BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:	)	
PETITION OF AMEREN ENERGY MEDINA VALLEY COGEN, LLC (HUTSONVILLE D) FOR ADJUSTED STANDARDS FROM 35 ILL. ADMIN. CODE PART 845	)	AS 2021-007 (Adjusted Standard)

NOTICE OF ELECTRONIC FILING

To: Attached Service List

PLEASE TAKE NOTICE that on July 20, 2023, I electronically filed with the Clerk of the Illinois Pollution Control Board the **Comments of Earthjustice, Prairie River Network, and Sierra Club on Ameren Energy Medina Valley Cogen, LLC's Petition for Adjusted Standards from 35 Ill. Admin. Code Part 845,** copies of which are attached hereto and herewith served upon you.

Dated: July 20, 2023

Respectfully Submitted,

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PETITION OF AMEREN ENERGY MEDINA VALLEY COGEN, LLC (HUTSONVILLE D) FOR ADJUSTED STANDARDS FROM 35 ILL. ADMIN. CODE PART 845	)	AS 2021-007 (Adjusted Standard)

Comments of Earthjustice, Prairie Rivers Network, and Sierra Club

Earthjustice, Prairie Rivers Network, and Sierra Club submit these comments regarding Ameren Energy Medina Valley Cogen, LLC ("Ameren")'s Petition for an Adjusted Standard from 35 Ill. Admin. Code Part 845 for its Hutsonville D coal ash pond ("Pond D").[1]

This Board should not approve any adjusted standard for Pond D that would be inconsistent with federal coal ash regulations. The Coal Ash Pollution Prevention Act ("CAPPA") requires Illinois' coal ash rules to "be at least as protective and comprehensive as" federal coal ash regulations. 415 Ill. Comp. Stat. Ann. 5/22.59(g)(1). Similarly, the site-specific regulations for Hutsonville Pond D make clear that whenever there is a conflict with federal coal ash regulations, the federal regulations prevail. 35 Ill. Admin. Code § 840.152.[2] Moreover, the state's coal ash regulatory program also must be "at least as protective" as the federal program if it is ever to operate in place of the federal program in Illinois. 42 U.S.C. § 6945(d)(1).

1. **Evidence strongly suggests that Pond D will be subject to federal regulation under U.S. EPA's proposed coal ash rule.**

Pond D will likely be covered by U.S. EPA's recently proposed rule, which builds upon the 2015 Federal Coal Combustion Residuals ("CCR") Rule by expanding the universe of coal

[1] We submit these comments in accordance with the public participation provisions in the Board's regulations and in the Coal Ash Pollution Prevention Act. *See* 35 Ill. Admin. Code §§ 101.110(a), 101.628(c), 104.400(b) (requiring the regulations for adjusted standards proceedings to be "read in conjunction with" the Board's generally applicable regulations on public participation, which "encourage[] public participation" and allow for filing "written public comments"); *id.* §§ 845.240, 845.260 (codifying public participation in the coal ash regulatory process); 415 Ill. Comp. Stat. Ann. 5/22.59(a)(5) (finding that "meaningful participation of State residents . . . is critical to ensure that environmental justice considerations are incorporated in the . . . decision-making related to, and implementation of environmental laws and rulemaking that protects and improves the well-being of communities in this State that bear disproportionate burdens imposed by environmental pollution").

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

ash units subject to federal coal ash regulations. Therefore, any regulatory action at Pond D must be consistent with federal coal ash regulations.

As directed by D.C. Circuit Court of Appeals in its 2018 decision in *Utility Solid Waste Activities Group ("USWAG") v. EPA*,[3] U.S. EPA is proposing to expand federal regulations to coal ash units at power plants that stopped producing power *before* October 19, 2015. *See* 88 Fed. Reg. 31,982, 31,984 (May 18, 2023) ("Proposed Rule").[4] The Proposed Rule defines "legacy CCR surface impoundment" as a "surface impoundment that is located at a power plant that ceased generating power prior to October 19, 2015, and the surface impoundment contained both CCR and liquids on or after the effective date of the 2015 CCR Rule (*i.e.* October 19, 2015)." *Id.* at 31,989.

U.S. EPA has explained that a pond "contains" liquids if any part of its base is in contact with groundwater:

> EPA interprets the word "contains" to mean "to have or hold (someone or something) within" based on the ordinary meaning of the word. (e.g., Oxford English Dictionary, Merriam-Webster). Accordingly, an impoundment "contains" liquid if there is liquid in the impoundment, even if the impoundment does not prevent the liquid from migrating out of the impoundment. This means that if a CCR surface impoundment contains liquid because its base (or any part of its base) is in contact with groundwater, it would meet the definition of an inactive CCR surface impoundment.

U.S. EPA, Letter re: Duke Energy's Gallagher Generating Station, 2 (Jan. 2021) (Attach. A) ("U.S. EPA Duke Letter"). U.S. EPA reiterated and elaborated on that explanation in the Proposed Rule, detailing that:

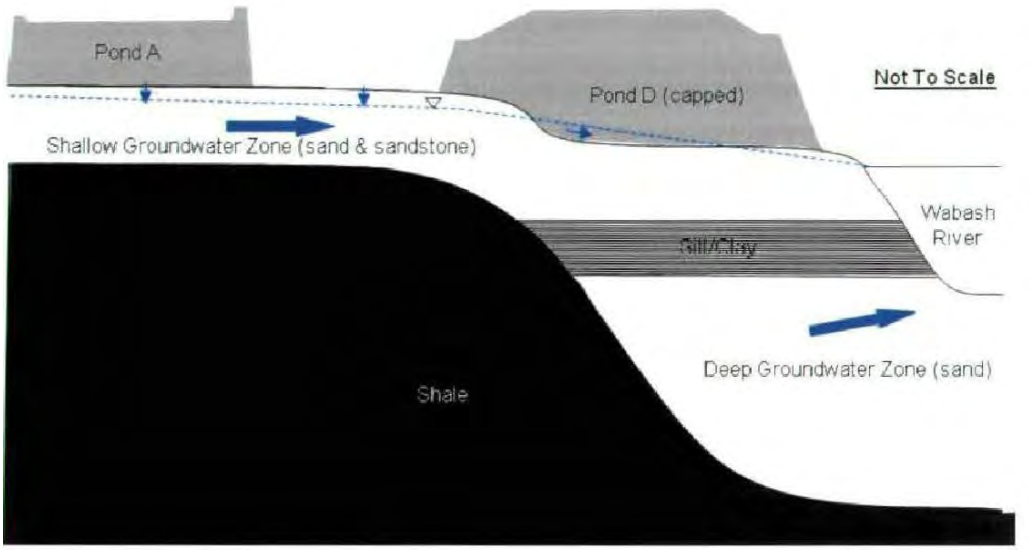
> A surface impoundment that, on or after October 19, 2015, has only decanted the surface water would normally still contain liquid if waste is saturated with water. To the extent the unit still contains liquids, it would be covered by the existing definition of an inactive impoundment. Under this proposed rule, such units would also be considered legacy CCR surface impoundments when located at inactive facilities. *This would apply whether the unit is considered "closed" under state law*, is in the process of closing, or whether at some subsequent point, the unit is fully dewatered and no longer contains liquid.

[3] 901 F.3d 414 (D.C. Cir. 2018).

