

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	AS 2021-005
Petition of Electric Energy, Inc.)	(Adjusted Standard)
For a Finding of Inapplicability or, in the)	
Alternative, an Adjusted Standard from)	
35 Ill. Adm. Code Part 845)	

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 a RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, a copy of which is herewith served upon you.

Respectfully submitted,

Dated: November 22, 2021

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PROTECTION AGENCY,

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RECOMMENDATION OF THE
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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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 to Electric Energy, Inc.’s request for a finding of inapplicability, or in the alternative, an adjusted standard from 35 Ill. Adm. Code 35 (“Part 845”) for the Joppa West Ash Pond at its Joppa Power Plant (“Joppa Station”) in Massac County, Illinois, pursuant to Section 28.1 of the Illinois Environmental Protection Act (“Act”). 415 ILCS 5/28.1; 35 Ill. Adm. Code §104.416. For the reasons stated below, Illinois EPA recommends that the Board DENY Petitioner’s request for a finding of inapplicability, and CONDITIONALLY GRANT Petitioner’s request for an adjusted standard exempting the Joppa West Ash Pond from certain requirements of Part 845. In support of its Recommendation, Illinois EPA states as follows:

I. INTRODUCTION

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

2. On May 11, 2021, Electric Energy, Inc. (“EEI” or “Petitioner”) filed a petition for a finding of inapplicability, or in the alternative, an adjusted standard from Part 845 for the Joppa West Ash Pond (“Petition” or “Pet.”), in which it requests a hearing on its petition.

3. Illinois EPA must make a recommendation to the Board as to the disposition of the Petition within 45 days after the filing of the petition or at least 30 days before a hearing, unless otherwise ordered by the hearing officer or Board. 35 Ill. Adm. Code §104.416.

4. On June 17, 2021, in response to a motion for extension of time filed by the Agency, the Board ordered the Agency to file its Recommendation by September 23, 2021. On September 23, 2021, the Board again extended the Agency's deadline to file its Recommendation to November 22, 2021.

II. NOTICE AND ACCEPTANCE

5. A petitioner must "submit to the Board proof that, within 14 days after filing of the petition, it has published notice of the filing of the petition by advertisement in a newspaper of general circulation in the area likely to be affected by the petitioner's activity that is the subject of the adjusted standard proceeding." 415 ILCS 5/28.1; 35 Ill. Adm. Code § 104.408(a).

6. On June 4, 2021, EEI filed with the Board a certification of publication and a copy of the notice published on May 22 and May 24, 2021, pursuant to 35 Ill. Adm. Code §§ 104.408(a), (b).

7. On June 17, 2021, the Board accepted EEI's petition.

III. REQUEST FOR FINDING OF INAPPLICABILITY

8. EEI alleges that, "while Joppa West may have formerly been a surface impoundment," it does not currently meet the definition of a CCR surface impoundment and therefore requests that the Board issue a finding of inapplicability, or, in the alternative, an adjusted standard exempting the Joppa West Ash Pond from certain Part 845 requirements. *See* Pet. at 3-4.

9. Several previous Board proceedings support the Board's authority to issue a finding that certain Board regulations are inapplicable to certain facilities, processes, and materials. *See In the Matter of: Petition of Apex Material Technologies, LLC for an Adjusted Standard from Portions*

of 35 Ill. Adm. Code 807.104 and 810.103, or, in the Alternative, a Finding of Inapplicability, AS15-2, slip op. pp. 51-52 (June 18, 2015); In the Matter of: Petition of Westwood Lands, Inc. for and Adjusted Standard from Portions of 35 Ill. Adm. Code 807.104 and 35 Ill. Adm. Code 810.103 or, in the Alternative, a Finding of Inapplicability, AS09-3, slip- op at 16 (Oct. 7, 2010); In the Matter of: Petition of Jo'Lyn Corporation and Falcon Waste and Recycling for an Adjusted Standard from 35 Ill. Adm. Code Part 807 or, in the Alternative, a Finding of Inapplicability, AS 04-2, slip op. at 13-14 (Apr. 7, 2005).

10. In both *Westwoods* and *Jo'Lyn*, where the Board determined its solid waste regulations inapplicable, it denied the requested adjusted standards as moot. *Westwoods* slip op. at 16, *Jo'Lyn* slip op. at 14. The Board focused its analysis on applying the facts to the definition of “waste” and did not address the factors required in an adjusted standard petition contained in 35 Ill. Adm. Code 104.406.

11. Accordingly, Illinois EPA will address Petitioner’s request for a finding of inapplicability first, separately from the request for an adjusted standard exempting the Joppa West Ash Pond (“JWAP”) from certain Part 845 requirements.

12. “CCR surface impoundment” is defined as “a natural topographic depression, man-made excavation or diked area, that is designed to hold an accumulation of CCR and liquids, and the surface impoundment treats, stores, or disposes of CCR.” 35 Ill. Adm. Code 845.100. EEI argues that the definition of CCR surface impoundment speaks to the present tense design of a unit to hold an accumulation of liquids and that the JWAP is not designed and has not been designed to

hold an accumulation of liquids since October 19, 2015. Pet. at 19, citing Pet. Ex. 2 at 10, 18 and Pet. Ex. 3 at 8¹.

13. Petitioner's Ex. 4 identifies Joppa West as "the original ash impoundment for the Joppa Station...". See Pet. Ex. 4 at 4. Figure 2-5 of Petitioner's Exhibit 2 displays drawings illustrating that the JWAP was created using embankments² in conjunction with a natural topographic depression. Figure 2-3 of Petitioner's Exhibit 2 shows that the design holds CCR and liquids. The embankments have not been removed and the natural topographic depression still exists under the CCR fill. Ex. A (Martin Affidavit). As discussed further below, the soils over the top of the ash are not sloped to prevent impoundment within the berms and photos do show impoundment of water.

14. Contrary to Petitioner's assertions, the JWAP (including the settling basin³ and the larger CCR surface impoundment collectively known as the Joppa West Ash Pond) is designed to allow the collection and holding of storm water and CCR material, and the intermingling of storm water and groundwater, within the CCR surface impoundment. Field verification of the compressive strength of materials that are encountered during test pitting and soil sampling assist in the verification of the compaction of the fill materials *in situ* and provide insight on the manner of placement. Materials that are placed by wet sluicing would not have been compacted as a part of placement. Materials that are dry placed will necessarily compact to some extent due to material handling equipment and may be intentionally compacted to allow for more capacity to store the material and will not be expanded for water saturation. Ex. A (Martin Affidavit). Test Pit Log 13

¹ "During operation of Joppa West, ponded water is apparent in historic aerial photographs within the footprint of Joppa West, including the northern area and settling area. Ponded water has not been observed within either portion of Joppa West since 2015 (Geosyntec, 2021)."

² Petitioner's Exhibit 2 refers to "dikes," but the Agency is utilizing the term "embankment" for purposes of consistency throughout this Recommendation.

³ Petitioner's exhibits also refer to the settling basin as the "Settling Area." For clarity, this Recommendation will utilize the term settling basin throughout this Recommendation.

documents flowable ash at 2.5 feet. Pet. Ex. 2, App. D. Several other test pit locations were either terminated at 2.5 to 3 feet below ground surface, with “wet” (saturated) conditions or increased moisture conditions encountered. *Id.* Flowable ash represents saturated, very soft ash (very loose or uncompacted ash) below the water table. Test pit logs did not provide compressive strength field testing results. Boring logs did provide field compressive strength testing for clays and silts. Pet. Ex. 3, Att. 3. The results of field compressive strength testing of the materials that were tested confirmed the lack of compaction within the JWAP. Ex. A (Martin Affidavit).

15. Review of the boring logs of the wells surrounding the JWAP confirm that the JWAP is surrounded by clay material. Ex. A (Martin Affidavit). The 2013 Hydrogeologic Assessment Report for the Joppa Station provides site-specific hydraulic conductivity of the clay materials (5.9×10^{-6} centimeters per second (“cm/s”). Ex. B at ES-1. Additionally, the blow count values collected during drilling of wells G101, G111, G112B, G112C and G113 reveal that the clay materials encountered at 0 to 50 feet just outside of the JWAP have greater compaction than the materials in the JWAP. *Id.* at App. B (PDF pp. 131-42). The compaction and the hydraulic conductivity indicate that most of the groundwater recharge comes from precipitation and infiltration. Ex. A (Martin Affidavit).

