waukegan station. The record also indicates the presence of coal ash in the fill areas outside of ash ponds and historic area.

Former Slag/Fly Ash Storage (or FSFS). The area immediately west of the West Pond is an unlined area that may contain historic slag, slag and fly ash. EG Exh. 19D at 36 (#45814); 10/23/17 Tr. 99:14-100:17; EG Exh. 38 at 15, 10 (#12017, 12012); 10/23/17 Tr. at 137:1-138:1.

The historic coal ash was placed in this area before 1998. 2/2/18 Tr. at 323:12-20 (Seymour Test.); EG Exh. 19D at 6, Fig. 2 and 5 (#45788, 45813, 45817). Borings from this area from the 1998 Phase II Environmental Site Assessment report shows a coal ash layer of up to a depth of one foot below the surface (B-22). EG Exh. 19D at 6, Fig. 5, App. A B-22 (#45788, 45817, 45841). The Environmental Groups claim this area to be the primary onsite source of groundwater contamination at the Stations. EG Br. at 54. Part of this area is covered by the 2003 Griess-Pfleger Tannery ELUC. MWG Exh. 646 at 1, 7, and 9. The other part is covered by the 2013 ELUC extension. MWG Exh. 263 at 8-12. The former Tannery owner semiannually samples groundwater in wells installed within the Tannery ELUC area on both the tannery site and Waukegan Station site. 1/30/18 Tr. at 146:9-23 (Race Test.); EG Exh. 39F, 40F, 42F, 42.5F. MWG concluded from the ELUC groundwater monitoring results that arsenic, iron, manganese, and TDS concentrations in the ELUC wells on the Waukegan Station site were higher than the concentrations predicted in the modeling to establish the ELUC and that contamination is migrating from the Tannery site onto the Waukegan Station. EG Exh. 41F at 5-8 (#46117-46118); 1/30/18 Tr. at 148:13-149:23 (Race Test.); MWG Exh. 901 at 56-57; EG Exh. 42.5F.

Coal Ash in Fill Areas. The record also shows the presence of coal ash buried around the ponds going as deep as 22 feet below ground surface. In 2005, when MWG's consultant KPRG performed geotechnical testing, it took five soil borings, three of which were taken around the ash ponds (GT 3-5). EG Exh. 201 at 10-16 (#24273-79). The results show bottom ash in those borings at depths below the surface ranging from 1 to 19 feet in GT-4 (taken west of the West Pond), and 1 to 22 feet in GT-5 (taken south of the East Pond). EG Exh. 201 at 15-16 (#24267, 24278-24279). Further, the boring logs indicate the condition of the samples at depths of 10 to 20 feet as "wet" or "slightly moist". *Id.* When MW-5 was installed in 2011 on the east side of the FSFS, in a location close to the GT-5 boring taken in 2005, the MW-5 boring also identified 16 feet of "black coal cinders" mixed with other material. EG Br. at 54; EG Exh. 14C at 19, 28 (#7166, 7175). MWG employees testified that they knew this area as a former ash storage area. 2/1/18 Tr. at 9:3-10:18, 62:16-18, (Veenbaas Test.); 1/30/18 Tr. 162:4-16, 264:9-13 (Race Test.); EG Exh. 16 at 14167; 10/23/17 Tr. at 86:23-87:18. The 2014 drillings for installation of monitoring wells MW-8 and MW-9 also indicated that ash and slag were buried along the northern and western edges of the FSFS area. EG Exh. 203 at 1-2 (#45648-45649); 10/25/17 Tr. at 53:5-54:17. Environmental Groups argue that MWG has done nothing to investigate or remediate this storage area. MWG has taken no borings from the center to determine how much ash is located there, and has not tested leachate to determine whether the area is leaching contaminants. EG Br. at 56. MWG employees confirm that no liners were installed here and that they do not have information of any liners present here. 10/23/17 Tr. at 137:20-138:1; 2/1/18 Tr. at 11:3-5. They also confirmed that no borings or samples were taken. 2/2/18 Tr. at 192:20-193:14 (Seymour Test.). MWG employees also testified that they were not aware of an impermeable cap over this area. 1/30/18 Tr. at 264:14-265:24; 2/1/18 Tr. at 9:3-11:15. MWG employees testified that they were not aware of ash having been ever removed from this area. 2/1/198 Tr. at 10:16-18. Groundwater elevation at Waukegan fluctuates between 579 and 582 feet above mean sea level, groundwater monitoring from wells around FSFS indicate potential ash buried around 582 feet, leaving about 3 feet of overlap. MWG Exh. 903 at 106 (Table 4-5); EG Exh. 203 at 1-2 (#45648-45649).

Weighing the facts presented, the Board finds that Environmental Groups have proven that it is more likely than not that the historic areas and coal ash in the fill areas at the Station are causing or contributing to GQS exceedances at the Station.

iii. Monitoring Wells

The groundwater monitoring network at Waukegan consisted of 16 monitoring wells. MWG Exh. 901 at 48. Patrick Engineering installed five wells (MW-1 through MW-5) as a part of the hydrogeologic investigation, and wells MW- 6 and 7 were added as upgradient wells at the request of IEPA in 2010. Wells MW-8 and 9 were added in 2014. Five additional wells (MW-10, 11, 12, 14 and MW-15) located west of the ash ponds have been monitored since August 2014 to assess the groundwater impacted by the former Griess-Pfleger Tannery and General Boiler properties. EG Exh. 14C at 2, 19 (#7152-7153, 7166), EG Exh. 401 at 23-24, MWG Exh. 811. These wells are called ELUC wells as they were installed as part of the Tannery ELUC. 2/1/18 Tr. at 148-149. MWG's expert, Mr. Gnat, also mentioned the installation of a new well MW-16 as part of CCR rules. *Id.* at 148.

The Waukegan hydrogeologic report identified well MW-5 as upgradient and wells MW-1 through 4 as downgradient. EG Exh. 14C at 3 (#7152); MWG Exh. 901 at 49. However, Mr. Gnat clarified that wells MW- 6, 8, 9, 10, 11, 12, 14 and 15 are also upgradient of the ash ponds and MW-7 is slightly side-gradient. 2/1/18 Tr. at 154. Monitoring wells were sampled on a quarterly basis: MW-1 through 7 from October 2010; MW-8 and 9 from May 2014; MW-10 through 15 from August 2014; and MW-16 from November 2015. MWG Exh. 811. The groundwater samples from all monitoring wells, except MW-16, were analyzed for 35 constituents, including boron, sulfate and TDS. *Id.* The samples from MW-16 were analyzed for 15 constituents, mostly metals. *Id.*

The Environmental Groups argue that because the groundwater flows through the Former Slag and Fly Ash Storage site from west/northwest to east/southeast, the upgradient groundwater quality for the FSFS is found in MW-11 through MW-14 and MW-6. EG Br. at 55. The Environmental Groups contend that MW-8 and 9 should not be considered upgradient for this area because they are screened in the FSFS. *Id.* at 57. The Environmental Groups note that boron levels (1 - 4 mg/L) in upgradient wells (MW–6, 11 through 14) increase more than tenfold (30 - 40 mg/L) after crossing the slag/fly ash storage area in wells MW-5 and 7 and the sulfate levels also show a similar pattern. *Id.* at 57-58.

The site hydrogeologic conditions at the Waukegan Station were determined in 2011 by Patrick Engineering using the soil boring logs of five groundwater monitoring wells installed approximately 150 to 300 feet around the perimeter of the ash ponds. These wells were screened approximately 10 feet past the intersection of the groundwater table to ensure collection of representative groundwater samples. EG Exh. 14C at 3 (#7152). The well locations were chosen to represent upgradient and downgradient wells with respect to expected groundwater flow direction to the east towards the Lake Michigan. *Id.* at 2-3 (#7151-7152). The well borings were advanced to depths ranging from 30 to 32 feet below ground surface (bgs). Borings were terminated after the field geologist determined that the borings were installed approximately 10 feet past the first intersection of the groundwater table. *Id.* at 3 (#7152).

The site geology, based on regional geologic information, consists of 100 feet of sand deposits, underlain by Silurian Dolomite to approximately 360 feet below ground surface, underlain by the Maquoketa shale. EG Exh. 14C at 2 (#7151). The hydrogeologic site investigation indicated predominantly fine sand and silt underlain by sand and gravel. *Id.* at 7 (#7156). Further, the uppermost groundwater unit underlying the site is found at 22.4 to 23 feet bgs with groundwater flow to the east/southeast towards Lake Michigan. Mr. Gnat agreed that the groundwater flow in the ash pond area is to the east, southeast. 2/1/18 Tr. at 154-155. However, he also noted that a component of groundwater flow goes north, northwest towards Lake Michigan intake channel. *Id.* at 155; MWG Exh. 901 at 49.

The Board notes that, given that the groundwater flow direction at the Waukegan Station generally flows the west/northwest to the east/southeast, wells MW-10 through 14 are showing the upgradient groundwater quality for the Station. These wells are also upgradient of the Former Slag and Fly Ash Storage area, as well as the ash ponds. EG Br. at 21 (Ap. E); MWG Exh. 901 at 49; MWG Exh. 813. These wells also are located downgradient of the Tannery site, showing constituents that might be migrating to the Station from the Tannery site.

Also, there are eight potable/industrial use wells within 2,500-foot radius of the ash ponds, all to the north or west of the ponds.

iv. <u>Exceedances of Part 620 Standards</u>

The groundwater monitoring results at Waukegan indicate 394 exceedances of the Board’s Part 620 Class I GQS in all 15 monitoring wells (MW-1 through 16) during 2010-2017. MWG Exh. 811. While 102 of these exceedances are in wells downgradient of the ash ponds, the remaining 292 are in wells that are upgradient or side-gradient of the ash ponds. The constituents above the Class I standard are: antimony (2 exceedances), arsenic (97), boron (169), cadmium (1), chromium (2), selenium (2), sulfate (57), and TDS (63). *Id.* A summary of the groundwater monitoring data exceeding Part 620 standards for Waukegan is presented in Tables 4.A-4.C, below. EG Br. at 77-110 (App. A); MWG Exh. 811.

The Board also finds that while there are many exceedances (e.g. arsenic, boron, sulfate and TDS) in the wells upgradient of the ash ponds, as noted by the Environmental Groups, the location of these upgradient wells shed light on the potential source of contamination at the Waukegan site. Starting with the monitoring wells near the western property boundary and moving east/southeast along the groundwater flow direction, the number of exceedances were: 59 in wells MW-10 through 14 downgradient of former tannery and boiler sites and upgradient of the Former Slag and Fly Ash Storage area; 66 in wells MW-6, 8 and 9 along the western border (immediately upgradient) of the Former Slag and Fly Ash Storage area; 163 in wells MW-5, 7 and 15 which are downgradient of the Former Slag and Fly Ash Storage area and upgradient or side-gradient of the ash ponds; and 102 in wells MW-1 through 4 downgradient of the ash ponds. Even though the 59 exceedances in wells MW-10 through 14 suggest that contamination may be coming in from the former tannery and boiler sites, the 163 exceedances downgradient of the Former Slag and Fly Ash Storage area, along with higher concentrations of indicator constituents, show that the Former Slag and Fly Ash Storage area is contributing to the exceedances in wells MW-1 through 7.

