BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	AS 2021-008
PETITION OF AMEREN ENERGY MEDINA VALLEY COGEN, LLC (OLD MEREDOSIA) FOR ADJUSTED STANDARDS FROM 35 ILL. ADMIN. CODE PART 845	)	(Adjusted Standard – Land)

AMEREN'S RESPONSE TO THE IEPA'S RECOMMENDATION

NOW COMES Ameren Energy Medina Valley Cogen, LLC ("Ameren"), by and through its attorneys, Brown, Hay + Stephens, LLP, and for its Response to the Recommendation of the Illinois Environmental Protection Agency (the "Illinois EPA") pursuant to 35 Ill. Admin. Code § 104.416, states as follows:

INTRODUCTION

On May 1, 2023, Ameren filed its Amended Petition for an Adjusted Standard (its "PAS"), seeking a finding that the regulations codified at 35 Ill. Admin. Code Part 845, *et seq.* ("Part 845") are inapplicable to the Old Ash Pond ("Old Meredosia") located at the inactive Meredosia Power Station ("MPS"). In the alternative, Ameren requested an adjusted standard exempting Old Meredosia from Part 845's closure and post closure provisions, with the following exceptions: (1) record a notation on the deed to Old Meredosia's parcel in accordance with 35 Ill. Admin. Code § 845.760(h), and (2) maintain financial assurance for Old Meredosia in accordance with 35 Ill. Admin. Code Part 845, Subpart I.

Closed by Ameren's predecessors in the early 1970's – prior to the advent of state and federal environmental laws and agencies – Old Meredosia is now (and has been for decades) a forested mound providing a valuable habitat for area wildlife. This longstanding forested mound is proximate to two closed Coal Combustion Residual Surface Impoundments ("CCRSIs") at the MPS, each closed with Illinois EPA authorization in the last decade – an authorization that requires

post-closure care including a groundwater monitoring network and regular groundwater reporting. On October 30, 2021, Ameren timely applied for a Part 845 operating permit for those closed CCRSIs; those permit applications remain pending at Illinois EPA.

Ameren's PAS contained over 1000 pages of exhibits, which included detailed technical expert reports regarding Old Meredosia's current geologic and topographic condition and the anticipated impacts – largely environmental – of altering that condition. The reports "utilized qualitative evaluation criteria, including positive groundwater separation, stability of embankments and cover erosion protection/management, infiltration management, cover and vegetative protection, ecological assessment of current Site ecosystem, a human health and ecological risk assessment, and for the purpose of comparison, the potential adverse impacts associated with the implementation of a Part 845-compliant closure condition." *PAS App'x*, p. 635. A summary of the expert reports is contained in the Technical Memorandum prepared by Haley & Aldrich, which states:

> Based upon the engineering evaluation of the current conditions at Old Meredosia, it is reasonable to conclude that the embankment and impoundment, plus the existing cover and cover vegetative growth support the following conclusions:
>
> - They provide for a closure scenario that is protective against risk to human health and the environment;
> - They support a viable Site ecosystem with mature/established vegetative cover and valued wildlife habitat; and
> - They demonstrate stable site civil/engineered conditions. That includes documented lines of evidence regarding overall positive performance of Old Meredosia as follows:
>   - There is no notable ongoing erosion; the Site is inspected and maintained on an ongoing basis;
>   - The existing cover system adequately addresses Infiltration management via the established cover configuration and associated vegetative protection;

- The embankments (and the ash inside the impoundment) are stable with no potential for liquefaction impacts/effects associated with seismic events;
- The impoundment is located outside of the Illinois River floodplain;
- There is demonstrated positive separation between the base of ash in the impoundment and a conservative estimate of the peak expected groundwater table; and
- Groundwater impacts, if any, will be detected and addressed via the groundwater management zone currently in place for the closed CCRSIs at the Meredosia Site.

Id.

On August 3, 2023, the Illinois EPA filed its statutorily required Recommendation – specifically and summarily recommending that the Illinois Pollution Control Board (the "Board") deny Ameren's PAS.[1] The Illinois EPA does not seriously address or counter any of the above conclusions, or any of the key information presented in the reports. To the extent the Illinois EPA's Recommendation addresses any technical points, it does so in summary and minimal fashion in what amounts to a disappointing 17 pages of "sound and fury," signifying very little. Ameren here responds.

The Illinois EPA's major focus is that the Board cannot grant an adjusted standard on any point, or for any site-specific reason, which leads to an adjusted standard provision that is not "at least as protective" as the Federal Coal Combustion Residual ("CCR") rule, 40 C.F.R. Part 257 ("Part 257"). *Rec.*, at ¶ 48 (citing 415 ILCS 5/22.59(g)(1)). The Illinois EPA essentially asserts that anything short of an application of the federal rules is not sufficiently protective to pass muster because the Illinois General Assembly said to use Part 257 as a baseline. As demonstrated below, that is the wrong legal analysis because it wholly eviscerates the Adjusted Standard provisions of

[1] The recommendation will be cited herein as *Rec.*, at ¶___.

the Illinois Environmental Protection Act, 415 ILCS 5 *et seq.* (the "Act"). This the Board cannot do. *See Ill. Landowners All., NFP v. Ill. Commerce Comm'n*, 2017 IL 121302, ¶ 50 (citing *Bd. of Educ. of Roxana Cmty. Sch. Dist. No. 1 v. Pollution Control Bd.*, 2013 IL 115473, ¶ 25) ("Of all the principles of statutory construction, few are more basic than that a court may not rewrite a statute to make it consistent with the court's own idea of orderliness and public policy".) It is well settled that "[w]hen comparing and construing related statutes, '[w]e presume the legislature *** acted rationally and with full knowledge of other statutes and judicial decisions concerning existing law.'" *Kloeppel v. Champaign Cty. Bd.*, 2021 IL App (4th) 210091, ¶ 16.

Thus, when the Illinois General Assembly enacted Section 22.59 of the Act, it is presumed that the General Assembly did so in contemplation of Section 28.1 of the Act, which provides that "[a]fter adopting a regulation of general applicability, the Board may grant, in a subsequent adjudicatory determination, an adjusted standard for persons who can justify such an adjustment consistent with subsection (a) of Section 27 of this Act." 415 ILCS 5/28.1. Section 27(a) of the Act enables the Board to adopt substantive regulations, and mandates that "the Board shall take into account *the existing physical conditions*, the character of the area involved . . . and the technical feasibility and *economic reasonableness* of measuring or reducing any particular type of pollution." 415 ILCS 5/27(a). Nonetheless, the Illinois EPA presently asserts that Section 22.59 forbids adjusted standards and demands that the Board go beyond what the USEPA is contemplating in its proposed rulemaking.

Here, the Board is required to evaluate the extensive evidence presented by Ameren and apply the key statutory factors relevant to its request for an adjusted standard from the closure standards. Applying those factors, Ameren is entitled to be granted the adjusted standard it requests for Old Meredosia.

I. THE ILLINOIS EPA'S RECOMMENDATION MISREPRESENTS THE CONTEXT AND LAW APPLICABLE TO THIS PROCEEDING

At the outset, the Illinois EPA erroneously describes the context of the Board's role in this proceeding. In paragraph 1 of its Recommendation to deny Ameren's PAS, the Illinois EPA describes Part 257, as a "baseline" – and intimates that any adjusted standard granted by the Board must start with this baseline and not "adjust" it in any manner that results in it being less "protective" or "comprehensive" than those rules or the Illinois counterpart, promulgated by the Board as Part 845. Yet, the very purpose of adjusted standards under the Act is to create *an exception* to the rule of general applicability. As the name suggests, adjusted standards are standards that have been adjusted. Importantly, when the Illinois General Assembly crafted Section 22.59 of the Act, it was well aware of, and did not obliterate, the long-standing rule allowing for adjusted standards. *See Kloeppel v. Champaign Cty. Bd.*, 2021 IL App (4th) 210091, ¶ 16. Sections 22.59 and 28.1 must be read in harmony. *Id.* ("[e]ven when an apparent conflict between statutes exists, they *must be* construed in harmony with one another if reasonably possible").

Certainly, the Board recognized such when it promulgated the CCR rules of general applicability – inviting Ameren to do exactly what it's doing here, *i.e.,* to seek an adjusted standard for its closed facilities by utilizing the regulatory relief provisions of the Act:

> As discussed in the Board's second-notice opinion, these are rules of general applicability and it is inappropriate to carve out exceptions for individual ash ponds as Ameren here requests. CCR Second Notice at 17.
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> ***
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> However, Ameren has potential avenues for relief, as described in the Board's second notice opinion. "To address site-specific issues, an affected entity may avail itself of relief mechanisms, **such as an adjusted standard** or a variance." *Id*. Through testimony in this rulemaking, as well as the site-specific rulemaking that created Part 840 of the Board's rules, the Board is aware that Ameren's multiple CCR surface impoundments are in various states of closure. (emphasis added)

In re: Standards for the Disposal of CCRs in Surface Impoundments, R20-19, Opinion and Order: Adopted Rule, Final Order (Apr. 15, 2021), at p. 5.

Yet, Illinois EPA's response confuses the relevant legislative mandate here, which is Section 28.1, not 22.59, by carelessly discussing "rule" and "adjusted standard" as if they were one in the same. They are not – and our Illinois Supreme Court has so held. *See Sierra Club v. Ill. Pollution Control Bd.*, 2011 IL 110882, ¶ 11. In the context of a challenge by Sierra Club to an adjusted standard granted by the Board, the Court examined the two distinct processes and stated:

> For several reasons, we conclude that the Board Order [granting an adjusted standard] is *not* a "rule or regulation promulgated by the Board." For starters, section 28.1 repeatedly draws a distinction between rules and regulations on the one hand, and adjusted standards on the other. For example, section 28.1(a) states that, "*[a]fter adopting a regulation of general applicability,* the Board may grant, in a subsequent adjudicatory determination, an adjusted standard for persons who can justify such an adjustment." (Emphasis added.) 415 ILCS 5/28.1(a) (West 2008). Clearly, then, the adjusted standard is not *itself* the regulation promulgated by the Board; rather, it is an individualized exception to that regulation. Likewise, section 28.1(b) states that "*[i]n adopting a rule of general applicability,* the Board may specify the level of justification required of a petitioner for an adjusted standard." (Emphasis added.) 415 ILCS 5/28.1(b) (West 2008). Again, this language confirms that an adjusted standard is not itself a "rule of general applicability," but rather something separate and distinct from such a rule. Finally, section 28.1(a) specifically states that "[t]he rule-making provisions of the Illinois Administrative Procedure Act and Title VII of [the] Act *shall not apply* to [adjusted standard] determinations." (Emphasis added.) 415 ILCS 5/28.1(a) (West 2008). If the standards and procedures governing the Board's rulemaking authority do not apply to the adjudication of adjusted standard petitions, then necessarily the Board is not engaged in rulemaking when it adjudicates such a petition.

Id. (emphases in original).

Illinois EPA's Recommendation obliterates this distinction. One key example is its bald assertion that Old Meredosia's 1970s final cover must meet the final cover standards of the newly adopted Board rules:

> The Petitioner provides no information that indicates the existing sluiced sediments that cover Old Meredosia meet the requirements of Sections 845.750(c)(1) and (2). Section 22.59(g)(1) of the Act requires that the rules adopted by the Board be at

> least as protective and comprehensive as Subpart D of 40 CFR 257. *Therefore, the Agency cannot approve any final cover system that does not meet at least the minimum requirements of Part 257.102(d)*.

Rec., at 41 (emphasis added).

This statement wholly ignores the Board's authority in an adjusted standard proceeding. The Illinois EPA can and must approve any final cover system deemed appropriate by the Board in an adjusted standard proceeding – just as it can and must approve any action duly authorized by the Board pursuant to Board authority. *See generally Grigoleit Co. v. Pollution Control Bd*., 245 Ill. App. 3d 337, 613 NE. 2d 371 (1993) (sanctioning the Illinois EPA for its "unnecessary stubborn defiance of the Board"). The factors relevant to the Board's determination admittedly include consistency with federal law, but they do not require that they be identical-in-substance to it. There is more than one way to prove environmental protection, and that determination is what the Illinois General Assembly has wisely provided for in the adjusted standard process.

Ameren has no dispute that the Board was subject to Section 22.59 while engaged in its quasi-legislative rulemaking function in promulgating Part 845, i.e., that its rules of general applicability be "as protective" and "as comprehensive" as the federal rules. 415 ILCS 5/22.59(g)(1). Presumably, they are. However, such analysis is not relevant here where the Board is engaged in its quasi-judicial function mandated by Section 28.1. *Sierra Club*, 2011 IL 110882 at ¶ 11.

In other words, the task before the Board is not to rotely apply its rules of general applicability to this fifty-year old site, as Illinois EPA urges; the task is to evaluate the evidence presented, consider the federal rule, and act in accordance with Section 28.1 of the Act.

II. AN APPLICATION OF SECTION 28.1 FACTORS TO AMEREN'S PAS WARRANTS A BOARD GRANT OF THE REQUESTED AS.

Section 28.1 requires an analysis of the following four factors; while the Board has established specific ways of proving those factors in its regulatory relief section of its procedural rules, codified at 35 Ill. Adm. Code 104.400, *et. seq.*, some of which are applicable and some not in any given proceeding, it is these four factors that drive any adjusted standard decision:

> (1) factors relating to that petitioner are substantially and significantly different from to the factors relied upon by the Board in adopting the general regulation applicable to that petitioner;
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> (2) the existence of those factors justifies an adjusted standard;
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> (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
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> (4) the adjusted standard is consistent with any applicable federal law.

415 ILCS 5/28.1(c) (1)–(4).

A. Old Meredosia – Substantially and Significantly Different

The first two prongs of the required Section 28.1 analysis direct the Board to (1) evaluate the site-specific nature of the site in question to determine whether it is somehow significantly different than the typical sites which were the subject of the rule of general applicability and, if so, (2) whether those distinct site-specific characteristics justify an adjusted standard. If so, the Board moves forward to the second two prongs: (3) protection of health and environmental protection, and (4) consistency with applicable federal law.

Here, Old Meredosia has been closed and inactive for over fifty years; the site has become a natural habitat for various native fauna and wildlife, including protected species; and it is included within the inactive MPS facility. MPS includes two more recently closed former ash ponds (Bottom Ash and Fly Ash) that are subject to a state authorized post-closure care plan. That

plan includes an existing groundwater monitoring network that captures any impacts from the two closed ponds – as well as from Old Meredosia given that Old Meredosia is located entirely within the existing groundwater monitoring network. Further, Ameren has applied for an operating permit under Part 845 to continue these post-closure care obligations.

Those factors are substantially and significantly different than what the Board considered in its rule of general applicability, and understandably so given that the Board was to consider the eleven criteria set forth in Section 22.59(g) of the Act when making the rule. *See* 415 ILCS5/22.59(g) (1)–(11). However, in crafting Section 22.59(g), the legislature was well aware that outliers such as Old Meredosia existed and would be eligible for adjusted standards. *See* S. 101st Gen. Assembly, Reg. Sess., 41st Legis. Day, at p. 37 (Ill. May 9, 2019).[2] Further, because Old Meredosia cannot possibly meet the new Part 845 closure standards, as written and adopted, without removing its forested habitat and triggering substantial environmental harm, these factors justify an adjusted standard. Any conclusion otherwise would be arbitrary, capricious and unreasonable; yet that is exactly what Illinois EPA urges in its recommendation:

> The factors relating to Old Meredosia *have not been proven* substantially and significantly different from the factors relied upon by the Board in adopting the Part 845 closure requirements applicable to other CCR surface impoundment. In its adopting opinion, the Board stated, "These rules of general applicability provide for the protection of public health and the environment in Illinois." *See* R20-19 April 15, 2021 at 1. Because Old Meredosia is an inactive CCR surface impoundment and therefore subject to the rules of 845, Petitioner's request would not uphold the Board's intent to protect the public health and the environment in Illinois.

Rec., at ¶ 45.

[2] Senator Bennett: "As I said, we are on Amendment No. 4 [to Section 22.59], and for those that have asked, 'can you keep negotiating?', 'can you go a little further?', the fact is, I think if we were at Amendment 10, we'd still have that conversation . . . By draft three, we had a thought out process, written by the Illinois EPA, to say we are going to look case by case. The – the assumption is you're going to remove [CCR], but if you can prove to us that it's just as safe for the citizens around there to do something less costly . . . then we'll do that. But you have to prove to us it's just as safe."

This is circular reasoning at its best, and more than a bit incredulous, given the amount of time the Illinois EPA (and the Office of the Illinois Attorney General) spent on the regulatory record successfully urging the Board not to consider anything unique or site-specific about Ameren's closed sites in that proceeding. What Illinois EPA is saying here is that the ONLY way to protect the environment and public health in Illinois as it relates to closed ash ponds is to follow the Part 845 closure requirements of general applicability, as promulgated, without regard to evidence related to protection of the public health and environment in Illinois via a site-specific analysis.

Taking this circular reasoning to its logical conclusion, Section 28.1 would never be available as to any site where Part 845 applies. We've already seen how that logic is an erroneous conflation of two distinct administrative processes – which must be analyzed and applied separately. Rather, as the Board presumably recognized in its Final Order, the adjusted standard process is legally available to those sites where the rule of general applicability simply does not fit – such as here, where the site will be significantly and unreasonably challenged to follow the rules of general applicability and where an application of other statutory factors will allow for a reasoned quasi-judicial determination of environmental protection *without* an application of the general rules.

To Illinois EPA's claim that the factors at Old Meredosia "have not been proven" to be substantially and significantly different than those the Board considered in its rulemaking of general applicability, Ameren asks: what further proof does the Board need on this point? Is the Illinois EPA aware of any other site that has been closed for over fifty years, so long dormant that it now contains a natural habitat that has recently been evaluated and found to contain federally protected species? Was such a site the type of site that was the subject of the Board's rule of general

applicability? What about a 50-year-old site that is contained within the geographic area of a groundwater management zone applicable to former ash ponds that were closed pursuant to a government approved closure plan and now will be subject to a Part 845 operating permit?