[4] "EPA is proposing to amend the regulations governing the disposal of CCR in landfills and surface impoundments, codified in subpart D of part 257 of Title 40 of the Code of Federal Regulations (CFR) (CCR regulations). Specifically, the Agency is proposing to establish regulatory requirements for inactive CCR surface impoundments at inactive utilities ('legacy CCR surface impoundment' or 'legacy impoundment')."

88 Fed. Reg. 31,992 (emphasis added). When a CCR surface impoundment is located in a floodplain, U.S. EPA observed, the base of that impoundment may be in contact with groundwater. *Id*. at 32,025.[5]

Evidence indicates that Pond D contained both CCR and liquids on and after October 19, 2015 and therefore meets U.S. EPA's proposed definition of "legacy CCR surface impoundment." Hutsonville is a former coal plant that ceased generating power in 2011. Ameren Amended Pet. at 8. Pond D was "closed," via cover in place, in 2013 under a state closure plan approved pursuant to site-specific regulations for that pond. *Id.*; *see also* 35 Ill. Admin. Code Part 840. However, a consultant's analysis of the site from 2015 indicated that Pond D continued to contain CCR *saturated with groundwater* even after it had been covered. For example, the consultant's analysis states: "Where coal ash is encountered within the shallow groundwater zone, groundwater flows horizontally through the ash. Only Ash Pond D was deep enough to have horizontal groundwater migration through the coal ash." Hanson Professional Services, Closure Plan: Ash Ponds A, B, C & Bottom Ash Pond, Hutsonville Power Station, Project J04PT, Rev. 1, pdf p. 3 (Feb. 23, 2015) (excerpt attached as Attach. B). The following figure accompanies that statement and depicts groundwater moving through Pond D:



Id. at pdf p. 4. Furthermore, the consultant's analysis indicates that the bottom elevation of Pond D ranges from approximately 430 to 435 feet. *Id.* at pdf p. 2. According to the 2017 Annual Report for Pond D, the groundwater elevation at Pond D ranged from 436 to 442 feet in June 2017. OBG, 2017 Annual Report, Ash Pond D, Former Hutsonville Power Station, Hutsonville, Illinois, pdf p. 6 (Jan. 29, 2018) (excerpt attached as Attach. C). Taken together, these datapoints indicate that the coal ash in Pond D may have been – and, if the groundwater levels remain in the

[5] "Given the locations of many CCRMU (located in floodplains, or wetlands, or near large surface water bodies), EPA is concerned that the base of these units may intersect with the groundwater beneath the unit."

same range, may still be – saturated in as much as ten feet of groundwater. Pond D is also unlined and within the floodplain of the Wabash River, so commenters expect that groundwater continues to flow into the coal ash in Pond D and saturates greater portions of that ash when the river stage is high. *See* IEPA, Comments on Advanced Notice of Proposed Rulemaking for Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities: Legacy CCR Surface Impoundments, 5 (Feb. 11, 2021), https://www.regulations.gov/comment/EPA-HQ-OLEM-2020-0107-0057; *see* Hutsonville Floodplain Map (Attach. D).[6] In short, no documents or evidence provided by Ameren or its consultants conclusively demonstrate that coal ash does not continue to be permanently or intermittently saturated in groundwater; instead, all evidence indicates otherwise.

In addition, groundwater monitoring data from 2016 and 2017 shows that coal ash in Pond D is impacting groundwater. At monitoring well 8, which is located between Pond D and the Wabash River, boron concentrations were measured at levels six to nine times the state groundwater quality standard. *Compare* 2017 Annual Report at pdf p. 7 (showing boron concentrations ranging from 12,400 ug/L to 18,200 ug/L) *with* 35 Ill. Admin. Code § 620.410 (Class I groundwater quality standard for boron = 2.0 mg/L [2,000 ug/L]).[7]

This information supports the conclusions that Pond D contained both CCR and liquids in 2015; continues to contain both CCR and liquids; and will be subject to U.S. EPA's Proposed Rule once it is finalized. Because both CAPPA and the site-specific regulations for Hutsonville Pond D make clear that federal regulations provide the floor for regulation for this CCR surface impoundment, any regulatory actions taken at Pond D must be consistent with federal coal ash regulations, including U.S. EPA's Proposed Rule once finalized.

2. Federal coal ash regulations require the elimination of groundwater from Pond D before it can be deemed "closed."

Federal regulations are clear that a coal ash unit has not "closed" if it is holding coal ash in groundwater. The 2015 Federal CCR Rule defines "inactive" coal ash ponds as those that contain both coal ash and water, while "closed" ponds are those that "no longer contain water." 74 Fed Reg. 21,343 (Apr. 17, 2015). As explained, a pond "contains" water if any part of its base is in contact with groundwater. U.S. EPA Duke Letter at 2; 88 Fed. Reg. 31,992.

Further, the 2015 Federal CCR Rule requires the elimination of "free liquids" in coal ash units before closing by capping the coal ash in place. 40 C.F.R. § 257.102(d)(2)(i). U.S. EPA has clarified that the definition of "free liquids" in the federal coal ash regulations includes groundwater:

[6] This map was previously submitted to the Board on August 27, 2020, in R2020-19, as exhibit 37 to the pre-filed testimony of Andrew Rehn, Water Resources Engineer at Prairie Rivers Network.

[7] *See also* 2017 Annual Report at pdf pp. 3-5 ("Boron is a primary indicator constituent for coal ash leachate impacts to groundwater. Downgradient monitoring well MW-8 exceeded the Class I Potable Resource standard (2.0 milligrams per liter [mg/L]) during all 2016-2017 sampling events (Table 2-2)."

> [I]f EPA is correct that the base of the OGS [Ottumwa Generating Station] Ash Pond intersects with groundwater, the closure plan would need to have discussed the engineering measures taken to ensure that the groundwater *had been removed* from the unit prior to the start of installing the final cover system, as required by 40 C.F.R. § 257.102(d)(2)(i). This provision applies both to the freestanding liquid in the impoundment and to all separable porewater in the impoundment, whether the porewater was derived from sluiced water or groundwater that intersects the impoundment.

U.S. EPA, Proposed Denial of Alternative Closure Deadline for Ottumwa Generating Station, 41-42 (Jan. 11, 2022), https://www.regulations.gov/document/EPA-HQ-OLEM-2021-0593-0002. U.S. EPA reiterated this point in its Proposed Rule: "where the base of a surface impoundment intersects with groundwater, the facility will typically need to include engineering measures specifically to address any continued infiltration of groundwater into the impoundment in order to close with waste in place consistent with § 257.102(d)." 88 Fed. Reg. 32,025.

Indeed, U.S. EPA recently determined that Gavin Power failed to demonstrate compliance with federal closure requirements because it capped coal ash in-place despite continued contact with groundwater:

> EPA concludes that at least a portion of the CCR in the closed [coal ash unit] remains in contact with groundwater. Based on these findings and the absence of any information in the record to document that measures were taken to address the groundwater migrating into and out of the impoundment from the bottom and the sides, EPA concludes that Gavin has failed to demonstrate compliance with the performance standards for closure with waste in place in 40 C.F.R. § 257.102(d).