16. Though vegetation exists and has formed an organic layer, it has not prevented erosion of the berms or the surface of the JWAP. *See e.g.*, Pet. Ex. 2, App. C (Photos JW 23-25). CCR material eroded from erosional pathways over uncompacted materials enables the CCR material to travel from the JWAP to Outfall 011 by way of the storm water runoff at the JWAP.⁴ Erosion pathways are not always mature enough to be visible from an aerial photograph. Erosional

⁴ In January 2020, EEI submitted an NPDES renewal application for Permit No. IL000044171 to Illinois EPA that indicates Outfall 011 (as well as its two other SW outfalls) “have contact with or potential exposure to coal and coal combustion byproducts.....” but that a SWPPP is in place. Ex. C.

pathways are preferential flow paths for stormwater runoff within the CCR surface impoundment. In many areas, erosional pathways are likely exposed CCR due to the lack of thickness in the overlying organic sediments that have developed naturally since sluicing of CCR stopped. Ex. A (Martin Affidavit). Though CCR is no longer sluiced to the JWAP, liquids that enter the JWAP flow to low areas, likely carrying eroded CCR material, where they are decanted for discharge. *See* Pet. Ex. 2, Fig. 2-4. Decanting of water from within the impoundment is the same process that was taking place when CCR was being sluiced to the impoundment. Due to the inadequate vegetative cover, transport of CCR necessarily occurs during the erosional processes, likely resulting in its discharge during the decanting process. Ex. A (Martin Affidavit). Therefore, the Agency maintains that the JWAP is designed to hold an accumulation of liquids and CCR, still stores CCR and does not meet the minimum criteria of 40 CFR § 257.102(d) that would allow it to be considered closed.

17. EEI emphasized that Part 845's definition of CCR surface impoundment is identical to the federal rule and points to the preamble to 40 C.F.R. § 257 ("Part 257") for the proposition that the United States Environmental Protection Agency ("USEPA") intended to avoid regulating units that were already closed and can no longer impound liquid. Pet. at. 20. However, at 80 Fed. Reg. 21342 (Apr. 17, 2015), USEPA makes clear that the only inactive CCRSIs that do not require regulatory oversight are those that have been properly closed: "The sole exception is for 'inactive' CCR surface impoundments that have completed dewatering and capping operations (in accordance with the capping requirements finalized in this rule)...".

18. EEI points to 80 Fed. Reg. 21343 (Apr 17, 2015), wherein USEPA states a position that "...the final rule does not impose any requirements on any CCR surface impoundments that have in fact 'closed' before the rule's effective date-i.e. those that no longer contain water and can

longer impound liquid” (emphasis added). However, 40 C.F.R. § 257.102(d) provides criteria that must be met to ensure that a CCRSI no longer contains water and can no longer impound liquid. Illinois EPA’s comments to USEPA cited by Petitioner urged USEPA to clearly require a demonstration by a licensed professional engineer that any “closed” CCRSI was in fact closed with at least the minimum criteria required by 40 C.F.R. § 257.102(d). *See* Pet. Ex. 10.

19. If the Agency assumes that Petitioner’s interpretation and application of Part 257 and its Preamble is correct, and that both CCR and liquid must be present within the impoundment at all times to meet the definition of a CCR surface impoundment, then the JWAP also meets the Petitioner’s interpretation of Part 257 requirements. Based on Petitioner’s Exhibit 2, the JWAP does not: control, minimize or eliminate to the maximum extent feasible infiltration of liquids into the waste or the release of CCR, leachate or contaminated run-off to groundwater or surface water; preclude the probability of future impoundment of water, sediment or slurry; include measures to provide slope stability; nor minimize the need for future maintenance, which are narrative closure requirements of 40 C.F.R. § 257.102(d). The Agency specifically cites: (1) Section 3.2.6 describing the internal outlet structures and Figure 2-4 showing pathways for run-on and run-off as well as the internal outlets for water within the JWAP; (2) Appendix C: Photo JW-23 showing an area of ponded (impounded) water; Photo JW-24 showing ponded water, which based on the Aerial Photography Map is within the footprint of the JWAP and displaying an erosional feature; Photo JW-25 showing an erosional feature; Photo JW-28 showing an inlet within the JWAP footprint for storm water drainage, with a wet area at the mouth of the inlet (i.e., water collection within the impoundment for discharge); and (3) Appendix D: Test Pits TP-13 recording flowing ash at 2.5 feet; TP-11, TP-09, TP-06 recording increasing moisture, wetness or softness at elevations with a slope to the south, which is the general direction of groundwater flow.

20. Furthermore, several test pits record as little as one to two inches of organic matter over ash. Pet. Ex. 2, App. D. Such a cover of organic litter is far less than the minimum requirements of 40 C.F.R. § 257.102(d) (a minimum of 18 inches of soil with a hydraulic conductivity of 1×10^{-5} cm/s per second or less and at least six inches of earthen material to support plant life). Section 4.3 Table A of Petitioner's Exhibit 3 states that the geometric mean of the upper confining unit (UCU) immediately beneath the JWAP is 5.9×10^{-6} cm/s. Pet. Ex. 3 at 11. 40 C.F.R. § 257.102(d)(3)(i)(A) requires that the permeability of the final cover must be less than or equal to the permeability of any bottom liner or natural subsoils. Therefore, a cover that meets the minimum requirements of Part 257 would have to be nearly 1×10^{-7} cm/s, in addition to precluding the evident ponding, woody growth and erosion documented by the Petitioner's own exhibits.

21. EEI correctly cites to Illinois EPA's testimony in the Part 845 rulemaking, stating the Agency's position that Part 845 is intended to regulate the same universe of CCR surface impoundments as Part 257. Pet. at 21 and Pet. Ex. 7 and 18. However, it is the Agency's position that because Part 257 is a self-implementing program, USEPA neither selected nor approved which CCR surface impoundments should appropriately be regulated under Part 257. That decision was left entirely to owners and operators of CCR surface impoundments, based on their interpretation of Part 257 and its Preamble. Therefore, the Agency maintains that the universe of regulated CCR surface impoundments is the same in both Part 845 and Part 257, but the Agency's interpretation of Part 257 and its Preamble may be different than some owners and operators. Ex. D (Dunaway Affidavit).

22. EEI further cites to Illinois EPA's comments submitted to USEPA regarding USEPA's proposed definition of "legacy ponds" and states that Illinois EPA identified the JWAP "as a unit that is unambiguously not regulated under the Federal CCR Rule...." Pet. at 22, citing Pet. Ex. 10.

The in-depth review of aerial photos presented in paragraphs 36 through 44 below and Petitioner's Exhibit 2 demonstrate that the JWAP does contain CCR and liquids and should be regulated by Part 257, by Petitioner's own interpretation of the Part 257 requirements. The Agency used Petitioner's interpretation and application of the Part 257 requirements to the JWAP, which has been echoed by other owners and operators in Illinois, to demonstrate the number of CCR surface impoundments that may never be properly closed if USEPA required legacy ponds to have obviously impounded water within them. Ex. D (Dunaway Affidavit). The Agency notes that its comments to USEPA also contained considerable discussion about CCR surface impoundments that leaked dry over time and provided examples of CCR surface impoundments that didn't maintain water levels even when in active use, due to leakage into permeable formations. The information contained in Petitioner's Exhibit 2, as well as the extensive review of aerial photography and other documents discussed below, showing areas of ponded water, sediment disposal within the JWAP and continued saturation of CCR, was not available at the time the Agency submitted its comments. Ex. D (Dunaway Affidavit). That information demonstrates that the JWAP does contain CCR and liquids and should be considered regulated by Part 257 under Petitioner's own interpretation of the federal rules, contrary to the Agency's statements made at the time it submitted its comments to USEPA. *Id.*

23. While Petitioner's own exhibits demonstrate that the JWAP does contain CCR and liquids, Illinois EPA maintains that a CCR surface impoundment need not contain liquids during its entire active life to meet the definition of CCR surface impoundment found at Section 3.143 of the Act and 40 C.F.R. § 257.53. The definition states in part "...is designed to hold an accumulation of CCR and liquids...". Therefore, the intended function of a manmade excavation or natural topographic area, either with or without the use of embankments, is relevant. The word "hold" is

a verb defined⁵ as “to enclose and keep in a container or within bounds” or “prevent from leaving or getting away.” Synonyms include “keep” or “retain.” The act of keeping or retaining can be a temporary condition. The extent to which liquids are held within an impoundment is dependent upon several factors, including its design, use, and the permeability of the bottom of the impoundment and groundwater elevation. Clearly, the quantity of liquid held and present at any given time is linked to site conditions and the processes being controlled. If active sluicing is occurring, then the volume of water required to achieve settling would be different than the volume of water required to control movement of CCR within the impoundment due to precipitation events, assuming that the bottom of the impoundment is not so permeable so as to act as what is essentially a sand filter, with all or most of the liquids leaking into groundwater.