Quite simply, there is NO rationale for the Board to conclude that Old Meredosia does not meet the first prong of the required rationale for an adjusted standard. Having met that prong, the Board must then determine if an adjusted standard is warranted – applying the other prongs, specifically addressing whether the evidence presented demonstrates (3) that its proposed 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) that the proposed standard is *consistent* with *applicable* federal law. 415 ILCS 5/28.1(c) (3)–(4) (emphasis added). Those prongs are discussed below.

B. The requested Old Meredosia AS will not result in environmental and health effects substantially and significantly more adverse than those considered by the Board in its rule of general applicability.

First, to address what the environmental and health impacts Board considered in its rule of general applicability, Ameren has looked to the Illinois' EPA's Statement of Reasons ("SOR"), filed on March 30, 2020 – since, presumably, this is what the Board considered in its rule of general applicability.

The Illinois EPA first discussed the general nature of a CCR surface impoundments: basically, a borrow pit into which CCR and liquid were stored, often then by constructing a diked enclosure which was generally considered a dam and regulated as such by Illinois DNR under 17 Ill. Admin. Code § 3702.20. *In re: Standards for the Disposal of CCRs in Surface Impoundments*, R2020-19, Illinois EPA Statement of Reasons ("SOR"), p. 3 of 45. The Illinois EPA then acknowledged the federal focus and impetus of the rules:

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

Id.[3] In discussing its proposed rules, Illinois EPA's Statement of Reasons articulated five purposes: foremost, to "fulfill Illinois' statutory obligation to propose CCR rules *consistent with the requirements in Section 22.59(g)*"; second, to protect Illinois groundwater; third, to adopt the federal CCR rules in Illinois and obtain federal approval; fourth, to ensure CCR surface impoundments are closed in an environmentally protective way; and fifth, to ensure public participation. *Id.* at pp. 10–11 of 45.

As to groundwater protection, the Illinois EPA stated:

> The proposed rule contains a program for groundwater monitoring and the remediation of contaminated groundwater resulting from leaking CCR surface impoundments. Groundwater has an essential and pervasive role in the social and economic well-being of Illinois, and is important to the vitality, health, safety, and welfare of its citizens. This rule has been developed based on the goals above and the principle that groundwater resources should be utilized for beneficial and legitimate purposes. *See* 415 ILCS 55/1 *et seq.* Its purpose is to prevent waste and degradation of Illinois' groundwater. The proposed rule establishes a framework to manage the underground water resource to allow for maximum benefit of the State.

Id. at p. 10 of 45.

[3] During this same timeframe, Ameren approached Illinois EPA to develop site specific criteria to allow it to close its facilities, as it had made a business decision to cease coal generation in Illinois and wanted to be sure its closures were environmentally protective – and authorized by Illinois. During the next decade – prior to the adoption of the federal CCR rules – and prior to the Illinois General Assembly's adoption of Section 22.59, the Illinois EPA agreed, at Ameren's request, to authorize closures of Ameren's other Meredosia ash ponds, which were largely modeled after the Board-authorized closure of Hutsonville Pond D. *See generally In re: Ameren Ashpond Closure Rules (Hutsonville Power Station)*, R2009-21; *see also PAS Ex. 1* (MPS Closure Plan). As a result, all of the Meredosia Power Station is already subject to groundwater monitoring. Importantly here, not once during this timeframe did Illinois EPA mention any concerns it had related to Old Meredosia, even though the closed mound was well within its regulatory awareness. *See PAS App'x,* p. 7.

As to environmentally protective closures, Illinois EPA's SOR is obviously forward-looking,[4] and simply states:

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

Id. at p. 11 of 45.

Considering the above, the environmental and health analysis relevant here is adequate protection of groundwater from the Old Meredosia site. Ameren has been careful to ensure such protection; the detailed technical analysis contained in the PAS' appendix provides detailed groundwater analysis and allows for the ready and reasonable conclusion that granting the AS will not result in harm to public health or the environment. Nevertheless, the Illinois EPA insists on a position that will cause significantly more adverse effects than that considered by the Board in its rule of general applicability.[5] As the Board already has all the evidence it needs to draw this conclusion, and as that evidence has already been summarized in Ameren's PAS, Ameren here simply responds to the limited points made by Illinois EPA concerning environmental protection in its Recommendation.

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[4] Again, by the time the Illinois EPA filed these rules with the Board, all of Ameren sites had been closed – with Illinois EPA approval. While the Meredosia Power Station closure included a reference to Old Meredosia, and the established groundwater monitoring system includes the area, the mound was not specifically the subject of the closure documents – as it had been closed fifty years earlier!

[5] Importantly, in promulgating this rule of general applicability, the Board specifically stated that it would not change the definition of an inactive CCRSI because, "[t]o address site specific issues, an affected entity may avail itself of relief mechanisms, such as an adjusted standard or a variance." *In re: Standards for the Disposal of CCRs in Surface Impoundments*, R20-19, Opinion and Order: Proposed Rule, Second Notice (Feb. 4, 2021), at p. 17.

There are few portions of Illinois EPA's Recommendation that actually deal with the existing environmental conditions at Meredosia, as presented in Ameren's PAS; the vast majority of the recommendation is tied to Illinois EPA's position, not based in law or logic, that if the Board's new Part 845 regulatory standards are not applied, then there will be health and environmental impacts significantly and substantially more harmful than would result under an application of the new rules. Surely, the Board must see the logical misstep in any such conclusion and will, as it is mandated to do, review the information, and apply the language of Section 28.1 properly. Below Ameren responds to the limited points the Illinois EPA Recommendation makes (or has declined to make) in this regard.

At the outset, the Illinois EPA's Recommendation to deny does not address or evaluate any of the adverse natural resources impacts that are bound to occur if closure is required pursuant to the newly promulgated Board standards. It cites to Ameren's WSP Site Investigation report, but provides no contrary information or analysis, passing that ball to the Board: "However, if the Board finds the Petitioner's arguments convincing that there are valuable natural resources present within the footprint of Old Meredosia, then an adjusted standard from aspects of Part 845 may be granted." *Rec*., at ¶ 38. Yet, it provides no information about what aspects it would find appropriate to include in any adjusted standard – and in fact asserts the opposite.

Rather, throughout its Recommendation, the Illinois EPA asserts that the ONLY way to protect the environment at Old Meredosia is via application of the general rules by (a) demonstrating, by engineer certification, that the existing cover "meets or exceeds" the extensive new cover requirements of Sections 845.750(c)(1) & (2); and (b) by constructing a new groundwater monitoring network – apparently separate from the existing one at MPS, the one already approved by Illinois EPA for MPS. See *Rec*., ¶¶ 39–42. Further the Illinois EPA proposes

that "in lieu of compliance with Section 845.700(d), (g) & (h), Ameren shall submit operating permit and closure construction permit applications within 24 months of the Board's issuance of its final order.[6]

Where the Illinois EPA has evaluated Ameren's evidence, presumably in support of these conclusions, Ameren addresses any such evaluation below.

(i) *Allowing the Existing Cover to Remain Will Not Result in Environmental or Health Effects Substantially and Significantly More Adverse Than Requiring Old Meredosia to Construct a Cover Compliant with the new Part 845 Standards*.

First, regarding the existing Old Meredosia cover and potential adverse groundwater impacts, Illinois EPA postures that there is a "lack of data" supporting Ameren's point that "evapotranspiration provides a reduction in infiltration" such that the existing vegetative cover provides protection from surface and rainwater filtering through the mound and potentially adversely impacting groundwater. *See Rec*., ¶ 42. Thus, Illinois EPA seeks an engineering certification that the 1970's cover – now covered in trees – meets the Board's new standards. This, Ameren cannot do without utterly destroying the existing habitat (removing the significant 50-year-old natural forested cover, described in detail by Ameren's natural resources consultants, WSP). In response to this, Ameren re-engaged WSP to further discuss the natural evapotranspiration process. *See Exhibit A* (Amended WSP Ecological Review). As explained by WSP, the forest community present at Old Meredosia consists of white mulberry, cottonwood, and black locust trees. *Ex. 1*, p. 25. On average, white mulberries have documented rooting depths of 7 to 13 feet, black cottonwoods have maximum rooting depths of 8.5 feet, and black locusts have rooting depths of 9.5 feet. *Id.* at 26. The rooting depths documented in literature for the types of

[6] These provisions appear to simply remove any applicable timeframes relevant to closure – not the new closure standards.

trees found at Old Meredosia support the notion that root growth likely extends into the buried ash, and as such, the ecosystem of roots likely extends into the buried ash and has the potential to remove "porewater from the ash that would otherwise potentially infiltrate, move downward, and leach through the ash material and potentially impact groundwater." *Id.* Based on the average documented evapotranspiration rates for the types of trees at Old Meredosia and the average rainfall in the area, it is likely that the trees require groundwater in addition to the water present in the soil to meet their transpiration requirements. *Id.* As a result, the trees present on the Old Meredosia site, which does not receive surface water from anything but direct rainfall, likely do not allow any water to reach the groundwater table and, correspondingly, do not allow for any ash to migrate offsite or downgradient. *Id.*

Quite simply, the data presented by Ameren clearly supports the conclusion that granting the Adjusted Standard will not cause health or environmental impacts significantly or substantially more harmful than those considered in adopting the general rule given that rainfall does not infiltrate through Old Meredosia to the groundwater and that the groundwater table is consistently below the bottom of the site, even during seasonal high groundwater conditions.

Further, apart from Ameren's discussion on evapotranspiration, the Board must weigh the cost of constructing a new cover against the cost of leaving such in place. *See* 415 ILCS 5/28.1(c)(3). Such construction would result in a measurable cost to Ameren but, importantly, would also result in an immeasurable cost to the environment – as it would result in the destruction of the natural habitat that Old Meredosia has become – an oasis in an otherwise industrial area. *PAS App'x*, pp. 630–33. In addition to the unlawful takings of wildlife, discussed briefly below and in depth in the PAS (and its exhibits), the Illinois EPA's Recommendation insists that Old Meredosia be either "capped" in place or "closed" by removal. *Rec.* ¶ 40. In other words, the

Illinois EPA wants Ameren to either remove 400,000 cubic yards of material (closure by removal), which would take about 30,000 round-trip truckloads; or haul in 175,000 cubic yards of materials (cap in place), which would take about 15,000 truckloads. *PAS,* p. 23. These activities would unavoidably be accompanied by excessive fuel consumption and emissions as a result of the excavators, loaders, bulldozers, rollers, and haul trucks which would be required to accomplish what the Illinois EPA is requesting. *Id.*

The WSP report details the extensive wildlife community at Old Meredosia, including an active bald eagle nest, various species of bats, and provides a probable habitat for the Illinois chorus frog. *See PAS App'x*, pp. 650–68. Yet, the Illinois EPA wholly ignored Ameren's assertion that requiring the re-closure of Old Meredosia in accordance with Part 845 would necessarily involve takings under the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act and the Illinois Endangered Species Act. *Rec.*, at ¶ 43. The Board must address the question the Illinois EPA ignores: what substantial and significant environmental benefit will be achieved in the context of this 50-year-old site by an application of the new closure requirements – and at what cost?

(ii) *Allowing the Existing Groundwater Monitoring System to Remain in Place Will Not Result in Environmental or Health Effects Substantially and Significantly More Adverse Than Requiring a New Old-Meredosia Specific Groundwater Monitoring System.*

Although the Illinois EPA authorized a groundwater monitoring system at MPS which monitors groundwater impacts, all the while knowing of the existence of Old Meredosia, the Illinois EPA only now requests that Ameren create a new groundwater monitoring network – specific to Old Meredosia. The Illinois EPA has not demonstrated a need for such, nor has it provided any technical analysis different than that presented in the PAS. Rather, it summarily states

that Ameren "ignores the environmental factors provided by its own documents" pointing generally to Ameren's Haley & Aldrich expert reports (PAS Exs. 2 and 3) and states as follows:

> The Petitioner indicates that because Old Meredosia is within the GMZ established during the closure of the Fly Ash and Bottom Ash Ponds, the groundwater monitoring for those two ponds adequately characterizes groundwater which may be impacted by Old Meredosia. *See* Amd. Petition at 26. However, Petitioner's Ex. 2 at 700/1169 pdf, demonstrates that contaminates do leach from the fly ash contained in Old Meredosia at concentrations above the groundwater protection standards. Ameren concedes that a cover would reduce the infiltration of precipitation. *See* Amd. Petition at 23. The Petitioner's data also demonstrates that contaminants in excess of groundwater protection standards exist in groundwater beneath Old Meredosia. *See* Petitioner's Ex. 2 at 701/1169 pdf. The fact that the fly ash in Old Meredosia leaches contaminants and there are also two closed CCR surface impoundments at the site underline the need for a groundwater monitoring system specific to Old Meredosia. Without its own monitoring well system, the extent to which Old Meredosia is contributing to groundwater contamination cannot be determined. Petitioner's Ex. 3 at 1065/1169 pdf displays property immediately adjacent to Old Meredosia that is not owned or controlled by Ameren. Petitioners' Ex. 2 at 885/1169 pdf., potentiometric surface map demonstrates that the property to the east of Old Meredosia, which is not under Ameren control, is sometimes down gradient of Old Meredosia. Therefore, contaminants leaching from Old Meredosia may be contaminating off-site groundwater. The Petition does not adequately address the potential for Old Meredosia to impact groundwater, nor does it provide adequate information to determine that the existing sediment cover provides any control of these environmental impacts.

Rec., at ¶43.

Ameren has ignored nothing; the Illinois EPA raises issues without any technical analysis but rather mere conjecture. Conjecture does not drive the adjusted standard process. A comparison of the existing environmental conditions against a wholesale application of the Part 845 standards does. Ameren's point is that leaving the groundwater monitoring system as is will not result in environmental or health impacts substantially more adverse than those which the Board considered in its rulemaking – or, for that matter, what Illinois EPA obviously considered environmentally protective when it allowed for the closure of MPS – without requiring such separate monitoring system for Old Meredosia. Nonetheless, to address Illinois EPA's Paragraph 43, Ameren asked

Haley & Aldrich to again review the data and provide a technical response to the issues raised in this paragraph. Haley & Aldrich's supplemental technical memorandum is enclosed herein as *Exhibit B*.

In sum, the technical experts' evaluation of the data specific to the points raised in Paragraph 43 of the Illinois EPA's Recommendation provides for the following additional responsive conclusions: Existing wells are in place as part of the approved groundwater monitoring system authorized by IEPA upon closure of the Meredosia Station - and two additional wells, more proximate to Old Meredosia, were drilled in 2021. These wells monitor potential groundwater impacts from the unit. Based on groundwater quality data collected from these wells, the Old Meredosia Risk Evaluation concluded that Old Meredosia does not pose a risk to human health or the environment. As to the potential for offsite property contamination: it is reasonable to conclude that, based on historic groundwater contour mapping, groundwater may, on rare occasions, flow in an easterly or southeasterly direction toward the adjacent parcel immediately east of Old Meredosia. However, under the most severe historic Illinois River flooding events (when reverse groundwater flow could occur), potentially impacted groundwater would not be expected to have advanced off the site to the adjacent parcel east of Old Meredosia. *See Ex. B*. Illinois EPA offers no evidence to the contrary.

Accordingly, nothing in Illinois EPA's Recommendation would allow for a Board conclusion that leaving Old Meredosia as is, without requiring compliance with standards developed 50 years after its closure, will result in significantly and substantially more adverse environmental harm than that considered by the Board in its rulemaking.

(iii) The requested Old Meredosia AS is consistent with applicable federal law.

Nothing in the laws the Board is called upon to apply here requires an analysis, as urged by the Illinois EPA, that Ameren is obliged to close Old Meredosia in a manner that is identical to the closure requirements in Part 845 – or the federal CCR rules. The question is *consistency* with *applicable* federal law. Consistent does not mean identical. Part 845 rulemaking was NOT an identical-in-substance rulemaking. Rather, as explained above, the Board's only charge was to be sure the rules themselves were at least as protective and comprehensive as the federal rules. We believe the protections afforded at Old Meredosia, as analyzed technically in the PAS, are in fact consistent with the goals the federal government wanted to achieve.

More to the point however, there is NO federal law applicable to Old Meredosia – it would be error for the Board to so find. Given the constant (and disconsonant) drum beat the Illinois EPA and Illinois Attorney General have asserted through the Board's Part 845 regulatory proceeding and here, it is key that the Board understand this truism: the Federal CCR rules were never intended to cover closed sites and, to this day, still do not.