U.S. EPA, Final Decision Denying Closure Deadline Extension for Gavin Power, LLC, 14 (Nov. 18, 2022), https://www.regulations.gov/document/EPA-HQ-OLEM-2021-0590-0100.

Ameren has not demonstrated that it eliminated groundwater from Pond D before installing the cover system. To the contrary, evidence indicates that Pond D was holding coal ash in groundwater in 2015, after Ameren purports to have completed closure in 2013, and is still holding coal ash in groundwater – which does not comply with the closure requirements in federal coal ash regulations. Because those federal regulations will likely apply to Pond D once U.S. EPA finalizes its Proposed Rule, any adjusted standard for Pond D must be consistent with federal requirements for closure.

3. Indefinite operation of the groundwater trench, without further evaluation, is not an acceptable form of corrective action.

Ameren has installed a cover system and "groundwater collection trench" at Pond D. Ameren Amended Pet. at 4. The purpose of the trench is to catch groundwater contaminated by

coal ash pollution from Ponds D and A. *Id.* The trench has been operating since 2015, *id.* at 5, and will continue to operate unless compliance with specific groundwater quality standards is achieved, meaning the trench could operate indefinitely. *See* 35 Ill. Admin. Code § 840.120; Ameren Amended Pet. at 27 ("Ameren has accepted the obligations to continue operation of the groundwater Collection Trench during the period of post-closure care for both Hutsonville A and Hutsonville D").

IEPA's Recommendation states that "a groundwater collection trench *could* be a corrective action under Part 845." IEPA Recommendation at ¶ 20 (emphasis added). However, it is far from clear that such trench *would* be selected as the corrective action under Part 845; rather, interpretation of identical mandates from U.S. EPA strongly indicates that the trench would not suffice. As IEPA explains: "Under Part 845, the appropriate corrective measures would be assessed under Section 845.660, designed under Section 845.670 and implemented under Section 845.680." *Id*. These sections set forth a robust evaluation process for corrective action. Section 845.660 requires an analysis "of the effectiveness of potential corrective measures in meeting all the requirements and objectives of the corrective action plan." 35 Ill. Admin. Code § 845.660(c). Among other requirements, the remedy selected in the corrective action plan must: protect human health and the environment, attain groundwater protection standards, remove from the environment as much coal ash-contaminated material "as is feasible"; and "control the source(s) of the releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents . . . into the environment." *Id.* § 845.670(d).

Given CAPPA's mandate that Illinois' CCR regulations for surface impoundments be "at least as protective and comprehensive" as the Federal CCR Rule, 415 Ill. Comp. Stat. Ann. 5/22.59(g)(1), U.S. EPA's interpretations of the near-identical corrective action provisions in that rule elucidate Ameren's obligations under Illinois' rules – and make clear that a trench that leaves CCR in contact with groundwater in fact would *not* satisfy corrective action requirements. Because all evidence points to coal ash in Pond D being in contact with groundwater, "[s]ource control alternatives that will remove CCR from groundwater . . . must be assessed more favorably than alternatives that fail to do so . . . with respect to performance, reliability, and control of exposure to residual contamination (i.e., CCR left in the ground)." Ottumwa Proposed Denial at 60. Moreover, a corrective action measure that "would leave CCR in continued contact with groundwater, allowing constituents to continue to leach from CCR into groundwater . . . would *not* control the source of the release(s) to reduce or eliminate, to the maximum extent feasible, further releases, as required by 40 C.F.R. § 257.97(b)(3)." Ottumwa Proposed Denial at 63 (emphasis added). Accordingly, contrary to IEPA's suppositions, the groundwater collection trench at Pond D does not appear to satisfy state or federal requirements for corrective action. At a minimum, the required evaluation process under Part 845 would likely lead IEPA to select a different corrective action for Pond D.

Therefore, this Board should not grant an adjusted standard that allows Ameren to continue operation of its groundwater collection trench without satisfying the additional evaluation requirements in Part 845 and federal coal ash regulations. This additional evaluation

is especially important given the possibility that the trench could operate indefinitely, forever collecting pollution from coal ash sitting in groundwater.

Conclusion

This Board should not approve any adjusted standards for Hutsonville Pond D, including the specific adjusted standards that IEPA recommends, that would be inconsistent with federal coal ash regulations. Once U.S. EPA's Proposed Rule is finalized, Pond D will very likely be subject to federal coal ash regulations. Those regulations make clear that Ameren must eliminate groundwater from Pond D before the pond can be considered "closed." However, evidence points to the conclusion that groundwater continues to saturate the ash in Pond D by as much as ten feet. Federal regulations also make clear that a trench that leaves coal ash in contact with groundwater does not satisfy corrective action requirements. Therefore, any adjusted standards that would allow Pond D to continue holding coal ash in groundwater, and allow the groundwater collection trench to continue serving as the corrective action for Pond D, would not comply with federal coal ash regulations. Such adjusted standards also would not comply with CAPPA given CAPPA's mandate that Illinois' coal ash regulations be "at least as protective and comprehensive as" the federal regulations.

In its order on the adjusted standards that IEPA recommends for Pond D, this Board has authority to "impose such conditions as may be necessary to accomplish the purposes of" the Environmental Protection Act, including CAPPA. 35 Ill. Admin. Code § 104.428(a). We respectfully request that this Board use that authority to ensure any adjusted standards for Pond D comply with federal coal ash regulations.

Dated July 20, 2023

Respectfully submitted,

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Senior Water Resources Engineer

CERTIFICATE OF SERVICE

The undersigned, Jennifer Cassel, an attorney, certifies that I have served by email the Clerk and by email the individuals with email addresses named on the Service List provided on the Board's website, *available at* https://pcb.illinois.gov/Cases/GetCaseDetailsById?caseId=17039, a true and correct copy of the **Comments of Earthjustice, Prairie River Network, and Sierra Club on Ameren's Petition for Adjusted Standards**, before 5 p.m. Central Time on July 20, 2023. The number of pages in the email transmission is 32 pages.

Dated: July 20, 2023

Respectfully Submitted,

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Attachment A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

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REPLY TO THE ATTENTION OF:
L-17J

Mr. Owen R. Schwartz
Duke Energy
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Dear Mr. Schwartz,

This letter provides written confirmation of the discussion between the Environmental Protection Agency (EPA) and Duke Energy Gallagher staff during our conference calls on August 27 and September 17, 2021 regarding the history of the site and the closure of Coal Combustion Residuals (CCR) surface impoundments at Duke Energy's Gallagher Generating Station in New Albany, Indiana. This letter also serves to notify you that, based on the information provided in those telephone conversations, EPA has concluded that the North Ash Pond and the Primary Pond Ash Fill Area are subject to the requirements of 40 C.F.R. Part 257 Subpart D ("the CCR Regulations").

On the August 27 conference call, Duke Energy stated that two impoundments (i.e., North Ash Pond, Primary Pond Ash Fill Area) were removed from service, drained of ponded surface water, and subsequently covered with soil and grass in 1989. Further, EPA's understanding is that Duke has taken no engineering measures to remove any of the groundwater from either unit and both of these unlined units are sitting in approximately 20 feet of groundwater.