24. Another point of disagreement regarding the definition of a CCR surface impoundment is the term “is designed.” The use of the present tense “is” in conjunction with the past tense “designed” has been interpreted by Petitioner to mean that, to be considered a CCR surface impoundment, both CCR and liquids must be present during the entire active life of the impoundment.⁶ However, in its August 21, 2018 decision in the case of *Utility Solid Waste Activities Group, et al. v. Environmental Protection Agency and Waterkeeper Alliance, et al.*, the District of Columbia United States Court of Appeals addressed a similar joining of the present tense “is” and the past tense “disposed of” in what is known as the “USWAG decision.” 901 F.3d 414, 438-42. The Agency draws an applicable parallel here, wherein, in its discussion, the Court states the following:

⁵ MERRIAM WEBSTER DICTIONARY at *Merriam-Webster.com*. 2021. <https://www.merriam-webster.com>, last accessed November 20 2011.

⁶ “Active life” is a defined term that applies until closure is complete compliant with 50 CFR 257.102. *See also* 35 Ill. Adm. Code 845.120 (active until compliant with Subpart G). There will be times during the closure process that the current state of the CCRSI does not include liquids, or purposeful design for the impoundment of liquids, but the CCRSI does not cease to be a CCRSI and continues its active life, until it is properly closed.

To divine its proper meaning, we must interpret the operative phrase “is disposed of” as a whole. Importantly, while the “is” retains its active present tense, the “disposal” takes the form of a past participle (“disposed”). In this way, the disposal itself can exist (it “is”), even if the act of disposal took place at some prior time.

Id. at 440. Similarly, “designed” is the past tense of “design,” while “is” allows the design to exist even if the initial design was in the past.⁷ Petitioner links the “is designed” argument with USEPA’s statements in the Part 257 Preamble that USEPA does not intend to regulate or require CCR surface impoundments that have already closed to reclose. Pet. at 20. The Part 257 Preamble does not provide its own definition of “closed;” however, as explained in paragraph 17 above, the Preamble does make a narrative statement that dewatering and capping in accordance with the rule is required. Part 257 does define “closed.” To be closed pursuant to Part 257, a CCR surface impoundment must have completed the requirements of 40 C.F.R. § 257.102 (closure) and must have initiated the requirements of 40 C.F.R. § 257.104 (post-closure care). When viewed on their own, the parts of the Part 257 Preamble quoted by Petitioner could lead owners and operators of CCR surface impoundment to interpret what being closed may require, however, the Agency maintains that the narrative in the Preamble and Part 257 make it clear that to be unregulated by Part 257, the minimum requirements of 40 C.F.R. § 257.102 must be met, and 40 C.F.R. § 257.104 initiated.

25. EEI relies upon the applicability of Part 620 to the JWAP to provide assurance that it will still be sufficiently regulated so as to protect public health and the environment. As part of its request for a finding of inapplicability of Part 845, EEI “proposes to develop a groundwater management zone (“GMZ”) under 35 Ill. Adm. Code 620.250 to address groundwater, as necessary,” so that “any potential impacts from Joppa West will be addressed.” Pet. at 25. An

⁷ Participles are known as “non-finite verbs” because they are verbs that, by themselves, do not show tense.

approvable GMZ must have Agency approved corrective action. Illinois EPA maintains that sufficient data has not been collected to approve a corrective action under 35 Ill. Admin. Code § 620.250. Illinois EPA also maintains that closure by removal or a final cover system compliant with Part 845 would sufficiently provide protection of the environment from potential impacts from the JWAP.

26. Table 3.1 of Petitioner's Exhibit 4 identifies monitoring well TPZ117D as the only monitoring well finished in the upper aquifer ("UA"). Pet. Ex. 4 at 8. Figure 3.5 displays TPZ117D as not being directly down gradient of the JWAP, although TPZ117D is nested with TPZ117. TPZ117 is installed in the upper confining unit (UCU) and does have exceedances. Because TPZ117D is not installed in the same hydrogeologic unit as the rest of the monitoring wells at the JWAP, at least an upgradient well, near G-101 and another downgradient well, near G112C, are required for adequate hydrogeologic characterization of the UA. If the Board agrees with Petitioner that the JWAP is not a CCR surface impoundment subject to Part 845, to have a potentially approvable GMZ under Part 620, Petitioner would have to conduct additional site investigation and assessment of the UA to assure that contaminants from the JWAP are not migrating through the UCU into the UA, in addition to any other required activities. *See* Ex. A (Martin Affidavit).

27. Petitioner's Exhibit 2 also claims that there is a soil and clay cover over the JWAP. Pet. Ex. 2 at 5-6. A sufficient soil cover at the JWAP should provide a barrier to groundwater infiltration at the JWAP. The barrier then reduces or eliminates the influx of water with higher amounts or varied amounts of dissolved oxygen. The dissolved oxygen changes the groundwater geochemistry potentially spurring microbial and geochemical processes. The microbial and/or geochemical processes may enable the potential release of additional metals from the JWAP CCR material to the groundwater downgradient. *See* Ex. A (Martin Affidavit).

28. Petitioner's Exhibit 3 presents data collected during the 2010 to 2013 Hydrogeologic Assessment and groundwater analytical from samples collected during March 2021. Data from the March 2021 sampling event exhibits what would be GWPS exceedances⁸ for pH, arsenic, boron, lithium, molybdenum, and selenium at the source well, XTPW01. Pet. Ex. 3, Table 3. What would be exceedances of antimony, arsenic, boron, lead, cobalt, beryllium, and sulfate are present at downgradient wells, TPZ114, G112C, TPZ116, and TPZ117. Pet. Ex. 3, Table 3. There are no exceedances in TPZ117D, exhibiting that there is no direct downward vertical hydraulic gradient carrying contamination vertically downward. Pet. Ex. 3, Table 3. Alternatively, geochemical reactions and/or microbial processes within the source material and source groundwater may be resulting in the exceedances of several heavy metals in downgradient wells. *See Ex. A (Martin Affidavit).*

29. The basic requirements for geochemical monitoring, or groundwater stabilization parameters, have been a part of the Part 620 standards since its inception. The additional field stabilization parameters, dissolved oxygen and oxidation-reduction potential, are required for adequate determination of collection of a representative sample at each individual monitoring well and adequate characterization of geochemical conditions. The additional field stabilization parameters are required for groundwater sampling under the federal rule (Part 257). The necessity for reporting of groundwater stabilization parameters are imperative now that the published materials on geochemistry and metals transport has definitively determined that the existence of reactive transport of metals. *See Ex. E and F.* The reactive transport of metals at the JWAP has not been investigated fully, as the full extent of the total metals has not been characterized.

⁸ The March 2021 sampling data indicates exceedances of both Class I GWQS in Section 620.410 and GWPS in Section 845.600 for the listed parameters. There are additional exceedances of Part 620 that have not been listed here because those constituents are not also included in Part 845.

30. According to the boring logs from XTPW01 and XSB02, the JWAP contains ash at 0.8 to 35 feet below ground surface (“bgs”) and 2.5 to 40 feet bgs, respectively. Pet. Ex. 3, Att. 3. Groundwater level during drilling was 1.5 feet bgs at XTPW01: moist to wet was logged for XTPW01 at 1.5 to 10 feet bgs, with “wet” being logged after that, signifying that saturated conditions were encountered during drilling. Pet. Ex. 3, Att. 3. Sonic drilling was performed at the location making notation of other saturation indications not possible. No water level is indicated at XSB02 due to the drilling method (also sonic) and smaller diameter of the drilling rods causing soil samples retrieved to be dried out. Pet. Ex. 3, Att. 3; Ex. A (Martin Affidavit). XTPW01 was drilled through the middle of the JWAP, XSB02 was drilled on the south side of the JWAP, and no borings were available for review of the material within the settling basin on the south end of the JWAP. No other borings presented in Petitioner’s Exhibit 3 were logged and investigated within the JWAP (including its settling basin). Ex. A (Martin Affidavit). In sum, the source material within the JWAP has not been fully characterized for potential sources of exceedances of GWPS, nor has it been fully investigated for geochemical reactions that produce the downgradient exceedances of antimony, cobalt, lead, sulfate, and beryllium.

31. The Human Health Risk Assessment (“HHRA”) presented in Petitioner’s Exhibit 4 uses mostly dissolved data collected between 2010 and 2013 and does not accurately present the data collected at the JWAP, omitting G112B and XPTW01 and not addressing what would be exceedances of the GWPS. *See* Ex. A (Martin Affidavit). Table 3.2, which is based on detections and not exceedances of the GWQS or GWPS, summarizes the mostly dissolved metals groundwater data, while omitting the majority of downgradient data from the groundwater results and providing an outsized proportion of cross gradient and upgradient data from outside of the groundwater plume. The arsenic detection limit is above the GWPS and GWQS for the samples

collected from 2010 to 2013. G112B was replaced by G112C at the beginning of 2013, skipping one sampling event in the fourth quarter of 2012. The arsenic analytical samples at G112B exceed the GWPS and GWQS in six out of nine dissolved samples collected from 2010 to 2012. In the remaining three samples, the laboratory reporting limit exceeded the GWPS and GWQS, meaning effectively no sample was collected and analyzed for arsenic during those quarters. The samples collected at TPZ117D should not be compared to other samples, as the samples were collected from a different aquifer. Because the majority of sample analytical data that is used for the evaluation is based on dissolved parameters and not total analytical parameters, the data cannot be used to accurately predict whether leaching of cobalt is occurring or whether there is a source material that is not adequately characterized at the JWAP, primarily because cobalt is not appearing in dissolved form. Ex. A (Martin Affidavit).