In its Recommendation, the Illinois EPA discusses Part 257 as relevant federal guidance and even references the preamble to the federal rule when stating that Part 845 was written with the same protection and comprehensiveness as Part 257. *Rec.*, at ¶ 11. However, Illinois EPA wholly ignores the USEPA's stated intention in promulgating Part 257, despite that stated intention being discussed at great length in Ameren's PAS:

> EPA proposed to regulate only "inactive" surface impoundments that had not completed closure of the surface impoundment before the effective date. "Inactive" surface impoundments are those that contain *both* CCR and water, but no longer receive additional wastes. *By contrast*, a "closed" surface impoundment **would no longer contain water, although it may continue to contain CCR** (or other wastes), and would be capped or otherwise maintained. There is little difference between the potential risks of an active and inactive surface impoundment; both

> can leak into groundwater, and both are subject to structural failures that release the wastes into the environment . . . .
>
> EPA did not propose to require "closed surface impoundments to "reclose." Nor did EPA intend, as the same commenters claim, that "literally hundreds of previously closed . . . surface impoundments – many of which were properly closed decades ago under state solid waste programs, have changed owners, and now have structures built on top of them – would be considered active CCR units." **Accordingly, 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 no longer impound liquid.**

80 Fed. Reg. 21,301, 21,343 (Apr. 17, 2015). Following the promulgation of Part 257, the United States Court of Appeals for the District of Columbia Circuit found that the EPA "acted arbitrarily and capriciously and contrary to RCRA . . . in exempting inactive surface impoundments at inactive power plants from regulation." *Utility Solid Waste Activities Grp. v. Envtl Prot. Agency*, 901 F.3d 414, 449 (D.C. Cir. 2018) (hereinafter "USWAG"). Following the USWAG decision, the EPA proposed to include a provision in Part 257 specifying that the legacy CCRSIs are subject to the new regulations. 88 Fed. Reg. 31,982, 31,988. The EPA explained that the 2015 CCR rule exempted "inactive surface impoundments at an inactive facility" otherwise known as the legacy surface impoundments the USWAG Court was concerned with. *Id.* at 31,989 (emphasis added). In response to USWAG, the EPA seeks to modify the existing requirements of Part 257, which applied only to inactive CCR impoundments at active facilities, in order to regulate these legacy surface impoundments. *Id.* Under the current proposal, the EPA seeks to regulate "legacy surface impoundments" by giving their definition two components: legacy surface impoundments would be (1) Inactive CCR Surface Impoundments (2) at inactive facilities. *Id.* Thus, the EPA proposal 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 (emphases added). The Advanced Notice of Proposed Rulemaking issued by the EPA sought comment on how to define the Inactive CCR Surface Impoundment component of legacy surface impoundments, specifically:

> [W]hether to define a 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***
>
> - Option 1 – the surface impoundment contained both CCR and liquids on the effective date of the 2015 CCR Rule (*i.e.*, October 19, 2015); or
>
> - Option 2 – the surface impoundment contained both CCR and liquids on the date the Court issued its mandate for the August 21, 2018, court decision (*i.e.*, October 15, 2018); or
>
> - Option 3 – the surface impoundment contains both CCR and liquids on the date EPA issues a final rule bringing legacy CCR surface impoundments under the federal regulations.

Id. (emphasis added). In other words, none of the options proposed by the EPA would regulate Old Meredosia because it ceased holding liquid well before October 19, 2015. *See* PAS, §§ II, VI.A The EPA received comments arguing that the EPA should regulate all CCR units irrespective of whether they contain liquid; in response, EPA stated it "is not proposing to expand the definition of a legacy CCR surface impoundment to include units that contain no liquid. Units that contain liquid present different risks than those that do not, and the applicable requirements should differentiate among them accordingly on that basis." *Id.* at 31,993.

As is clear from the foregoing, Old Meredosia is not the type of CCR unit the EPA intends to regulate, and thus is likewise not the type of CCR unit covered by Part 845. First, Part 845 cannot be retroactively applied to impose new duties on Ameren for a closure it completed well

before Part 845's existence.[7] Second, Old Meredosia is not a surface impoundment because it has not been designed to hold liquids at any point during this century. Third, even if Old Meredosia could be considered a surface impoundment, it not a "legacy" surface impoundment as contemplated by the proposed Part 257 because it does not fit within the Inactive CCR Surface Impoundment component of the definition of Legacy CCR Surface Impoundments. Thus, Part 845, which is intended to regulate the same CCRSIs as Part 257, is not intended to regulate sites such as Old Meredosia.

Illinois has been a leader in environmental regulation for over fifty years. The Illinois EPA and Illinois Pollution Control Board were born prior to the USEPA. Likewise, Ameren has been a leader in closing its ash ponds – by working with the Illinois EPA to develop environmentally protective closures – while the state and federal governments were stymied as to how and when to move forward. Unfortunately, the federal government is still stymied – and, it appears, so is the Illinois EPA (having not acted on any of the currently pending CCR permits). However, for the reasons stated above, Old Meredosia is not subject to the 2015 Part 257 Rule and will not be subject to the Proposed Rule covering Legacy Surface Impoundments, if it is finalized by USEPA.

Ameren has presented a timely and legally cognizable request for regulatory relief under Illinois statutory procedures that allow it to do so and, moreover, has been invited to do. We ask

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[7] The EPA recognizes this. In response to comments that Option 1 above would constitute an unlawful, retroactive application of the law, the EPA said:

> EPA disagrees that reliance on the effective date of the 2015 CCR Rule would constitute a retroactive application of law. For a regulation to be retroactive, it must change the prior legal status or consequences of past behavior. See *Landgraf v. USI Film Products*, 511 U.S. 244, 269, n.4 (1994); *Treasure State Resource Industry Ass'n v. E.P.A.*, 805 F.3d 300, 305 (D.C. Cir. 2015). By contrast, here, EPA is merely proposing to rely on a past fact to support the future application of regulations. And because EPA is proposing to establish future compliance dates, no facility would be subject to penalties solely because one of its legacy CCR surface impoundments was out of compliance with the regulatory requirements prior to the effective date of a rule finalizing this proposal.

88 Fed. Reg. 31,982, 31,991 (May 18, 2023).

that the Board act on this adjusted standard promptly and stand ready to answer – at hearing[8] – any questions the Board might have.

III. ANY APPLICATION OF PART 845 TO OLD MEREDOSIA WILL CONSTITUTE AN UNLAWFUL RETROACTIVE APPLICATION OF LAW.

Ameren has filed the PAS for Old Meredosia as it prefers to seek immediate regulatory relief as provided for by Illinois law. However, Ameren does not by this filing waive any argument as to unlawful retroactivity it has made – and continues to make – related to its closed sites. The issue of impermissibly applying Section 22.59 retroactively to Ameren's closed sites is pending before the Fourth District Court of Appeals. *See AmerenEnergy Medina Valley Cogen, LLC, d/b/a Ameren Missouri v. Ill. Pollution Control Bd.*, 4-21-0310. That case is a direct appeal of the Board's rulemaking – and, when filed, Ameren did not yet have a Board or Illinois EPA decision that applied the new Part 845 rules retroactively. However, should the Board here agree with the Illinois EPA regarding the required applicability of Part 845 as to Old Meredosia, Ameren would consider any such decision an unlawful retroactive application of Illinois law for the following reasons.

Under Illinois law, courts apply the test provided in *Landgraf v. USI Film Prods.*, 511 U.S. 244 (1994), to determine whether a statute may have a retroactive effect. *See Commonwealth Edison Co. v. Will Cty. Collector*, 196 Ill. 2d 27, 39 (2001) ("*Commonwealth*") (adopting the *Landgraf* analysis). When the Illinois Supreme Court adopted the *Landgraf* analysis, it noted the tension between "the rule that 'a court is to apply the law in effect at the time it renders its decision'" and the common principle that "congressional enactments and administrative rules will not be construed to have retroactive effect unless their language requires this result"

[8] Given the Illinois EPA's Recommendation in this matter, Ameren hereby withdraws any previous waiver of its right to hearing.

Commonwealth, 196 Ill. 2d at 36–37 (citing *Landgraf*, 511 U.S. at 264). The *Landgraf* test is set forth as follows:

> When a case implicates a federal statute enacted after the events in suit, the court's first task is to determine whether Congress has expressly prescribed the statute's proper reach. If Congress has done so, of course, there is no need to resort to judicial default rules. When, however, the statute contains no such express command, the court must determine whether the new statute would have retroactive effect, *i.e.*, whether it would impair rights a party possessed when he acted, increase a party's liability for past conduct, or impose new duties with respect to transactions already completed. If the statute would operate retroactively, our traditional presumption teaches that it does not govern.

Landgraf, 511 U.S. at 280. Boiling it down to one sentence, statutes cannot apply retroactively unless the legislature expressly says they do. *See Commonwealth*, 196 Ill. 2d at 37.

Under the *Landgraf* analysis, step one requires the Court to look to the express language of the statute and determine "if the legislature has clearly indicated what the temporal reach of an amended statute should be[.]" *Commonwealth*, 196 Ill. 2d at 38. If the "temporal reach" of an amended statute is "clearly indicated" by the language of the statute, then "absent a constitutional prohibition, that expression of legislative intent must be given effect." *Id.* If there is such a clear indication, then, absent a constitutional prohibition, "that expression of legislative intent must be given effect." When performing this analysis, the Court must be mindful that unambiguous language in a statute should be construed in a way which "yield[s] logical and meaningful results," not one which "render[s] specific language meaningless or superfluous. *Rochelle Disposal Serv., Inc. v. Ill. Pollution Control Bd.*, 266 Ill. App. 3d 192, 198 (2d Dist. 1994).

As discussed above, in Section 22.59 (g)(1) of the Act, the Illinois General Assembly directed the Board to "adopt rules establishing construction permit requirements, operating permit requirements, design standards, reporting, financial assurance, and closure and post-closure care requirements for CCR surface impoundments" that are "at least as protective and comprehensive

as the federal regulations or amendments thereto promulgated by the Administrator of the United States Environmental Protection Agency in Subpart D of 40 CFR 257 governing CCR surface impoundments[.]" 415 ILCS 5/22.59(g)(1). This language does not reference any temporal reach; rather, the legislature simply requires that whatever rules are promulgated must be "at least as protective and comprehensive as the federal regulations or amendments thereto" without regard for temporal scope. *Id.*

Part 257 did not apply to Old Meredosia on October 19, 2015, because of the legacy pond exemption. *See* 40 C.F.R. § 257.50(e) ("This subpart does not apply to electric utilities or independent power producers that have ceased producing electricity prior to October 19, 2015"). The General Assembly could have included language indicating that promulgated regulations under Section 22.59(g)(1) must be retroactive had it chosen to. *See Rochelle*, 266 Ill. App. 3d at 198. The General Assembly could have also indicated that the promulgated regulations under Section 22.59(g)(1) must apply to electric utilities that ceased producing electricity prior to October 19, 2015; likewise, it chose not to. Since the General Assembly did not "clearly indicate[] what the temporal reach of" Section 22.59 should be, there is no clear expression of legislative intent that must be given effect. *See Commonwealth*, 196 Ill. 2d at 38.

It is "virtually inconceivable that an Illinois court will ever go beyond step one of the *Landgraf* approach" because, if the amendment is a "substantive change in the law," and that amendment does not expressly indicate the temporal reach of the amendment, "it is to be assumed . . . that it was the legislative intent [that] the amendatory act should have prospective operation, only." *Caveny v. Bower*, 207 Ill. 2d 82, 94, 96 (2003). However, to the extent the second prong applies in the present case, that prong asks "whether [applying the statute] would impair rights a party possessed when he acted, increase a party's liability for past conduct, or impose new duties

with respect to transactions already completed." *Commonwealth*, 196 Ill. 2d at 38. If the application of a law would have such a retroactive impact, "then the court must presume that the legislature did not intend that it be so applied." *Id.*

The Illinois Supreme Court has utilized the *Landgraf* analysis to conclude amendments to the Act's enforcement mechanism that occurred after the conduct alleged to be a violation could not be applied to that conduct. *People ex rel. Madigan v. J.T. Einoder, Inc.*, 2015 IL 117193, ¶ 37. In *J.T. Einoder*, the defendants owned a large sand pit that accepted general and clean construction and demolition debris, and in 1995 the Illinois EPA issued the defendants a citation for open dumping without a permit. *Id.* at ¶ 7. Despite several meetings and exchanges between the defendant and the Illinois EPA, no agreement was reached and the defendants ultimately received a Notice of Intent to Pursue Legal Action from the Illinois EPA on August 20, 1998, pursuant to Section 31(b) of the Act. *Id.* at ¶ 11. The Attorney General filed a seven-count complaint against the defendants and sought a preliminary injunction and a temporary restraining order to halt the continued demolition debris disposal at the site. *Id.* at ¶¶ 13–14. In addition to the monetary penalties imposed on the defendants, the State requested a mandatory injunction that required the defendants to remove the waste pile, which was at the time a 90-foot grass-covered hill composed of 99.99% clean construction and demolition debris. *Id.* at ¶ 17. The defendants argued that the version of Section 42(e) of the Act in force at the time of the violations did not allow for mandatory injunctive relief, but the State's position was that the 2004 amended version of Section 42(e) permitted courts to issue mandatory injunctions and that those amendments should apply. *Id.*

The Illinois Supreme Court held that the amendments to Section 42(e) could not be applied retroactively based on the *Landgraf* framework because there was no clear indication that the legislature intended for the amendments to apply retroactively. *Id.* at ¶¶ 28–29. It noted that a

statute "will be deemed to have retroactive impact if application of the new statute would impair rights a party possessed when he acted, increase a party's liability for past conduct, or impose new duties with respect to transactions already completed," and that the "court must presume that the legislature did not intend" for such a retroactive impact absent clear language to the contrary. *Id.* at ¶ 30. However, under Section 4 of the Illinois Statute on Statutes (5 ILCS 70/4), procedural amendments to the law may be applied retroactively while substantive ones may not. *Id.* at ¶ 32. The Court concluded that the amendment to Section 42(e) was not simply procedural because it created an entirely new type of liability, which was not available pre-amendment and "would impose a new liability on defendants' past conduct." *Id.* at ¶ 36.

In light of the *J.T. Einoder* decision, the First District Appellate Court considered the following facts:

> [T]he Operator defendants' illegal dumping operation began in 2002, was ongoing at the time of the 2004 amendment, and continued through 2007. The Operator defendants argue that much of the waste was dumped prior to 2004, and the removal order improperly imposes new liability for this dumping. Although the circuit court made no findings on this issue, the record reflects that the waste pile was approximately half its final volume around the time the amendment to section 42(e) became effective on July 28, 2004.

People ex re. Raoul v. Lincoln, Ltd., 2021 IL App (1st) 190317-U, ¶ 17. The First District concluded that the circuit court improperly applied the amended section 42(e) retroactively to the operator defendants' past conduct, finding that the operator defendants could not be ordered to remove the waste that was dumped prior the amendment and that, if the circuit court could not draw a distinction between the pre-amendment and post-amendment waste, "the circuit court must consider other means of ordering remediation of the site that do not impose new liability on the defendants' pre-2004 dumping." *Id.* at ¶ 19.

Although the CCR Act provides that "[t]he provisions of this Section shall apply, without limitation, to all existing CCR surface impoundments and any CCR surface impoundments constructed after July 30, 2019," it is clear that Old Meredosia was not intended to be regulated based on the Illinois EPA's own statement of the CCR Act's intended applicability when the law was enacted. Further, the CCR Act would clearly impose new duties on Ameren with respect to the closure of Old Meredosia, a transaction that had already been completed at the time the CCR Act was enacted to regulate the same universe of CCRSIs as the federal CCR statute. The Illinois EPA's position is that "[b]efore Part 845 was adopted, the units that became CCR surface impoundments were simply surface impoundments that contained coal ash. Old Meredosia became an inactive CCR surface impoundment with the adoption of Part 845." *Rec.*, ¶ 33. This is exactly the type of impairment of rights with respect to completed transactions that is prohibited by well-settled United States and Illinois Supreme Court precedent.

Further, despite the evidence presented showing that Old Meredosia is an embankment that cannot and does not hold water, the Illinois EPA's Recommendation asserts that "a topographic map of the surface of Old Meredosia indicates that approximately the southern half of Old Meredosia forms a closed topographic structure still capable of impounding liquid." *Rec.,* ¶ 18. In support of this assertion, the Illinois EPA relies on the topographic map contained in Ameren's Exhibit 2 at PDF p. 869/1169 of the PAS Appendix. *Id.* (citing *PAS App'x*, p. 866). However, the Illinois EPA provides no support for its assertion that the southern half of Old Meredosia could impound liquid, and the topographic map referred to shows that Old Meredosia has a gentle slope towards the south without any depressions in which liquid could settle. *See id.*

The Illinois EPA's argument defeats itself. Relying on a topographic map that refutes its claim, the Illinois EPA simply alleges, in conclusory fashion, that Old Meredosia is designed to

hold an accumulation of CCR and liquids based on the USWAG decision, which discusses the use of past and present tense. *Rec.*, ¶¶ 19–24. However, in the same breath, the Illinois EPA asserts that "[t]he 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. Old Meredosia . . . is located on alluvial sand and gravel . . . allowing rapid infiltration of liquids from the impoundment, making the time liquids were retained short." *Id.* at ¶ 22. In other words, following Illinois EPA's reasoning, Old Meredosia was designed to hold liquids, but it must have been a poor design because Old Meredosia does not hold liquids.

Ameren does not dispute that the original 1960's design of Old Meredosia was to manage sluice waters and ash from the combustion of coal. However, long before Part 845, that design was changed and Old Meredosia is now "generally graded to the south end of the unit" such that "stormwater naturally drains across the cover" and the "established forested community . . . removes soil moisture by evapotranspiration processes, result[ing] in surficial soils that are relatively dry. As such, no areas exhibiting wetland functional characteristics were found on [Old Meredosia]." *PAS App'x*, p. 627–28.

The Illinois EPA's reference to the USWAG decision is inapposite. In USWAG, the Court concluded that the operative phrase "is disposed of" should be interpreted as a whole and concluded that "an open dump includes any facility . . . where solid waste still 'is deposited,' 'is dumped,' 'is spilled,' 'is leaked,' or 'is placed,' regardless of when it might have originally been dropped off." *Util. Solid Waste Activities Grp. v. Envtl. Prot. Agency*, 901 F. 3d 414, 440 (D.C. Cir. 2018). The USWAG Court's reasoning in this regard focused on the fact that, while CCR was no longer being deposited at the inactive impoundments, the CCR nonetheless remained present such that it did not matter whether CCR was presently being deposited because it was still there. *Id.*

While Ameren concedes that Old Meredosia "is designed" to hold CCR even though CCR is no longer deposited there because the CCR is still present, it does not logically follow that Old Meredosia remains designed to hold liquids, because no liquids are present. The fact that Old Meredosia was, in the past, designed to hold liquid, has no bearing on whether it is presently designed to do so.