Table 4.A: Waukegan Groundwater Monitoring Results Summary

Monitoring Wells	Closest Ash Pond, historical storage	Location	Constituents	Number of Exceedances of Part 620 Standards	Year(s)
MW-01	EP	Downgradient	Arsenic	26	2010-2017
			Boron	14	2010-2017
			Selenium	1	2013
MW-02	EP	Downgradient	Antimony	1	2010
			Arsenic	11	2010-2017
			Boron	21	2010-2017
MW-03	EP	Downgradient	Arsenic	1	2017
			Boron	10	2011-2017
			Selenium	1	2013
MW-04	EP	Downgradient	Arsenic	1	2017
			Boron	15	2011-2017
MW-05	WP	Upgradient	Arsenic	6	2012-2017
			Boron	27	2010-2017
			Sulfate	27	2010-2017
			TDS	27	2010-2017
MW-06	FSFA	Upgradient	Boron	12	2013-2017
MW-07	WP	Side-gradient	Arsenic	7	2013-2015
			Boron	19	2012-2017
			Sulfate	18	2012-2017
			TDS	19	2012-2017
MW-08	FSFA	Upgradient	Boron	13	2014-2017
			Cadmium	1	2017
			Sulfate	7	2014-2017
			TDS	5	2015-2016
MW-09	WP, FSFA	Upgradient	Boron	13	2014-2017
			Sulfate	5	2014-2017
			TDS	10	2014-2016
MW-10	FSFA, WP	Upgradient	Arsenic	11	2014-2017
MW-11	FSFA, WP	Upgradient	Arsenic	12	2014-2017
			Boron	11	2014-2017
MW-12	FSFA, WP	Upgradient	Arsenic	4	2015-2017
			Boron	5	2015-2017
			TDS	1	2015

MW-14	FSFA	Upgradient	Antimony	1	2017
			Arsenic	11	2014-2017
			Chromium	2	2017
			TDS	1	2014
MW-15	FSFA	Upgradient	Arsenic	4	2014-2017
			Boron	9	2014-2017
MW-16	EP and WP	Upgradient	Arsenic	3	2016-2017
			Thallium	1	2017

Table 4.B: Waukegan Groundwater Monitoring Results Summary (by year)

Year	Monitoring Wells	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9
	Constituent	# of Exceedances Above Part 620 Class I Groundwater Standards								
2010	Antimony		1							
	Arsenic	1	1							
	Boron	1	1			1				
	Sulfate					1				
	TDS					1				
2011	Antimony									
	Arsenic	4	2							
	Boron	3	1	2	2	4				
	Sulfate					4				
	TDS					4				
2012	Arsenic	4	2			2				
	Boron	1	2		4	4		1		
	Sulfate					4		1		
	TDS					4		1		
2013	Arsenic	3	1			1		3		
	Boron	4	3	1	4	4	4	4		
	Selenium	1		1						
	Sulfate					4		4		
	TDS					4		4		
2014	Arsenic	4						1		
	Boron	1	4	2	2	4	3	4	3	3
	Sulfate					4		3	1	1
	TDS					4		4		3
2015	Arsenic	4	2			1		3		
	Boron		4			4	1	4	4	4
	Sulfate					4		4	2	1
	TDS					4		4	1	4
2016	Arsenic	4	1			1				
	Boron	2	4	3	1	4	3	4	4	4
	Sulfate					4		4	3	2

	TDS					4		4	4	3
2017	Arsenic	2	2	1	1	1				
	Boron	2	2	2	2	2	1	2	2	2
	Cadmium								1	
	Sulfate					2		2	1	1
	TDS					2		2		
Total		41	33	12	16	87	12	63	26	28

Table 4.B: Waukegan Groundwater Monitoring Results Summary (by year) (cont)

Year	Monitoring Wells	MW-10	MW-11	MW-12	MW-14	MW-15	MW-16
	Constituent	# of Exceedances Above Part 620 Class I Groundwater Standards					
2014	Arsenic	2	2		2	1	
	Boron		2			2	
	Sulfate						
	TDS				1		
2015	Arsenic	3	4	2	3	1	
	Boron		4	1		1	
	Sulfate						
	TDS			1			
2016	Arsenic	4	4		4		1
	Boron		4	3		4	
	Sulfate						
	TDS						
2017	Antimony				1		
	Arsenic	2	2	2	2	2	2
	Boron		1	1		2	
	Chromium				2		
	Sulfate						
	Thallium						1
	TDS						
Total		11	23	10	15	13	4

4.C: Waukegan Groundwater Monitoring Results Summary (by wells)

Chemical Constituent	**Antimony**	**Arsenic**	**Boron**	**Cadmium**	**Chromium**	**Selenium**	**Sulfate**	**Thallium**	**TDS**	**Total**
Monitoring Well	**Number of Exceedances**									
MW-1		26	14			1				41
MW-2	1	11	21							33
MW-3		1	10			1				12
MW-4		1	15							16
MW-5		6	27				27		27	87
MW-6			12							12
MW-7		7	19				18		19	63
MW-8			13	1			7		5	26
MW-9			13				5		10	28
MW-10		11								11
MW-11		12	11							23
MW-12		4	5						1	10
MW-14	1	11			2				1	15
MW-15		4	9							13
MW-16[9]		3						1		4
Total	2	97	169	1	2	2	57	1	63	394

Antimony. There were only two exceedances of the antimony standard over the entire seven-year monitoring period, one in 2010 in MW-2 (downgradient of the ash ponds) and one in 2017 in MW-14 (upgradient near the western property line). Both parties agree that antimony is one of the indicators for leachate from MWG's ash ponds. EG Exh. 401 at 7; MWG Exh. 903 at 42. However, MWG's bottom ash Neutral Leaching Extraction Test (NLET) results indicate that the level of antimony in the ash leachate from Waukegan was below the Part 620 Class I standard of 0.006 mg/L. MWG Exh. 901 at 8; MWG Exh 903 at117 (Table 5-3). Because the antimony concentration in the bottom ash was below the Class I standard and there were only two exceedances over the seven-year monitoring period, the Board finds that the Environmental Groups have not proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to these exceedances.

Arsenic. The monitoring results indicate 97 exceedances of the Part 620 Class I arsenic standard in 12 of the 15 monitoring wells, upgradient and downgradient of both Former Slag and Fly Ash Storage site and ash ponds from 2010 through 2017. EG Br. at 77-110 (App. A); MWG Exh. 811, *also see* Table 4.A-4.C above. The number of exceedances include: MW-1 (26 exceedances), MW- 2 (11), MW-3 (1), MW-4 (1) MW-5 (6), MW-7 (7), MW-10 (11), MW-11 (12) MW-12 (4), MW- 14 (11), MW-15 (4), and MW-16 (3). Both parties list arsenic as a constituent present in coal ash leachate. EG Exh. 401 at 7; Exh. 903 at 42. MWG's bottom ash NLET result of 0.05 mg/L or less for arsenic suggests the presence of arsenic in the ash leachate

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[9] While groundwater monitoring results for MW-16 for 2016-17 are included in MWG Exh. 811, the location of the monitoring well is not shown on any of the Waukegan maps.

at levels higher than the Part 620 Class I standard of 0.01 mg/L. MWG Exh. 903 at 117 (Table 5-3).

Seymour also notes that analytical results of the groundwater from the former Tannery site indicate that certain inorganic constituents, including arsenic, have migrated onto the Waukegan property. MWG Exh. 903 at 19. MWG asserts that the groundwater contamination at Waukegan site, particularly arsenic, is migrating from two industrial properties on the west of the Station, the former Griess-Pfleger Tannery and the former General Boiler. MWG Br. at 18. MWG notes that the General Boiler property contained arsenic above remediation benchmarks and the property included a fly ash fill area. *Id.* Both sites appear to be now closed and part of IEPA's Site Remediation Programs. *Id*. at 124:16-125:3 (Race Test.); MWG Exh. 667, at 25; MWG Exh. 901 at 56-57. Investigation at the General Boiler site in 1998-1999 also found arsenic concentrations above Class I GQS in a fly ash fill area. MWG Exh. 623 at 472. Soil boring at the Tannery found coal and angular slag. MWG Exh. 643 at 105-08 (#47180-4718); 1/30/18 Tr. at 131:6-134:2 (Race Test.). Groundwater investigation at the Tannery also found arsenic, chromium, cadmium, mercury, lead, manganese, iron and total dissolved solids contamination. MWG Exh. 644 at 31, 33-34 (#46627, 46629-46630); 1/30/18 Tr. at 135:23-139:3 (Race Test.). The former Tannery owner removed impacted soil and in 2003 established ELUC on the west side of Waukegan Station to prevent any use of the groundwater. Joint Stip. No.38, 39; MWG Exh. 645 at 55-56 (#46255-46256); 1/30/18 Tr. at 141:23-144:4 (Race Test.); MWG Exhs. 646; 667 at 22.

The Board notes that wells MW-10 through 14 are downgradient of the former Tannery site and upgradient of the Station, including the Former Slag and Fly Ash Storage area and the ash ponds. EG Br.at 120 (App. E); MWG Exh. 901 at 48-49; MWG Exh. 813. The Board, thus, finds that the exceedances in the wells MW-10 through 14 support Seymour's assertion that contamination is moving into the Waukegan site from the former Tannery site. The arsenic levels in the upgradient wells MW-10 through 14 were consistently higher, in the range of 0.06 to 1.3 mg/L, compared to the levels ranging from 0.013 to 0.21 in the wells downgradient of the Former Sag and Fly Ash Storage site, as well as the ash ponds. Thus, the Board finds that the it is more likely than not that the arsenic levels in groundwater at the Waukegan site are impacted by upgradient offsite contamination coming to the Tannery site. The Board, thus, finds that the Environmental Groups have not proven that it is more likely than not that coal ash stored on-site, either in the ash ponds or outside of the ponds, is causing or contributing to these exceedances.

Boron. The monitoring results indicate 169 exceedances of the Part 620 Class I boron standard in 12 of the 15 monitoring wells upgradient and downgradient of both Former Slag and Fly Ash Storage site and ash ponds from 2010 through 2017. EG Br. App. A; MWG Exh 810; *see also* Table 4.A-4.C above. These wells show the following exceedances: MW-1 (14), MW-2 (21), MW-3 (10), MW-4 (15) MW-5 (27), MW-6 (12), MW-7 (19), MW-8 (13), MW-9 (13), MW-11 (11) MW-12 (5), and MW-15 (9). Most of the wells had continuing exceedances over the four to seven-year monitoring period.

Both parties agree that boron is an indicator of coal ash contamination. EG Exh. 401 at 7; Exh. 903 at 42. Further, Seymour's comparison of the monitoring results from 2014 with indicator constituents in leachate shows that boron is an indicator of leachate from Waukegan Station ash ponds. MWG Exh. 903 at 118, 122 (Table 5-4). However, Seymour argues that the leachate from MWG ash ponds does not have the potential to cause groundwater impact above the Class I standard because the leachate levels were below such standard. MWG Exh. 903 at 41. Here, MWG's bottom ash NLET results indicate that the level of boron ranged from less than 0.1 mg/L to 2.0 mg/L, which is the same as the Part 620 Class I standard. MWG Exh. 903 at 117 (Table 5-3). Seymour maintains that analytical results of the groundwater from the tannery site indicate that certain inorganic constituents, including boron have migrated onto the Waukegan site. MWG Exh. 903 at 19. Environmental Groups argue that the most likely source of coal ash contamination at the Waukegan site is the Former Slag and Fly Ash Storage area located west of the ash ponds.

The Board finds that given the groundwater flow direction at the Waukegan site wells MW-10 through 14 are downgradient of the Tannery site, showing contaminants that migrate from the Tannery site. These wells are also upgradient of the Former Slag and Fly Ash Storage area, as well as the ash ponds. EG Br. at 120 (App. E); MWG Exh. 901 at 49; MWG Exh 813. Well MW-6 is downgradient of the boiler site but also upgradient of the Former Slag and Fly Ash Storage area. The Board also finds that monitoring wells MW-8 and MW-9 are likely impacted by the Former Slag and Fly Ash Storage area as they are located in the ash at the edge of this area. The median values of boron in upgradient wells (MW-6, 10 through 14) range from 1 to 3.25 mg/L as compared to median boron value of 32-39 mg/L in wells MW-5 and 7 downgradient of the Former Slag and Fly Ash Storage site and 2 to 2.5 mg/L in wells MW-1 through 4 downgradient of the ash ponds. This comparison of the median boron values of the wells upgradient of the Former Slag and Fly Ash Storage area with those downgradient indicates that the Former Slag and Fly Ash Storage is area is contributing to the exceedances in the downgradient wells. The Board finds that the groundwater monitoring results indicate the Former Slag and Fly Ash Storage area is the likely source of boron exceedances at Waukegan Station in the wells downgradient of the area as well as the ash ponds. The Board, thus, finds that the Environmental Groups have proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to these exceedances.

<u>Metals</u>. The monitoring results indicate six exceedances of metallic constituents over the seven-year monitoring period: cadmium (1 in MW-8), chromium (2 in MW-14), selenium (2 in MW-1 and MW-3) and thallium (1 in MW-16). While some of these metals may be present in coal ash leachate, they are not considered as primary indicators of coal ash contamination. MWG's bottom ash NLET results indicate that the level of all four metals were below Part 620 Class I standards. MWG 903 (Table 5-3). The Board finds that given the very few sporadic exceedances of the metallic constituents and their low levels in the bottom ash leachate, the Environmental Groups have not proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to these exceedances.

<u>Sulfate and TDS</u>. There were 57 exceedances of the Class I sulfate standard and 63 exceedances of the Class I TDS standard during the seven-year monitoring period. MWG Exh. 811. Most of the exceedances occurred in two wells (MW-5 and 7) downgradient of the Former Slag and Fly Ash Storage area. There were only two exceedances of TDS in the upgradient wells (MW-12 and 14) and none in wells downgradient of the ash ponds (MW-1 through 4).