32. For the reasons stated above, Petitioner's assurances of the sufficiency of the current cover and the ability to sufficiently address any groundwater contamination through Part 620 should not be relied upon or considered by the Board in deciding the applicability of Part 845 to the JWAP. Illinois EPA's review of historical records fully supports its position that the JWAP is a CCR surface impoundment. Illinois EPA provides a summary of its review below for the Board's information and consideration.

33. The Joppa Station first obtained a permit to discharge wastewater into navigable waters from the United States Army Corps of Engineers ("USACE") on June 13, 1951, prior to the commencement of power generation at the facility in August 1953. *See* Ex. G, p. 3. Following the establishment of the Illinois EPA in July 1970, an application to discharge wastewater under the coverage of a National Pollutant Discharge Elimination System ("NPDES") Permit, dated June 30, 1972, was submitted to the Agency and USEPA. Ex. G. The application included the proposed

discharge of “surface drainage from now discontinued ash disposal pond” through Outfall 001. Ex. G, p. 9. A state construction permit to construct the East Ash Pond (Permit No. 1973-EA-1458) was issued on July 11, 1973. Ex. H. Therefore, the referenced discontinued ash disposal pond in the 1972 NPDES permit application was the West Ash Pond, as no other ash disposal ponds exist at the site. Ex. I (MacDonna Affidavit).

34. The Petition states that the JWAP was in use at the site by 1957. Pet. at 12. Thus, the West Ash Pond was the only ash disposal pond in use at the facility from its first date of use in 1957 until the East Ash Pond was constructed in 1973. A memorandum from the Saline Sub-Section to the Division of Water Pollution Control’s Surveillance Section, dated November 14, 1973, noted that the existing ash pond (the West Ash Pond) would be discontinued and all discharges from it would cease following the completion of the East Ash Pond. Ex J. The same memorandum also states that the Agency issued operating permits to EEI on March 1, 1973, allowing discharges from the West Ash Pond through discharge point #009. *Id.*

35. USEPA Region V issued NPDES Permit (Permit No. IL0004171) to the facility, with approval from Illinois EPA, on July 26, 1974. Ex. K. Ash pond discharges permitted by this permit were for the East Ash Pond only, not the West Ash Pond. No permits are on record showing approval of closure of the West Ash Pond. Ex. I (MacDonna Affidavit). Stormwater runoff from the West Ash Pond has been discharged to the Ohio River through Outfall 011 of the NPDES Permit since the permit was modified to include it on July 5, 1993. *See* Ex L. Permits for the West Ash Pond, the construction/operation of the East Ash Pond, and the other aforementioned documents encompassing the years 1951 to 1974 are listed in Table 1, attached as Exhibit M.

36. Exhibits N through V show the aerial photographs of the Joppa Station between October 1971 and February 2020. Exhibit N shows the JWAP actively in use. Exhibits O through V show varying stages of vegetative cover and erosional features at the JWAP.

37. Exhibit N shows the Joppa Station in operation in October 1971. The JWAP is evident with wet CCR material being placed through wet placement methods. The plant is operating with emissions flowing out of the stack at the plant. There is a pond to the northeast of the JWAP that is in the same location as the pond associated with the discharge from Outfall 011 that NPDES Permit IL0004171 was modified to include in 1993. *See* Ex. A and Ex. I (Martin & MacDonna Affidavits). The pond functions to collect stormwater runoff from the JWAP and discharges to the Ohio River (“discharge pond”). *See* Ex. I (MacDonna Affidavit).

38. Exhibit O shows the Joppa Station in operation in August 1980. The settling basin on the south side of the JWAP still has water in it. There is erosional surface scarring apparent in the aerial photograph depicting the surface water drainage throughout the JWAP to the low areas. The JWAP is still exposed on the north side with evidence remaining of wet placement of CCR material placement. The northeast pond identified in Exhibit N remains present in the 1980 aerial photo. *See* Ex. A (Martin Affidavit).

39. Exhibit P shows the Joppa Station in operation in March 1993. The settling basin on the south side of the JWAP still has water in it. There is erosional surface scarring apparent in the aerial photograph depicting the surface water drainage throughout the JWAP to the low areas. The JWAP has ponding in several locations but also has vegetation growing on the north and south sides. Just northeast of the JWAP is a discharge pond for draining of the remaining water in the JWAP on the north side. The pond is in relatively the same location as the previously mentioned pond to the northeast of the JWAP but has been modified to encompass a smaller area and a road

separates it from the JWAP. *See* Ex. A (Martin Affidavit). EEI modified NPDES Permit No. IL0004171 in 1993 to allow for stormwater discharge from the “former ash pond” (Outfall 011) to the Ohio River. *See* Ex. L and Ex. I (MacDonna Affidavit).

40. Exhibit Q shows the Joppa Station in operation in November 1998. The erosional surface scarring apparent in Exhibit P remains present and leads to low points of ponding at the JWAP. The settling basin on the south side of the JWAP still has water in it. The JWAP has become fully overgrown and has two utility corridor landscaping strips evident crossing it from southeast to northwest. The discharge pond and discharge from the JWAP is still present. *See* Ex. A (Martin Affidavit).

41. Exhibit R shows the Joppa Station in operation in March 2005. The erosional surface scarring apparent in Exhibits P and Q remains present and leads to low points of ponding at the JWAP. The settling basin on the south side of the JWAP still has water in it. The JWAP has become fully overgrown and has two utility corridor landscaping strips evident crossing it from southeast to northwest and connecting with a third. The discharge pond and discharge from the JWAP is still present. *See* Ex. A (Martin Affidavit).

42. Exhibit S shows the Joppa Station in operation in May 2015. The erosional surface scarring apparent in Exhibits P, Q and R remains present but heavily vegetated and leads to the discharge pond just northeast of the JWAP. The settling basin on the south side of the JWAP is overgrown with vegetation and no water is evident. The JWAP has become fully overgrown and has two utility corridor landscaping strips evident crossing it from southeast to northwest and connecting with a third. The discharge pond and discharge from the JWAP is still present. *See* Ex. A (Martin Affidavit).

43. Exhibit T shows the Joppa Station in operation in March 2017. The erosional surface scarring apparent in Exhibits P, Q, R and S remains present but heavily vegetated and leads to the discharge pond just northeast of the JWAP. The settling basin on the south side of the JWAP is overgrown with vegetation and no water is evident. The JWAP has become fully overgrown and has two utility corridor landscaping strips evident crossing it from southeast to northwest and connecting with a third. There is an exposed spot on the northwest corner. The discharge pond and discharge from the JWAP is still present. *See* Ex. A (Martin Affidavit).

44. Exhibit U shows the Joppa Station in operation in September 2018 and Exhibit V shows the Joppa Station in operation in February 2020. The erosional surface scarring apparent in Exhibits P, Q, R, S and T remains present but heavily vegetated in both aerials and leads to the discharge pond just northeast of the JWAP. The settling basin on the south side of the JWAP is overgrown with vegetation and no water is evident. The JWAP has become fully overgrown and has two utility corridor landscaping strips evident crossing it from southeast to northwest and connecting with a third. The exposed spot on the northwest corner is covered with low lying vegetation. The discharge pond and discharge from the JWAP is still present. *See* Ex. A (Martin Affidavit).

45. The Expert Engineering Evaluation for Adjusted Standard for Part 845 also performs an aerial photography review of the site. *See* Pet. Ex. 2. EEI does not provide compelling evidence supporting the aerial findings that the JWAP has not received ash or CCR materials since October 15, 2015. The sediments discussed in Petitioner's Exhibit 2 correlate with the exposed area shown in Exhibit T and discussed above in paragraph 43. *See* Pet. Ex. 2 at 4 and Ex. A (Martin Affidavit).⁹

⁹ "Sediments dredged from the Ohio River near the original discharge structure were placed along the western side of Joppa West as shown on **Figure 2-4**. This area has an estimated 90% grass cover but has limited topsoil; the remainder is exposed sediments. Joppa West ceased receiving CCR prior to October 19, 2015 and was capped or otherwise maintained as of October 19, 2015 and therefore is not subject to Title 40 of the Code of Federal Regulations (40

The material was dredged “from the Ohio River near the original discharge structure” and placed within the JWAP. This sediment, which likely contains CCR material, has been exposed and continues to be exposed. *See* Ex. T, U, V and Ex. A (Martin Affidavit). Additionally, NPDES Permit No. IL0004171 currently authorizes discharge from the “former ash pond,” indicating that the sediments include materials from the former ash pond, JWAP. Ex. W, Ex. A (Martin Affidavit), and Ex. I (MacDonna Affidavit).