The EPA made it painstakingly clear when it promulgated Part 257 that it did not intend for the rules to apply to inactive facilities that no longer contain water and can no longer hold liquids. 80 Fed. Reg. 21,302, 21343. Tellingly, the Illinois EPA did not discuss closed CCRSI's when it briefed the board on relevant federal guidance. *Rec.*, ¶¶ 10–26. Rather, the Illinois EPA asserted that Ameren failed to produce documentation or an Illinois EPA approved plan to show that Ameren was covered in a manner that complied with Part 845. *Id.* at ¶ 26. To reiterate, Old Meredosia ceased accepting CCR and closed in the early 1970's – well before Part 845 existed. It would have been impossible for Old Meredosia to close in accordance with a regulatory scheme that did not exist until April 21, 2021. As such, applying Part 845 to Old Meredosia would not only go beyond the scope of Part 257, it would also constitute an unlawful retroactive application of law.

CONCLUSION

WHEREFORE, for the foregoing reasons, Petitioner, AmerenEnergy Medina Valley Cogen, LLC, respectfully requests that the Board grant its Amended Petition for an Adjusted Standard and grant the relief requested therein.

Respectfully submitted,

AmerenEnergy Medina Valley Cogen, LLC, Petitioner.

By: /s/Claire A. Manning
One of Its Attorneys

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Exhibit A

October 19, 2023

Claire A. Manning, Attorney
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Re: Expert Witness Support for Petition for Adjusted Standard for Old Meredosia, Illinois Pollution Control Board Docket AS 2021-008 – Site Investigation Report

Dear Ms. Manning:

At your request WSP USA Environment and Infrastructure, Inc. (WSP) has completed our review of information and site reconnaissance of a long-closed former ash pond, known as Old Meredosia, in Meredosia, Illinois. The attached document provides a summary of the technical approach of our work and key findings.

At your request I have also attached a copy of my resume in Appendix B.

Please let us know is you have any questions or would like to discuss further.

Sincerely,

WSP USA Environment and Infrastructure, Inc.

William Elzinga
Principal Manager
Enclosures

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Tables

Figures

1 INTRODUCTION

1.1 Background

WSP has been engaged by Ameren Legal and its outside counsel, Brown, Hay & Stephens, LLP (“Brown Hay”) to provide specialized knowledge and expertise relative to impacts to natural resources at Old Meredosia (Figure 1-1), should it be required to adhere to the rules of general applicability for the closure of Illinois ash ponds, as set forth in 35 Ill. Adm. Code Part 845.

1.2 Objectives

Objectives of work undertaken by WSP to review relevant data and site characteristics include the following:

1. Perform literature and database review of ecological and natural resource information
2. Conduct a reconnaissance site visit to identify resident plant communities, wildlife characteristics and potential function
3. Identify presence of habitats containing wetland characteristics and functional value
4. Assess potential effects and implications of Old Meredosia closure on ecological resources

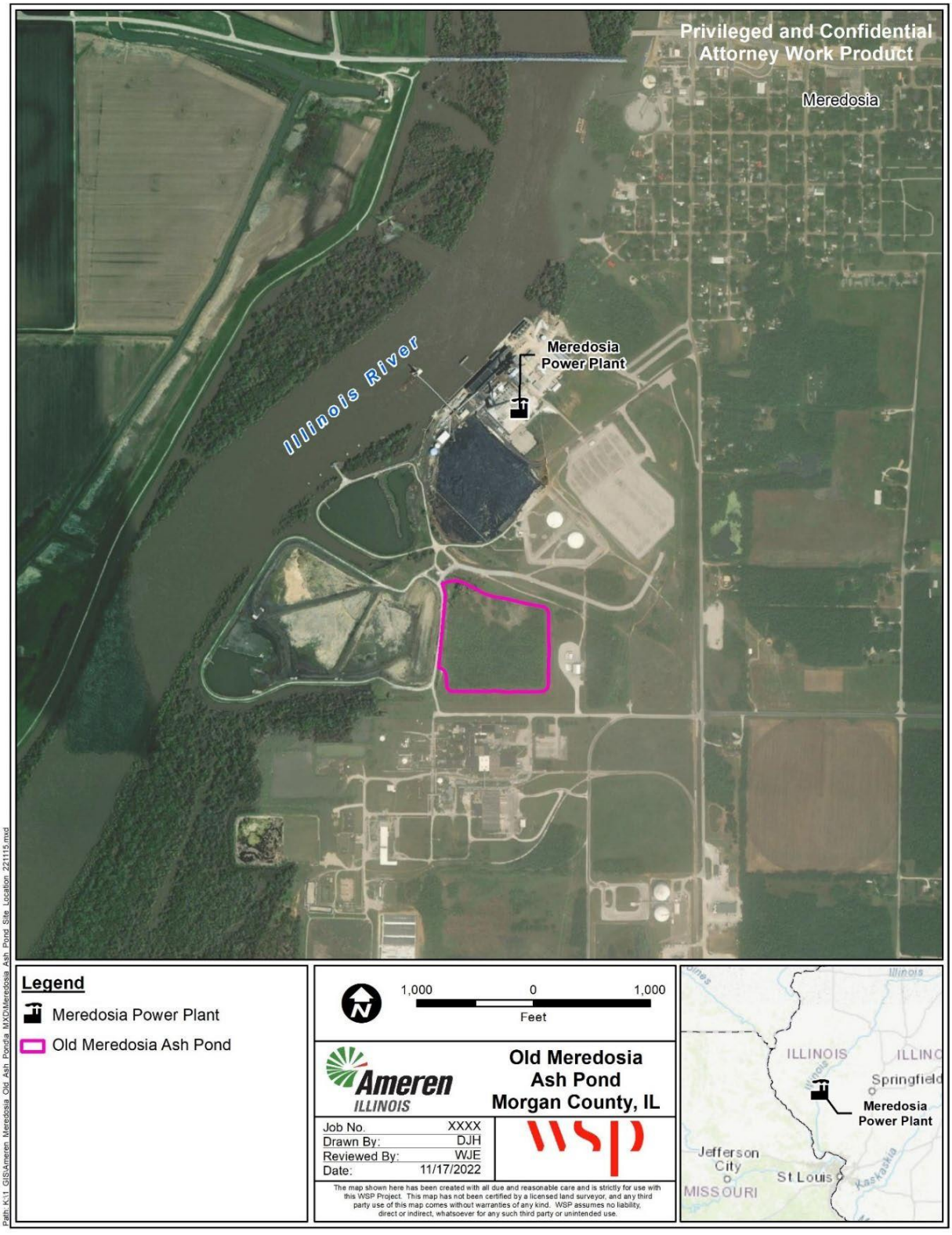

Figure 1-1 Old Meredosia Location

2 INVESTIGATION METHODOLOGY AND APPROACH

2.1 Desktop Review of Existing Information

WSP conducted a review of publicly available information for Old Meredosia and other information available to us in conjunction with prior work assignments from Ameren and publicly available information. Documents or information reviewed that are relevant to the objectives stated in Section 1.2 include the following:

- Illinois Department of Natural Resources (IDNR) Informational Ecological Compliance Assessment Tool (EcoCAT) review of sensitive species and habitats
- United States Fish & Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) informal review of sensitive species and habitats
- National Wetland Inventory (NWI)
- United States Geological Survey (USGS) National Hydrography Dataset (NHD)
- USGS topographic mapping
- Current and historical aerial photography

WSP conducted an initial agency records review for natural areas and sensitive species utilizing the USFWS IPaC (USFWS, 2022b) and the IDNR EcoCAT (IDNR, 2022b) databases. This information is publicly available and can be searched for a given project site to obtain a listing of sensitive habitats or species of concern that have been previously recorded for the project vicinity.

2.2 Field Reconnaissance Data Collection

WSP conducted field reconnaissance within Old Meredosia on November 11, 2022. Results of the initial field reconnaissance provide important information. For example, unique ecological communities identified in the IPaC report were field verified and evaluated for ecological significance.

Site reconnaissance was also conducted by WSP personnel with expertise in the identification and management of key resource issues such as aquatic resources, waters of the U.S. (WOTUS), and terrestrial and aquatic ecology. It is noted that Old Meredosia is a man-made treatment facility that was constructed above the floodplain and is therefore isolated and separate from other designated WOTUS. As such, it would not qualify as a jurisdictional wetland. Nonetheless, field investigation activities focused on determining the potential presence of habitats within Old Meredosia that may be periodically saturated and support a predominance of hydrophytic plant communities, that may perform typical wetland functions.

Specific reconnaissance elements at Old Meredosia included the identification and location of:

- Plant communities

- Bald eagle or other raptor nests
- Obvious communal nesting sites or rookeries
- Observations of encountered flora and fauna via direct observations or indirect observations (tracks, feathers, scat)
- Observations of flora or fauna listed on IPaC and/or EcoCAT reviews
- Habitats supporting communities exhibiting wetland function

3 RESULTS

3.1 Desktop Review of Existing Information

A desktop review was completed to summarize ecological information for the Old Meredosia Site and the vicinity. Information reviewed included site-specific information from the USFWS IPaC system, the NWI, and the IDNR EcoCAT.

The NWI review showed that the predominant wetland features in the vicinity of Old Meredosia is forested/shrub wetland and open water, including lakes, ponds, and river habitats (USFWS, 2022a). The IDNR EcoCAT identified three Illinois Natural Areas Inventory (INAI) sites in the vicinity of the project area (Table 3-1). Two of the INAI areas are considered category VI INAI sites, which are characterized by unusual concentrations of flora and fauna and/or high-quality streams and are all less than five acres. One of the INAI sites, Meredosia Refuge, is characterized with suitable habitat for state-listed species and is 5,715 acres in size (IDNR, 2022a).

Table 3-1 Illinois Natural Area Inventory Sites within the Vicinity of the Project Area

Site	Category[1]	Acres
George Smith Bed	VI	1.8
Meredosia Refuge	II	5714.
National Starch Bed	VI	2.7

Source: IDNR 2022a, IDNR 2022b

[1]Category VI: Unusual concentrations of flora or fauna and high-quality streams Category II: Specific suitable habitat for state-listed species or state-listed species relocations

As part of the desktop analysis, a list of protected species potentially occurring within or near the Project Area was developed. The resultant list of protected species is presented in Table 3-2 and summarized in the following paragraphs. Because Old Meredosia consists entirely of upland habitats, obligate aquatic species (fish, mussels) were excluded from the list.

A listing of federally threatened or endangered species currently listed or proposed for listing that may occur within the Project Area was obtained from the USFWS IPaC database in November 2022 (USFWS, 2022b). The USFWS IPaC identified three federally listed mammal species (Indiana bat [*Myotis sodalis*], northern long-eared bat [*Myotis septentrionalis*], and tricolored bat [*Perimyotis subflavus*]) and one federally listed insect species (monarch butterfly [*Danaus plexippus*]) that may occur on the Project Site. There was an additional mammal species (gray bat [*Myotis grisescens*]) that may potentially occur within a 5-mi radius of the project site. No critical habitat was identified on the IPaC system results. One federally listed plant species was identified that may occur within the project area, the federally threatened decurrent false aster (*Boltonia decurrens*). An additional federally listed plant species, the threatened eastern prairie fringed orchid (*Platanthera leucophaea*), was identified to potentially occur within 5 miles of Old Meredosia (USFWS, 2022b).

A review of the IDNR EcoCAT results in November 2022 identified three protected upland

species that may occur at or near Old Meredosia (IDNR, 2022b). This includes the Illinois chorus frog (*Pseudacris illinoensis*), the northern harrier (*Circus cyaneus*), and the regal fritillary butterfly (*Speyeria idalia*). All of these species are considered Imperiled in the State of Illinois, except the northern harrier, which is classified as Critically Imperiled.

Table 0-1 Protected Species Potentially Occurring within or near the Former Meredosia Project Site

		Status		
		Federal		State
Common Name	Scientific Name	ESA	BGEPA	
Mammals				
Indiana bat[1]	*Myotis sodalis*	Endangered		
Northern Long-eared bat[1]	*Myotis septentrionalis*	Threatened		
Tricolored bat[1]	*Perimyotis subflavus*	Proposed Endangered		
Gray bat[1,2]	*Myotis grisescens*	Endangered		
Birds				
Bald eagle[3]	*Haliaeetus leucocephalus*		X	
Northern harrier	*Circus cyaneus*			Critically Imperiled
Amphibians				
Illinois chorus frog	*Pseudacris illinoensis*			Imperiled
Insects				
Monarch butterfly	*Danaus plexippus*	Candidate		
Regal fritillary	*Speyeria idalia*			Imperiled
Plants				
Decurrent false aster[1]	*Boltonia decurrens*	Threatened		
Eastern prairie fringed orchid[1,2]	*Platanthera leucophaea*	Threatened		

Source: USFWS 2022b; IDNR 2022b
1-ESA, 2-Species may occur within 5-mi vicinity, 3-BGEPA

The USFWS IPaC identified 13 migratory birds of conservation concern that have the potential to be impacted by actions that would be required to effect closure pursuant to Part 845 (UWFWS, 2022b). These species are shown in Table 3-3. Of these species, the probability of presence is greatest for bald eagle (*Haliaeetus leucocephalus*) and red-headed woodpecker (*Melanerpes erythrocephalus*). In fact, as discussed later, bald eagles and a bald eagle nest were observed at Old Meredosia. The bald eagle, while no longer protected by the Endangered Species Act (ESA), is a federally listed species protected under the Bald and Golden Eagle Protection Act (BGEPA).

Table 3-3 Migratory Birds of Conservation Concern that have the Potential to be in the Vicinity of the Project Area

Common Name	Scientific Name	Breeding Season
American golden-plover	*Pluvialis dominica*	Breeds elsewhere
Bald eagle	*Haliaeetus leucocephalus*	Breeds Oct 15 to Aug 31
Black-billed cuckoo	*Coccyzus erythropthalmus*	Breeds May 15 to Oct 10
Chimney swift	*Chaetura pelagica*	Breeds Mar 15 to Aug 25
Eastern whip-poor-will	*Antrostomus vociferus*	Breeds May 1 to Aug 20
Golden eagle	*Aquila chrysaetos*	Breeds elsewhere
Kentucky warbler	*Oporornis formosus*	Breeds Apr 20 to Aug 20
Lesser yellowlegs	*Tringa flavipes*	Breeds elsewhere
Prothonotary warbler	*Protonotaria citrea*	Breeds Apr 1 to Jul 31
Red-headed woodpecker	*Melanerpes erythrocephalus*	Breeds May 10 to Sep 10
Rusty blackbird	*Euphagus carolinus*	Breeds elsewhere
Short-billed dowitcher	*Limnodromus griseus*	Breeds elsewhere
Wood thrush	*Hylocichla mustelina*	Breeds May 10 to Aug 31

Source: USFWS 2022b

3.2 Field Reconnaissance

3.2.1 Plant Community Composition

Based upon the field reconnaissance performed at Old Meredosia on November 11, 2022, none of the sensitive plant species listed in Table 3-2 were encountered. A list of plant species observed on Old Meredosia are included in Table 3-4.

Old Meredosia is characterized by 10.2 acres of deciduous forest, 2.3 acres of shrub-scrub, 3.5 acres of undeveloped herbaceous/grassland cover, and 1.3 acres of developed, low intensity land (Figure 3-1).

Deciduous forest, comprising most of Old Meredosia, is young and fairly uniform in structure and composition. Dominant canopy species include white mulberry (*Morus alba*), cottonwood (*Populus deltoides*), and black locust (*Robinia pseudoacacia*). Hackberry (*Celtis occidentalis*) and box edler (*Acer negundo*) are also common, but less frequently observed. In the shrub understory, Amur honeysuckle (*Lonicera maackii*) and roughleaf dogwood (*Cornus drummondii*) are dominant in the shrub layer. The herb layer is not well developed, but white avens (*Geum canadense*) and garlic mustard (*Alliaria petiolata*) are well distributed and common.

Shrub-scrub growing along the eastern and southern edges of the Old Meredosia site is distinguished by sapling trees and shrubs including ash, box elder, and roughleaf dogwood growing over Amur honeysuckle and an herb layer that includes American germander (*Teucrium canadense*), sunflower (*Helianthus* sp.), field thistle (*Cirsium discolor*), and late thoroughwort (*Eupatorium serotinum*).

Grassland, developed, low intensity lands, and sand prairie characterize the diversity of herbaceous cover types found within Old Meredosia. Grassland is found in a narrow strip of infrequently mowed herbaceous cover growing along the forested western edge of Old Meredosia and is dominated by smooth brome (*Bromus inermis*) growing alongside scattered common milkweed (*Asclepias syriaca*), American germander, green foxtail (*Setaria viridis*), and field garlic (*Allium vineale*). A frequently mowed ring of turfgrass that circumscribes the perimeter of the Old Meredosia site accounts for developed, low intensity land acreage.

Open, grassy sand prairie occupies the elevated slope in the north-central part of the Old Meredosia site. This habitat has developed in areas that were associated with the initial release point of sluiced sand material from the Illinois River in the 1970s in conjunction with initial closure of Old Meredosia by Ameren. Sandthread lovegrass (*Eragrostis trichodes var. trichodes)* is the dominant species and grows in evenly-spaced tufted clumps throughout the prairie. In the low interstitial valleys between tufts of grass, eastern prickly pear (*Opuntia cespitosa*), perennial ragweed (*Ambrosia psilostachya*), and spotted beebalm (*Monarda punctata* var. *villicaulis*) are common.

A Floristic Quality Assessment (FQA) is used to assist ecologists in quantifying the "floristic quality" of a site, and more qualitatively, in evaluating its ecological significance. FQA methodology followed the protocol developed by Swink and Wilhelm (1994) in the Plants of the Chicago Region. The concept of species conservatism is the foundation for FQA. Each native species is assigned a value reflecting its coefficient of conservatism (C), ranging from 0 - 10 and representing an estimated probability that it is likely to occur in a landscape relatively unaltered from what is believed to be pre-European settlement condition. Coefficient of conservatism values were updated by Taft et al. (1997) and are used in this FQA. A C-value of 0 is given to plants that have demonstrated little fidelity to any remnant natural community and thus may be found almost anywhere, especially in disturbed habitats. A C-value of 10 is applied to those plants that are almost always restricted to a pre-settlement remnant or high-quality natural area. Intermediate values are assigned to taxa such as swamp white oak (*Quercus bicolor*) or big bluestem (*Andropogon gerardii*), when it is certain that the species is representative of remnant natural communities, but it is uncertain that the condition of the community from which it comes is still representative of pre-settlement condition (i.e., the community may be somewhat degraded).