As an initial matter, we disagree with Duke Energy's argument that neither of these units are CCR surface impoundments within the meaning of the CCR Regulations. We understand that you interpret the definition of a CCR surface impoundment to exclude units such as the North Ash Pond, where liquid remains in the unit because the base of the unit intersects with groundwater. You argue that such units do not "hold" liquid because groundwater flows through the unit (instead of staying within the unit). EPA disagrees with your interpretation. The definition of a CCR surface impoundment does not require that the unit prevent groundwater from flowing through the unit, but merely requires that the unit be "designed to hold an accumulation of CCR and liquid." 40 C.F.R. § 257.53. Following your interpretation would lead to the incongruous result that impoundments where contaminants can migrate out in the groundwater would not be regulated by the CCR Regulations, while those that prevent that type of migration would be regulated.

Primary Pond Ash Fill Area

The Primary Pond Ash Fill Area is not an existing CCR surface impoundment because (to EPA's knowledge) it has not received CCR after October 19, 2015. However, because it still contains CCR and liquids, it meets the definition of an inactive CCR surface impoundment. An inactive CCR surface impoundment is one "that no longer receives CCR on or after October 19, 2015 and still contains both CCR and liquids on or after October 19, 2015." EPA interprets the word "contains" to mean "to have or hold (someone or something) within" based on the ordinary meaning of the word. (e.g., Oxford English Dictionary, Merriam-Webster). Accordingly, an impoundment "contains" liquid if there is liquid in the impoundment, even if the impoundment does not prevent the liquid from migrating out of the impoundment. This means that if a CCR surface impoundment contains liquid because its base (or any part of its base) is in contact with groundwater, it would meet the definition of an inactive CCR surface impoundment. Under both the regulatory and dictionary definitions of the term, groundwater (or water) falls within the plain meaning of a "liquid." See 40 C.F.R. 257.53. Therefore, because the Primary Pond Ash Fill Area is sitting in approximately 20 feet of groundwater, it holds or contains liquids and is an inactive surface impoundment.

As an inactive CCR surface impoundment, the Primary Pond Ash Fill Area is regulated pursuant to 40 C.F.R. § 257.50(c), which specifies that "[t]his subpart also applies to inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity."

North Ash Pond

On the September call, Duke Energy confirmed that the North Ash Pond has received CCR after the October 19, 2015 effective date of the CCR Rule. Therefore, that pond meets the definition of an existing CCR surface impoundment. An existing CCR surface impoundment is one that "receives CCR both before and after October 19, 2015." 40 C.F.R. § 257.53. Accordingly, the North Ash Pond falls within the ambit of 40 C.F.R. § 257.50(b), which specifies that "[t]his subpart applies to owners and operators of…existing CCR surface impoundments…that dispose or otherwise engage in solid waste management of CCR." Even if the North Ash Pond had not received CCR after October 19, 2015, it would be an inactive CCR surface impoundment for the same reasons that the Primary Pond Ash Fill Area is an inactive CCR surface impoundment and would fall within the ambit of 40 C.F.R. § 257.50(c).

Applicability of the Closure Requirements to these Impoundments

For the reasons set out in the discussion above, the North Ash Pond and Primary Pond Ash Fill Area are regulated under 40 C.F.R. Part 257 Subpart D and Duke Energy will need to take action to bring these ponds into compliance by meeting all the requirements of the regulations. Significant among these is the requirement to close, because the North Ash Pond and the Primary Pond Ash Fill Area are unlined CCR surface impoundments. See, 40 C.F.R. § 257.101(a).

The applicable closure regulations are those that address closing with waste in place (assuming EPA's understanding is correct that Duke Energy's plan is to close both impoundments with waste in place). The Part 257 requirements applicable to impoundments closing with waste in place include general performance standards and specific technical standards that set forth individual engineering requirements related to the drainage and stabilization of the waste and to the final cover system. The general performance standards and the technical standards complement each other, and both must be met at every site. The general performance standards

under 40 C.F.R. § 257.102(d)(1) require that the owner or operator of a CCR unit "ensure that, at a minimum, the CCR unit is closed in a manner that will: (i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere; and (ii) Preclude the probability of future impoundment of water, sediment, or slurry." The specific technical standards related to the drainage of the waste in the unit require that "free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues" prior to installing the final cover system. 40 C.F.R. § 257.102(d)(2)(i).

If Duke Energy plans to close with waste in place and the base of the impoundment does, in fact, intersect with groundwater, Duke Energy will need to implement engineering measures to remove groundwater from the unit prior to the start of installing the final cover system, as required by 40 C.F.R. § 257.102(d)(2)(i). This provision applies both to the free-standing liquid in the impoundment and to all separable porewater in the impoundment, whether the porewater was derived from sluiced water or groundwater that intersects the impoundment. The definition of free liquids in 40 C.F.R. § 257.53 encompasses all "liquids that readily separate from the solid portion of a waste under ambient temperature and pressure," regardless of whether the source of the liquids is from sluiced water or groundwater. The regulation does not differentiate between the sources of the liquid in the impoundment (e.g., surface water infiltration, sluice water intentionally added, groundwater intrusion). Furthermore, the performance standard at 40 C.F.R. § 257.102(d)(2)(i) was modeled on the regulations that apply to interim status hazardous waste surface impoundments, which are codified at 40 C.F.R. § 265.228(a)(2)(i). Guidance on these interim status regulations clarifies that these regulations require both the removal of free-standing liquids in the impoundment as well as sediment dewatering. See US EPA publication titled "Closure of Hazardous Waste Surface Impoundments," publication number SW-873, September 1982.

Similarly, Duke Energy will need to ensure that the impoundments are closed in a manner that will "control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere." 40 C.F.R. § 257.102(d)(1). EPA views the word "infiltration" as a general term that refers to any kind of movement of liquids into a CCR unit. That would include, for example, any liquid passing into or through the CCR unit by filtering or permeating from any direction, including the sides and bottom of the unit. This is consistent with the plain meaning of the term. For example, Merriam-Webster defines infiltration to mean "to pass into or through (a substance) by filtering or permeating" or "to cause (something, such as a liquid) to permeate something by penetrating its pores or interstices." Neither definition limits the source or direction by which the infiltration occurs. In situations where the groundwater intersects the CCR unit, water may infiltrate into the unit from the sides and/or bottom of the unit because the base of the unit is below the water table. This contact between the waste and groundwater provides a potential for waste constituents to be dissolved and to migrate out of (or away from) the closed unit that is similar to infiltration from above. In this case, the performance standard requires the facility to take measures, such as engineering controls that will "control, minimize, or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste" as well as "post-closure releases to the groundwater" from the sides and bottom of the unit.

Finally, because the North Ash Pond and the Primary Pond Ash Fill Area must close pursuant to 40 C.F.R. § 257.101(a), any further receipt of CCR into those units is prohibited. EPA also made this clear in the preamble to the March 15, 2018 proposed rule (83 FR 11605) where EPA stated:

> The current CCR rules require that certain units must close for cause, as laid forth in § 257.101(a)–(c). As written, the regulation expressly prohibits ‘‘placing CCR’’ in any units required to close for-cause pursuant to § 257.101….Note that the rule does not distinguish between placement that might be considered beneficial use and placement that might be considered disposal. All further placement of CCR into the unit is prohibited once the provisions of § 257.101 are triggered.