46. For the reasons explained above, the JWAP meets the definition of a CCR surface impoundment subject to Part 845’s requirements. Accordingly, Illinois EPA will evaluate Petitioner’s request for adjusted standard below.

**IV. RECOMMENDATION REQUIREMENTS AND ANALYSIS OF REQUEST
FOR ADJUSTED STANDARD**

47. Illinois EPA’s Recommendation must set forth the rationale for the Agency’s position and may present any information which the Agency believes is relevant to the Board’s consideration of the proposed adjusted standard. 35 Ill. Adm. Code §104.416(a). At a minimum, the Agency must address and respond to the petition with respect to each issue raised by the requirements of Section 104.406(a) through (j). 35 Ill. Adm. Code § 104.416(b).

48. Illinois EPA hereby provides its analysis of EEI’s request for an adjusted standard exempting the JWAP at EEI’s Joppa Power Plant in Massac County, Illinois, from certain provisions of Part 845:

C.F.R.) Part 257 Subpart D in accordance with 40 C.F.R. § 257.50(d).” Petitioner’s Exhibit 2 does not provide a date for this dredging and placement of material in the JWAP, but Exhibits S and T indicate it was placed within the JWAP between 2015 and 2017. In fact, with the habitat restrictions governing protection of the Indiana bat, cited out of concern by Petitioner should it be forced to clear the cover, the removal of vegetation to allow for placement of the sediments could only have occurred between October 15, 2015 through March 31, 2016 and October 15, 2016 through March 31, 2017. *See* Paragraph 48(g) below.

a. Standard from which the Adjusted Standard is Sought.

Petitioner must include “[a] statement describing the standard from which an adjusted standard is sought. This must include the Illinois Administrative Code citation to the regulation of general applicability imposing the standard as well as the effective date of that regulation[.]” 35 Ill. Adm. Code § 104.406(a). EEI requests an adjusted standard exempting the JWAP from all of Part 845, which became effective on April 21, 2021, except:

- a. All of Subpart A.
- b. The following Sections of Subpart B: 845.200; 845.210, 845.220(a), (c), (g)(1); 845.230(c) and (d)(4); 845.240; 845.250; 845.270; 845.280; 845.290
- c. The following Sections of Subpart F: 845.600(a); 845.610; 845.620. 845.630(a)-(e), (g); 845.640; 845.650; 845.660; 845.670, 845.680.
- d. The following Sections of Subpart G: 845.760(h); 845.780(b)–(f).
- e. All of Subpart I.

In summary, if the Board finds Part 845 applicable to the JWAP, Petitioner agrees to comply with operating permit and corrective action construction permit requirements, public participation requirements, groundwater monitoring requirements, groundwater protection standards, corrective action requirements, deed notations, post-closure maintenance, and financial assurance requirements. Petitioner is essentially requesting an adjusted standard exempting the JWAP from design criteria, closure and cover requirements, and record-keeping requirements.

- b. Whether the regulation of general applicability was promulgated to implement, in whole or in part, the requirements of the CWA, Safe Drinking Water Act, Comprehensive Environmental Response, Compensation and Liability Act, CAA, or the State programs concerning RCRA, UIC, or NPDES.**

Petitioner must include “[a] statement that indicates whether the regulation of general applicability was promulgated to implement, in whole or in part, the requirements of the CWA (33

USC 1251 et seq.), Safe Drinking Water Act (42 USC 300(f) et seq.), Comprehensive Environmental Response, Compensation and Liability Act (42 USC 9601 et seq.), CAA (42 USC 7401 et seq.), or the State programs concerning RCRA, UIC, or NPDES (see 415 ILCS 5/28.1)[.]” 35 Ill. Adm. Code §104.406(b). Illinois EPA agrees with Petitioner’s statements that Part 845 was not promulgated to implement, in whole or in part, the requirements of the federal Clean Air Act, Safe Drinking Water Act, or CERCLA, or the State RCRA, UIC, or NPDES programs. Pet. at 10.

c. The level of justification as well as other information or requirements necessary for an adjusted standard.

Petitioner must include “[t]he level of justification as well as other information or requirements necessary for an adjusted standard as specified by the regulation of general applicability or a statement that the regulation of general applicability does not specify a level of justification or other requirements (see 415 ILCS 5/28.1 and Section 104.426 of this Part)[.]” 35 Ill. Adm. Code §104.406(c). Illinois EPA agrees with Petitioner that since Part 845 does not specify a level of justification for an adjusted standard, the applicable level of justification are the factors identified in Section 28.1(c) of the Act, 415 ILCS 5/28.1(c) (2020). Pet. at 26. This Recommendation will address these factors in paragraph 48(h) below.

d. The nature of the petitioner’s activity that is the subject of the proposed adjusted standard.

Petitioner must include “[a] description of the nature of the petitioner's activity that is the subject of the proposed adjusted standard. The description must include the location of, and area affected by, the petitioner's activity. This description must also include the number of persons employed by the petitioner's facility at issue, age of that facility, relevant pollution control equipment already in use, and the qualitative and quantitative description of the nature of

emissions, discharges or releases currently generated by the petitioner's activity[.]” 35 Ill. Adm. Code § 104.406(d).

i. Description of Petitioner’s Facility, Activities and the JWAP

Petitioner maintains that the JWAP is not designed to impound water, nor has it been since October 19, 2015, and that it is capped or otherwise maintained. According to the Petition, after the JWAP “stopped receiving CCR in the early 1970s, it developed a layer of coverage consisting of soil and vegetation, and its design changed so that it can no longer hold water.” Pet. at 14. The JWAP was constructed as an ash pond for disposal of the ash or CCR produced from operations at the Joppa Station per the USACE permit issued on June 13, 1951. *See* Ex. G, p. 3. On June 30, 1972, EEI submitted an application to the USACE for the West Ash Pond to use an outfall (Outfall 001) for discharging surface water from the JWAP to the Ohio River. Ex. G.

Petitioner states that the JWAP is over 100 acres and contains 3,400,000 cubic yards of CCR. Pet. at 36. Test pits and borings drilled inside the JWAP, XSB02 and XTPW01, exhibit that ash remains below the surface and more than half of the ash volume below the surface is below the static groundwater table. Pet. Ex. 2, App. C and D; Pet. Ex. 3, Att. 3. In fact, the Petition admits to the “cover” at the JWAP being “developed [by] a layer of coverage consisting of soil and vegetation and its design changed so that it can no longer hold water.” Pet. at 14. Topsoil is produced from vegetation, composed of partially decomposed organic materials and thus is not a clay material with a hydraulic conductivity that would prevent infiltration. Ex. X at 4-10, 4-11; Ex. A (Martin Affidavit). The JWAP is fully saturated with static groundwater recharged directly through the CCR material in the JWAP, and the JWAP cover is not sufficient to prevent infiltration. However, the mass of heavy metals and other constituents listed in Section 845.600 may have reduced because of mass transport and geochemical processes over the last 45 years. The extent of

constituents listed in Section 845.600 remaining above GWPS should be fully investigated. Total metals, as opposed to dissolved metals, in accordance with Section 845.640(i) should be used to compare with Section 845.600 GWPS. *See* Ex. A (Martin Affidavit). As stated in Section 845.640(i), “measurement of total recoverable metals captures both the particulate fraction and dissolved fraction of metals in natural waters.” 35. Ill. Adm. Code §845.640(i).