Old Meredosia's floristic quality index (FQI) was calculated as follows:

$$\mathrm{FQI} = \mathrm{Mean\ C} * \sqrt{\mathrm{n}}$$

where n equals the number of native plant species at Old Meredosia.

Based on the equation, the FQI is a function of the C-value and provides a measure of the floristic integrity or level of site disturbance. Most of the remaining undeveloped landscapes have FQI values of less than 20 and have minimal significance from a natural quality perspective. Areas with an FQI above 35 possess conservatism and richness values that indicate an area is floristically important. Areas registering an FQI in the 50's and higher are extremely rare and represent a significant component of the region's native biodiversity and natural landscapes.

The different prairie types in Illinois are the result of variations in soil moisture, soil composition,

geological substrate, glacial history and topography. Within Illinois, sand prairies are relatively uncommon and are represented by only 2,360 acres (poor and good quality) of sand prairies statewide. Sand prairies formed on sand deposits and dunes that were left by glaciers or blown by the wind. Well-drained, sandy soils are characteristic of sand prairies (IDNR, 2022c). Remnant sand prairies area also present on sandy alluvial terraces along the Mississippi and Illinois rivers.

Plants that grow in the sand prairie are adapted to grow in well-drained soil. These plants are typically shorter than those in black soil prairies. While the overall floristic “quality” of the Old Meredosia site is fairly low (14.2 total FQI), see Table 3-4, the sand prairie features found in the north-central portion of site represents an uncommon plant community within Illinois and the central Midwest, and contains a number of fairly conservative species. The presence of sandthread lovegrass, eastern prickly pear, and spotted beebalm are indicative that the northern portion of the Old Meredosia site is developing as a sand prairie.

Table 0-2 Old Meredosia3 Site Vascular Plant Checklist

Botanical Name	Common Name	Native Status	C
Acer negundo	Box elder	Native	1
Ageratina altissima	White snakeroot	Native	2
Alliaria petiolate	Garlic mustard	Non-native	*
Allium vineale	Field garlic	Non-native	*
Ambrosia psilostachya	Perennial ragweed	Native	2
Asclepias syriaca	Common milkweed	Native	0
Bidens bipinnata	Spanish needles	Non-native	*
Boehmeria cylindrica	False nettle	Native	3
Bromus inermis	Smooth brome	Non-native	*
Carduus nutans	Musk thistle	Non-native	*
Carex frankii	Frank's sedge	Native	4
Celtis occidentalis	Hackberry	Native	3
Cirsium discolor	Field thistle	Native	5
Conyza canadensis	Horseweed	Native	1
Cornus drummondii	Roughleaf dogwood	Native	2
Daucus carota	Queen Anne's lace	Non-native	*
Eragorostis trichodes var. *trichodes*	Sandthread lovegrass	Native	5
Euonymus fortunei	Wintercreeper	Non-native	*
Eupatorium serotinum	Late thoroughwort	Native	1
Fraxinus pennsylvanica	Green ash	Native	5
Geum canadense	White avens	Native	2
Gleditsia triacanthos	Honey locust	Native	2
Hackelia virginiana	Virginia stickseed	Native	1
Helianthus sp.	Sunflower	Native	*
Heterotheca subaxillaris	Camphorweed	Native	2
Juniperus virginiana	Eastern red cedar	Native	1
Lonicera maackii	Amur honeysuckle	Non-native	*
Monarda punctata var. *villicaulis*	Spotted beebalm	Native	5
Morus alba	White mulberry	Non-native	*
Opuntia cespitosa	Eastern prickly pear	Native	5
Panicum philadelphicum	Philadelphia panicgrass	Native	5
Parthenocissus quinquefolia	Virginia creeper	Native	2
Phytolacca americana	Pokeweed	Native	1
Platanus occidentalis	Sycamore	Native	3

Poa pratensis	Kentucky bluegrass	Non-native	*
Populus deltoides	Eastern cottonwood	Native	2
Quercus velutina	Black oak	Native	5
Rhus aromatica	Fragrant sumac	Native	4
Ribes missouriense	Missouri gooseberry	Native	2
Robinia pseudoacacia	Black locust	Native	1
Rubus flagellaris	Northern dewberry	Native	4
Rubus occidentalis	Black raspberry	Native	2
Salix nigra	Black willow	Native	3
Saponaria officinalis	Soapwort	Non-native	*
Schizachyrium scoparium	Little bluestem	Native	4
Setaria viridis	Green foxtail	Non-native	*
Smilax hispida	Bristly greenbriar	Native	3
Solanum carolinense	Horsenettle	Native	0
Solanum ptychanthum	Eastern black nightshade	Native	0
Solidago altissima	Tall goldenrod	Native	1
Stellaria media	Common chickweed	Non-native	*
Teucrium canadense	American germander	Native	3
Tridens flavus	Purpletop	Native	5
Urtica dioica	Stinging nettle	Native	2
Verbascum thapsus	Common mullen	Non-native	*
Vitis sp.	Grape	Native	*
		Total native species (n)	**38**
		Total species (n)	**54**
		Mean Native C	**2.7**
		Total Mean C	**1.9**
		Native FQI	**16.9**
		Total FQI	**14.2**

c = conservation value, from 0 (habitat generalist) to 10 (extremely restricted habitat) (Swink and Wilhelm 1994)
***** indicates where no value has been assigned to the species
FQI = Floristic Quality Index

Figure 3-1 Old Meredosia Land Cover

3.2.2 Wetland Functional Characteristics

In conjunction with site reconnaissance activities, WSP field staff surveyed the Old Meredosia site for the presence of habitats exhibiting wetland functional characteristics. In other ash pond project sites evaluated by WSP, while not qualifying as jurisdictional WOTUS (due to their manmade and isolated characteristics), former ash ponds have been shown to exhibit wetland functional characteristics when the saturation zone is at or near the surface. However, for the Old Meredosia site the presence of a deep sand cover over Old Meredosia, and the active effects of an established forested community that removes soil moisture by evapotranspiration processes, results in surficial soils that are relatively dry. As such, no areas exhibiting wetland functional characteristics were found on Old Meredosia.

3.2.3 Wildlife

Based upon the field reconnaissance performed at the Old Meredosia site on November 11, 2022, with the exception of bald eagle, none of the sensitive species listed in Table 3-2 were encountered.

The onsite deciduous forest, shrub-scrub, sand prairie, and herbaceous/grassland cover types provide habitat for an array of common wildlife species. Observed bird species during the November 2022 field reconnaissance included bald eagle, American goldfinch (*Spinus tristis*), downy woodpecker (*Dryobates pubescens*), northern cardinal (*Cardinalis cardinalis*), black-capped chickadee (*Poecile atricapillus*), American robin (*Turdus migratorius*), yellow-rumped warbler (*Setophaga coronata*), mourning dove (*Zenaida macroura*), tufted titmouse (*Baeolophus bicolor*), and turkey vulture (*Cathartes aura*). Observed mammal species during the November 2022 field reconnaissance included white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), virginia opossum (*Didelphis virginiana), raccoon* (*Procyon lotor*), and eastern mole (*Scalopus* aquaticus). Other notable wildlife observations included a bald eagle nest on the western portion of Old Meredosia, raptor nest on the eastern portion of Old Meredosia, and turtle nest on the northern portion of Old Meredosia (Figure 3-2).

Songbird nests were also observed throughout much of Old Meredosia (see representative picture in photo log). Based upon species and nests observed, onsite habitats also provide functional value to wildlife for roosting, nesting, foraging, and migratory use for both resident and nonresident bird species.

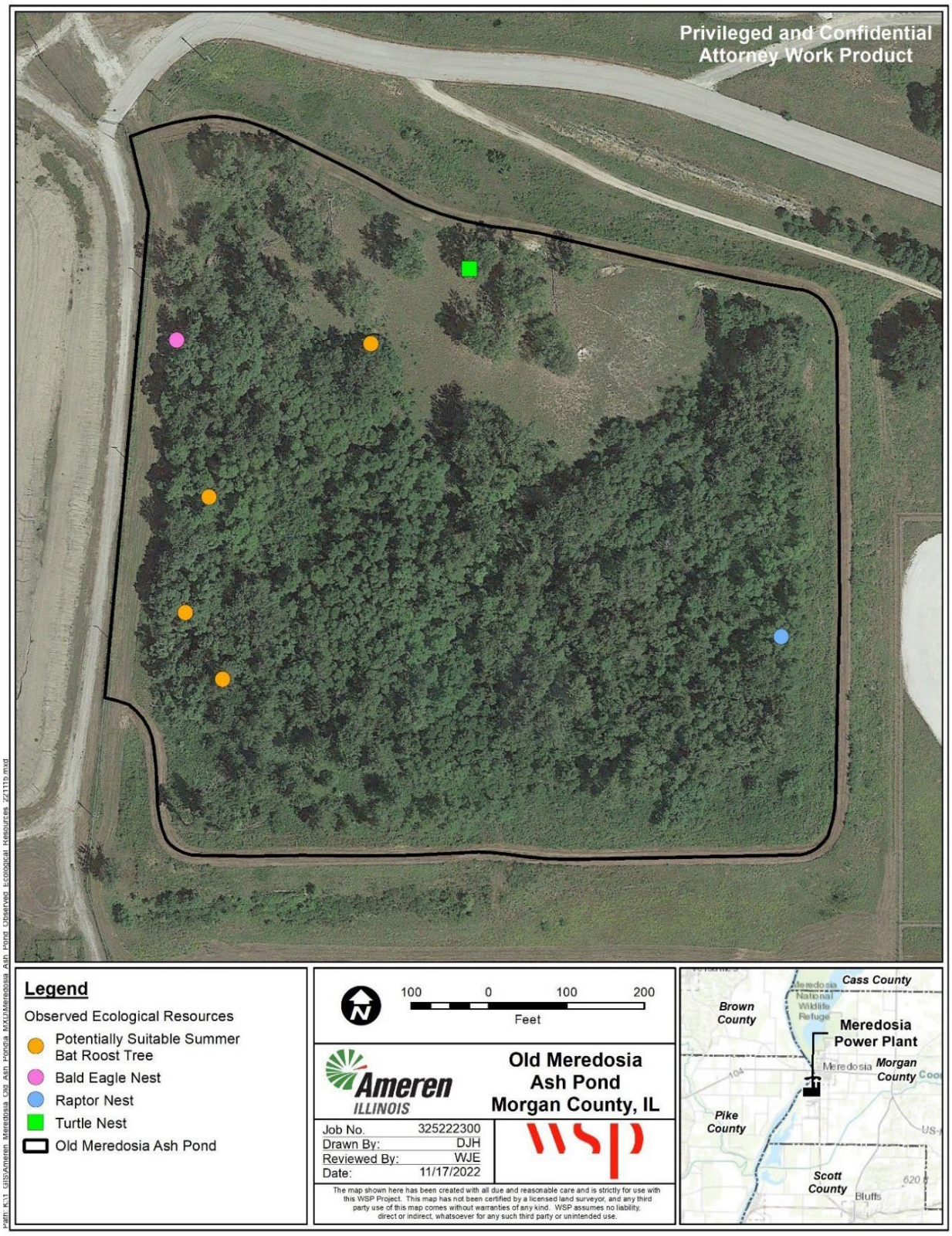

Figure 3-2 Old Meredosia Ash Pond Observed Ecological Resources

3.2.4 Sensitive Species

Long closed and covered with sand and clay, Old Meredosia provides notable habitat for a range of sensitive species as described below.

3.2.4.1 Bald Eagle

Bald eagles are protected under the BGEPA (USFWS 2013). Nesting habitat for this species is associated with larger mature trees capable of supporting its massive nests made of tree branches. These nests are usually found near larger waterways where the eagles forage on fish (USFWS 2007). A bald eagle nest was observed onsite in the western portion of Old Meredosia, thus Old Meredosia serves as suitable nesting habitat. The Illinois River serves as suitable nearby foraging habitat for a breeding pair to utilize the onsite nest.

3.2.4.2 Potentially Suitable Summer Bat Roost Habitat

Three federally listed bat species protected by the ESA (Indiana bat, northern long-eared bat, and tricolored bat) were identified as potentially occurring in the project area (see Table 3-2) The Indiana bat hibernates in caves in winter and uses areas around them for swarming (mating) in the fall and staging in the spring, prior to migrating back to summer habitat. In summer, Indiana bats roost under the exfoliating bark, crevices, or hollows of dead snags and living trees, typically greater than 5 inches in diameter, in mature forests with an open understory and a nearby source of water (Pruitt and TeWinkel 2007, Kurta et al. 2002). Indiana bats are known to change roost trees frequently throughout the season, while still maintaining roost site fidelity, returning to the same summer roosting areas in subsequent years (Pruitt and TeWinkel 2007). Indiana bats feed on terrestrial and aquatic insects while foraging in forested stream corridors, upland and bottomland forests, forested wetlands, and along wooded edges of agricultural fields, pastures, and impounded bodies of water at night (USFWS 2021a).

The federally threatened northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During spring and fall, northern long-eared bats utilize entrances of caves and the surrounding forested areas for swarming and staging. In the summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark, crevices, or hollows of both live and dead trees (typically greater than 3 inches in diameter). Roost selection by northern long-eared bat is similar to that of Indiana bat; however, northern long-eared bats are thought to be more opportunistic in roost site selection. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2014).

The tricolor bat is proposed for federal listing as endangered due to the impacts of white-nose syndrome, a deadly disease/fungal pathogen affecting cave-dwelling bats within the US. During the winter these bats hibernate in caves then in the spring, summer and fall (the non-hibernating season) primarily roost among live and dead leaf clusters of deciduous hardwood

trees. Tricolored bats can also roost among pine needles, eastern red cedar, and within artificial/man- made structures. Tricolored bats opportunistically feed at night on small insects including caddisflies, moths, beetles, wasps, flying ants and flies, and then roost during the day (USFWS 2021b).

Old Meredosia was surveyed for the presence of potentially suitable summer roost habitat for federally listed bats during the November 2022 field reconnaissance in accordance with the 2022 Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines (USFWS 2022c) and habitat preferences of the tri-colored bat described in USFWS 2021b. Of the 10.2 acres of deciduous forest habitat in the project area, trees exhibiting potentially suitable summer roost habitat characteristics such as exfoliating bark, cracks, crevices, or hollows for Indiana bat and northern long-eared bat were observed in the west portion of Old Meredosia. Potential summer roost habitat for the tri-colored bat, in the form of leaf clusters of deciduous trees and eastern red cedar, is present throughout the deciduous forest of Old Meredosia. Location of potentially suitable bat roost trees are shown in Figure 3-2. Suitable foraging habitat also exists for the Indiana bat, northern long-eared bat, and tri-colored bat in and around onsite deciduous forests, and other nearby forest edges over the Illinois River.

3.2.4.3 Illinois Chorus Frog (ICF)

ICF is a state imperiled species that is fossorial, spending around 85% of its life burrowed underground in sparsely vegetated areas with sandy soil, near ephemeral (i.e., temporary) breeding ponds. ICF is found in loose soils that allow easy burrowing, such as sand, loamy sand, or sandy loam. Bare areas (blow outs) or sparsely vegetated areas, such as sand prairies and old fields, provide habitat that allow burrowing because plant roots do not fill the soil. Distribution of ICF in Illinois occurs in three widely separated sandy floodplain regions (Figure 3- 3). The northern region covers the largest area and encompasses Old Meredosia and Morgan County along the east side of the Illinois River (INHS, 2022).

ICF individuals spend most of the year buried in the ground, emerging only to move to ponds where they mate and lay their eggs during February and March. Like other frogs, Illinois chorus frogs go through development as tadpoles and then metamorphose into young frogs by late May to late June. The young frogs have been shown to migrate up to 0.9 km (2,953 feet) from breeding ponds to burrowing sites. They are able to move short distances and feed while buried. The fossorial habits of the Illinois chorus frog make surveys of their populations difficult except during the breeding season when they are vocalizing at their breeding ponds. The success of breeding varies greatly between years depending on precipitation patterns and the persistence of the breeding ponds, as well as the potential detrimental introduction of fish to the ponds (IDNR, 2016).

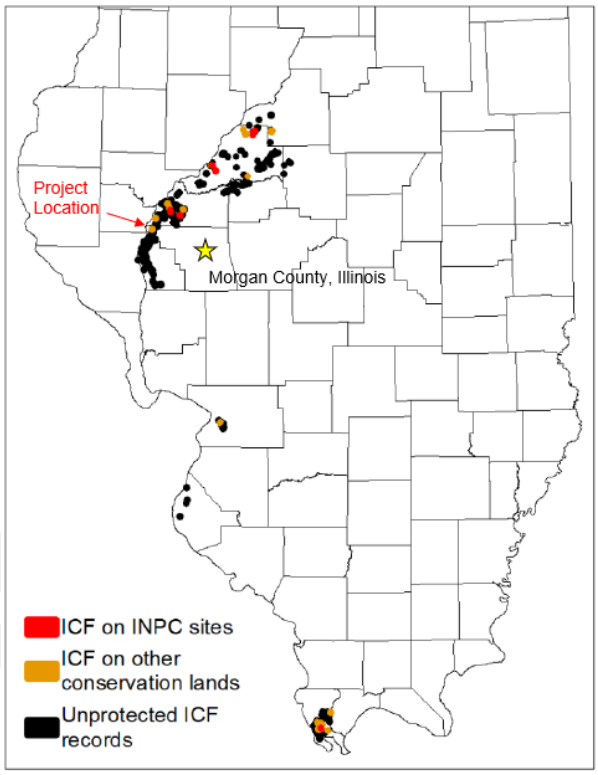

Figure 3-3 Current Distribution of ICF in Illinois (INHS, 2022)

The sand prairie features within Old Meredosia represents potential upland non-breeding habitat for ICF. According to INHS (2022) conservation guidance survey methods are not available for terrestrial habitat; thus, presence should be assumed in an area if it contains sandy soil and is within 1 mile of an occupied breeding pond. As indicated in Figure 3-4 from the Conservation Plan for the Meredosia Plant Ash Pond Closure report, documented presence of ICF breeding has been recorded within 1 mile of Old Meredosia. **Therefore, based on INHS conservation guidance, it is assumed that ICF is present at Old Meredosia.**

Recommended measures to protect and sustain ICF have also been established by INHS (2022). These measures include protection of upland sand prairie habitats and management of these areas by invasive species management and controlled burning to reduce encroachment by forested species. Due to the secretive nature of ICF, avoiding impacts from development is only possible through complete avoidance of suitable habitat. To avoid impact, breeding ponds and the surrounding terrestrial areas (within 1 mi) with sandy soil should not be impacted (INHS, 2022).