Both parties list sulfate as an indicator constituent of coal ash leachate. Dr. Kunkel notes that higher concentration of sulfate may also be accompanied by high concentrations of TDS. EG Exh 401 at 7; MWG Exh. 903 at 40. Further, Seymour's comparison of the monitoring results from 2014 with indicator constituents in leachate shows that sulfate is an indicator of leachate from Waukegan ash ponds. MWG Exh. 903 at 118-22 (Table 5-4). However, Seymour argues that the leachate from MWG ash ponds does not have the potential to cause groundwater impact above the sulfate and TDS standards because the leachate levels are below the standards. He relies on MWG's bottom ash NLET results of sulfate at 49 mg/L and TDS at 200 mg/L. MWG Exh. 903 at 41; MWG Exh. 901 at 8. Environmental Groups note that sulfate follows the same pattern as boron with median sulfate concentrations approximately 100-200 mg/L upgradient of the Former Slag and Fly Ash Storage area, but 700-800 mg/L in wells MW-5 and MW-7 downgradient of that area. The Environmental Groups argue that this pattern shows that the Former Slag and Fly Ash Storage area is contributing coal ash constituents in the groundwater.

The Board notes that sulfate and TDS are indicators of coal ash contamination in groundwater. Further, the monitoring results show almost no exceedances of sulfate and TDS standards in the upgradient wells indicating there is no migration from offsite sources. Further, as noted by the Environmental Groups, the large percentage of exceedances of sulfate (79%) and TDS (73%) in wells (MW-5 and 7) downgradient of the Former Slag and Fly ash storage area indicate that the storage area is contributing to the exceedances. There were also some exceedances in monitoring wells MW-8 and MW-9, which are likely impacted by the Former Slag and Fly Ash Storage area as they are located in ash at the edge of the area. Therefore, the Board finds that the likely source of the 57 exceedances of sulfate and 63 exceedances of TDS in the downgradient monitoring wells MW- 5, 7, 8 and 9 at Waukegan is the Former Slag and Fly Ash Storage area located west of the ash ponds. The Board, thus, finds that the Environmental Groups have proven that it is more likely than not that coal ash stored onsite, either in the ash ponds or outside of the ponds, is causing or contributing to these exceedances.

v. Background Concentrations Exceedance

Environmental Groups contend that the median concentrations of indicator constituents, boron and sulfate, in most of the wells are higher than the statewide upper-bound 90th percentile background value and not naturally occurring. EG Br. at 64. Seymour asserts that the background levels used by Environmental Groups are based on monitoring data from CWS wells that are not representative of site-specific groundwater quality. 2/2/18 Tr. at 32. Seymour argues that comparing monitoring results with the median background value is not meaningful. He maintains that a valid comparison would be based on a statistical evaluation using an upper bound confidence level of 90 percent. *Id.* at 32-33.

The Board finds that while background values established using site-specific monitoring data is always preferable, in the absence of such data, statewide background values may be used to evaluate groundwater impacts. Because site-specific background values have not been established at the Waukegan site, the Board finds that median values of boron and sulfate in monitoring wells can be compared with the 90th percentile statewide values. This comparison indicates that median concentrations of boron (MW-1 through MW-15) and sulfate (MW-1, 2, 4 through 9, 12 and 15) exceed the 90th percentile statewide values. These exceedances of the statewide background also appear to be consistent with the exceedances of Class I groundwater standards of boron and sulfate in most monitoring wells at Waukegan. Regarding boron, except for upgradient wells MW-10 and 14, the wells exceeding the 90th percentile value also exceeded the Class I boron standard. As to sulfate, wells exceeding the 90th percentile value also exceeded the Class I standard in downgradient wells MW-5, 7, 8 and 9. The Board, thus finds that the Environmental Groups have proven that it is more likely than not that coal ash stored on-site, either in the ash ponds or outside of the ponds, is causing or contributing to the exceedances of the 90th percentile statewide values for boron and sulfate at Waukegan.

V. <u>BOARD DISCUSSION</u>

The Environmental Groups allege that MWG violated Sections 12(a), 12(d), and 21(a) of the Act (415 ILCS 5/12(a), 12(d), 21(a) (2016)) and Sections 620.115, 620.301(a) and 620.405 of the Board's groundwater quality rules (35 Ill. Adm. Code 620.115, 620.301(a) and 620.405). Am. Comp. at 17 ¶ 51; EG Br. at 4. The Environmental Groups allege that MWG discharged contaminants into the environment "through coal ash disposal ponds, landfills, unconsolidated coal ash fill, and/or other coal ash and coal combustion waste repositories" at the four Stations. Am. Comp. at 17 ¶ 51.

A. <u>*Section 12(a) of the Act, Water Pollution*</u>

Section 12(a) of the Act prohibits any person from causing, allowing, or threatening a *discharge* of any contaminants into the environment so as to *cause or tend to cause water pollution* or to *violate regulations or standards* adopted by the Board. 415 ILCS 5/12(a) (2016). As discussed below, the Board finds that the record indicates that MWG caused or allowed a discharge of contaminants so as to cause water pollution and to violate the Board's Class I GQS.

The Act defines "water pollution" to include a discharge of any contaminant into any waters of the State that will or is likely to render such waters harmful or detrimental or injurious to public health, safety or welfare or to domestic, commercial, industrial, agricultural, recreational, or other legitimate uses, or to livestock, wild animals, birds, fish, or other aquatic life. *See* 415 ILCS 5/3.545 (2016). The statutory definition of "waters" of the State includes groundwater. *See* 415 ILCS 5/3.550 (2016).

To find that a respondent violated Section 12(a) of the Act, the Board must find that a respondent discharged or threatened to discharge a contaminant that is likely to render waters harmful, detrimental, or injurious to public health. <u>CSX</u>, PCB 7-16, slip op at 16 (July 12, 2007). The Board has also found that a discharge of a contaminant that violated the Board's GQS violates Section 12(a) of the Act. <u>International Union</u>, PCB 94-420 at 33-34 (Aug. 1, 1996). In another case, the Board concluded that "[c]ompliance with a permitted GMZ would provide . . . immunity from violating the Part 620 standards" but not Section 12(a). <u>People v. Texaco Refining and Marketing, Inc.</u>, PCB 2-03, slip op. at 9-10 (Nov. 6, 2003). The Board noted that "Section 12(a) of the Act provides no exemption from liability for parties that comply with another regulatory program" and that compliance with GMZ "is not an affirmative defense but rather a factor that may, if anything, mitigate any imposed penalty." *Id*.

The groundwater monitoring data, as discussed in Part IV *supra*, indicates the presence of contaminants in groundwater between December 2010 and April 2017 in concentrations that exceed Class I GQS at all four Stations.

At Joliet 29 Station, monitoring recorded 53 exceedances in monitoring well MW-9, which is a downgradient well located between Ash Pond 2 and Ash Pond 3 at the southwest edge of Ash Pond 3. Exceedances of sulfate occurred in 26 of 53, every quarter of the seven-year groundwater monitoring period of 2010-2017. The TDS standard was exceeded 27 of 53. The other three downgradient wells (MW-02, 03, and 04) also showed exceedances of Class I GQS for antimony seven times (from 2010 to2013) and for TDS once in 2013.

At Powerton Station, the Part 620 Class I arsenic standard was exceeded 83 times in eight downgradient monitoring wells (MW-6, 7, 11, 12, 13, 14, 15, and 17). While some of these exceedances were intermittent (in wells MW-6, 12, 14, and 15), others were consistent exceedances over a period of four to six years (in MW-7, 11, and 13). Monitoring showed 64 exceedances of the Part 620 boron standard in nine downgradient monitoring wells, 83% of which were observed in wells MW-9 (21 exceedances), MW-13 (26) and MW-14 (7). Monitoring also showed less consistent exceedances in MW-11, MW-12, and MW-19. There were 104 exceedances of sulfate standard in nine wells (MW-6, 8, 11, through 15 and 17) and 119 exceedances of TDS standard in the same eight wells and MW-7 and 18. While some wells had intermittent exceedances, MW-12, 13, 14, and 15 had consistent exceedances of sulfate or TDS or both over a period of four or more years.

At Will County, the groundwater monitoring results show 207 boron exceedances in 10 monitoring wells (MW-1 through 10) consistently from 2010 to 2017. The results also show three antimony exceedances in MW-2 in 2011 and 19 arsenic exceedances in MW-02, 6, 8, and 10 in 2011-2017. Between 2010 and 2017, there were consistent exceedance of the sulfate standard (131 exceedances in MW-01 through 10) and the TDS (80 standard in MW-01 through 08).

At Waukegan, monitoring showed 169 exceedances of the boron standard between 2010 and 2017 in 12 of the 15 monitoring wells in (MW-1 through 09, 11, 12, and 15). The Board also found 57 exceedances of the Class I sulfate standard and 63 exceedances of the TDS standard (MW-05, 07, 08, and 09) through the entire monitoring period of 2010-2017.

As discussed in detail in Part IV of this opinion, the Board finds that the preponderance of evidence establishes that it is more probable than not that these exceedances are caused by the MWG operations at the Station.

i. MWG “caused” or “allowed” Release of Contaminants.

Contaminants found in the monitoring wells in all four Stations are recognized by both parties as known constituents of coal ash. *See supra* Part IV (Facts). The record shows that MWG operations produce in coal ash, which MWG processes at its property, and stores temporarily on short or long-term basis before it is removed to permanent landfills. The record also shows that coal ash is present in multiple historical coal ash storage or fill areas, most of which are unlined and not monitored for leaching. Only some of those areas have been tested for beneficial reuse. The rest are just visually inspected. The groundwater monitoring results of the upgradient monitoring wells show that upgradient off-site sources did not contribute to the exceedances. The record provides no persuasive evidence that any of the indicator constituents recorded in these monitoring wells could have originated outside of MWG’s property and migrated to the Stations, except for the arsenic at Waukegan. The record shows no other likely sources of contamination. Thus, the Board finds that contaminants are leaking from MWG's property and that MWG's active coal ash ponds or historical coal ash storage sites of fill areas are the source of that contamination. Thus, the Board concludes that it is more probable than not that MWG caused contamination coming from the ash ponds and allowed contamination from the historic sites and ash fill areas. IEPA v. Rawe, AC 92-5, slip op. at 4 (Oct. 16, 1992); People ex.rel. Ryan v. McFalls, 313 Ill. App. 3d 223, 226-27, 798, 728 N.E.2d 1152, 1155 (3rd Dist. 2000).

It is immaterial whether any specific ash pond or any specific historic ash fill area can be pinpointed as a source to find MWG liable. The groundwater monitoring results narrow the contamination to defined areas within each of MWG Stations delineated by the monitoring wells. Davinroy at 796. As the owner or operator of these Stations, MWG has control over both its active ash ponds and historical coals ash storage areas. People v. Inverse Investments, LLC, PCB 11-79 slip op. at 9 (Feb. 16, 2012); Michel Grain, PCB 96-143, slip op. at 3-4 (Aug. 22, 2002); Meadowlark Farms, Inc. v. PCB, 17 Ill. App. 3d 851, 860, 308 N.E.2d at 836-37 (5th Dist. 1974); People v. Lincoln, 2016 IL App 143487 ¶¶ 48049, 70 N.E.3d 661, 678,; People v. State Oil Co., PCB 97-103, slip op. at 24-25 (Mar 20, 2003); Allaert Rendering, Inc. v. PCB, 91 Ill. App. 3d 153, 155-156, 414 N.E.2d 492, 494-95 (3rd Dist. 1980).

The monitoring results show that contamination persists after MWG concluded corrective actions required by its CCAs and GMZs. MWG is aware of these results but is not undertaking any further actions to stop or even identify the specific source: no further investigation of historic areas is taking place; no additional monitoring wells are installed; and, no further inspection of ash ponds or land around the ash ponds in the locations that show persistent exceedances is taking place. The Board is, thus, not persuaded that MWG took "extensive precautions" to prevent the releases. Davinroy, 249 Ill. App. 3d at 794; Perkinson v. PCB, 187 Ill. App. 3d 689 (3rd Dist. 1989); People v. William Charles, PCB 10-108, slip op. at 25-27 (Mar.17, 2011); City of Chicago v. Speedy Gonzales Landscaping, Inc, AC 06-39, AC 06-40, AC 04-41, AC 07-25, (Mar. 19, 2009); County of Jackson v. Taylor, AC 89-258, (Jan. 10, 1991); Phillips Petro. Co. v. PCB, 72 Ill. App. 3d 217 (2nd Dis. 1979); IEPA v. Coleman, AC04-46, at 7 (Nov. 4, 2004). Other than establishing an ELUC at Powerton, Waukegan, and Will County that restricts use of the area, for example for installing potable wells, MWG also did not take active actions to ensure that the contamination does not spread beyond its property. MWG knew that contaminants that include coal ash constituents are leaking from its property but did not fully investigate specific source or prevent further release, claiming that IEPA did not ask it to do so. MWG, however, cannot use IEPA's actions to excuse for MWG's violations of the Act or the Board rules.