According to Petitioner, “the design of Joppa West was changed upon closure, and it was graded to prevent standing water and to promote drainage.” Pet. at 16. However, when the Joppa Station ceased operation of the JWAP in 1973, the whole of the JWAP was not graded; portions were graded leaving low areas with standing water on both ends of the JWAP. *See* Ex. A (Martin Affidavit). While portions of the JWAP were graded for the utility corridor, the ponding of water is still apparent in Exhibits O (1980), P (1993), Q (1998), and R (2005). *See* Ex. A (Martin Affidavit). According to the Petition, the clay cover is one to two inches except where the utility corridor is located. The utility corridor has approximately one foot of clay cover. Pet. at 15. Petitioner’s Exhibit 2 contains aerial photographs and topographic contours collected in August and September 2015. Petitioner’s Exhibit 2 also contains test pit logs and photos of standing water in the JWAP. Upon close inspection, Exhibits O through V show erosional pathways leading to low areas. As the JWAP becomes more vegetated, the erosional surfaces are covered from view by trees, but still have greener and heavier vegetation following the relative same paths easily seen in earlier aerial photographs. Petitioner’s Exhibit 2 shows storm water flow paths to the permitted outfall for stormwater and other water from the JWAP. With the lack of cover and exposed CCR sediments, CCR is likely travelling out of the JWAP and into the outfall or streams leading to the outfall. *See* Ex. A (Martin Affidavit).

ii. Nature of Emissions, Discharges or Releases Generated by Petitioner's Activity

The Petition provides the following summary of groundwater sampling and analysis at the JWAP:

“Groundwater monitoring conducted at Joppa West has shown CCR contaminants associated with Joppa West are not present in groundwater at levels above regulatory limits, with the exception of boron and sulfate readings at one well. Groundwater monitoring from seven wells, for the inorganic parameters listed in 35 Ill. Admin. Code § 620.410 was conducted at Joppa West between 2010 and 2013. Ex. 9 at 3-2. Groundwater samples during this investigation were analyzed and compared to the GWQS for Class II groundwater in 35 Ill. Admin. Code section 620.420. Id. at 5-1-5-2. This sampling found pH exceedances at two monitoring wells and boron exceedances at one monitoring well. Id. The pH exceedances were determined to not be associated with coal ash leachate, as that tends to be alkaline. Id. Thus, the boron exceedances were the only exceedances potentially related to CCR at Joppa West. Id. at 5-2-5-4. The three boron exceedances had concentrations ranging from 3.1 to 3.3 mg/L and occurred at monitoring well G112C, located just south of the southern tip of Joppa West. Id. Notably, these boron exceedances were observed in the UCU layer, indicating that they did not impact any potable water source.”

Pet. at 17 (footnotes omitted).

During the course of the Hydrogeologic Assessment, EEI did not evaluate the JWAP CCR material for leaching, geochemical changes to the groundwater over distance or for exposed sediments. *See* Ex. B and Ex. A (Martin Affidavit). While Illinois EPA understands that there is one foot or so of clay over the top of the JWAP along the utility corridor, Illinois EPA maintains that a sufficient evaluation of the organic clay cover and/or remaining heavy metals within the CCR materials of the JWAP and groundwater would require sufficient groundwater results exhibiting the efficacy of the cover or lack of remaining heavy metals for transport in the groundwater. The evaluation should include five years of quarterly analytical data for total metals and general chemical parameters in accordance with Section 845.600. It is the Agency's position

that the Board must require an evaluation demonstrating that there is a geochemical pathway to resolution of heavy metal transport within a 30 year period in order to allow the vegetation to stay in place without further action by Petitioner beyond MNA.

Furthermore, groundwater has not been fully investigated at this time to substantiate the conclusions of HHRA. *See* Pet. Ex. 4. The HHRA was mostly based on dissolved metals concentrations and general chemical parameters listed in Section 620.410 and excluded data for monitoring well G112B, which has been abandoned and replaced with well G112C. *See* Ex. A (Martin Affidavit). The abandonment of G112B and installation of G112C was completed with Agency approval for the purpose of the hydrogeologic assessment under Section 620.420. G112C still has what would be Section 845.600 GWPS exceedances for cobalt and boron, and also exceeds for boron, cobalt and other parameters monitored under Section 620.420. The use of limited groundwater data, and four quarters of sampling data at G112C compared to twelve quarters of data at upgradient and cross gradient wells (G111, G101, G113), does not accurately weigh the risk associated with the direct downgradient exceedance of multiple GWQS and GWPS. *See* Ex. A (Martin Affidavit).

Section 845.640(i) states that “the owner or operator must measure total recoverable metals concentrations in measuring groundwater quality. Measurement of total recoverable metals captures both the particulate fraction and dissolved fraction of metals in natural waters.” The HHRA specifically states that it used dissolved concentrations for comparison to GWQS. *See* Pet. Ex. 4 at 17 and Table 4.1. Only one round of sampling for total metals concentrations has been conducted at JWAP. The total metals and general chemical constituents were collected in March 2021. There is an extreme change in pH between the JWAP source well and the downgradient wells indicating a potential for a corrosive environment. The source well is not exceeding all the

same constituents as the down gradient wells. Thus, the results of the analyses provided an initial characterization of the potential geochemical complexities that need further investigation. Ex. A (Martin Affidavit).

Exhibit Y is a draft representation and geospatial configuration of what would be exceedances of Section 845.600 at the JWAP based on the March 2021 sampling event. The pH at the source, XTPW01, was 11.1, whereas the pH at the other wells were 7+-0.3, signifying an acidic groundwater environment that is changing the pH in the source to as low as 6.7 at TPZ117. Ex. A (Martin Affidavit). Exhibit Y also shows that the JWAP groundwater at the source and downgradient is either actively changing due to unknown geochemical parameters and/or the source material has not been adequately characterized. Ex. A (Martin Affidavit). Geochemistry must be understood to eliminate reactive transport of the metals constituents at the West Ash Pond. *See* Ex. E.

e. Efforts that would be necessary if the petitioner was to comply with the regulation of general applicability.

Petitioner must include “[a] description of the efforts that would be necessary if the petitioner was to comply with the regulation of general applicability. All compliance alternatives, with the corresponding costs for each alternative, must be discussed. The discussion of costs must include the overall capital costs as well as the annualized capital and operating costs[.]” 35 Ill. Adm. Code §104.406(e).

According to Petitioner’s Exhibit 2, the cost of “minimal disturbance” or natural attenuation for 50 years is \$500,000. This cost estimate assumes that the infiltration from precipitation through the surface of the CCR surface impoundment is not significant and that the groundwater chemistry is homogeneous and stable, which is contradictory to the data collected in March 2021. Ex. A (Martin Affidavit). The March 2021 data shows an acidic groundwater

environment with potential leaching of heavy metals occurring. *See* Pet. Ex. 3, Table 3 and Ex. Y. Cobalt, lead, beryllium, antimony, and sulfate occur downgradient of the source well which may be indicating that leaching of the aforementioned metals and general chemistry parameters is occurring. *See* Pet. Ex. 3, Table 3, Ex. Y and Ex. A (Martin Affidavit). Those heavy metals and general chemistry parameters occurred downgradient above GWPS. *Id.* Arsenic is also above GWPS both within the CCR surface impoundment and down gradient of the JWAP. *Id.* At best, the JWAP CCR surface impoundment has not been fully characterized to understand where the cobalt, lead, beryllium, antimony and sulfate are originating. The cost estimate provided does not account for corrective action beyond natural attenuation under Part 620 or Part 845 which could be required once more data is collected.

According to Petitioner's Exhibit 2, closure in place with a new cover system costs would require more than \$2.6 million in vegetation removal and Geosyntec Consultants had not calculated the cost of a cover. However, the financial gains from harvesting the forest and reduced cost of post-closure care, expected to be 30 years instead of 50 years as provided in the first cost estimate in Petitioner's Exhibit 2, would help offset the costs of a final cover system in accordance with Part 845. Additionally, an evaluation of the lumber market value and other sustainable options have not been provided as part of the assessment. Costs of clay for a cover may be reduced by using material onsite that has been set aside from previous construction of the East Ash Pond or West Ash Pond.

According to Petitioner's Exhibit 2, the closure by removal costs would require more than \$2.6 million in vegetation removal and Geosyntec Consultants had not calculated the cost of closure by removal. Even though the cost of vegetation removal could be negated or reduced through sustainable options, the cost of removal may be great depending on where the CCR

material is transported and proximity to of a CCR landfill or RCRA Subtitle D landfill. According to Petitioner's Exhibit 2, retrofit and use of the JWAP as a CCR surface impoundment was not considered for this Petition.

f. Proposed Adjusted Standard and efforts necessary to achieve the Proposed Standard.

Petitioner must include “[a] narrative description of the proposed adjusted standard as well as proposed language for a Board order that would impose the standard. Efforts necessary to achieve this proposed standard and the corresponding costs must also be presented[.]” 35 Ill. Adm. Code § 104.406(f). Illinois EPA does not object to the Board granting Petitioner's proposed adjusted standard upon the stated conditions that Petitioner provide sufficient demonstration that the JWAP does not pose a threat to human health or the environment. The Agency has provided suggested revisions to Petitioner's proposal in its Recommendation contained in Section V below. The Petition does not directly speak to the costs of implementing the proposed adjusted standard. Illinois EPA maintains that if the proposed adjusted standard is granted, costs to Petitioner should be commensurate with all other CCR surface impoundments that have to comply with Part 845, with the exception of closure costs, which could be higher or lower than other regulated CCRSIs if no adjusted standard is granted, depending on the closure method implemented and business choices of Petitioner.

g. Impact of the petitioner's activity on the environment if petitioner were to comply with the regulation of general applicability as compared to the impact on the environment if the petitioner were to comply with the proposed adjusted standard.