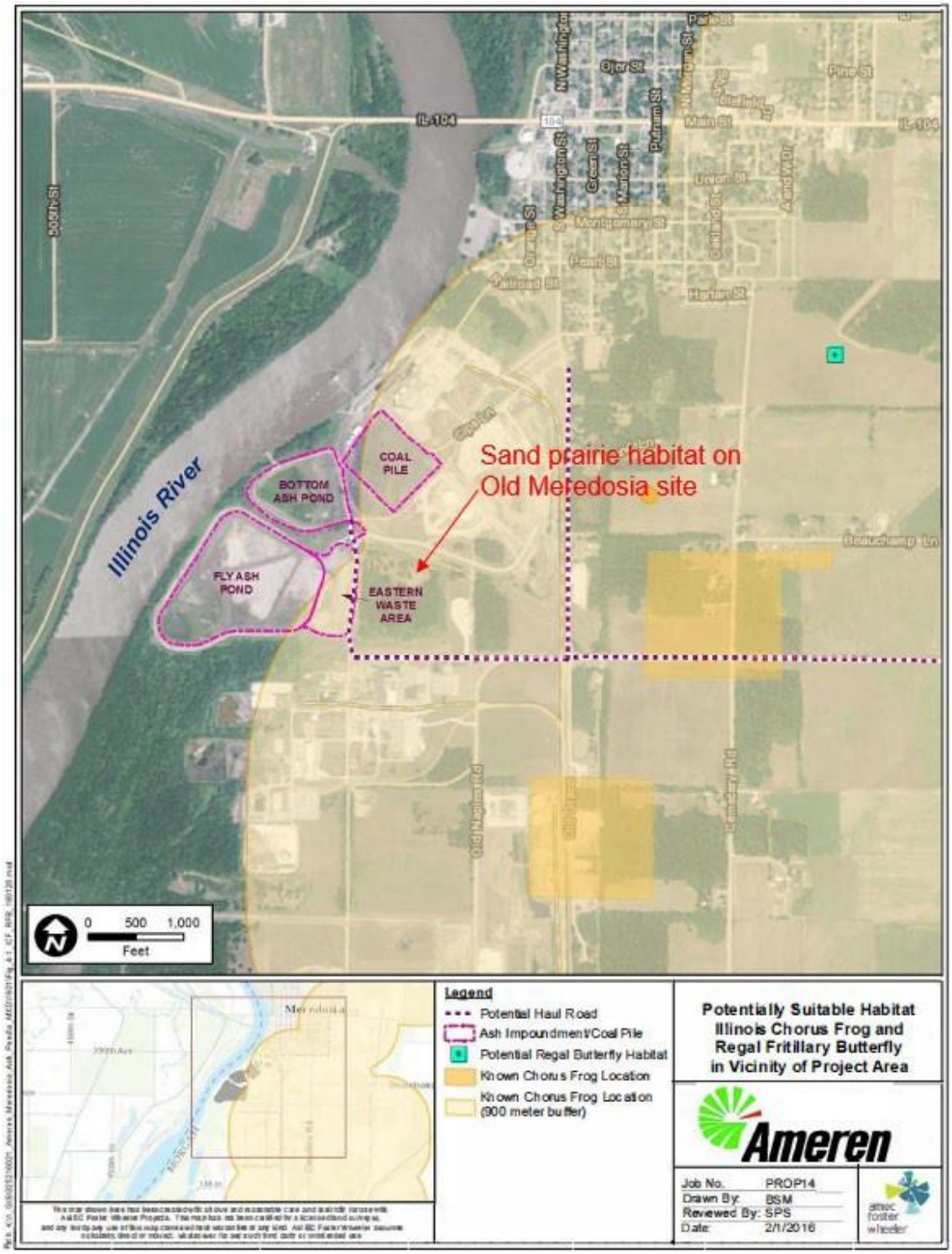

Figure 3-4 Location of Old Meredosia Sand Prairie Habitat in Relation to Previously Recorded ICF Breeding Site (Amec Foster Wheeler, 2016)

3.2.4.4 Sand Prairie Support to Other Species

According to the IDNR, sand prairies such as that evident on the Old Meredosia site are often suitable for use by other uncommon species in addition to the ICF. For example, plant species that may occur in sand prairies include little bluestem, leadplant, green milkweed, butterfly-weed, purple coneflower, prickly pear cacti, colic root, grass pink orchid, silvery bladderpod, blackjack oak, bearberry and winged sumac. In addition to ICF, animal species that may utilize sand prairies include the American badger, common tern, western meadowlark, yellow mud turtle, gopher snake and plains hog-nosed snake (IDNR, 2022c).

4 IMPLICATIONS OF ASH POND CLOSURE AND POTENTIAL EFFECTS

Old Meredosia represents a naturalized landscape that occurs within a highly fragmented, industrial landscape. As such, Old Meredosia provides moderate wildlife support for a range of flora and fauna as described in Section 3. Despite prior disturbance of Old Meredosia, Old Meredosia has not been disturbed in nearly 50 years and offers important features that have moderate to high ecological value based on the presence of an established bald eagle nest and suitable habitat for other sensitive species. Unlike the closure of recently active ash ponds that had not been previously addressed by placement of a sand and clay cap ranging from 1-6 feet in thickness, impacts of closure at Old Meredosia by any means (i.e., cover-in-place or clean closure) would result in tree and vegetation removal and disruption that would result in a net loss of ecosystem value and potential direct and indirect effects on notable species and habitats. The following is a summary of potential implications and effects:

- *Vegetation removal and general habitat loss.* During construction, mobile wildlife present within Old Meredosia would likely disperse to adjacent and/or similar habitat. However, wildlife that are less mobile or the wildlife that may be more limited in their habitat preferences, may be adversely impacted by the inability to find suitable replacement habitat in the vicinity of Old Meredosia. Breeding birds such as migratory songbirds and raptors such as those that use Old Meredosia as evidenced by observed nests, are also likely to be affected. Similarly, other species nesting or reproducing in forested and edge habitats may also be impacted by nest description and removal. Such losses and impacts on migratory birds is subject to regulatory compliance in accordance with the Migratory Bird Treaty Act.
- *Impacts to bald eagle.* Construction-related effects on Old Meredosia would inevitably result in the complete removal of vegetation on Old Meredosia including the loss of an established bald eagle nest located on the western portion of Old Meredosia. Observation of two adult bald eagles and two juvenile bald eagles in the vicinity of the project area during Old Meredosia visit seems to indicate some fidelity of these bald eagles to the nest on the Old Meredosia site. This suggests that the observed bald eagle nest on Old Meredosia is viable and active. As such, construction activities and the removal of all vegetation on Old Meredosia would expectedly result in stress imposed upon the breeding pair and may impair their ability to successfully establish

another nest in the project vicinity.

Both the direct take of the established bald eagle nest and the indirect effects of stress due to the unavailability of a preferred nest site, disturbance from construction related activities, and stress resulting from the additional effort to select and build a replacement nest site may be expected to result in adverse effects on the established nesting pair.

The Bald and Golden Eagle Protection Act (BGEPA)(*16 U.S.C. 668-668d*), enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. BGEPA provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part (including feathers), nest, or egg thereof." Under BGEPA the term "take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Regulations further define "disturb" as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (*50 CFR 22.6*).

In addition to immediate “take” associated with nest destruction, this definition also covers effects that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that it interferes with or interrupts normal breeding behavior, reproductive success, feeding, or sheltering habits, and causes injury, death or nest abandonment.

- *Impacts to ICF*. Sand prairie habitat is evident at Old Meredosia based on the presence of sandy substrates and established plant species that are characteristic of Illinois sand prairies. Additionally, based on the presence of recorded breeding populations in the vicinity of Old Meredosia and INHS ICF conservation guidance, it is appropriate to assume that ICF is present at Old Meredosia. Adverse effects or “take” is prohibited in accordance with the Illinois Endangered Species Protection Act. Under this Act, “take” means, in reference to animals and animal products, to harm, hunt, shoot, pursue, lure, wound, kill, destroy, harass, gig, spear, ensnare, trap, capture, collect, or to attempt to engage in such conduct. As such, extensive direct impacts associated with site disturbance and the removal of sand prairie habitat at Old Meredosia would adversely affect resident populations of ICF. Secondarily, the extensive construction activities that would be required in conjunction with closure by any means would include extensive trucking operations that would very likely also result in disturbance of other reproductive and non-reproductive habitats in the vicinity and would result in further “take” impacts to ICF (See Figure 3-4).
- *Loss of sand prairie habitat*. As described above Old Meredosia is relatively unique in its composition and support of a developing sand prairie. Plant species having a relatively high C value that were generally characteristic of this area include sandthread lovegrass,

eastern prickly pear, and spotted beebalm. Each of these species are noted to have a relatively high (5) conservation index value. This portion of Old Meredosia is also relatively unique in its wildlife support function as it was noted to be a location supporting turtle nesting and having potential support for other sand prairie-dependent species.

- *Impacts to potential summer bat roost and foraging habitat*. Suitable foraging habitat is present onsite and in the vicinity of Old Meredosia for the Indiana bat, northern long-eared bat, and tri-colored bat. All of the onsite habitat would be impacted if vegetation were cleared/removed in association with potential closure of Old Meredosia. The 10.2 acres of deciduous forest that contains potentially suitable summer roosting habitat for Indiana bat, northern long-eared bat, and tri-colored would be removed in association with potential closure of Old Meredosia.

  Disruption of natural evapotranspiration function. The term evapotranspiration refers to the sum of water losses associated with the following complex processes: evaporation from soil; interception by tree canopy and litter; and transpiration by plants. Transpiration describes a plant physiological processes consisting of the uptake of water by roots and its movement within the plant vascular system to upper portions of a tree (leaves, stems) where it is lost to the atmosphere. Transpiration has been found to account for approximately 61 percent of total evapotranspiration (Sun et al. 2016). At Old Meredosia, groundwater inputs are limited to recharge from direct rainfall, and influenced by the type and structure of onsite vegetation. As such, the vertical water movement through buried ash to groundwater is likely to be minimal. Removal of vegetation from the site to install an engineered capping system would interrupt this natural process and increase constituent transport particularly during the multi-year process consisting of the clear cutting of tress and installation of the engineered cap.

  The resident forested community present on the Old Meredosia site is a successionally developing forested area that will continue to mature over time. Trees as part of the resident forest community provide a large canopy over most of the site and are associated with an extensive root system that effectively “pump” water from the soil and subsoil via the natural transpiration process. Infiltration of precipitation into the soil within Old Meredosia is reduced by this canopy of forested areas which reduces the amount of rainfall that can reach the soil via direct interception by leaves and stems of the trees. Water within the sandy soil overlying the deeply buried ash (up to 8 feet below grade) is drawn up by the trees on site especially during the growing season. Phytoremediation technology has been developed because of this ability of trees to remove water from soils and groundwater, along with the ability of plants to remove, degrade, or contain contaminants in the environment. Phytoremediation to address contaminants in the environment includes measures to treat contaminated soil and groundwater and specifically as vegetative caps to prevent leaching of contaminants from disposal sites and for hydraulic control of contaminated groundwater (Chappell 1998, USEPA 2012).

  The Old Meredosia site is primarily covered with deciduous forest comprised of white mulberry (*Morus alba*), cottonwood (*Populus deltoides*), and black locust (*Robinia*

pseudoacacia). Studies of transpiration reported in literature describe the effects of evapotranspiration by deciduous forests and the trees identified at the Old Meredosia site. White mulberry, cottonwood, and black locust trees are phreatophytes or "well plants" that often require groundwater to meet their transpiration requirements. These species have tap root systems that reach down to saturated soils and can function similar to a groundwater well to access groundwater (Chappell 1998, Erdman and Christenson 2000, Butler et al. 2007, Landon et al. 2009, Nadal-Sala et al. 2019). Rooting depth provides insight into depths from which phreatophyte trees can produce subsoil water. The white mulberry has rooting depths on the order of 2 to 4 meters (7 to 13 feet) (Stone 2009). The black cottonwood (*Populus sargentii*) is related to the cottonwood and can exhibit a maximum rooting depth of 2.6 meters (8.5 feet) in Missouri (Canadell et al. 1996). The Black locust typically produces shallow and wide-spreading roots that can bind soil but is also documented to be capable of producing deep roots from 6.1 to 7.6 m (20 to 25 ft) (Huntley n.d.). An average deciduous forest rooting depth of 2.9 meters (9.5 feet) is also reported for black locust by Canadell et al. (1996). The rooting depths documented in literature for the trees found at the Old Meredosia site support root growth extending into the buried ash. Such deep root systems can extract porewater from the ash that would otherwise potentially infiltrate, move downward, and leach through the ash material and potentially impact groundwater.

Landon et al. (2009) measured the transpiration rate from cottonwood trees in the Platte River riparian forest with results indicating between 0.05 to 0.26 millimeters per day during the dormant season and a range of up to 1.44 to 3.78 millimeters (0.057 to 0.15 inches) per day during the growing season. These values are reported to account for between 3 to 134 percent of evapotranspiration in that study. Butler et al. (2007) calculated average evapotranspiration rates during June and July of 4.6 and 9.3 millimeters (0.18 to 0.37 inches) per day for a phreatophyte community primarily comprised of cottonwood trees and lesser amounts of mulberry, and willow. By comparison, the total normal precipitation in June and July for the Springfield, Illinois area for the period 1991-2020 is 4.61 and 3.85 inches (approximately 0.15 and 0.12 inches per day), respectively (NOAA, 2023). The evapotranspiration rates during June and July from Butler et al. (2007) indicate that evapotranspiration during the months of June and July by a deciduous forest cover could require more than that provided by precipitation at the Old Meredosia site, and therefore require water from storage in deeper underlying soils to meet transpiration requirements.

As such, for the Old Meredosia site, which has no other groundwater inputs other than recharge of direct rainfall, the amount of vertical water movement through buried ash to groundwater is likely to be minimal. Trees prevent infiltration of precipitation by interception and up-take of water from the subsurface soils via transpiration. As a result, this naturalized plant community effectively reduces hydraulic head from groundwater that might otherwise force constituents to migrate offsite or downgradient. Removal of the vegetation community from the site would interrupt this natural process that effects constituent transport.

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APPENDIX A:
Photo Log

Photo 1. Bald eagle nest within northwest portion of Old Meredosia site. Direction of view (DOV) is west. 11/11/2022.

Photo 2. Unidentified raptor nest within west portion of Old Meredosia site. DOV is northeast. 11/11/2022.

Photo 3. Unidentified aquatic turtle nest within northern sand prairie portion of Old Meredosia site. DOV is south. 11/11/2022.

Photo 4. Songbird nest within west portion of Old Meredosia site. DOV is south. 11/11/2022.

Photo 5. Potentially suitable summer bat roost tree with exfoliating bark in west portion of Old Meredosia site. 11/11/2022.

Photo 6. Potentially suitable summer bat roost tree with exfoliating bark in west portion of Old Meredosia site. 11/11/2022.

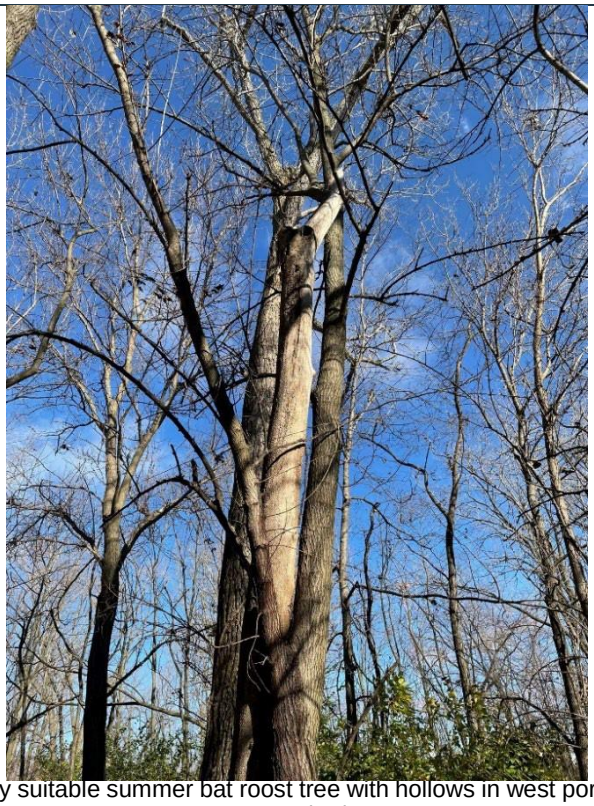

Photo 7. Potentially suitable summer bat roost tree with hollows in west portion of Old Meredosia site. 11/11/2022.