While the VNs for the four Stations also alleged exceedances of Class I GQS for additional contaminants at other wells, the Board notes that the record shows other potential sources from outside of MWG property, that can be linked to those contaminants, as discussed in detail in Part IV of this opinion. The Board, therefore, concludes that the Environmental Groups failed to establish that it is more probable than not that MWG cause or allowed those other exceedances.

Based on the above, the Board finds that the preponderance of evidence indicates that during 2010-2017, MWG caused or allowed discharge of contaminants into the waters of the State with respect to the noted exceedances in monitoring wells at all four Stations.

Next the Board must determine if the discharge violated Board's GQS, or caused or tended to cause water pollution in violation of Section 12(a) of the Act. 415 ILCS 5/12(a) (2016).

ii. Violation of Board Rules

MWG asserts the establishment of GMZs at Joliet 29, Powerton, and Will County as one of its affirmative defenses. MWG 2nd Ans. Def. at 24-26 ¶¶ 82-97. MWG alleges that it did not violate the Board's GQS (35 Ill. Adm. Code 620.410, 620.420, 620.430, and 620.440) because the groundwaters within the GMZ are exempted from those standards by Section 620.450(a)(3). *Id*. at 25 ¶ 86; 2/1/18 Tr. at 107 (Gnat Test.). Because MWG did not violate the Board's GQS, MWG states, it is not in violation of Sections 620.301(a) and 620.405. *Id*. at ¶ 88. The Board disagrees.

The Board notes that, once a GMZ is established, groundwater underlying the GMZ is not subject to Board's Part 620 groundwater standards. *See* 35 Ill. Adm. Code 620.450. MWG relies on the GMZ as a defense from Part 620, even though the record establishes violation of the GQS prior to the development of the GMZ.

The Board finds that MWG is liable for any exceedances of the Part 620 standards that occurred at Waukegan, where no GMZ was established, and any exceedances before the GMZs were established at Joliet 29, Powerton, and Will County. While the establishment of a GMZ does obviate the need to meet standards of Part 620, the Board notes that a GMZ is not a permanent solution and expires upon completion of corrective action as specified in Sections 620.250(a) and 620.450(a). 35 Ill. Adm. Code 620.250(a) and 620.450(a). Based on the Board's rules, the Board finds that MWG failed to establish that the GQS are inapplicable in those GMZs at Joliet 29, Powerton, and Will County Stations because the record does not establish ongoing corrective action as specified in Section 620.450(a) at these sites. 35 Ill. Adm. Code 620.450(a).

a) Part 620 Exceedances at Waukegan

MWG did not establish a GMZ at Waukegan. Therefore, MWG's affirmative defense does not apply to exceedances of the Class I GQS at Waukegan. The record shows that at Waukegan, boron Class I GQS standard was consistently exceeded between 2010 and 2017, 169 times in 12 of the 15 monitoring wells in (MW-1 through 09, 11, 12 and 15). The record also shows 57 exceedances of the Class I sulfate standard and 63 exceedances of the TDS standard (MW-05, 07, 08, and 09) between 2010 and 2017. The preponderance of evidence indicates that these exceedances were caused or allowed by MWG operations at the Station. Thus, the Board concludes that MWG violated Board's Class I GQS in Section 620.410(a) and Sections 620.301(a) and 620.405 with respect to these exceedances.

b) Part 620 Exceedances at Joliet 29, Powerton, and Will County

Pre-GMZ Exceedances

MWG established GMZs at Joliet 29 on August 8, 2013, at Powerton on October 3, 2013, and at Will County on July 2, 2013. MWG Exh. 627 at 1; EG Exh. 638 at 1; MWG Exh. 658 at

1; MWG Exh. 660. The GMZs area is “a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site”. EG Exh. 242 at 6; EG Exh. 254 at 6; EG Exh. 276 at 6; Joint Stip. at 4; MWG 2nd Ans. Def. at 25; *see also* 35 Ill Adm. Code 620.250(a). Before each GMZ was established, groundwater resources at all three Stations fell into Class I category. EG Exh. 242 at 9; EG Exh. 254 at 9; EG Exh. 276 at 9.

The Board finds that any exceedances of Class I GQS that occurred before a GMZ was established, violate the Board’s standards in Section 620.410, and thus Sections 620.301(a) and 620.405. The groundwater monitoring results show exceedance of Class I GQS at Joliet 29, Powerton, or Will County before the GMZs were established. At Joliet 29 these include: antimony (6 exceedances in MW-02, 03, and 04); sulfate (11 exceedances in MW-09); and TDS (13 exceedances in MW-03 and 09). At Powerton these include a total of: 1 exceedance of antimony standard in MW-02; 32 exceedances of arsenic standard in MW-07, MW-11 through 15; 15 exceedances of boron standard in MW-09, MW-11 through 13; 1 exceedance of selenium standard in MW-14; 15 exceedances of sulfate standard in MW-06, MW-08, MW-12 through 15; and 19 exceedances of TDS standard in MW-06, 07, 08, 13, 14, and 15. At Will County these include a total of: 3 exceedances of antimony standard in MW-01 and 02; 4 exceedances of arsenic standard in MW-08; 74 exceedances of boron standard in MW-01 through 10; 50 exceedances of sulfate standard in MW-01 through 9; and 24 exceedances of TDS standard in MW-03, 04, 05, 07, and 08. As noted in Part IV of this opinion, the Board finds that a preponderance of the evidence indicates that these exceedances were caused or allowed by MWG operation at the Stations.

The Board, therefore, finds that MWG did violate Board’s Class I GQS in 620.410(a) and Sections 620.301(a) and 620.405 with respect to the exceedances that took place between 2010 and 2013 before the three GMZs were established at Joliet 29, Powerton, and Will County.

Exceedances During Corrective Actions

Groundwater within a GMZ is subject to standards specified in Section 620.450(a). 35 Ill. Adm. Code 620.450(a)(1). Section 620.450(a)(2) indicates that Sections 620.410, 620.420, 620.430, and 620.440 *do apply* to any chemical constituent in groundwater within a GMZ “[e]xcept as provided in subsections (a)(3) or (a)(4).” 35 Ill. Adm. Code 620.450(a)(2). Section 620.450(a)(3) indicates that Sections 620.410, 620.420, 620.430, and 620.440 do not apply to waters within GMZ prior to completion of a corrective action. 35 Ill. Adm. Code 620.450(a)(3).

The Board finds that under 35 Ill. Adm. Code 620.450(a)(3) any exceedances of Class I GQS during the period when MWG was performing corrective actions under the GMZs between August 8, 2013, and October 9, 2013, at Joliet 29; between October 3, 2013, and October 17, 2013, at Powerton; and between July 2, 2013, and October 17, 2013, at Will County and are exempt from the Board’s Part 620 GQS in Section 620.410. The Board, thus, finds no violation of Sections 620.410, 620.420, 620.430, and 620.440 with respect to such exceedances. However, the Board finds that this record establishes serious questions regarding whether or not GMZs continue in effect at Joliet 29, Powerton, and Will County.

At Joliet 29, the GMZ application indicates the following remedy selected for the GMZ: “[t]he agreed upon remedy is specified in Item 5(a) through (h) of the executed [CCA]. . . The remedy includes lining of Ash Pond 3 with HDPE. This [GMZ] application fulfills requirements set forth under Item 5(f) of the CCA." EG Exh. 242 Att. 2, Part III ¶ 1.

At Powerton, the GMZ application specifies a similar remedy: "[t]he agreed upon remedy is specified in Item 5(a) through (m) of the executed [CCA]. . . The remedy includes lining of the Ash Surge Basin and Ash Settling Basin with HDPE. This [GMZ] application fulfills requirements set forth under Item 5(g) of the CCA." EG Exh. 254 Att. 2, Part III ¶ 1.

And the similar remedy is in the GMZ application for Will County: "[t]he agreed upon remedy is specified in Item 5(a) through (j) of the executed [CCA] . . . The remedy includes lining of the Ash Pond 2S with HDPE, removing Ash Ponds 1S and IN from service and installing a dewatering system within those ponds to keep liquid levels to within no more than one foot of the bottoms of those units. This [GMZ] application fulfills requirements set forth under Item 5(g) of the CCA." EG Exh. 276 Att. 2, Part III ¶ 1.

All three GMZ applications also note that "[at] the completion of the corrective process, a final report is to be filed which includes the confirmation statement included in Part IV." EG Exhs. 242, 254, and 276 at Att. 2, at 1 Note 1. The record does not indicate whether MWG submitted such forms. On October 9, 2013, however, MWG filed a certification with the IEPA stating that all Joliet 29 CCA measures were completed. Joint Stip. at 4; MWG Exh. 630. On October 17, 2013, MWG filed a similar certification with respect to the Powerton CCA and Will County CCA. Joint Stip. at 4; MWG Exhs. 637, 661. MWG's certifications indicate that all CCA actions were completed by the dates of the respective certifications. MWG Exhs. 630, 637, 661. The record shows no other corrective action taking place or planned by MWG under any of the three GMZs after these dates.

The record shows that groundwater monitoring and visual inspections of the active ash ponds required by the CCAs are to continue permanently at Joliet 29, Powerton, and Will County. The CCAs require that "MWG shall continue quarterly monitoring of . . .groundwater monitoring wells for constituents in 35 Ill. Adm. Code 620.410(a) . . .and report its findings to the [IEPA]." MWG Exhs. 626, 636, 656, and 647 all at 3. This requirement comes from the CCAs rather than as a condition to establish a GMZ. Moreover, the same requirement is also present in Waukegan CCA, where no GMZ was required. MWG Exh. 647 at 3-4 ¶ 5; *see also* MWG Exh. 649 at 1 ("[t]he CCA that IEPA approved for Waukegan, didn't include a corrective action (hence no GMZ)"). The CCAs at all four Stations indicate that these actions are intended to avoid and detect any further contamination, or monitor effectiveness of a corrective action, rather than remedy any contamination or remove the contamination source. CCAs at Powerton, Will County, and Waukegan also require MWG to establish ELUC. The Board acknowledges that both ELUC and continuous groundwater monitoring can be effective corrective action tools. However, the record fails to establish that the continuous monitoring, by MWG at the Stations is in fact a corrective action.

While neither the Board rules nor the Act define "corrective action," the "corrective action process" is defined as "those procedures and practices that may be imposed by a regulatory agency when a determination has been made that contamination of groundwater has taken place, and are necessary to address a potential or existing violation of the standards set forth in Subsection D." 35 Ill. Adm Code 620.110. In this case, all three GMZs were established to remedy the violations alleged in the VNs and bring the groundwater at the Stations into compliance with Class I GQS. EG Exh. 242 at 9 ¶ 10; EG Exh. 254 at 9 ¶ 10; EG Exh. 276 at 9 ¶ 10. Section 620.250(a) states that a GMZ may be established "if an owner or operator provides a written confirmation to the Agency that an adequate corrective action, equivalent to a corrective action process approved by the Agency is being undertaken in a *timely* and *appropriate* manner." EG Exh. 242 at 6; EG Exh. 254 at 6; EG Exh. 276 at 6; *see* 35 Ill. Adm. Code 620.250(a) (emphasis added). Thus, a corrective action process under a GMZ must be "necessary to address a potential or existing violation" of Part 620 standards and must be undertaken in a "timely and appropriate manner."

The continuous monitoring required by CCAs at Joliet 29, Powerton, and Will County does not show how that monitoring may be construed as "timely" or "appropriate" to remedy groundwater quality, or that it will "address a potential or existing violation" of the Class I GQS absent some other actions by MWG. There is no evidence in the record to expect that groundwater quality at Joliet 29, Powerton, and Will County will return to Class I standards naturally, considering the continuous exceedances at these stations that persist even after the relining of the ash ponds. There is also no indication under any of the GMZs that MWG will be taking any actions based on the results of the monitoring, or that it will trigger any actions by the Agency. The Board notes that all four CCAs have almost identical language in Item 5 requiring continuous monitoring of existing and newly installed wells. Items 5(a) though (c) are also almost identical in all the CCAs requiring operation of the ash ponds only as temporary disposal sites and in a manner that protects the liners integrity. MWG Exhs. 626, 636, 656 and 647 all at 3-4 ¶ 5. But, Waukegan's CCA does not require establishing a GMZ or relining the ash ponds. MWG Exh. 647 at 3-4 ¶ 5.