If you have any questions about the information provided in this letter or if you have additional information that you would like EPA to consider, you may contact Angela Mullins at mullins.angela@epa.gov. Alternatively, Duke Energy counsel can contact Laurel Celeste at celeste.laurel@epa.gov in EPA's Office of General Counsel for any questions on the Agency's position set forth in the letter.

Sincerely,

Edward Nam
Director
Land, Chemicals and Redevelopment Division

cc: Peggy Dorsey,
Assistant Commissioner
Office of Land Quality
Indiana Department of Environmental Management

Attachment B

CLOSURE PLAN:

ASH PONDS A, B, C & BOTTOM ASH POND
HUTSONVILLE POWER STATION
Project J04PT

AmerenEnergy Medina Valley Cogen, L.L.C.

Crawford County, Illinois

September 15, 2014 (Rev 0)

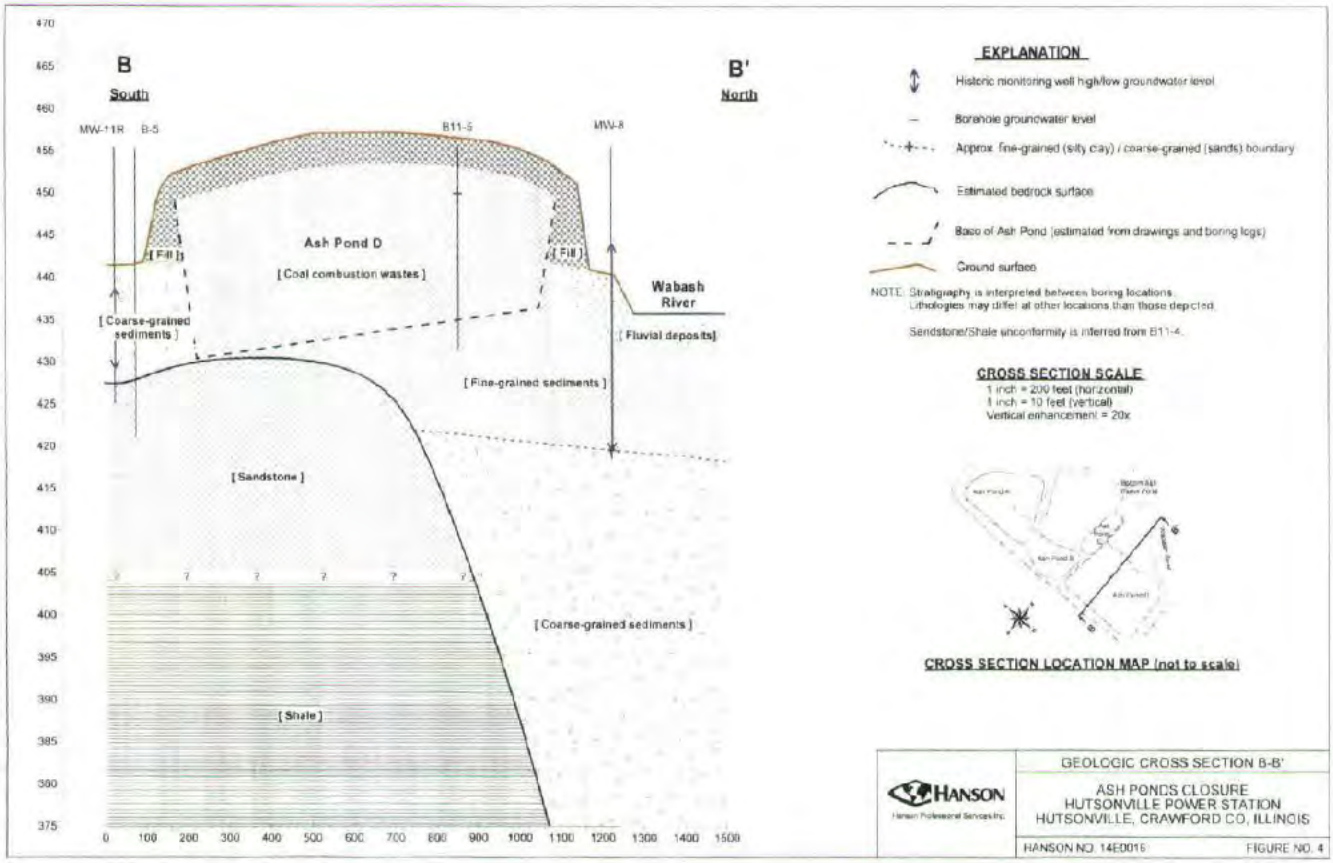
Revised February 23, 2015 (Rev 1)

Prepared by:

Hanson Professional Services

Ameren

Dam Safety, Hydro & Civil Engineering
314.957.3202
3700 S. Lindbergh Blvd.
St. Louis, MO 63127


B
South
B'
North
MW-11R
B-5
B11-5
MW-8
Ash Pond D
[Coal combustion wastes]
[Fill]
[Fill]
[Coarse-grained sediments]
Wabash River
[Fluvial deposits]
[Fine-grained sediments]
[Sandstone]
[Coarse-grained sediments]
[Shale]
470
465
460
455
450
445
440
435
430
425
420
415
410
405
400
395
390
385
380
375
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
EXPLANATION
Historic monitoring well high/low groundwater level
Borehole groundwater level
Approx. fine-grained (silty clay) / coarse-grained (sands) boundary
Estimated bedrock surface
Base of Ash Pond (estimated from drawings and boring logs)
Ground surface
NOTE: Stratigraphy is interpreted between boring locations. Lithologies may differ at other locations than those depicted.
Sandstone/Shale unconformity is inferred from B11-4.
CROSS SECTION SCALE
1 inch = 200 feet (horizontal)
1 inch = 10 feet (vertical)
Vertical enhancement = 20x
CROSS SECTION LOCATION MAP (not to scale)
HANSON
Hanson Professional Services Inc.
GEOLOGIC CROSS SECTION B-B'
ASH PONDS CLOSURE
HUTSONVILLE POWER STATION
HUTSONVILLE, CRAWFORD CO, ILLINOIS
HANSON NO. 14E0016
FIGURE NO. 4

1.6 Timeline of Ash Pond Actions

An approximate schedule is summarized below that outlines the time for implementation of the Closure Plan elements, as well as the timelines of previous ash pond constructions, removals, and other related operations:

- 1968 - 2000: Ash Pond A and Ash Ash Pond D were the only existing ash ponds operated on Site.
- 2000:
  a. Ash Pond D was removed from service.
  b. The ash laydown area was excavated.
  c. Construction of the interim pond (Ash Pond B) and the drainage collection pond (Ash Pond C) were finished.
- January 2013: Capping of Ash Pond D was completed.
- January 2015 (Expected): The groundwater collection trench will begin operation.
- January 2016 (Expected):
  a. Removal of Ash Pond B, Ash Pond C, and the Bottom Ash Sluice Pond will be completed.
  b. Capping of Ash Pond A will be completed.

2. Groundwater MODEL Approach

2.1 Overview

This section presents the conceptual model and the overall modeling methodology. The model was established to predict the effect of the proposed closure actions for Ash Pond A, Ash Pond B, Ash Pond C, and the Bottom Ash Sluice Pond on groundwater quality at the site. These ponds have limited impact on groundwater flow and quality, so Ash Pond D was included in the modeling for calibration purposes.