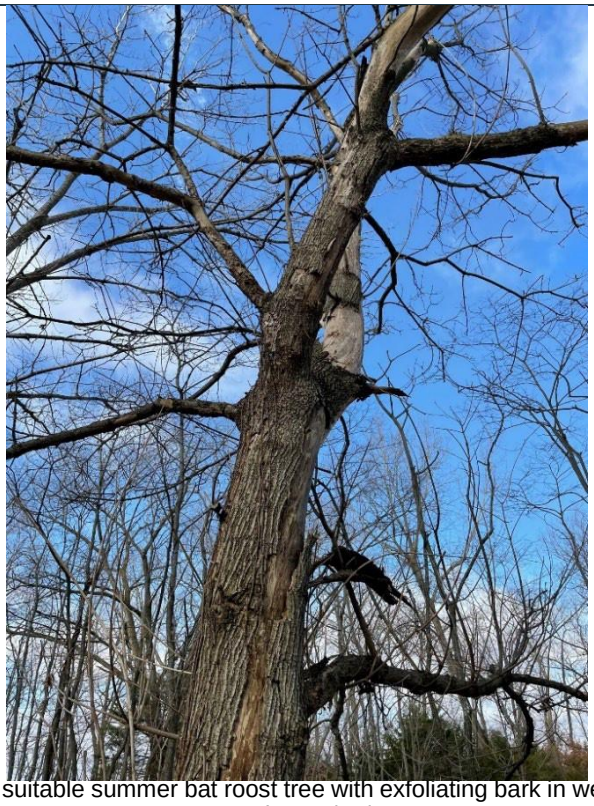

Photo 8. Potentially suitable summer bat roost tree with exfoliating bark in west portion of Old Meredosia site. 11/11/2022.

Photo 9. Sand prairie within north portion of Old Meredosia site. DOV is south. 11/11/2022.

Photo 10. Herbaceous community along western edge of Old Meredosia site. 11/11/2022

Photo 11. Scrub-shrub thicket along southern edge of Old Meredosia site. 11/11/22

Photo 12. Black locust woodland in northwest corner of Old Meredosia site. 11/11/22

Photo 13. Dominant forested community representative of the majority of the Old Meredosia site. 11/11/22

Appendix B:
Resume of William Elzinga

William J. Elzinga

Principal

Professional Summary

Mr. Elzinga has had 38 years of professional experience in environmental planning, natural resources assessment, project siting and licensing, NEPA analysis and documentation, and project management. He has managed and performed more than 100 EAs and EISs and has worked extensively within a 22-state region ranging from Virginia to Montana. He has supported facility siting and development by providing expert witness testimony for a range of projects resulting in their successful licensing and permitting. Additionally, he has been adjunct professor at Southern Illinois University at Edwardsville where he has taught a graduate level class on Environmental Impact Analysis (NEPA) for more than 20 years.

Years Experience: 38

Education

Master of Science Biology, 1984, Southern Illinois University - Edwardsville
Bachelor of Science Biology, 1981, Calvin College

Memberships

- American Fisheries Society

Representative Projects

Ash Impoundment Closure Programmatic EIS, TVA (AL, KY, TN). WSP Project Manager for complex PEIS in support of system wide impoundment closure activities. Directed all project activities and responded to TVA's request for expanded areas of responsibility assigned to WSP subsequent to project initiation. Project entailed the evaluation of multiple closure actions on a fast track basis in order to support decision making for inactive impoundments. Analysis included full range of interdisciplinary studies and analysis of multiple project alternatives for closures of CCR facilities "in-place" and "by-removal". Work included a Tier I programmatic NEPA review coupled with six site-specific Tier II NEPA reviews in support of decisions for closure of 10 separate CCR impoundments. Project was performed on extremely fast track basis.

Allen East Impoundment, Ash Impoundment Closure EIS, TVA (TN). WSP Project Manager for EIS of proposed ash impoundment closure at the Allen Fossil Plant in Memphis, TN. Analysis included full range of interdisciplinary studies and analysis of multiple project alternatives for closures of CCR facilities "in-place" and "by-removal". Project was performed on extremely fast track basis.

Bull Run Fossil Plant Landfill EIS, TVA (TN). Foster Wheeler Project Manager for PEIS in support of system wide impoundment closure activities. Directed all project activities and responded to TVA's request for expanded areas of responsibility assigned to WSP subsequent to project initiation. Work included completion of a scoping report, screening analysis of 10 alternative landfill sites, and comprehensive interdisciplinary studies in support of preparation of the EIS

Paradise CCR Management EA, TVA (KY). Managed complex EA involving multiple CCR management actions (dewatering facilities, ash impoundment closures, landfill development). Directed all project activities and coordinated closely with TVA construction management team to clearly define elements of each proposed action, assess interdependencies and data needs, and evaluate environmental impacts. Project was performed on fast track in response to TVA management requests to support proposed construction timelines.

Cumberland Fossil Plant CCR Management EIS, TVA (TN). Managed complex EIS involving multiple CCR management actions (dewatering facilities, ash impoundment closures, landfill development). Directed all project activities and coordinated closely with TVA construction management team to clearly define elements of each proposed action, assess interdependencies and data needs, and evaluate environmental impacts. Worked with TVA to define and assess additional complexities related to borrow area development, sensitive historic properties, sensitive species, wetlands, and the analysis of additional alternatives related to offsite transport and disposal of CCR. Project is under way and is being performed on fast track in response to TVA management requests to support proposed construction timelines.

Ameren Corporation, 316(a) Thermal Investigation, Labadie Power Plant – WSP has recently been contracted by Ameren to conduct a thermal investigation at its Labadie generating station. In conjunction with

this extensive program, work included habitat evaluation and mapping, thermal plume studies, benthic invertebrate investigation, in situ temperature monitoring, and fisheries assessments using a full range of gear types including electroshocking, hoop netting, seining, Missouri mini-trawl, and ichthyoplankton sampling.

Project Manager - Allen Fossil Plant Ash Impoundment Closure EIS, TVA, Shelby County, Tennessee. Managed NEPA effort for EIS to address the environmental effects associated with closure of ash impoundments and disposal of CCR excavated from the impoundments. The project included a screening analysis of landfills within 600 miles of the plant to determine those suitable to accept CCR excavated from the impoundments at ALF, and the development of bounding criteria to evaluate impacts associated with the beneficial re-use of CCR excavated from the impoundments.

Project Manager - Gallatin Fossil Plant Ash Impoundment Closure EIS, TVA, Tennessee. Managed NEPA effort for EIS to address the environmental effects associated with closure of ash impoundments and disposal of CCR excavated from the impoundments. The project included a screening analysis of landfills within 100 miles of the plant to determine those suitable to accept CCR excavated from the impoundments at ALF, and the development of bounding criteria to evaluate impacts associated with the beneficial re-use of CCR excavated from the impoundments.

Johnsonville Steam Supply Environmental Assessment, TVA (TN). WSP Project Manager for EA to assess construction and operation of a cogeneration facility at the Johnsonville Fossil Plant to provide steam to a nearby industrial customer. Evaluated alternatives that considered optional steam supply lines, auxiliary boilers, and HRSG construction and operation.

Shawnee Fossil Plant Dewatering Facility Eenvironmental Assessment, TVA (KY). WSP Project Manager for EA to assess construction and operation of an ash dewatering facility associated with the Shawnee Fossil Plant in Paducah, Kentucky.

Program Director: AmerenUE Taum Sauk Reservoir Breach Emergency Response and Restoration Services, Lesterville, Missouri. Responsible for emergency response and overall program management for the restoration of natural resources and the Johnson's Shut-ins State Park following the breach of the Taum Sauk pump storage facility Upper Reservoir. The program has included Natural Resource Damage Assessment of resources impacted by the 2005 breach. Analyses performed in conjunction with the NRDA process included assessment of ecosystem losses, recreational features impacted at the Johnson's Shutins State Park, and the development of costs for restoration measures accepted by the NRDA trustees. Trustees for this assessment included the Missouri Department of Natural Resources and the Missouri Department of Conservation. Completed design and construction of ecosystem restoration measures including restoration of 4,200 lf of the East Fork of the Black River, remediation and restoration of a forested fen, and upland restoration by establishment of erosion control features and installation of more than 24,000 plants grown from local seed sources.

Project Manager, Ameren Meredosia-Austin Transmission Line Siting and Permitting. Performed work in support of the location and permitting of proposed 75-mile 345 kV transmission line crossing the Illinois River in central Illinois. Work included Section 10/404 permitting support, wetland delineation, endangered species studies (Indiana bat, Northern long-eared bat), forest stand evaluation, floristic quality assessment, and Section 408 reviews for crossing of a federal levee.

Principal, Ameren Herleman-Meredosia Transmission Line Siting and Permitting. Performed work in support of the location and permitting of proposed 47-mile 345 kV transmission line crossing the Illinois River in central Illinois. Work included Section 10/404 permitting support, wetland delineation, endangered species studies (Indiana bat, Northern long-eared bat), forest stand evaluation, floristic quality assessment, and Section 408 reviews for crossing of a federal levee.

Project Director, Environmental Report, Ameren Corporation, Callaway Nuclear Plant Unit 2 COLA. Performed work in conjunction with the preparation of the ER for a new unit COLA at an existing nuclear facility in the Midwest. This work is in accordance with the provisions of NUREG 1555 and related laws and regulations and entails the documentation of all baseline characteristics of the project site, and vicinity. Scope of activities included the identification/delineation of all waters of the US, Section 401/404 permitting, rare, threatened and endangered species evaluations, natural areas, terrestrial (flora, fauna) ecology, aquatic

ecology (fish, benthic invertebrates, mussels), forest stand evaluations, historic properties, and laboratory analysis of soil samples (NQA-1).

Assessment of the Reintroduction Potential of Five Federally Threatened and Endangered Plant Species at Midewin National Tallgrass Prairie, US Forest Service. Directed a study to evaluate the feasibility of restoring five federally listed endangered plant species to portions of their former range at the newly formed Midewin National Tallgrass Prairie, a 19,000-acre site located at the former Joliet Arsenal in northern Illinois. Five species currently listed by the U.S. Fish and Wildlife Service as Threatened or Endangered, that were considered for potential re-introduction into the site included Mead's Milkweed (*Asclepias meadii*, Threatened), Leafy Prairie Clover (*Dalea foliosa*, Endangered), Lakeside Daisy (*Hymenoxys herbacea* , Threatened), Prairie Bush Clover (*Lespedeza leptostachya* Threatened), and Eastern Prairie White-Fringed Orchid (*Platanthera leucophaea* , Threatened). The study entailed the use of GIS, extensive literature review and field reconnaissance to evaluate of the potential for establishment of each of the above species at MNTP.

Springfield Supplemental Water Supply SEIS, City of Springfield IL/USACE Rock Island District – WSP Project Manager for complex and controversial Supplemental EIS of proposed water supply system. Responsible for direction of all activities including resource allocation and assignment of project team, schedule adherence, and budget management. Technical direction and management of all SIES-related activities. Evaluations include the screening and analysis of 32 project alternatives that included a 3,000-acre new surface water supply reservoir, groundwater collection systems, dredging of existing Lake Springfield, and other alternatives. Technical direction and management of all project activities including socioeconomic analyses, ecology, water resources, visual and aesthetic impacts, noise, air, public heath, geology, soils, land use, historic properties, and cumulative effects analysis.

Allen Fossil Plant Emission Control Supplemental Environmental Assessment, TVA (TN) – WSP Project Manager for fast track EA to assess construction and operation of additional laydown areas and haul roads needed to support construction of a natural gas pipeline to supply the proposed CT/CC generation facility.

Multi-Reservoir Land Plan EIS, TVA (TN). Project Manager for Programmatic EIS to evaluate resignation of land uses within Reservoir Land Management Plans (RLMPs) for public lands surrounding eight reservoirs located in Alabama, Kentucky, and Tennessee. All lands under TVA management on these eight reservoirs, a total of approximately 138,322 acres, were considered in this planning process. The RLMPs are a tool to guide land use approvals, private water use facility permitting, and resource management decisions on TVA-managed public land around these facilities.

Environmental Report, Ameren Corporation, Callaway Nuclear Plant Unit 2 COLA. Performed work in conjunction with the preparation of the ER for a new unit COLA at an existing nuclear facility in the Midwest. This work is in accordance with the provisions of NUREG 1555 and related laws and regulations and entails the documentation of all baseline characteristics of the project site, and vicinity. Scope of activities included the identification/delineation of all waters of the US, Section 401/404 permitting, rare, threatened and endangered species evaluations, natural areas, terrestrial (flora, fauna) ecology, aquatic ecology (fish, benthic invertebrates, mussels), forest stand evaluations, historic properties, and laboratory analysis of soil samples (NQA-1).

Facility Siting and Permitting, Holcim Lee Island Project, Holcim (US) Inc., Project Manager. WSP was selected to perform comprehensive environmental services in support of the siting and permitting of a proposed cement kiln and associated quarry in northern Ste. Genevieve County, Missouri. The project entailed extensive field investigation of natural resources of the project site including fish, benthic invertebrates, reptiles and amphibians, bats, flora, and water quality. The project is highly controversial and has required the preparation of a BA pursuant to the ESA for six species including the Indiana bat, gray bat, bald eagle, and pallid sturgeon. Numerous technical reports including an EA have been prepared and submitted to the USACE, MDC, MDNR, USFWS (Columbia Field Office), and USEPA. Mitigative measures have included extensive wetland restoration totaling 61 acres, stream recreation and restoration (3.2 miles), and other conservation measures. WSP is currently developing detailed plans and specifications for wetland and stream mitigation that entailed design details, grading plans, stream restoration and bank stabilization measures including Rosgen methodology, planting plans, designs for water level control measures, and follow-up monitoring and maintenance procedures.

Facility Siting and Permitting, Coffeen Rail Development Project, Ameren Corporation, Project Manager. Performed services in support of siting of a new rail project aimed at supplying the Coffeen Power Plant with alternative sources of fossil fuel. Work included delineation of wetlands and other "waters of the US", rare threatened and endangered species surveys, water quality assessments, floodplain analyses, terrestrial floral and faunal characterizations, and consultation with agencies including USACE, IDNR, and IEPA. Field work was completed for multiple project alternatives. Additional work included the preparation of wetland and stream mitigation plans to support Section 401/404 permitting for the project.

Environmental Assessment for the Page-Olive Connector, St. Louis County, Missouri, Environmental Manager. Directed the preparation of an Environmental Assessment for the proposed extension of the Maryland Heights Expressway between Page Avenue and Olive Boulevard. This controversial project represents a final link in the overall out-outer belt expressway system around St. Louis. The project entails the consideration of important environmental resources and potential impacts including those associated with 4(f) lands, wetlands, water quality, noise, and community cohesion effects.

Gateway Connector Corridor Preservation Study, Illinois DOT, Environmental Leader. WSP provided transportation planning and engineering services, including a public involvement program, for a corridor protection study of a 37-mile transportation corridor in rapidly growing area in southwestern Illinois (metropolitan St. Louis) encompassing suburban, rural and agricultural areas and 3 counties. Identified and protected a critical transportation corridor in advance of future NEPA or preliminary engineering phases. Responsible for coordinating all environmental issue area investigations, including wetlands, threatened and endangered species (flora and fauna), socioeconomic and community resources, and hazardous waste investigations.

Howard Bend EIS, US Army Corps of Engineers, City of Maryland Heights, Project Manager. Directed the preparation of a complex EIS that focused on the extensive consideration and analysis of secondary and cumulative impacts resulting from the construction of a new 4-lane roadway and extensive levee improvements within the floodplain of the Missouri River. The project was complex and entailed multiple tiers of alternatives (regulatory, roadway projects, flood control). Assessments of new and proposed roadways that will enhance access (and hence, development) within the project area were conducted in the context of a cumulative impact analysis.

Coralville Lake Environmental Assessment, U.S. Army Corps of Engineers, Rock Island District. Prepared an Environmental Assessment for a highly controversial project entailing the issuance of a lease agreement to run and operate a Muslim youth camp (MYCA) within the federal fee title area. The study area includes an approximately 106+ acre tract of Federal land north of North Liberty, Iowa, along Coralville Lake. MYCA proposed to construct a main lodge, winterized cabins, and a caretakers lodge. Local residents from a nearby housing development have expressed concerns about the proposed action. Work consisted of extensive agency coordination and public scoping, conceptual layout of site utility infrastructure, (water and wastewater), traffic analysis, noise analysis, natural resources assessment, cultural resources assessment, and detailed social impact assessment.

Environmental Impact Statement for Route 60, Missouri Department of Transportation. Mr. Elzinga managed and directed the preparation of an EIS for a 42-mile roadway improvement project between Van Buren and Poplar Bluff, Missouri. Important aspects of the project included the crossing of extensive National Forest Lands, several rare, threatened and endangered species, difficult socioeconomic issues (Environmental Justice), black bear habitat impacts, and extensive agency coordination (including a merged NEPA/404 process, and multiple cooperating agencies), and a complex alternative development process. In addition to directing the overall environmental study, Mr. Elzinga conducted numerous additional surveys to identify and characterize the ecological conditions of the project area including threatened and endangered species, plant communities, aquatic communities, and wetland resources.

Environmental Impact Statement for US Route 34, Illinois Department of Transportation, Environmental Lead. Mr. Elzinga directed the preparation of an EIS for Route 34 between Gulfport and Monmouth, Illinois. This EIS was particularly complex due to the potential effects to the agricultural community with a complex array of parcel effects that impacted farm operations. Additional important factors evaluated included community cohesion, noise impacts, business impacts, hazardous waste sites, and impacts to wetlands and water quality.

Environmental Assessment for Route 159, Illinois Department of Transportation, Project Manager. Mr. Elzinga directed the preparation of an Environmental Assessment for Route 159 in Edwardsville, Illinois. This EA was particularly complex due to the potential effects to community cohesion, noise impacts, business impacts, hazardous waste sites, and impacts to wetlands. In addition to directing the overall environmental study, he also conducted numerous additional surveys to identify and characterize the ecological conditions of the project.

Environmental Impact Statement for Route 13, Missouri Department of Transportation-Environmental Lead Directed the preparation of the draft and final Environmental Impact Statement for Route 13 between Richmond and Lexington, Missouri. In addition to directing the overall environmental study, Mr. Elzinga conducted numerous additional surveys to identify and characterize the ecological conditions of the project area including threatened and endangered species, plant communities, aquatic communities, and wetland resources. Identification and mapping of wetlands within the project area was highly complex as a result of the dramatic impacts of the flood of 1993.