The Board also does not consider the ELUCs established by MWG at Powerton and Will County as part of a "corrective action". The Act and Board rules provide for ELUCs as "an institutional control in order to impose land use limitation or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Remediation determination." EG Exh. 253 at 3; MWG Exh. 659 at 3; 415 ILCS 5/58.17; 35 Ill. Adm. Code 742. An ELUC establishes limitations that are designed to protect "against exposure to contaminated groundwater," rather than to remedy the contamination. *Id*. Again, Waukegan's CCA did require establishing an ELUC, while it did not require a GMZ. MWG Exh. 647 at 3-4 ¶5.

A GMZ is established "for a period of time" necessary to "mitigate impairment caused by the release of contaminants" and the owner or operator must undertake "an adequate corrective action in a timely and appropriate manner." *See* 35 Ill. Adm. Code 620.250(a)(2), (b); 620.450(a)(3); *see* 35 Ill. Adm. Code 620.250(a). Section 620.250(c) provides that a GMZ "*expires* upon the Agency's receipt of appropriate documentation which confirms the completion of the action taken pursuant to subsection (a) and which confirms the attainment of applicable standards as set forth in Subpart D." 35 Ill. Adm. Code 620.250(c) (emphasis added). Appendix D of Part 620 contains the form entitled "Confirmation of an Adequate Corrective Action Pursuant to 35 Ill. Adm. Code 620.250(a)(2)," which confirms that remediation is completed. 35 Ill. Adm. Code 620.APPENDIX D.

Continuing the GMZ in the absence of pending corrective action appears to be contrary to the purpose of Part 620 and, in particular, Section 620.250(a). The Board promulgated GQS under Section 8 of the Illinois Groundwater Protection Act (IGPA) to protect groundwater from "those contaminants which have been found in the groundwaters of the State and which are known to cause, or are suspected of causing, cancer, birth defects, or any other adverse effect on human health according to nationally accepted guidelines." IGPA, 415 ILCS 55/8(a) (2016); Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 3 (Nov. 7, 1991). "[R]educed health risks through decreased exposure to contaminants in groundwater" is the primary benefit of promulgated GQS. *Id*. at 23. IGPA declares that "it is the policy of the State of Illinois to restore, protect, and enhance the groundwaters of the State, as a natural and public resource." 415 ILCS 55/2(b) (2016). It is further the policy of the State "that the groundwater resources of the State be utilized for beneficial and legitimate purposes; that waste and degradation of the resources be prevented; and that the underground water resource be managed to allow for maximum benefit of the people of the State of Illinois." *Id*; *see also* R89-14(B) at 6. Class I groundwaters are recognized as the most valuable groundwater resources, requiring the highest degree of protection, "any successful program of groundwater management must give special focus to potable groundwater". *Id*. at 10. When adopting the GMZ regulations, the Board noted that "in any management zone the goal is remediation, if practicable, of the groundwater to the level of the standards applicable to that class of groundwater." *Id*. at 66.

In this case, the GMZs were established to remedy violations alleged in VNs. However, the groundwater monitoring results indicate that exceedance of Class I GQS persisted at some of the monitoring wells at Joliet 29, Powerton or Will County even upon completion of GMZ corrective actions. Since the record does not indicate when, if, or even how, exceedances found in groundwater monitoring will be addressed, the Board finds MWG did not meet its burden of proving that groundwater in Joliet 29, Powerton, and Will County are exempt from Class I GQS under section 620.450(a)(3). The Board therefore finds that continued violations of the Board's Class I GQS, occurring at Joliet 29, Powerton, and Will County after MWG certified completion of the requirements of the CCA, violate the Class I GQS. Thus, the Board finds that it is more probable than not that MWG violated the Class I GQS at Joliet 29, Powerton, and Will County during those times, in violation of Section 620.410(a) of the Board rules.

c) Violation of Sections 620.115, 620.301(a) and 620.405.

The Board further finds that MWG also violated Sections 620.115, 620.301(a) and 620.405 of the Board rules with respect to exceedances noted above. Section 620.115 prohibits causing, threatening or allowing a violation of the Act or Board regulations, including Part 620. 35 Ill. Adm. Code 620.115. Section 620.405 also prohibits causing, threatening or allowing the release of any contaminant to groundwater so as to cause an exceedance of the Part 620 groundwater quality standards. 35 Ill. Adm. Code 620.405. By exceeding GQS in Section 620.410(a), MWG also violated Sections 620.115 and 620.405.

The Board also finds that MWG violated Section 620.301(a) of the Board rules. 35 Ill. Adm. Code 620.301(a). Section 620.301(a)(2) prohibits causing, threatening or allowing the release of any contaminant to a resource groundwater such that "[a]n existing or potential use of such groundwater is precluded." 35 Ill. Adm. Code 620.301(a). As discussed above, groundwater at the four Stations is defined as Class I in VNs, CCAs, and GMZs. The Board rules define Class I groundwater as "potable resource groundwater." *See* 35 Ill. Adm. Code 620.210. Section 620.302(c) indicates that "if a contaminant exceeds a standard set forth in Section 620.410 . . . the appropriate remedy is corrective action . . .." 35 Ill. Adm. Code

620.302(c). Thus, if the groundwater designated as Class I is contaminated by constituents that exceed Class I GQS standards in Section 620.410(a), the existing and potential use of such groundwater as Class I groundwater is precluded. Therefore, the Board finds that the Environmental Groups established that it is more probable than not that the potential use of the groundwater is precluded, and MWG violated Section 620.301(a).

iii. Water pollution caused by exceedances of background levels

The Board also finds that exceedances of the statewide 90th percentile in some of the monitoring wells for some of the coal ash indicator constituents also constitute water pollution and violation of Article 12(a) of the Act.

As discussed in Part IV *supra*, the Board finds that the monitoring results show consistent exceedances of the sulfate background levels at the Joliet 29 monitoring well MW-09. At Powerton, the Board finds that groundwater monitoring results indicate exceedance of the 90th percentile statewide values for boron and sulfate in 10 downgradient wells. Sulfate and boron in all fifteen downgradient wells are above the median values of those constituents in the upgradient well. The Board finds that these exceedances of the statewide background and site-specific upgradient median appear to be consistent with the exceedances of groundwater standards of sulfate and boron in many of the downgradient wells. At Will County, the Board finds that a comparison of the median values of boron and sulfate in the down gradient wells with the 90th percentile statewide values indicate exceedances of boron above background in all 10 monitoring wells and sulfate in one well (MW-4). At Waukegan, the Board finds exceedances of the 90th percentile statewide values for boron and sulfate.

As noted earlier, sulfate and boron are typical indicators of coal ash. The record shows no off-site source that can be causing such exceedance because upgradient monitoring wells show no similar exceedances. Therefore, the likely source of the exceedance of 90th statewide percentile value for these constituents is coal ash stored in coal ash ponds or deposited outside the ponds.

The Board considers the 90th statewide percentile appropriate to consider water pollution violations because those levels are established to show exceedance of state-wide background levels that IEPA considers to “have potential to degrade water and threaten/preclude its use.” EG Exh. 405 at 2 (#019068). The Board finds that exceedance of the 90th statewide percentile as adequate to show water pollution. *See* 415 ILCS 5/3.545 (2016); *see also e.g.*, People v. CSX, PCB 7-16, slip op. at 17 (July 12, 2007) (the Board found violation of Section 12(a) of the Act when discharge of contaminants is likely to render waters harmful, detrimental or injurious to public health in case of exceedance of the remediation objective levels); Central Illinois Public Service Co. v. PCB, 116 Ill. 2d 397, 408, 507 N.E.2d 819, 824 (1987) (the court concurred with Board’s interpretation of water pollution to include “any contamination which prevents the State's water resources from being usable” because it allows “the Board to protect those resources from unnecessary diminishment”).

The Board thus, finds that MWG violated Article 12(a), because it caused, threatened or allowed the discharge of contaminants into the groundwater at all four Stations, so as to cause or tend to cause water pollution in Illinois, either alone or in combination with matter from other sources. *See* 415 ILCS 5/12(a) (2016).

B. Section 12(d) of the Act, Water Pollution Hazard

The Environmental Groups' amended complaint also alleged violation of Section 12(d) of the Act, but the post-hearing briefs only fully brief Section 12(a). *See* EG Br. at 4, 5-10, 28, 37, 73; EG Resp. Br at 7, 8, 12, 13, 18, 22, 24-25, 33, 34.

Section 12(d) of the Act prohibits depositing any contaminants upon the land in such place and manner so as to create a water pollution hazard. 415 ILCS 5/12(d) (2016). Environmental Groups argue that even though a prior owner or operator of the MWG sites may have deposited the ash in the fill areas, MWG has allowed the ash to remain on the site, and is therefore liable under Sections 12(a) and 12(d) for its inaction to remedy the leaching of contamination into the groundwater. According to the Environmental Groups, MWG's "passive conduct amounts to acquiescence sufficient to find a violation." EG Resp. Br at 24 *citing* Rawe, AC92-5, slip op. at 6 (Oct. 16, 1992). Environmental Groups also rely on Tri-County Landfill Company v. PCB, 41 Ill. App. 3d, 353 N.E.2d 316 (2nd Dist. 1976) to argue that a party is required to show less to establish a 12(d) violation than a 12(a) violation and that a violation of 12(d) exists when "pollution does not yet rise to the level of severity for a 12(a) violation." EG Resp. Br at 22, citing Tri-County, 353 N.E.2d at 324.

The Board notes that, in order to establish a violation of Section 12(d), a party must demonstrate that contaminants were "deposited" on "land." 415 ILCS 5/12(d) (2016). Environmental Groups' reliance on Rawe is misplaced, because Rawe addresses an alleged violation of Section 21 of the Act which prohibits "causing or allowing" open dumping of waste. 415 ILCS 5/12(d) (2016).

At Powerton, the record shows that MWG did deposit contaminants on the land when leaving coal ash cinders directly on the ground, without liners or any other apparent protection from leaching. *See* Part IV.3.B.iii *supra*. The record establishes that storage of coal ash on unlined areas risks of groundwater contamination due to the movement of water through coal ash. EG Br. at 19; 10/24/17 Tr. at 39 (Lux Test.); 10/26/17 Tr. p.m. at 34-35, 83-84 (Kunkel test); 1/29/18 Tr. at 208 (Race Test.); 1/30/18 at 29 (Race Test.). The Powerton CCA specifically prohibits using any unlined areas for permanent or temporary ash storage or ash handling. MWG Exh. 636 at 4 (#555) Item 5(m). The groundwater monitoring results show exceedances of arsenic, sulfate, boron, and TDS standards in the downgradient monitoring wells when the cinders were stored on the ground.

The Board thus concludes that the preponderance of evidence shows that MWG deposited contaminants upon the land at Powerton in such place and manner so as to create a water pollution hazard in violation of Section 12(d) of the Act. 415 ILCS 5/12(d) (2016). The Board, however, finds that Environmental Groups did not establish violation of Section 12(d) of the Act at Joliet 29, Will County, or Waukegan Stations.

C. Section 21(a) of the Act, Open Dumping

Environmental Groups allege that MWG violated the open dumping prohibition of Section 21(a) of the Act (415 ILCS 5/21(a) (2016)). They allege that MWG did so through its "knowledge of and acquiescence to" coal ash deposited "at unlined repositories like ash landfills and ash fill areas" and "maintaining coal" at the disposal sites that do not fulfill the requirements of sanitary landfills. The Environmental Groups specifically contend that coal ash in the Former Ash Basin and widespread fill areas at Powerton, the coal ash landfills at Joliet 29, the Former Slag and Fly Ash Storage Area at Waukegan and Ponds 1N and 1S at Will County are "landfills, basins, or storage areas." They further contend that there is no evidence that the coal ash was placed there as structural fill." EG Resp. Br. at 31. They allege that water pollution resulted from these deposits. EG Br. at 5, 29, 51. The Environmental Groups maintain that MWG is liable even if they did not place the contaminants on the land or water. To support their argument, the Environmental Groups rely on <u>Lincoln</u>, 2016 IL App 143487 at ¶¶ 48-49; <u>State Oil</u>, PCB 97-103, slip op at 19; <u>Rawe</u>, AC 92-5slip op at 3-5 (Oct. 16, 1992); <u>Coleman</u>, AC 04-46, slip op. at 7 (Nov. 4, 2004). EG Br. at 51. They also contend that the Board must look at the exceedance of MCLs at 40 C.F.R. Part 257, Appendix I, to show violation of Section 21(a). EG Br. at 51. Environmental Groups state that since 2010, groundwater exceeded MCLs 62 times at Powerton, 25 times at Will County, and 106 times at Waukegan. EG Br. at 51, 62, 72.