2.2 Conceptual Model

The conceptual model for the Site is schematically illustrated in Figure 3. below. Three sources of water are present: natural recharge within the model domain, percolation water from the ash ponds, and groundwater flow from the west. Groundwater in the shallow groundwater zone flows horizontally east, discharging into the Wabash River, a regional groundwater sink. Where coal ash is encountered within the shallow groundwater zone, groundwater flows horizontally through the ash. Only Ash Pond D was deep enough to have horizontal groundwater migration through the coal ash.

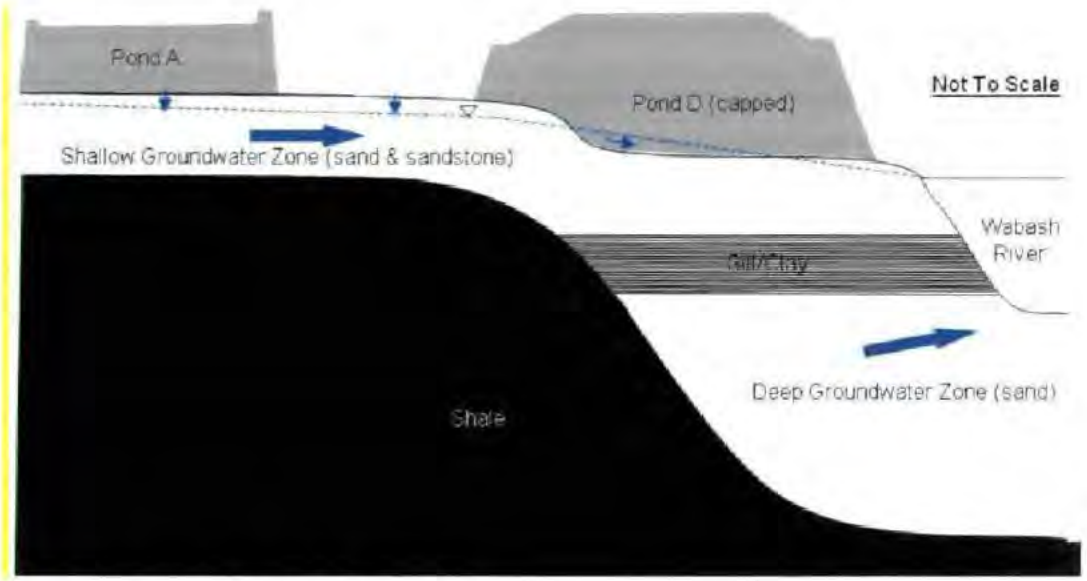


Figure 3. Conceptual Model Schematic

Boron was modeled to simulate migration of CCW leachate because it 1) has concentrations exceeding the Class I standard in a number of on-site monitoring wells, 2) is mobile in groundwater, and 3) is not chemically reactive. The conceptual model for transport assumes two boron sources: boron that leaches to recharge water during percolation through ash above the water table; and boron that leaches to groundwater as it flows through ash below the water table, which is limited to Ash Pond D. Therefore, mass is added to groundwater via vertical recharge through coal ash, and horizontal groundwater flow through coal ash where it lies below the water table. Mass is discharged at the model representation of the Wabash River. It is assumed that boron undergoes reversible adsorption and desorption within the soil matrix along its transport pathways, however no removal of mass occurs with this process. The conceptual transport model also assumes that boron concentration in leachate does not vary as a function of time, although the volume of leachate released decreases over time as a function of pond dewatering and capping.

2.3 Model Approach

Three model codes were used to simulate groundwater flow and boron transport:

- Leachate percolation after Ash Pond D closure was modeled using the Hydrologic Evaluation of Landfill Performance (HELP) model and the leachate percolation rates were applied in MODFLOW to simulate recharge beneath the pond cap.
- Groundwater flow was modeled in three dimensions using MODFLOW.
- Boron transport was modeled in three dimensions using MT3DMS (MODFLOW calculated the flow field that MT3DMS used in the transport calculations).

Attachment C

2017 Annual Report

Ash Pond D
Former Hutsonville Power Station
Hutsonville, Illinois

AmerenEnergy Medina Valley CoGen, LLC

January 29, 2018

OBG

JANUARY 29, 2018 | PROJECT #67815

2017 Annual Report

Ash Pond D
Former Hutsonville Power Station
Hutsonville, Illinois

Prepared for:
AmerenEnergy Medina Valley CoGen, LLC

STUART J. CRAVENS, PG
Technical Director | Hydrogeology

YVONNE A. DEDRICKSON
Senior Managing Engineer

2 DATA ANALYSIS

2.1 GROUNDWATER FLOW

Groundwater flow for 2017 is represented using groundwater elevation contour maps for each quarterly sample event (Figures 2-1 through 2-4). Groundwater in the upper (shallow) zone generally flowed from west to east and northeast towards the Wabash River during 2017, which is consistent with past evaluations. The Groundwater Collection Trench began operation in April 2015, and following startup groundwater elevations have exhibited localized flow toward the trench with groundwater elevations generally lower near the trench (Figure 3). In the depictions of groundwater elevation contours dashed lines have been used to infer the localized drawdown of groundwater levels resulting from trench operation, which is necessary with limited wells situated laterally along the length of the trench.

The horizontal hydraulic gradient in the upper migration zone beneath Ash Pond D ranged from 0.005 to 0.021 ft/ft during 2017. The highest gradients occurred beneath the northern portion of the closed ash pond during September 2017 and December 2017, with gradients of 0.021 and 0.017 ft/ft, respectively. Gradients were slightly lower beneath the southern portion of the closed ash pond during September 2017 and December 2017, with gradients of 0.014 and 0.011 ft/ft, respectively. The lowest gradients generally occurred when groundwater elevation was highest in June 2017, with gradients of 0.005 ft/ft. Conversely, the highest gradients generally occurred when groundwater elevation was lowest in September 2017.

Groundwater flow within the lower (deep alluvial) migration zone along the edge of the Wabash River valley was not contoured since all of the deep alluvial monitoring wells are within a narrow zone between Ash Pond D and the Wabash River. Groundwater within the lower zone generally flows from southwest to northeast towards the Wabash River.

2.2 REVIEW OF ANALYTICAL DATA

Table 2-1 presents a site-wide statistical summary of all laboratory analytical data collected in 2016 and 2017. All field and laboratory analytical results are tabulated in Appendix A. Sampling anomalies, such as wells that were dry, had water levels too low for sampling, or were not sampled during a sampling event for other reasons, are noted below.

- MW-6: Dry during the 3rd and 4th quarter sampling events of 2016.
- MW-10 and MW-10D: Not sampled after the 1st quarter sampling event of 2016 because the off-site wells were destroyed by others.
- MW-23D and MW-23S: These wells were installed in November, 2017, and were sampled for the first time during the 4th quarter sampling event in December, 2017. MW-23D and MW-23S analytical data was compared to historical MW-10 and MW-10D data. Based on the limited data available (one sampling event), there is no evidence of ash leachate impacts to monitoring wells MW-23S and MW-23D and they appear to be appropriate replacement upgradient/background wells.