Petitioner must include “[t]he quantitative and qualitative description of the impact of the petitioner's activity on the environment if the petitioner were to comply with the regulation of general applicability as compared to the quantitative and qualitative impact on the environment if the petitioner were to comply only with the proposed adjusted standard. To the extent applicable,

cross-media impacts must be discussed. Also, the petitioner must compare the qualitative and quantitative nature of emissions, discharges or releases that would be expected from compliance with the regulation of general applicability as opposed to that which would be expected from compliance with the proposed adjusted standard[.]” 35 Ill. Adm. Code § 104.406(g).

The Petition provides the following evaluation of the potential environmental risk posed by the JWAP, as it currently exists, without being required to meet Part 845’s standards of closure:

“Allowing Joppa to close with its existing cover will not pose a human health risk. Joppa West no longer impounds water. Ex. 2 at 6, 10, 11, 12, 18; Ex. 3 at 8. It poses little risk of leaching or runoff to groundwater or surface water bodies. Groundwater monitoring has shown no exceedances of CCR-related contaminants, with the exception of boron and sulfate at one monitoring well, G112C. *Id.* at 4. The exceedances found are not in any viable potable water source. *Id.* at 3, 8; Ex. 4 at 8–10. Monitoring at all of the wells surrounding Joppa West, other than at G112C, including a downgradient monitoring well closest to the Ohio River did not find any exceedances of boron, sulfate, or any other constituent associated with CCR from Joppa West. Ex. 3 at 15–16; Ex. 4 at 8–10. The groundwater impacts of CCR observed at well G112C occurred in the shallow UCU layer, which is not a viable source of potable water and does not pose a risk to human health. Ex. 3 at 3, 8; Ex. 4 at 13–14. No downstream impacts of CCR from Joppa West have been observed in the uppermost aquifer, indicating there is minimal hydraulic connectivity between Joppa West and the shallowest usable water bearing unit. Ex. 3 at 3, 4; Ex. 4 at 15. Significantly, there are no potential groundwater receptors in the vicinity of Joppa West.”

See Pet. at 32.

Illinois EPA maintains that adequate characterization of the CCR surface impoundment and groundwater requires sufficient groundwater results exhibiting the efficacy of the cover, geochemistry of the groundwater environment, and groundwater transport potential. There may not be any current groundwater receptors, but it cannot be assumed that a potential future owner

will not want to use the available groundwater resource.¹⁰ Sufficient groundwater data would include five years of quarterly analytical data for total metals and general chemical parameters compared to 35 Ill. Adm. Code § 845.600. New, appropriately placed groundwater monitoring wells must be installed in the UA, to confirm that the UCU has prevented migration of CCR contaminants into it. The groundwater data must indicate that the reactive transport geochemistry within the JWAP and downgradient of the JWAP is stable and the groundwater protection standards in Part 845.600 are not exceeded.

The March 2021 data shows an acidic groundwater environment with potential leaching of heavy metals occurring. *See* Pet. Ex. 3, Table 3, Ex. Y and Ex. A (Martin Affidavit). Cobalt, lead, beryllium, antimony and sulfate occur downgradient of the source well which may be indicating that leaching of the aforementioned metals and general chemistry parameters is occurring. *Id.* Those heavy metals and general chemistry constituents occurred downgradient above groundwater protection standards. Arsenic is also above GWPS both within the CCR surface impoundment and downgradient of the JWAP. *Id.* At best, the JWAP CCR surface impoundment has not been fully characterized to understand where the cobalt, lead, beryllium, antimony and sulfate are originating. *See* Ex. A (Martin Affidavit).

Groundwater has not been fully investigated at this time to substantiate the conclusions of the HHRA or compliance with regulatory limits presented in the Petition. Until March 2021, groundwater samples were filtered, and reported as dissolved, and are not representative of the

¹⁰ [Vistra has announced that the Joppa Station will close by September 2022. See Joppa Power Plant to close by September 2022, three years sooner than first announced \(msn.com\) \(April 6, 2021\).](#)

total metals and general chemistry constituents.¹¹ Additionally, characterization of the geochemistry of the groundwater has not been completed. Geochemistry must be understood to eliminate reactive transport of the metals constituents at the JWAP. *See* Ex. E.

The Ohio River at the JWAP flows northwest to the Mississippi River entering a Community Supply Well River Intake Zone 1 Protection Area within 5 miles of the JWAP. Ex. Z and Ex. A (Martin Affidavit). The JWAP is discharging to the Ohio River upstream of the protected area. The potential for discharge constituents associated with CCR material from the JWAP to be present in the Ohio River from Outfall 011 is not included in the Conceptual Site Model or Section 3.2 of Petitioner's Exhibit 4. Ex. A (Martin Affidavit). Surface water sampling included mercury only at Outfall 011 and sampling was ceased prior to 2015. Thus, the exposure pathway has not been fully examined in the Adjusted Standard Petition.

Petitioner states that requiring closure under Part 845 would require removal of approximately 100 acres of thick forest and prairie vegetation that has been allowed to grow over the JWAP over the last fifty (50) years. Pet. at 31. Petitioner further asserts that the vegetation covering the JWAP is a habitat for the endangered Indiana bat and threatened long-eared bat. Pet. at 31-32. "Joppa West also serves as home to wildlife. The U.S. Fish and Wildlife Service has indicated the federally endangered Indiana bat and the federally threatened northern long-eared bat as potentially present in the forest area at Joppa West, noting that in the summer these bats prefer roosting in in areas similar to the bottomland forest located at Joppa West." Pet. at 36. According to the US Fish and Wildlife Service ("USFWS"), the trees at the JWAP are subject to a review before clearing. In the strictest interpretation of the USFWS guidance, the trees would

¹¹ Bexfield, Laura. New Mexico Water Science Center, US Geological Survey. https://www.usgs.gov/mission-areas/water-resources/science/metals-and-other-trace-elements?qt-science_center_objects=0#qt-science_center_objects, last accessed September 14, 2021.

not be able to be removed between April 1 and October 14 of any calendar year due to the hibernation and mating habits of the Indiana bat. Ex. AA at 3, 5.

h. Justification of the proposed adjusted Standard.

Petitioner must include “[a] statement that explains how the petitioner seeks to justify, under the applicable level of justification, the proposed adjusted standard[.]” 35 Ill. Adm. Code §104.406(h).

Illinois EPA agrees with Petitioner that, because Part 845 does not specify a level of justification for an adjusted standard, the applicable level of justification are the factors identified in Section 28.1(c) of the Act, 415 ILCS 5/28.1(c) (2020), as set forth below:

“If a regulation of general applicability does not specify a level of justification required of a petitioner to qualify for an adjusted standard, the Board may grant individual adjusted standards whenever the Board determines, upon adequate proof by petitioner, that:

- (1) factors relating to that petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to that petitioner;
- (2) the existence of those factors justifies an adjusted standard;
- (3) the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
- (4) the adjusted standard is consistent with any applicable federal law.”

Illinois EPA maintains the following regarding JWAP and the aforementioned factors:

- (1) The factors relating to the JWAP have not been proven substantially and significantly different from the factors relied upon by the Board in adopting the regulation applicable to the JWAP. The JWAP CCR surface impoundment contains 3,400,000 cubic yards of CCR, much of which is saturated with groundwater, and is covered with material that is not designed to prevent infiltration of precipitation. The JWAP has not been adequately characterized and thus an adjusted standard should only be granted on a conditional basis.

- (2) Granting of the Adjusted Standard should be contingent on whether geochemistry data and the groundwater analytical data support stable geochemistry and natural attenuation at the site, or if further corrective action is needed.
- (3) The JWAP has not been adequately characterized to determine if leaching of heavy metals is occurring within the groundwater both within the JWAP and down gradient of the JWAP and if so, whether natural attenuation is a viable solution.
- (4) Petitioner maintains that the JWAP is not subject to 40 CFR 257, Subpart D, which is a self-implementing regulatory scheme that is not enforced by USEPA.

i. Reasons the Board may grant the proposed adjusted standard consistent with federal law.

Petitioner must include “[a] statement with supporting reasons that the Board may grant the proposed adjusted standard consistent with federal law. The petitioner must also inform the Board of all procedural requirements applicable to the Board's decision on the petition that are imposed by federal law and not required by this Subpart. Relevant regulatory and statutory authorities must be cited[.]” 35 Ill. Adm. Code §104.406(i). Petitioner does not consider the JWAP to be regulated by Part 257, which is a self-implementing federal program. For this reason, the Board may grant the proposed adjusted standard consistent with federal law.