Environmental Assessment for I-70, Missouri Department of Transportation, Environmental Manager. Directed the preparation of a Tier Two Environmental Assessment for I-70 between Rocheport and Booneville, Missouri. This EA, produced as a second tier NEPA document under a First Tier EIS for a 200-mile corridor from Kansas City to St. Louis, was particularly complex as a result of the crossing of the Missouri River, extensive floodplain and wetland issues, several threatened and endangered species (bald eagle, Indiana bat) and concerns about business impacts at interchange locations.

Environmental Assessment for Route 72, Missouri Department of Transportation, Project Manager. Mr. Elzinga performed elements of the Environmental Assessment for the widening of Route 72 south of Rolla, Missouri. Specific resources for which he was responsible included land use, natural resources, sensitive species, water quality, and hazardous waste.

Additional Training

Project Management Training, April, 2010

Wetland Delineation--Application of the Unified Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Wetland Training Institute, Inc. February 1991

Habitat Evaluation Procedures (HEP), U.S. Fish & Wildlife Service, 1987

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TECHNICAL MEMORANDUM

31 January 2024
File No. 0206891

Claire A. Manning, Attorney
Brown, Hay + Stephens, LLP
205 S. Fifth Street, Suite 1000
Springfield, Illinois 62705-2459

SUBJECT: Review of IEPA Comments and Response Commentary/Conclusions
Ameren Old Meredosia Unit
Illinois Pollution Control Board Docket AS 2021-008

Haley and Aldrich, Inc. (Haley & Aldrich) has been engaged to consult with Ameren Corporation, Ameren Legal, and its outside counsel, Brown, Hay + Stephens, LLP, to further address issues that the Illinois Environmental Protection Agency (IEPA) raised in its recommendations to the Board addressing item 43. More specifically, our review, commentary, and conclusions are focused on highlighted portions of three IEPA comments provided below that are associated with the Ameren Old Meredosia unit.

IEPA Comment #1:

43. Petitioner focuses on the environmental impacts of closure by removal or closure in place with a Part 845 compliant cover. See Amd. Petition at 20-23. The Petitioner does discuss other aspects of Old Meredosia, but ignores the environmental factors provided by its own documents. See Petition Exs. 2 and 3. The Petitioner indicates that because Old Meredosia is within the GMZ established during the closure of the Fly Ash and Bottom Ash Ponds, the groundwater monitoring for those two ponds adequately characterizes groundwater which may be impacted by Old Meredosia. See Amd. Petition at 26. However, Petitioner's Ex. 2 at 700/1169 pdf, demonstrates that contaminates do leach from the fly ash contained in Old Meredosia at concentrations above the groundwater protection standards. Ameren concedes that a cover would reduce the infiltration of precipitation. See Amd. Petition at 23. The Petitioner's data also demonstrates that contaminants in excess of groundwater protection standards exist in groundwater beneath Old Meredosia. See Petitioner's Ex. 2 at 701/1169 pdf. The fact that the fly ash in Old Meredosia leaches contaminants Electronic Filing: Received, Clerk's Office 08/3/202315 and there are also two closed CCR surface impoundments at the site underline the need for a groundwater monitoring system specific to Old Meredosia. Without its own monitoring well system, the extent to which Old Meredosia is contributing to groundwater contamination cannot be determined.

Haley & Aldrich Response/Commentary to IEPA Comment #1:

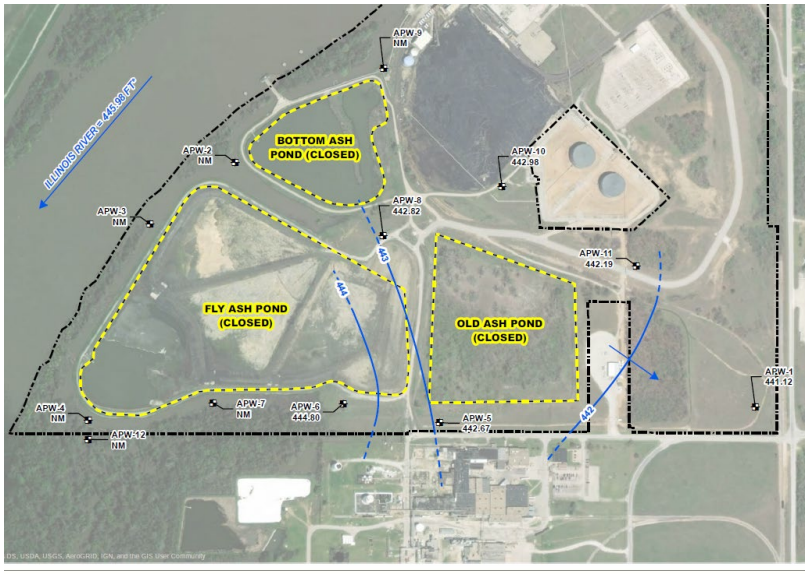
- Based on a review of the 12 Ramboll potentiometric maps provided for 2019, 2021, and 2022, the general trend of groundwater flow is to the west-northwest from Old Meredosia.
- Existing APW-8 is downgradient from Old Meredosia and would be expected to capture representative groundwater flow from the unit;
- Existing APW-10 is side-gradient from Old Meredosia to the north and may capture groundwater flow under some conditions;
- Existing APW-5 is side-gradient from Old Meredosia to the south and may capture groundwater flow under some conditions; and
- Existing (newer) monitoring wells 13 and 14 were installed immediately downgradient from Old Meredosia to monitor the uppermost portion of the saturated zone.
- A Report on Old Meredosia Risk Evaluation was prepared by Haley & Aldrich dated April 2023 to evaluate potential risks to human health and the environment from Old Meredosia.

Haley & Aldrich Comment #1 Summary:
Existing wells are in place as part of the approved groundwater monitoring system authorized by IEPA upon closure of the Meredosia Station – and two additional wells more proximate to Old Meredosia, were drilled in 2021. These wells monitor potential groundwater impacts from the unit. Based on groundwater quality data collected from these wells, the Old Meredosia Risk Evaluation concluded that Old Meredosia does not pose a risk to human health or the environment.

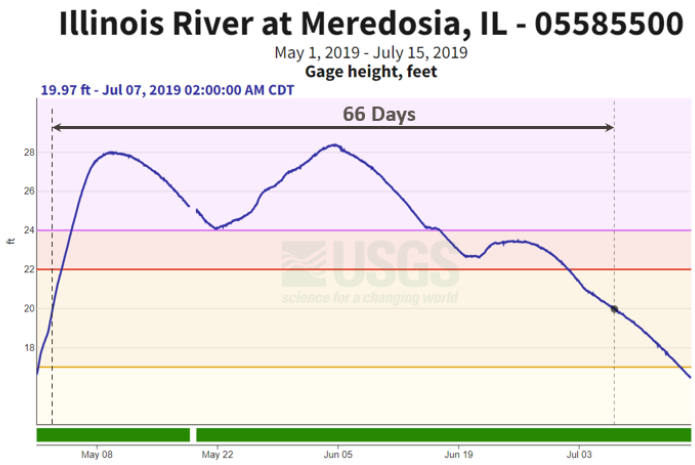
IEPA Comment #2:
Petitioner's Ex. 3 at 1065/1169 pdf displays property immediately adjacent to Old Meredosia that is not owned or controlled by Ameren. Petitioner's Ex. 2 at 885/1169 pdf, potentiometric surface map demonstrates that the property to the east of Old Meredosia, which is not under Ameren control, is sometimes down gradient of Old Meredosia.

Haley & Aldrich Response/Commentary to IEPA Comment #2:

- The 4 June 2019 groundwater contour map shows groundwater flow contours to the east-southeast toward the adjacent parcel under a high-river condition (see insert).
- This condition occurred on the day of the fourth highest recorded Illinois River gauge reading at Meredosia (elevation [El]. 28.39) from a gauge operating 100+ years.
- The highest gauge reading occurred in July 2015 (El. 28.86) and was only 0.47 feet higher.



- Based on the very flat gradient observed during the 4 June 2019 gauging event, it appears that only major flood events (where flooding heights recorded by the USGS gauge well exceed 20 feet) would likely result in a reverse groundwater flow gradient (away from the river); for this preliminary evaluation, we have utilized a representative river gauge elevation of 20 feet as the point at which reverse flow would occur.
- We assume that the highest recorded USGS gauge heights would also be expected to result in the longest flooding duration. Of the 18 highest gauging events recorded by USGS (instances of gauge height above 25.0 feet) at the Meredosia gauge:
  - 13 instances have occurred since the closing of Old Meredosia; and
  - three instances have occurred since the installation of groundwater monitoring wells.



- Durations of major flood events were evaluated; The longest duration peak period (> 20 feet) in recent history was 66 days[1];
  - The peak period during the June 2019 flood lasted from 2 May to 7 July 2019 (66 days);
  - The peak period during the July 2015 flood lasted from 18 June to 30 July 2015 (42 days);
  - The peak period during the June 2013 flood lasted from 20 April to 17 May 2013 (27 days); and
  - The peak period during the January 2016 flood lasted from 28 December 2015 to 18 January 2016 (21 days).

IEPA Comment #3:

Therefore, contaminants leaching from Old Meredosia may be contaminating off-site groundwater. The Petition does not adequately address the potential for Old Meredosia to impact groundwater, nor does it provide adequate information to determine that the existing sediment cover provides any control of these environmental impacts. 35 Ill Adm. Code 104.406(h). A statement that explains how the petitioner seeks to justify, under the applicable level of justification, the proposed adjusted standard;

[1] Since limited gauging information exists for the Old Meredosia site, the assumption that reverse flow would occur when the river gauge height exceeds 20 feet would be enhanced by gauging the site monitoring wells during river flood events to evaluate and confirm when potentiometric flow maps demonstrate a reverse flow.

Haley & Aldrich Response/Commentary to IEPA Comment #3:

- Based on the 4 June 2019 gauging event during a significant Illinois River flooding event, groundwater flows to the nearby property to the east and parallel to the southern property boundary.
- We have estimated the maximum reverse groundwater flow rates ranging between 0.08 feet/day and 0.8 feet/day (see calculations attached).
- At the maximum reversal rates (0.08 feet/day and 0.8 feet/day), and the longest major flood duration (based on longest recorded flood duration peak period (> 20 feet) in recent history was 66 days), the groundwater below Old Meredosia could potentially move east-southeast as follows:
  - Lower bound: 0.08 feet/day * 66 days = 5.3 feet; and
  - Upper bound: 0.8 feet/day * 66 days = 53 feet.
- The approximate distance between the east edge of Old Meredosia and the property line of the adjacent parcel is 100 feet (see Google Earth insert) which is 20 times and 2 times greater than 5.3 feet and 53 feet, respectively.

Haley & Aldrich Comments #2 and #3 Summary:
It is reasonable to conclude that based on historic groundwater contour mapping groundwater may, on rare occasions, flow in an easterly or southeasterly direction toward the adjacent parcel immediately east of Old Meredosia. However, under the most severe historic Illinois River flooding events (when reverse groundwater flow could occur), potentially impacted groundwater would not be expected to have advanced off the site to the adjacent parcel east of Old Meredosia.

Sincerely yours,
HALEY & ALDRICH, INC.

Neal P. Kochis, P.E.
Senior Project Manager

Steven F. Putrich, P.E.
CCR & Industrial Waste Principal Engineer

Enclosure:
Groundwater Seepage Velocity Calculations

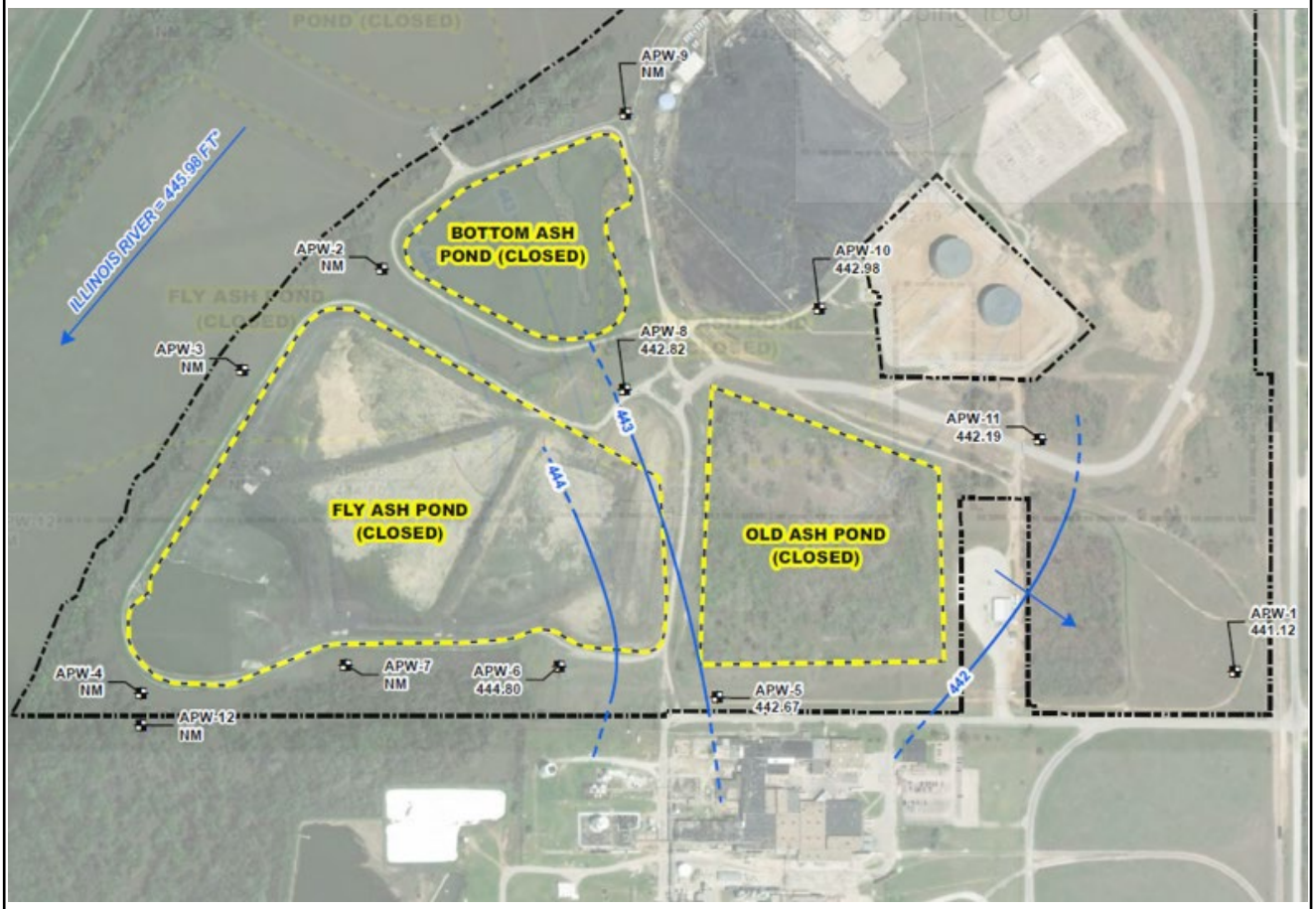
Exhibit B

HALEY ALDRICH

CALCULATIONS

Client	Ameren Energy	File No.	0206891-001
Project	Meredosia Power Station	Sheet	1 of 2
Subject	Groundwater Seepage Velocity Calcs	Date	17 November 2023
		Computed By	John Blue
		Checked By	Dimitri Quafisi

Calculation for the estimated groundwater velocity across the old closed ash pond at the Site during a high river stage event in June of 2019.



Hydraulic Conductivity values are estimated at 5.66 x 10^{-2} cm/s based on values reported for the Site area.

The monitoring wells were not tested for hydraulic conductivity; however, Gibb et al. (1979) published hydraulic conductivity values for wells along the Illinois waterway, which included a site-specific value of 1,200 gallons per day/square foot (gpd/ft^2). Both a maximum and an average hydraulic gradient were used. The average hydraulic gradient was based on the ten groundwater gauging events. Two groundwater gauging events were not used because of flooding and inaccessibility of the wells. Removing flooding events provides a more conservative value. The cross sectional area was assumed to be over the entire thickness of the aquifer, and along the entire length of the Fly Ash Pond parallel to the river, plus 50 feet north and south of the pond.

HALEY ALDRICH

CALCULATIONS

Client	Ameren Energy	File No.	0206891-001
Project	Meredosia Power Station	Sheet	2 of 2
Subject	Groundwater Seepage Velocity Calcs	Date	17 November 2023
		Computed By	John Blue
		Checked By	Dimitri Quafisi

$$v = -\frac{K}{n_e}\frac{dH}{dL}$$

v = Seepage velocity, ft./day
K = hydraulic conductivity, ft./day
dH = change in head, ft.
dL = change in length, ft.
n_e = effective porosity, dimensionless

Seepage calculations, k = 5.66E-02 cm/sec. to 5.66E-03 cm/sec.

	Description	v (ft./day)	K (ft./day)	n_e dimensionless	dH (ft.)	dL (ft.)
1. K_{max}		0.802	1.60E+02	0.2	1	1000.0
2. K_{min}		0.080	1.60E+01	0.2	1	1000.0

Groundwater Velocity across old closed ash pond:

K_{max} v = 0.802 ft/day
K_{min} v = 0.08 ft/day

Notes:

Hydraulic Conductivity is based on literature values for the area as no onsite values are available.
effective porosity is assumed to be 0.2 based on typical literature values for sand
distance between contours estimated from 2016 Part 1A Hydro-Geo-Report

Calculation to estimate seepage velocity across the old closed ash pond using the following assumptions:

- **Hydraulic Conductivity –** Based on literature values for the area as no onsite values are available. 1200 gpd/ft^2 is equal to approximately 5.66 x 10^{-2} cm/s. Range of K values used with an order of magnitude less to show variability potential.
- **Effective Porosity –** effective porosity is assumed to be 0.2 based on typical literature values for sand
- **Distance between contours** – Estimated from 2016 Hydro-Geo-Report