MWG contends that the Environmental Groups did not prove a violation of Section 21(a). MWG alleges that coal ash at the stations is not abandoned and is reused beneficially. MWG Br. at 54-57; MWG Resp. Br at 30. MWG relies on <u>IEPA v. Michael Gruen and Jon Eric Gruen, d/b/a John's Tree Service</u>, AC 06-49, (Jan. 24, 2008). In that case the Board found that the wood stored on a property for more than two years was not "discarded" and, thus, not waste, because it was eventually removed for beneficial reuse. MWG Resp. Br. at 31. MWG alleges that there is market for the coal ash reuse, and MWG reuses bottom ash beneficially such as structural fill. MWG Resp. Br. at 31. MWG also contends that it did not "allow" open dumping because it took extensive precautions to prevent open dumping and "has not been passive in its response to the coal ash at its Stations." MWG states that it analyzed coal ash inside the ponds, which shows that ash is not a source of contamination. *Id*. It also relined the ponds and established GMZs and ELUCs. *Id*.; MWG Resp. Br. at 56-57.

First, the Board considers whether coal ash at the four Stations is "waste" as defined by the Act and Board rules. Next, the Board reviews at the evidence showing whether areas where coal ash is abandoned fulfill requirements of sanitary landfills. Finally, the Board concludes that MWG caused or allowed open dumping of the coal ash at its Stations.

i. <u>Coal Ash at the Stations is "Waste"</u>

The Act defines "open dumping" as "the consolidation of *refuse* from one or more sources at a disposal site that does not fulfill the requirements of a sanitary landfill." 415 ILCS 5/3.305 (2016). The Act defines "refuse" as "waste." 415 ILCS 5/3.385 (2016). "Waste" is defined, among other, as "*discarded material*, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations . . .." 415 ILCS 5/3.535 (2016) (emphasis added). While the Act does not define "discarded material" or "discarded," the Act defines "disposal" as "discharge, deposit, injection, dumping, spilling, leaking or placing of any waste or hazardous waste into or on any land or water or into any well so that such 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." 415 ILCS 5/3.185 (2016). The Act defines "waste disposal site" as a "site on which solid waste is disposed." 415 ILCS 5/3.540 (2016). The Board has found contaminants leaking into groundwater from temporarily stored material to be "discarded material" for the purposes of Section 21(a) of the Act. *See* State Oil, PCB 97-103, slip op. at 21 (Mar. 20, 2003) ("once petroleum has leaked from underground storage tanks, it becomes a waste.").

Although MWG argues that coal ash stored at the Stations is not "waste" because it is beneficially reused, the record does not support this position. While MWG may send some coal ash to be used beneficially by third parties (1/29/18 Tr. at 172:1-178:15; 1/31/18 Tr. at 224:21-225:4, 249:23-250:6; 10/24/17 Tr. at 15:4-8, 248:9-249:8), significant amounts remain in historic areas. The record also shows the presence of coal ash in areas outside of ash ponds at all four Stations.

"[A]ny fly ash, bottom ash, slag, or flue gas or fluid bed boiler desulfurization by-products generated as a result of the combustion of . . . coal, or . . . coal in combination with [other material]" constitutes "coal combustion *waste*" (or CCW). 415 ILCS 5/3.140 (2016) (emphasis added). Coal combustion waste is not excluded from definition of "waste" under the Act. *See* 415 ILCS 5/3.535 (2016). "Waste" does not include "coal combustion by-products as defined in Section 3.135." 415 ILCS 5/3.535 (2016). "Coal combustion by-product" or (CCB) is defined as "coal combustion waste when used beneficially in any of the following ways: . . ." 415 ILCS 5/3.135 (2016). Coal combustion waste, including coal ash, meets the definition of CCB, and is excluded from definition of "waste" if it is used as specified in Section 3.135. 415 ILCS 5/3.135 (2016).

Strict requirements apply to uses permitted under Section 3.135(a). To be used beneficially as structural fill, foundation backfill, antiskid material, soil stabilization, pavement, or mine subsidence, CCW must satisfy certain quality requirements:

a) it must not be mixed with hazardous materials (415 ILCS 5/3.135(a-5)(A) (2016));
b) it must not exceed Class I GQS for metals when tested using ASTM D3987-85 method (415 ILCS 5/3.135(a-5)(B) (2016));
c) a notification must be provided to IEPA for each project using CCB "documenting the quantity of CCB utilized and certification of compliance with conditions (A) and (B) of [subsection 3.135(a-5)]" (415 ILCS 5/3.135(a-5)(C) (2016));
d) CCB must not be accumulated speculatively (less than 75% of CCB weight or volume accumulated at the beginning of the period) (415 ILCS 5/3.135(a-5)(E) (2016));
e) CCB must include any prescribed mixture of fly ash, bottom ash, boiler slag, flue gas desulfurization scrubber sludge, fluidized bed combustion ash, and stoker boiler ash and shall be tested as intended for use (415 ILCS 5/3.135(a-5)(F) (2016)).

To be used as structural fill, CCB must be designed and constructed "according to ASTM standard E2277-03" or "Illinois Department of Transportation specifications." It also must be "in an engineered application or combined with cement, sand, or water to produce a controlled strength fill material and covered with 12 inches of soil unless infiltration is prevented by the material itself or other cover material." 415 ILCS 5/3.135(a)(7) (2016).

Other uses do not qualify CCW as CCB, unless an applicant obtains a "beneficial use determination." To obtain a determination from IEPA, an applicant must demonstrate that coal-combustion waste satisfies all the following criteria:

- the use will not cause, threaten, or allow the discharge of any contaminant into the environment;
- the use will otherwise protect human health and safety and the environment; and
- the use constitutes a legitimate use of the coal-combustion waste as an ingredient or raw material that is an effective substitute for an analogous ingredient or raw material. 415 ILCS 5/3.135(b) (2016).

The record does not show that coal ash from the Stations met these requirements. First, the record shows that out of all identified historical areas and active ash ponds, coal ash was tested for compliance with CCB requirements under Section 3.135 only from three locations: 1) Northwest Area at Joliet 29; 2) Limestone Runoff Basin at Powerton; and 3) the area right outside the east side of 1N at Will County. *See* Part IV *supra* for details; EG Exh. 293; MWG Exh. 635; EG Exh. 284; MWG Exh. 901 at 9. The record provides no information on any CCB testing at Waukegan Station.

Second, MWG did not provide evidence showing that any of this material was used in compliance with the requirements of Section 3.135 of the Act. No evidence was provided to demonstrate that coal ash present in fill areas complies with IDOT specifications or ASTM standard E2277-03. Also, the record does not indicate whether or what material was removed from the Stations, sold or otherwise transferred to other entities for beneficial reuse. The existence of a market for a material that qualifies as CCB by itself does not qualify the material as CCB. To qualify as CCB, the material must comply with Section 3.135.

Accordingly, the Board concludes that a preponderance of evidence does not support MWG argument that coal ash from the Stations qualifies as CCB. The Board is not persuaded that coal ash from any of the historic coal ash storage locations or fill areas is "not discarded." MWG admits that "coal ash at various parts of the Stations was used at least 30 years ago or more as fill to support construction." MWG Resp. Br. at 55. The record also shows the widespread presence of coal ash outside of the ash ponds through the stations. Such as the widespread presence of coal ash in fill areas at Powerton and Will County, and coal ash left in historic storage areas at all four Stations. The evidence shows no plans to remove such coal ash from these areas for beneficial reuse or for any other purposes. The Board finds, thus, that coal ash at all four Stations left in areas outside of the ash ponds is "discarded" and constitutes "waste" for the purposes of Section 21(a) of the Act.

ii. <u>Coal ash stored in areas that are not sanitary landfills</u>

To establish an "open dumping," the evidence must show the presence of waste "at a disposal site that does not fulfill the requirements of a sanitary landfill." 415 ILCS 5/3.305 (2016). The Act defines "waste disposal site" as a "site on which solid waste is disposed" (415 ILCS 5/3.540 (2016) and "site" include "any location . . . used for purposes subject to regulation or control" by the Act or regulations under the Act (415 ILCS 5/3.460 (2016)). The Act defines "sanitary landfill" as "a facility permitted by the Agency for the disposal of waste on land" that meets specific requirements does not “create nuisances or hazards to public health or safety” and confining the refuse “to the smallest practical volume and covering it with a layer of earth at the conclusion of each day's operation, or by such other methods and intervals as the Board may provide by regulation.” 415 ILCS 5/3.445 (2016).

The Board has concluded that “under these definitions, an area on which waste is deposited can be a “disposal site” if the waste deposition is conducted in a manner that allows waste material to enter the environment, including groundwater” even if it is a permitted or otherwise lawful facility. Sierra Club, PCB 13-15, slip op. at 25-27 (Oct. 3, 2013). The Board found that Section 21(a) may apply to ash ponds because it applies “to permitted or otherwise lawful facilities that improperly fail to contain waste.” *Id*.

As indicated in Part IV, the instant record shows that historic ash landfills at all four Stations contain ash, as evidenced by testing for CCB compliance, boring results, MWG admissions and testimony, and groundwater monitoring results. At Joliet 29, MWG admitted that all three historic coal ash sites (Northwest, Northeast, and Southeast areas) contain historic ash; additionally, the 1998 Phase II Environmental Assessment and 2005 testing for CCB confirmed the existence of the historic ash. MWG Br. at 11; MWG Exh. 901 at 23; EG Exh. 20D; EG Exh. 293. Soil borings also identified the presence of coal ash in fill areas outside of the ash ponds (near MW-11, MW-09, and MW-10) and historic ash areas (north of the Southwest Ash Placement Area). EG Exh. 201 at 27, 29, 31, 34 (#24290, 92, 94, 97).

The Board finds that evidence from groundwater monitoring shows that some of MWG ash ponds and historic coal ash storage areas are leaking contaminants that cause exceedances of Class I GQS. At Joliet 29, the record shows Ash Pond 3 or coal ash deposited outside of but close to that ash pond is the cause of consistent exceedances of Class I GQS in MW-09. At Waukegan, the evidence shows that the source of sulfate and of TDS exceedances is the Former Slag and Fly Ash Storage area located west of the ash ponds. At Will County and Powerton, the groundwater monitoring results show that consistent exceedances of Class I GQS are also caused by MWG operations at the Stations and are not coming from outside.

The record also shows soil borings taken in 1998, 2005, and 2010 by different consultants for different purposes. All of these borings indicate the presence of coal ash in the fill buried directly into the ground around the ponds and other unlined areas at all for Stations, going as deep as 9-20 feet below the surface at Powerton, Will County, and Waukegan. EG Exhs. 12C-15C and 17D-20D; EG Exh. 201.

And finally, the results of the CCB testing at Joliet 29, Powerton, and Will County indicate the presence of the historic coal ash in the tested areas. EG Exh. 284, 293, and 635; MWG Exh. 901 at 9. The testing showed some of these areas contain coal combustion waste that does not meet the quality criteria of CCB because it contains coal ash constituents in concentrations above Class I GQS. *Id*.; *see* Part IV for details.

None of these areas fulfill the requirements of a sanitary landfill. None of them are facilities “permitted by the Agency for the disposal of waste on land.” None of the ash ponds at the four Station are permitted “for the disposal of waste”. The four CCAs specifically prohibit using any of the ash ponds as permanent disposal sites. MWG Exhs. 626 at 2 ¶ 3; 636 at 2 ¶ 3; 656 at 2 ¶ 3; 647 at 2 ¶ 3. None of the fill areas of the historic coal ash storage areas has any permits at all. None of them "confine the refuse" to ensure that no nuisances or hazards to public health or safety exists because, other than ash ponds, none of the other areas separate the coal ash from the ground or surface water infiltration and leaking into the groundwater. Other than the historical Northeast former coal ash placement area, record indicates no cover been placed over the area, either. The Board, thus, concludes, that the areas that contain coal ash at the four Stations do not fulfill requirements of sanitary landfill. 415 ILCS 5/3.445 (2016).

Next, the Board discusses whether MWG caused or allowed consolidation of coal ash in violation of Section 21(a) of the Act.

iii. MWG caused or allowed consolidation of coal ash at its Stations

To "cause or allow" open dumping, the alleged polluter must have the "capability of control over the pollution" or "control of the premises where the pollution occurred. Davinroy, 249 Ill. App. 3d at 793-96, *see also* Sierra Club, PCB 13-15, slip op. at 26 (Oct. 3, 2013). The record indicates that MWG, as the owner or operator at the four Stations had control over the areas that contain coal ash since 1999, when it began operating the Stations. Rawe, AC92-5, slip op. at 4 (Oct. 16, 1992); McFalls, 313 Ill. App. 3d at 226-27, Inverse Investments, PCB 11-79 at 9; Michel Grain, PCB 96-143, at 3-4, (Aug. 22, 2002); Meadowlark Farms, 17 Ill. App. 3d at 860, Lincoln, 70 N.E.3d at 678, State Oil, PCB 97-103, slip op at 24-25; Allaert Rendering, 414 N.E.2d at 494-95 .