V. RECOMMENDATION

49. EEI requests an adjusted standard exempting the JWAP from all of Part 845, which became effective on April 21, 2021, except:

- a. All of Subpart A.
- b. The following Sections of Subpart B: 845.200; 845.210; 845.220(a), (c), (g)(1); 845.230(c) and (d)(4); 845.240; 845.250; 845.270; 845.280; 845.290.

- c. The following Sections of Subpart F: 845.600(a); 845.610; 845.620; 845.630(a)-(e), (g); 845.640; 845.650; 845.660; 845.670; 845.680.
- d. The following Sections of Subpart G: 845.760(h); 845.780(b)-(f).
- e. All of Subpart I.

50. If the Board grants Petitioner's requested adjusted standard, Illinois EPA recommends that the Board limit the adjusted standard to a six-year period, during which Petitioner must conduct groundwater monitoring in accordance with Subpart F to collect five years of quarterly analytical data for total metals and general chemical constituents in accordance with Section 845.600, and provide a report evaluating the remaining heavy metals for transport in the groundwater. Illinois EPA is requesting that the Board require Petitioner to collect sufficient data to provide a mass transport model, a geochemical model and a flow model that exhibit that any groundwater contamination from the JWAP exceeding the groundwater protection standards in Section 845.600 is, in fact, naturally attenuating in a manner protective of human health and the environment. Illinois EPA maintains that sufficient data would typically be a minimum of 10 data points for each season^[1] to properly characterize the effects of precipitation, infiltration, potential flooding, and other potential groundwater recharge impacts at the JWAP. Petitioner must also conduct source monitoring and characterize the CCR for purposes of geochemical modeling and sufficiently evaluating leaching potential. Once the five years of groundwater sampling for purposes of transport evaluation is concluded, groundwater sampling will be subject to any renewed adjusted standard or Subpart F.

^[1] In Illinois, groundwater elevations are typically higher in the spring and summer as compared with fall and winter. Therefore, five years of quarterly sampling would provide 10 samples from the high groundwater elevation season and 10 samples from the low groundwater elevation season

51. Additionally, if the Board grants Petitioner's adjusted standard, Illinois EPA recommends that Petitioner also be required to comply with the recordkeeping requirements in Subpart H that correspond with the requirements of the adjusted standard.

52. If Petitioner's groundwater monitoring triggers corrective action under Section 845.650(d), it must still notify the Agency and place the notification in its operating record. Petitioner must also work to characterize the release as required in Section 845.650(d)(1); however, the groundwater sampling and resulting evaluation completed pursuant to the conditional adjusted standard will serve as Petitioner's assessment of corrective measures required under Section 845.660. The Agency will consider monitored natural attenuation to be Petitioner's corrective action required under Sections 845.670 and 845.680 throughout the six-year adjusted standard.

53. If Petitioner makes sufficient demonstration that the current cover system and monitored natural attenuation will achieve compliance with the GWPS in Section 845.600 within a thirty-year period after completion of the six-year adjusted standard, as determined by the Board, Illinois EPA is amenable to a renewed adjusted standard acknowledging that the unit is "closed" requiring the initiation of post-closure care in accordance with Section 845.780 and the continuance of groundwater monitoring until the GWPS are met.

54. If Petitioner fails to make sufficient demonstration that the current cover system and monitored natural attenuation will achieve compliance with the GWPS in Section 845.600 within a thirty-year period after completion of the six-year adjusted standard, Illinois EPA is also amenable to a renewed adjusted standard allowing for an alternative closure method which could consist of (a) an alternative cover system that includes options not otherwise contemplated by Part 845, if the long-term efficacy and durability of the alternative cover system is maintained or (b) a

combination of an alternative cover system and corrective action beyond MNA. The primary goal of any renewed adjusted standard is that, at the end of the six-year conditional adjusted standard granted in this proceeding, Petitioner make a demonstration that the closure method, either in place or to be constructed, and, as needed, corrective action, meets the objective of resolving any heavy metal transport will be resolved within thirty years after completion of the six-year conditional adjusted standard. As part of its renewed adjusted standard petition, Petitioner must provide a closure alternative analysis compliant with Sections 845.710(b) – (d), comparing Petitioner's chosen closure method to the methods allowed under Part 845 and demonstrating that it is protective of human health and the environment and achieves compliance with the GWPS in Section 845.600. If the Board approves Petitioner's use of an alternative closure system, the closure alternatives analysis will then be included in any necessary (joint closure and corrective action) construction permit application submitted prior to implementation.

55. The JWAP will not be considered "closed" until (1) Petitioner demonstrates it will achieve compliance with GWPS in Section 845.600 within a thirty-year post-closure period, (2) Petitioner completes an alternative closure method approved by the Board and permitted by the Agency, or (3) or the JWAP is closed pursuant to Part 845 by deadlines set by the Board.

WHEREFORE, for the above and foregoing reasons, Illinois EPA recommends that the Board DENY Petitioner's request for a finding that Part 845 is inapplicable to the Joppa West Ash Pond and CONDITIONALLY GRANT the requested adjusted standard subject to the conditions provided above.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

Respondent,

Dated: November 22, 2021

BY: /s/ Christine Zeivel
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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** by e-mail upon the following:

Joshua R. More	jmore@schiffhardin.com
Robert Middleton	rmiddleton@schiffhardin.com
Sarah L. Lode	slode@schiffhardin.com
Carol Webb	Carol.Webb@illinois.gov
Don Brown	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 November 22, 2021.

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

That the number of pages in the e-mail transmission is Nine Hundred and Fifty Six (956).

That the e-mail transmission took place before 4:30 p.m. on the date of November 22, 2021.

/s/ Christine Zeivel
November 22, 2021

Exhibit List

Exhibit A – Affidavit of Lauren Martin.

Exhibit B – Phase I Hydrogeological Assessment Report, dated July 23, 2013.

Exhibit C – Electric Energy, Inc., NPDES Permit Number IL0004171, Application for NPDES Permit to Discharge Wastewater, Form 2F, dated January 29, 2020.

Exhibit D – Affidavit of Lynn Dunaway.

Exhibit E – Brown, James G., Glynn, Pierre D., Bassett, R.L., “Geochemistry and Reactive Transport of Metal Contaminants in Ground Water, Pinal Creek Basin, Arizona,” USGS 99-4018, Volume 1, Section C. (Jan. 1999).

Exhibit F – Tchounwou, Paul B et al. “Heavy metal toxicity and the environment.” *Experientia supplementum* (2012) vol. 101 (2012): 133-64. doi:10.1007/978-3-7643-8340-4_6.

Exhibit G – Department of the Army, Corps of Engineers Application for Permit to Discharge or Work in Navigable Waters and their Tributaries, IL0004171, received November 9, 1972.

Exhibit H – Illinois Environmental Protection Agency Water Pollution Control Permit, Permit Number 1973-EA-1458, issued July 11, 1973.

Exhibit I – Affidavit of Keegan MacDonna.

Exhibit J – November 14, 1973 Memorandum from Armen Asaturians, Supervisor, Saline Subunit, Surveillance Section, Division of Public Water Pollution Control.

Exhibit K – Authorization to Discharge Under the National Pollutant Discharge Elimination System, Permit No. IL 0004171, signed July 2, 1974.

Exhibit L – Modified (NPDES) Permit, Permit No. IL 00004171, issued October 20, 1989.

Exhibit M – Table 1, Summary of Permits Issued 1951 to 1974.

Exhibit N – Joppa Station Aerial Photograph, October 1971.

Exhibit O – Joppa Station Aerial Photograph, August 1980.

Exhibit P – Joppa Station Aerial Photograph, March 1993.

Exhibit Q – Joppa Station Aerial Photograph, November 1998.

Exhibit R – Joppa Station Aerial Photograph, March 2005.

Exhibit S – Joppa Station Aerial Photograph, May 2015.

Exhibit T – Joppa Station Aerial Photograph, March 2017.

Exhibit U – Joppa Station Aerial Photograph, September 2018.

Exhibit V – Joppa Station Aerial Photograph, February 2020.

Exhibit W – Electric Energy, Inc. – Joppa Energy Center, NPDES Permit No. IL00004171, Modified Permit, issued July 26, 2017.

Exhibit X – NHI Course No. 13012, Soils and Foundations, Reference Manual – Volume I, Publication No. FHWA NHI-06-088, December 2006.

Exhibit Y – Draft Representation and Geospatial Configuration of March 2021 Sampling Data above Section 845.600 GWPS.

Exhibit Z – Joppa Station Comparison of Distance to CWS River Intake Zone 1 Protection Area, Source Water Assessment Protection Program, accessed November 16, 2021.

Exhibit AA – U.S. Fish and Wildlife Service Guidance on Developing and Implementing Indiana Bat Conservation Plan, revised July 26, 2011.