Antimony, beryllium, cadmium, cobalt, cyanide, lead, mercury, silver, and thallium were detected in fewer than 10% of the groundwater samples. In addition to these constituents, chromium, copper, selenium and zinc were detected in fewer than 30% of the samples. A summary of wells and parameters with exceedances of Class I groundwater standards in 2016 and 2017 is shown on Table 2-2.

Parameters of Concern

Parameters of concern (POCs), which correspond to mandatory monitoring parameters per 35 IAC 840.114(a) and as identified in prior reports, are discussed below:

- Boron: Boron is a primary indicator constituent for coal ash leachate impacts to groundwater. Downgradient monitoring well MW-8 exceeded the Class I Potable Resource standard (2.0 milligrams per liter [mg/L]) during all 2016-2017 sampling events (Table 2-2). The highest boron concentrations were also detected in

this monitoring well (Figure 4-1). Downgradient monitoring wells MW-6 and MW-11R had one and four exceedances during this monitoring period, respectively, both of which represent a decrease from the number of exceedances observed during the prior monitoring period. Time series plots of boron concentrations at wells MW-6, MW-8 and MW-11R are shown in Figure 5-1.

- Sulfate: Sulfate can be an indicator constituent for coal ash; however, there are other anthropogenic sources for elevated sulfate concentrations in groundwater, and sulfate concentrations can decrease in groundwater under strongly reducing conditions. These caveats make sulfate a less reliable indicator for coal ash leachate than boron. Sulfate concentrations at Ash Pond D are the highest at MW-8, MW-7, and MW-11R where boron concentrations are also high compared to most of the other monitoring wells (Figure 4-2). Sulfate concentrations were elevated above the Class I standard (400 mg/L) at MW-8 during seven of the eight sampling events in 2016-2017. There were no other sulfate exceedances of the Class I standard at the other monitoring wells during this period. MW-11R routinely exceeded the Class 1 standard prior to operation of the Collection Trench, which began in April 2015. MW-11R is located downgradient of the Collection Trench and sulfate concentrations have been below the Class I standard since operation of the Collection Trench began, except for the May 2016 result that was equal to the standard (Figure 5-2).
- Manganese: Manganese concentrations in downgradient monitoring wells MW-7D, MW-8, MW-14, MW-115S, MW-115D, and MW-121 exceeded the Class I standard (0.15 mg/L) during most 2016-2017 sampling events (Figure 4-3). Monitoring well MW-11R had two exceedances in 2016 and monitoring wells MW-6, MW-23D, and MW-23S each had one exceedance in 2017. Manganese is commonly present in native soils and is highly sensitive to redox conditions. However, prior investigations at the site indicate that elevated manganese concentrations may also be indicative of coal or coal stockpile impacts.
- Iron: There were no exceedances of the iron Class I standard (5.0 mg/L) during the 2016-2017 monitoring period (Figure 4-4).
- Total Dissolved Solids (TDS): TDS exceeded the Class I standard of 1,200 mg/L at upper zone monitoring well MW-8 during seven of the eight sampling events. This well also has the highest concentrations of boron and sulfate measured in groundwater (Figure 4-5). TDS at upper zone monitoring well MW-11R exceeded the Class I standard until operation of the Collection Trench began. The TDS dropped below the Class I standard in MW-11R in the April 2015 sample and has remained below the standard (Figure 5-3).
- pH: There were no exceedances of the lower pH Class I standard (6.5 Standard Units) during the 2016-2017 monitoring period. Prior to operation of the Collection Trench, downgradient well MW-11R was routinely below this lower limit. The pH returned within the Class I boundaries in April 2015 and has remained within limits (Figure 4-6).

Other Parameters

Other parameters which had at least one exceedance in 2016-2017 in the Ash Pond D monitoring wells are discussed below:

- Nitrate: Nitrate had one exceedances of the Class I standard (10 mg/L) at monitoring well MW-11R (Figure 4-7). As mentioned above, groundwater quality at MW-11R has changed due to operation of the Collection Trench. It is likely that nitrate is elevated at this well due to its proximity to a farm field located immediately to the south.

2.3 STATISTICAL ANALYSES

Analytical data were evaluated for trends following a three-step procedure:

1) Test for outliers using the Grubbs Outlier test.
2) Determine Sen's estimate of slope.
3) Perform a Mann-Kendall trend analysis for any cases (monitoring well/constituent) with a positive slope.

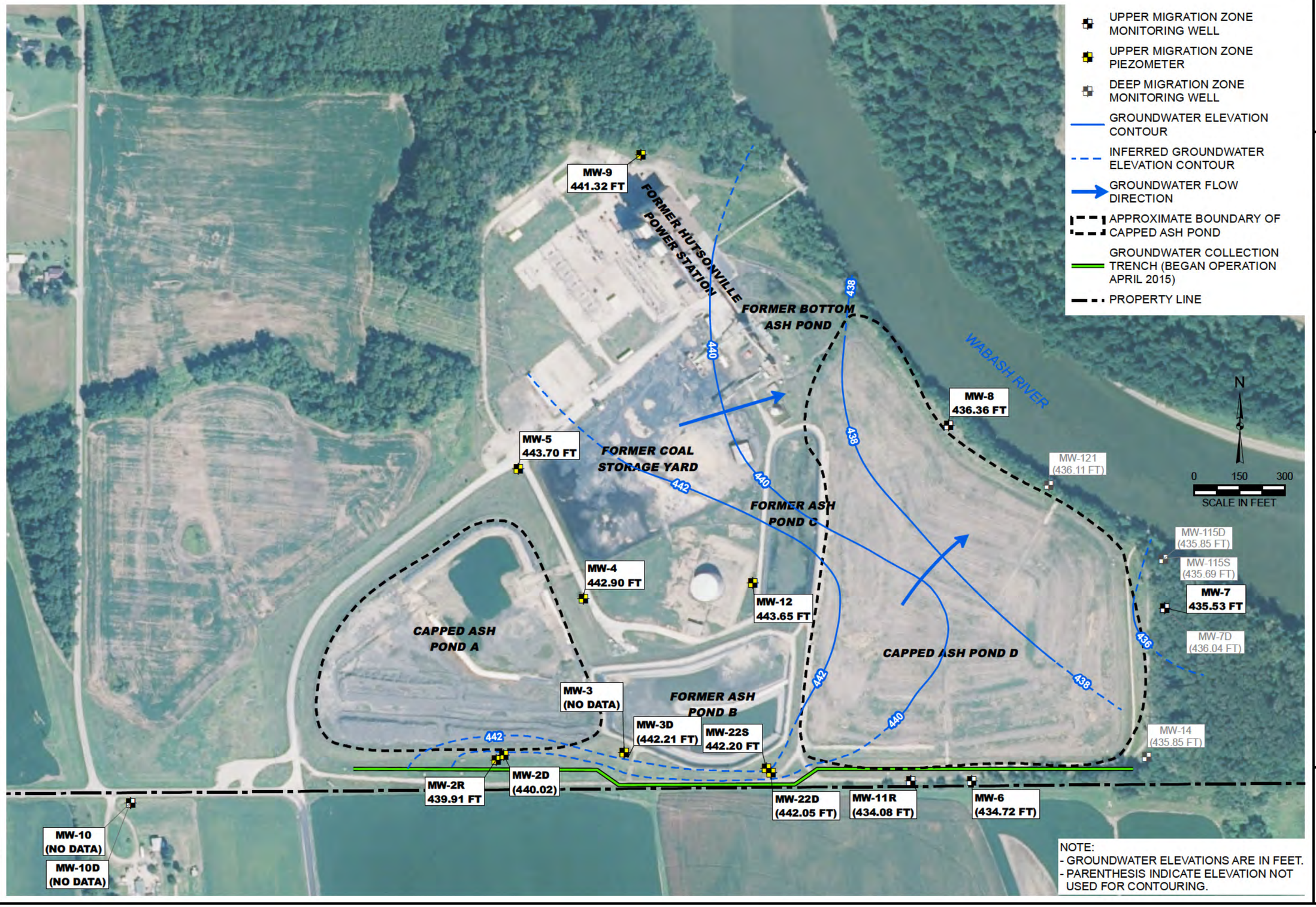
Table 2-2. Summary of Exceedances of Class I Groundwater Standards
2017 Annual Report
Former Hutsonville Power Station - Ash Pond D