MWG was aware of presence of coal ash buried at the four stations before it began operations. The 2005 and 2010 borings confirmed the presence of coal ash. Groundwater monitoring results showed the locations where contaminants were seeping into the groundwater at each of the Stations. MWG also recognizes that contaminants present in the groundwater monitoring results are known constituents of coal ash. The groundwater monitoring results do not indicate off-site sources as the cause of contamination with respect for constituents indicated in Part IV (Facts) of this opinion. Thus, the Board concludes that the record does not support MWG "took extensive precautions to prevent open dumping" and "has not been passive in its response to the coal ash at its Stations." Davinroy, 249 Ill. App. 3d 788; Perkinson, 187 Ill. App. 3d 689; People v. William Charles, PCB 10-108, slip op. at 25-27 (Mar.17, 2011); Gonzales, AC 06-39, AC 06-40, AC 04-41, AC0 7-25; County of Jackson v. Taylor, AC 89-258, (Jan. 10, 1991); Phillips Petro. Co. v. PCB, 72 Ill. App. 3d 217 (2nd Dis. 1979); IEPA v. Coleman, AC04-46, at 7 (Nov. 4, 2004).

The Board concluded that respondents "allowed" the waste to be consolidated on the site when they failed to conduct any soil removal. *See* State Oil, PCB 97-103, slip op. at 21-22 (Mar. 20, 2003). The record in this case shows the presence of coal ash in the fill areas and historic storage sites that have no liners, covers or any other protection from the surface of groundwaters. The record shows no actions by MWG to remove the coal ash from those areas or prevent leaking of contaminants from those areas in any other way. Thus, the Board finds that MWG did allow consolidation of coal ash by failing to remove it from the fill areas and historical coal ash storage areas, and by allowing contaminants to leak into the environment.

Accordingly, the Board finds that MWG violated Section 21(a) of the Act by allowing the coal ash to be consolidated in the fill areas around ash ponds and in historical coal ash storage areas at all four Stations.

VI. CONCLUSIONS

The Board finds that the Environmental Groups met their burden in establishing that it is more probable than not that MWG violated the Act and Board regulations as alleged in the amended complaint. Specifically, the Board finds that MWG violated Section 12(a) of the Act at all four Stations. 415 ILCS 5/12(a) (2016). The Board finds that MWG caused or allowed discharge of coal ash constituents into groundwater at all four Stations, thereby causing exceedances of the Board's Class I antimony (Joliet 29, Will County), arsenic (Powerton, Will County), boron (Powerton, Will County, and Waukegan), sulfate (Joliet 29, Powerton, Will County, and Waukegan) and TDS (Joliet 29, Powerton, Will County, and Waukegan) GQS during 2010-2017, violating Sections 620.115, 620.301(a), and 620.405 of the Board's regulations (35 Ill. Adm. Code 620.115, 620.301(a), 620.405). 415 ILCS 5/12(a) (2016).).

The Board also finds that MWG violated Section 12(a) of the Act at all four Stations by causing or allowing discharge of contaminants into groundwater causing water pollution. Specifically, the Board finds that MWG exceeded the statewide 90th percentile levels for sulfate and boron at all four Stations between 2010 and 2017. 415 ILCS 5/12(a)(2016). The Board, however, finds no violation of Section 12(a) of the Act at Joliet 29, Powerton, and Will County during the performance of corrective actions in October 2013 under the GMZs established at those three Stations.

The Board finds that MWG also violated Section 12(d) of the Act at Powerton Station by depositing coal ash cinders directly upon the land, thereby creating a water pollution hazard. 415 ILCS 5/12(d) (2016). The Board, however, finds that Environmental Groups did not establish violations of Section 12(d) of the Act at Joliet 29, Will County, or Waukegan Stations.

Lastly, the Board finds that MWG violated Section 21(a) of the Act at all four Stations by allowing coal ash to consolidate in the fill areas around the ash ponds and in historical coal ash storage areas. The Board finds that MWG did not take measures to remove it or prevent its leaking of contaminants into the groundwaters.

The Board finds the record is insufficient to determine the appropriate relief in this proceeding. Therefore, the Board directs the hearing officer to hold additional hearings to determine the appropriate relief.

ORDER

1. The Board finds that respondent Midwest Generation, LLC (MWG) violated Section 12(a) of the Environmental Protection Act (Act) (415 ILCS 5/12(a) (2016)).

2. The Board finds that MWG violated Section 12(d) of the Act (415 ILCS 5/12(d) (2016)).

3. The Board finds that MWG violated Section 21(a) of the Act (415 ILC21(a) (2016)).

4. The Board finds that MWG violated Sections 620.115, 620.301(a), and 620.405 of the Board regulations (35 Ill. Adm. Code 620.115, 620.301(a), 620.405).

5. The Board finds the record lacks sufficient information to determine the appropriate remedy. Therefore, the Board directs the hearing officer to hold additional hearings to determine the appropriate relief and any remedy, considering Sections 33(c) and 42(h) of the Act (415 ILCS 5/33(c) and 42 (h) (2016)).

IT IS SO ORDERED.

Board Member Brenda Carter abstained.

I, Don A. Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above order on June 20, 2019, by a vote of 4-0.

Don A. Brown

Don A. Brown Clerk
Illinois Pollution Control Board

Exhibit

I

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Springfield, IL 62794-9276

Billing Date	Mon December 16, 2019
Due Date	Tue January 31, 2020
Account Number	W1798010008
Facility Name	Powerton

Powerton Generating Station
Attn: Accounts Payable
13082 East Manito Rd,
Pekin, IL 61554-8587

Initial Invoice

Pond ID	Pond Description	Amount
W1798010008-01	Ash Basin	75,000.00
W1798010008-02	Sec. Ash Basin	75,000.00
W1798010008-03	Metal Cleaning Basin	75,000.00
W1798010008-04	Bypass Basin	75,000.00
W1798010008-05	Former Ash Basin	75,000.00

Amount Due **$375,000.00**

Other Information/Messages

Questions. Please direct any technical/permit questions to the Permit Section at (217) 782-0610. Questions about the amount of your fee should be emailed to: EPA.AcctsReceivable@illinois.gov

- See Reverse Side for Additional Important Information –

Return bottom portion with a check made payable to Illinois EPA

Payment
Remittance Stub

Account Information

Acct. Number	W1798010008
Facility Name	Powerton
IEPA Program	COALIN
Billing Date	Mon December 16, 2019

Amount Due

Tue January 31, 2020	**$375,000.00**
Amount Enclosed	

Please remit payment to:
Illinois Environmental Protection Agency
Fiscal Services #2
P.O. Box 19276
Springfield, IL 62794-9276

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Springfield, IL 62794-9276

Other Information

State Law Compliance. The owner or operator of a CCR surface impoundment shall pay all fees pursuant to 415 ILCS 5/22.59(j). The owner or operator of a CCR surface impoundment is ultimately responsible and liable for determining an accurate number of CCR impoundments under its control and the fees owed to the Agency under 415 ILCS 5/22.59(j). The amount specified by the Agency within this invoice does not waive or modify the statutory requirement, per 415 ILCS 5/22.59(j) as added by Public Act 101-171, that the owner or operator accurately pay the required initial fee and annual fee for each CCR surface impoundment.

Collection Notice. Failure to submit the amount due by the due date constitutes a violation of Section 22.59 of the Illinois Environmental Protection Act, 415 ILCS 5/22.59(j). The Agency may utilize any available collection procedures to recover unpaid fees and all accumulated interest. These may include, but are not limited to, enforcement actions pursuant to Section 31 of the Illinois Environmental Protection Act, 415 ILCS 5/31, submittal of the unpaid amounts for Comptroller's Offset pursuant to 30 ILCS 210, or submittal of the unpaid fee to the Illinois Department of Revenue's Debt Collection Bureau pursuant to 30 ILCS 210.

Exhibit
J

Midwest Generation, LLC
Powerton Generating Station
13082 East Manito Road
Pekin, Illinois 61554

May 8, 2020

VIA FEDEX

Illinois Environmental Protection Agency
1021 North Grand Avenue East
Fiscal Services #2
P.O. Box 19276
Springfield, IL 62794-9276

Re: Invoice for CCR Surface Impoundments at the Powerton Generating Station

Dear Illinois EPA Accounts Receivable:

Please find enclosed payment for the Metal Cleaning Basin at Powerton Generating Station in response to the invoice dated March 25, 2020. Midwest Generation, LLC has requested and scheduled a meeting with the Illinois EPA as stated in the invoice. For reference, a copy of the invoice is included.

Very truly yours,

JN Kotas

Joseph Kotas
Environmental Specialist/Engineer
Powerton Generating Station

CC: Sharene Shealey, MWG

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217-782-1020

March 25, 2020

Powerton Generating Station
Attn: Accounts Payable
13082 East Manito Road
Pekin, Illinois 61554-8587

Re: Invoice for CCR Surface Impoundments at the Powerton Station.

Dear Sir or Madame:

Pursuant to Section 22.59(j) of the Illinois Environmental Protection Act ("Act"), the Illinois Environmental Protection Agency ("Illinois EPA") invoiced coal combustion residuals ("CCR") surface impoundments at an electrical generating facility operated by Midwest Generation at the Powerton Generating Station (Powerton Station). These invoices provided a billing date of December 16, 2019, and a due date of January 31, 2020.

To date, Midwest Generation has failed to timely remit payment to Illinois EPA for invoiced CCR surface impoundments. In a meeting on January 7, 2020, and in a letter dated January 29, 2020, Midwest Generation has disputed whether one or more of the invoiced CCR surface impoundments should be considered a CCR surface impoundment as defined in Section 3.143 of the Act (415 ILCS 5/3.143).

Illinois EPA provides the following preliminary analysis regarding the disputed CCR surface impoundments and maintains that fees are owing to Illinois EPA:

Powerton Station W1798010008-02 Secondary Ash Basin

- Permit #2010EB0007 states that the Secondary Ash Basin will receive ash and slag sluice waters.
- Discussions with Midwest Generation staff on January 7, 2020, indicate that before relining in 2013 the basin had never required cleaning to function.

Midwest Generation may make a demonstration that the Secondary Ash Basin does not contain CCR and Illinois EPA will review such a demonstration. Midwest Generation may submit an environmental media sampling plan of the bottom contents of this Pond for Illinois EPA review.

Based on the above, the Illinois EPA does not consider the Secondary Ash Basin to have completed closure. The appropriate fee for a CCR surface impoundment that has not completed closure is $75,000.00.

Powerton Station W1798010008-03 Metal Cleaning Basin

- Permit #2009EB2748 states that the Metal Cleaning Basin will receive ash and slag sluice waters.
- Discussions with Midwest Generation staff on January 7, 2020 confirm that CCR is periodically placed in the Metal Cleaning Basin.

Based on the above, the Illinois EPA does not consider the Metal Cleaning Basin to have completed closure. The appropriate fee for a CCR surface impoundment that has not completed closure is $75,000.00.

Total Fees Due to the Agency

Powerton Station	
W1798010008-02 Secondary Ash Basin	$75,000.00*
W1798010008-03 Metal Cleaning Basin	$75,000.00
Total	**$150,000.00**

*The Illinois EPA is allowing Midwest Generation to make a further demonstration that this pond does not meet the definition of a CCR surface impoundment, which could reduce the total by $75,000.00.

Given the above analyses, Illinois EPA requests that within 30 days Midwest Generation either, submit the fees that are due, or arrange a meeting or conference call to discuss any surface impoundments still in dispute. Please note that the Illinois EPA may utilize any available collection procedures to recover unpaid fees.

Please submit all payments responsive to this notification to: Illinois EPA, Fiscal Services #2, P.O. Box 19276, Springfield, Illinois 62794-9276. If you have any questions concerning the information provided above, please call 217-782-1020.

Sincerely,

William E. Busch

William E. Buscher, P.G.
Manager, Hydrogeology and Compliance Unit
Division of Public Water Supplies
Bureau of Water

cc: Darin LeCrone
Rex Gradeless
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Records

Exhibit

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

Midwest Generation, LLC)
(Powerton Station)) PCB 2021-109
)
v.)
)
Illinois Environmental Protection Agency)

AFFIDAVIT OF DARIN E. LeCRONE

I, Darin E. LeCrone, certify under penalty of perjury pursuant to Section 1-109 of the Illinois Code of Civil Procedure, 735 ILCS 5/1-109, that the statements set forth in this affidavit are true and correct, and further state that if called upon to testify in this matter, I would competently testify as follows:

1. I am an Illinois Licensed Professional Engineer employed by the Illinois Environmental Protection Agency (the "Illinois EPA") as the Manager of the Permit Section in the Division of Water Pollution Control within the Bureau of Water, and I am located in Springfield, Illinois. I have been employed by the Illinois EPA since May of 1992.