Parameters Submitted to the IEPA for Routine Groundwater Monitoring	Class 1 Standard	unit	Number of exceedances of Class 1 Groundwater Standards between January 2016 and December 2017 (and year of last exceedance)[1]												
			Current Monitoring Wells Monitored Quarterly for Reporting to the IEPA												
			6	7	7D	8	10^{bck}	10D^{bck}	11R	14	23D^{bck}	23S^{bck}	115S	115D	121
	Number of Samples		6	8	8	8	1	1	8	8	1	1	8	8	8
Antimony	0.006	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Arsenic	0.01**	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Barium	2.0	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Beryllium	0.0	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Boron	2.0	mg/L	**1**$_{(2016)}$*	0	0	**8**$_{(2017)}$	0	0	**4**$_{(2017)}$	0	0	0	0	0	0
Cadmium	0.005	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chloride	200	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromium	0.1	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Cobalt	1.0	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0.65	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyanide, total	0.2	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Fluoride	4.0	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Iron	5.0	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Lead	0.0075	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Manganese	0.15	mg/L	**1**$_{(2017)}$*	0	**8**$_{(2017)}$	**7**$_{(2017)}$*	0	0	**2**$_{(2016)}$	**8**$_{(2017)}$	**1**$_{(2017)}$	**1**$_{(2017)}$	**7**$_{(2017)}$*	**5**$_{(2017)}$	**7**$_{(2017)}$*
Mercury	0.002	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Nickel	0.1	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitrate as N	10	mg/L	0	0	0	0	0	0	**1**$_{(2017)}$	0	0	0	0	0	0
pH	6.50 / 9.00	Std.	0	0	0	0	0	0	0	0	0	0	0	0	0
Selenium	0.05	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Silver	0.05	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Sulfate	400	mg/L	0	0	0	**7**$_{(2017)}$*	0	0	0	0	0	0	0	0	0
Thallium	0.002	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Dissolved Solids	1,200	mg/L	0	**1**$_{(2017)}$	0	**7**$_{(2017)}$*	0	0	0	0	0	0	0	0	0
Zinc	5.0	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Specific Conductivity	no Class 1 Standard		0	0	0	0	0	0	0	0	0	0	0	0	0

Notes:

[1] Based on 8 quarterly groundwater sampling events.
* Potential outlier.
** Class I groundwater standard for Arsenic changed from 0.05 to 0.01 mg/L on 10/05/12.
bck Background monitoring wells.

Last exceedance occurred in 2016
Last exceedance occurred in 2017



NOTE:
- GROUNDWATER ELEVATIONS ARE IN FEET.
- PARENTHESIS INDICATE ELEVATION NOT USED FOR CONTOURING.

DRAWN BY/DATE: SDS 1/11/18
REVIEWED BY/DATE: JJW 1/11/18
APPROVED BY/DATE: SJC 1/11/18

Q2 UPPER MIGRATION ZONE GROUNDWATER ELEVATION CONTOUR MAP
JUNE 19, 2017

2017 ANNUAL REPORT
FORMER HUTSONVILLE POWER STATION - ASH POND D
AMERENENERGY MEDINA VALLEY COGEN, LLC
HUTSONVILLE, IL

PROJECT NO. 67815

FIGURE NO. 2-2

Hutsonville Ash Impoundment
Analysis Results by Date (column) and Parameter (row)

Date Range: 01/01/2016 to 12/31/2017
Well: MW8

	03/07/2016	06/02/2016	09/26/2016	11/21/2016	03/13/2017	06/19/2017	09/18/2017	12/18/2017
Ag, diss, mg/L	<0.00100	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
As, diss, mg/L	<0.0030	<0.0005	0.0003	0.0014	0.0010	0.0002	0.0004	0.0061
B, diss, ug/L	14,700	16,200	16,500	12,400	16,400	16,600	15,400	18,200
Ba, diss, mg/L	0.019	0.023	0.022	0.019	0.017	0.026	0.022	0.030
Be, diss, mg/L	<0.00100	<0.00200	<0.00200	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cd, diss, mg/L	<0.00100	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cl, diss, mg/L	11	12	10	10	11	11	10	12
CN, total, mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Co, diss, mg/L	<0.00100	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.00500
Cr, diss, mg/L	<0.0010	<0.0020	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Cu, diss, ug/L	5.000	<1.000	<1.000	<0.200	30.700	<0.200	<0.200	<0.200
F, diss, mg/L	<0.200	<0.200	<0.200	<0.011	<0.011	<0.011	<0.011	<0.100
Fe, diss, ug/L	1,700	53	301	408	35	1,000	201	765
GW Depth (TOC), ft	12.33	16.15	16.73	17.03	14.38	7.61	18.40	17.02
GW Elv, ft	431.318	427.498	426.918	426.618	429.268	436.038	425.248	426.628
Hg, diss, mg/L	<0.0001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mn, diss, mg/L	2.830	3.840	2.950	2.180	0.095	3.390	2.930	1.660
Ni, diss, mg/L	0.0160	0.0036	0.0043	0.0038	0.0178	0.0033	0.0036	0.0251
NO3, diss, mg/L	<0.250	<0.250	<0.250	<0.017	<0.017	<0.017	<0.017	0.100
Pb, diss, mg/L	<0.00100	<0.00200	<0.00200	<0.00200	0.00300	<0.00200	<0.00200	<0.00200
pH (field), std	7.05	7.21	7.00	6.98	7.34	7.14	7.16	6.96
Sb, diss, mg/L	<0.00100	<0.00400	<0.00400	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Se, diss, mg/L	<0.0010	<0.0010	<0.0010	<0.0009	<0.0009	<0.0009	<0.0009	0.0010
SO4, diss, mg/L	659.0	734.0	661.0	575.0	639.0	600.0	398.0	732.0
Spec. Cond. (field), micromh	1,370	1,710	1,250	1,780	1,580	1,530	1,690	1,110
TDS, mg/L	1,230	1,380	1,460	1,300	1,420	1,420	875	1,530
Temp (Fahrenheit), degrees F	60.9	64.8	63.2	55.9	53.2	67.9	71.1	56.6
Tl, diss, mg/L	<0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zn, diss, mg/L	0.023	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010

Attachment D

Hutsonville Power Station

Flood Risk

Andrew Rehn, Prairie Rivers Network
Source: FEMA 100-Year Floodplain