2. As the Manager of the Permit Section in the Division of Water Pollution Control with the Illinois EPA, my duties include but are not limited to the supervision of a staff of engineers responsible for the review and issuance of all permits issued within the Division of Water Pollution Control, including construction and operating permits, and NPDES permits for industrial wastewater sources. I also served as the primary witness in support of Illinois EPA's proposed Part 845 throughout the Illinois Pollution Control Board's rulemaking proceedings in R2020-019.

3. In my capacity as Manager of the Permit Section, I have reviewed the Petition for Variance ("Petition") filed by Midwest Generation, LLC ("MWG") requesting extension of certain requirements contained in 35 Ill. Adm. Code 845.

4. I have personal knowledge of the facts set forth in Illinois EPA's Recommendation to the Board as stated below.

5. Attached to the Recommendation as Exhibit B ("Rec. Ex. B") is Illinois EPA Water Pollution Control Permit #2009EB2748. This permit is kept by the Illinois Environmental Protection Agency in the regular course of business, and it was the regular course of business of the Illinois Environmental Protection Agency to transmit the information thereof to be included in this record. Illinois EPA Water Pollution Control Permit #2009EB2748, attached to the Recommendation as Exhibit B, is an exact duplicate of the original.

6. Illinois EPA Water Pollution Control Permit #2009EB2748 dated November 13, 2009, authorized the relining of the Metal Cleaning Basin and required the installation of three wells specifically for the Metal Cleaning Basin. *See* Rec. Ex. B.

7. Illinois EPA has identified the Metal Cleaning Basin as a CCR surface impoundment because of its design and use. The record for Illinois EPA Water Pollution Control Permit #2009EB2748 indicates ash and slag sluice water as a waste stream. Additionally, considering the process flow at the Powerton facility, it would not be uncommon for gas side boiler wash waters received by the Metal Cleaning Basin to contain fly ash. *See* Rec. Ex. B.

8. The Powerton Station and its surface impoundments are currently regulated by NPDES Permit No. IL0002232, which does not contain groundwater monitoring requirements for CCR surface impoundments. *See* Petition, Ex. H. At the time of this filing, there are no other Illinois EPA Bureau of Water permits issued to MWG and currently effective for the Powerton Station.

9. MWG's variance request affects operating and construction permit applications for the Metal Cleaning Basin under Part 845. Any regulatory relief requested specific to the Metal

Cleaning Basin will not impact the operating and construction permit applications for any other CCR surface impoundment located at the Powerton Station, provided that the facility-wide plans submitted with those applications are complete.

FURTHER AFFIANT SAYETH NOT

DARIN E. LeCRONE

6/25/21

DATE

ROCHELLE RENEE DEROCHI
08-15-2021

Rochelle Renee DeRochi

Exhibit

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

Midwest Generation, LLC)
(Powerton Station)) PCB 2021-109
)
v.)
)
Illinois Environmental Protection Agency)

AFFIDAVIT OF LYNN E. DUNAWAY

I, Lynn E. Dunaway, certify under penalty of perjury pursuant to Section 1-109 of the Illinois Code of Civil Procedure, 735 ILCS 5/1-109, that the statements set forth in this affidavit are true and correct, and further state that if called upon to testify in this matter, I would competently testify as follows:

1. I am an Illinois Licensed Professional Geologist employed by the Illinois Environmental Protection Agency ("Illinois EPA" or "Agency") as an Environmental Protection Specialist IV in the Hydrogeology and Compliance Unit ("HCU") within the Groundwater Section of the Bureau of Water, and I am located in Springfield, Illinois. I have been employed by the Illinois EPA since February of 1988.

2. As a Geologist in the HCU, I work on the development and implementation of rules and regulations related to protecting, monitoring, and restoring groundwater in Illinois, and I provide technical expertise to the Bureau of Water Permit Section on groundwater issues. As part of these duties, I served as a witness on behalf of the Groundwater Section in support of Illinois EPA's proposed Part 845 throughout the Illinois Pollution Control Board's rulemaking proceedings in R2020-019.

3. I have reviewed the Petition for Variance ("Petition") filed by Midwest Generation, LLC ("MWG") requesting extension of certain requirements contained in 35 Ill. Adm. Code 845.

4. I have personal knowledge of the facts set forth in Illinois EPA's Recommendation to the Board as stated below.

5. Attached to the Recommendation as Exhibit A ("Rec. Ex. A") is a March 25, 2020 Illinois EPA letter to MWG. The March 25, 2020 letter is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be included in this record. The March 25, 2020 letter, attached to the Recommendation as Exhibit A, is an exact duplicate of the original.

6. Attached to the Recommendation as Exhibit C ("Rec. Ex. C) is Violation Notice ("VN") W-2012-00057. This violation notice is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be included in this record. VN W-2012-00057, attached to the Recommendation as Exhibit C, is an exact duplicate of the original.

7. Attached to the Recommendation as Exhibit D ("Rec. Ex. D") is a Compliance Commitment Agreement ("CCA") with Illinois EPA for the Powerton Facility dated October 24, 2012. This compliance commitment agreement is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be included in this record. The CCA with Illinois EPA for the Powerton Facility dated October 24, 2012, attached to the Recommendation as Exhibit D, is an exact duplicate of the original.

8. Attached to the Recommendation as Exhibit E ("Rec. Ex. E") is Groundwater Management Zone Application for the Powerton Generating Station relating to Violation Notice W-2012-00057. This application is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be

included in this record. The Groundwater Management Zone Application for the Powerton Generating Station relating to Violation Notice W-2012-00057, attached to the Recommendation as Exhibit E, is an exact duplicate of the original.

9. Attached to the Recommendation as Exhibit F ("Rec. Ex. F") is Illinois EPA's Groundwater Management Zone approval for the Powerton Generating Station relating to Violation Notice W-2012-00057. This approval is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be included in this record. The Groundwater Management Zone approval for the Powerton Generating Station relating to Violation Notice W-2012-00057, attached to the Recommendation as Exhibit F, is an exact duplicate of the original.

10. Attached to the Recommendation as Exhibit G ("Rec. Ex. G") is the April 2021 Quarterly Groundwater Monitoring Report for the Powerton Generating Station. This quarterly report is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be included in this record. The April 2021 Quarterly Groundwater Monitoring Report for the Powerton Generating Station, attached to the Recommendation as Exhibit G, is an exact duplicate of the original.

11. Attached to the Recommendation as Exhibit I ("Rec. Ex. I") is an Illinois EPA Division of Water Pollution Control invoice related to Powerton Generating Station dated December 16, 2019. This invoice is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be included in such a record. Illinois EPA Division of Water Pollution Control invoice related to Powerton Generating Station dated December 16, 2019, attached to the Recommendation as Exhibit I, is an exact duplicate of the original.

12. Attached to the Recommendation as Exhibit J ("Rec. Ex. J.") is a May 8, 2020 MWG letter to Illinois EPA concerning payment for the Metal Cleaning Basin at the Powerton Generating Station. This letter is kept by the Illinois EPA in the regular course of business, and it was the regular course of business of the Illinois EPA to transmit the information thereof to be included in this record. The May 8, 2020 MWG letter to Illinois EPA concerning payment for the Metal Cleaning Basin at the Powerton Generating Station, attached to the Recommendation as Exhibit J, is an exact duplicate of the original.

13. Illinois EPA invoiced the Metal Cleaning Basin as a CCR Surface Impoundment in December 2019 and has maintained that it is a CCR surface impoundment since that time in various meetings and during the Part 845 rulemaking proceedings. *See* Rec. Ex. I. Further, MWG submitted its CCR surface impoundment fee to the Agency in May 2020, acknowledging the Metal Cleaning Basin to be a CCR surface impoundment. *See* Rec. Ex. J.

14. CCR placed in an impoundment can impact groundwater. The design and use of the Metal Cleaning Basin over many years and certain conditions, including historical use of poz-o-pac liners that are prone to cracking and annual use of heavy equipment in the impoundment, threatens groundwater contamination. These threats can persist even after a pollution source is removed.

15. The Powerton facility has conducted significant historical groundwater monitoring since at least 2010. Illinois EPA Water Pollution Control Permit #2009EB2748 dated November 13, 2009, required the installation of three wells specifically for the Metal Cleaning Basin. Subsequent to that permit, MWG entered into a CCA with Illinois EPA for the Powerton facility dated October 24, 2012, due to VN W-2012-00057 for sitewide groundwater contamination. *See* Rec. Exs. C and D. The VN included a well downgradient of the Metal Cleaning Basin due to

exceedances of the Class I groundwater quality standards contained in 35 Ill. Adm. Code §620.410. *See* Rec. Ex. C.

16. One of the requirements listed in the CCA was to establish a site-wide Groundwater Management Zone ("GMZ") to monitor the groundwater exceedances at the Powerton facility. *See* Rec. Ex. D. The Metal Cleaning Basin is within the boundary of the sitewide GMZ established in 2013. *See* Recs. Ex. E and F. As part of the CCA executed to satisfy VN W-2012-00057 issued for exceedances of Part 620 groundwater quality standards, ongoing groundwater monitoring of the wells associated with the Metal Cleaning Basin was required to assess the efficacy of the HDPE liner installed in 2010. *See* Rec. Exs. C and D.

17. MWG has been submitting quarterly groundwater monitoring results to Illinois EPA since 2010. The most recent groundwater quarterly monitoring report (April 2021) indicates exceedances of the Class I groundwater quality standards listed in 35 Ill. Adm. Code §620.410. *See* Rec. Ex. G, Table 2, p. 14. The April 2021 laboratory results for sulfate and total dissolved solids ("TDS") at monitoring well MW-14 (downgradient of the Metal Cleaning Basin) are generally higher than the laboratory results for monitoring well MW-15 (upgradient of the Metal Cleaning Basin). *See* Rec. Ex. G, Table 2, p. 15. Therefore, existing data indicates the Metal Cleaning Basin may be, or may have been prior to HDPE liner installation, contributing to groundwater contamination.

18. The groundwater quality data that currently exists at the Metal Cleaning Basin is limited to dissolved (filtered) chemical constituents, instead of total (not filtered) chemical constituent analysis, and does not include the full list of constituents required in 35 Ill. Adm. Code §845.600.

19. Except for natural variation in groundwater quality and laboratory or sampling variability, the concentrations of filtered sulfate and TDS samples should not yield higher concentrations than total analysis for those constituents.

20. The Part 845 requirement to collect and analyze eight independent samples from each background and downgradient well at the Metal Cleaning Basin will not yield high quality background groundwater quality data. However, 40 CFR 257.94(b) requires that new CCR surface impoundments and lateral expansions of CCR surface impoundments collect eight independent samples from each background well within the first six months of sampling. Therefore, the quality of the background data collected for statistical analysis would be on par with the data required under Part 257.

21. Independent samples provide greater statistical power when adequate time between sampling events can account for temporal variation such as seasonal variation in the data. Accounting for temporal variation can vary from site to site, depending on hydrogeologic conditions, but typically requires at least a month between sampling events. Due to logistical considerations surrounding the Metal Cleaning Basin, MWG has only recently begun collecting the required eight independent groundwater samples and cannot meet the deadline of 180 days after April 21, 2021 to complete the sampling, as provided in 35 Ill. Adm. Code §845.650(b)(1)(A).

22. The Petition states that MWG began sampling the newly installed and developed wells at the Metal Cleaning Basin on March 11–13, 2021, with a second sample obtained on April 8, 2021. The Petition states that a bailer was used to obtain the first round of groundwater sampling on March 11–13, 2021, and that a low flow technique will be used for the remainder of the samples. *See* Petition, p. 10. This difference in groundwater sampling procedures may increase error in the statistical analysis from which background quality will be determined. The increased error could

increase the calculated background groundwater concentrations, potentially resulting in less protective groundwater protection standards. The Agency will not approve mixing of sample collection techniques on a small sample set.

23. I conducted a potable well survey using the publicly available Source Water Assessment Protection Program (SWAP) website that maps potable wells in the state. According to the SWAP website, no potable wells were identified in the downgradient direction from the Metal Cleaning Basin.

24. Illinois EPA issued Violation Notice W-2020-00042 to MWG on July 28, 2020, for failure to pay CCR surface impoundment fees related to its Service Water Basin at the Powerton Station, which is still unresolved at the time of this filing.

FURTHER AFFIANT SAYETH NOT

Lynn E. Dunaway

LYNN E. DUNAWAY

6/25/21

DATE

ROCHELLE RENEE DEROCHI
MY COMMISSION EXPIRES 08-15-2021

Rochelle Renee DeRochi