BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:	)	
	)	
SIERRA CLUB, ENVIRONMENTAL LAW AND POLICY CENTER, PRAIRIE RIVERS NETWORK, and CITIZENS AGAINST RUINING THE ENVIRONMENT	)	
	)	PCB No-2013-015
Complainants,	)	(Enforcement – Water)
v.	)	
MIDWEST GENERATION, LLC,	)	
Respondents	)	

NOTICE OF ELECTRONIC FILING

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board the following **COMPLAINANTS' POST-HEARING REMEDY BRIEF** in the above-captioned case today, copies of which are hereby served upon you.

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Dated: January 18, 2024

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COMPLAINANTS' POST-HEARING REMEDY BRIEF

Complainants Sierra Club, Environmental Law and Policy Center, Prairie Rivers Network and Citizens Against Ruining the Environment (collectively, "Complainants") respectfully submit this Post-Hearing Brief for the Illinois Pollution Control Board's ("Board") consideration in this case.

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COMPLAINANTS' POST-HEARING REMEDY BRIEF

I. INTRODUCTION

The groundwater at four Midwest Generation, LLC ("MWG" or "Respondent") power plants—Joliet 29, Powerton, Waukegan, and Will County—has been contaminated by coal ash for at least fourteen years, and coal ash continues to contaminate the groundwater today. More than a decade after MWG entered into Compliance Commitment Agreements ("CCAs") to address this contamination (not voluntarily, but in response to state enforcement), roughly ten years after MWG signed statements certifying completion of the measures dictated by the CCAs,[1] and four years after the Board in this case found MWG liable for numerous ongoing violations of state law meant to protect Illinois's groundwater, MWG is still out of compliance: the groundwater at the four MWG plants is still contaminated, and major sources of contamination at all four sites remain

[1] Exs. 630, 637, 651, 661; June 14, 2023 Hr'g Tr. at 315:11-15 (MWG Environmental Director Sharene Shealey responded to the following question: "Q. Did the CCAs ever stop being -- are they no -- are they still in effect at all four plants? A. I believe that the Agency considered them completed within one year").

uncontrolled. Instead of putting resources into site investigations and source control, MWG has continued to ignore the historic ash areas[2] that pepper its sites and question the Board's liability finding. In short, MWG continues to demonstrate a complete disregard for the contamination and open dumping violations at its plants.

Now MWG proposes a remedy that relies almost entirely on its claims of voluntary compliance. Midwest Generation's avowals of compliance are simply not credible. A remedy that consists of nothing more than promises to comply, after more than a decade of brazen noncompliance, is not a serious remedy. And a remedy that leaves waste in open dumps and hopes for future improvements in groundwater quality (i.e., monitored natural attenuation), without any source control, is not a serious remedy. Since MWG has failed to propose a credible remedy, and has dragged its feet with respect to any intermediate approach, it would be well within the Board's authority to order removal of all the coal ash waste at the four MWG plants.

Alternatively, in the event the Board finds there is undue uncertainty regarding the extent of historical ash contamination outside of marked impoundments at the four plants, the Board should at a minimum order the following: 1) removal of all ash in impoundments, as required by the Compliance Commitment Agreements; 2) removal of all ash in historic ash areas where it is in sustained or intermittent contact with groundwater; and 3) an investigation into the nature and extent of ash waste contamination in the remaining historic areas, including a determination of the extent to which ash is in contact with groundwater, groundwater monitoring at disposal sites or fill areas that are not already being monitored, and a plan for controlling each source of contamination. If the Board adopts this alternative, it should retain jurisdiction so that once such a study is complete, the Board may order removal of all ash in historic ash areas where it is in sustained or

[2] "Historic ash areas" means "Historic Coal Ash Sites" as identified in the Board's June 20, 2019 Interim Opinion and Order at 26-28, 40-42, 55-57, 66-68.

intermittent contact with groundwater. In addition, the Board should impose a penalty that more than negates the economic benefit MWG has accrued by delaying meaningful action for over a decade.

II. LEGAL BACKGROUND

The Board has already found MWG liable for its failure to protect groundwater and for open dumping. At issue now is what civil penalty MWG will pay for these violations, and what remedy will cure these violations and restore groundwater quality. With respect to remedy, Illinois law directs the Board to consider five factors; with respect to a civil penalty, the Board is provided with a formula that it may adjust on the basis of record evidence and certain statutory mitigating and aggravating factors.

The public policy of the State of Illinois with respect to waste disposal, as articulated in the 1970 Constitution, is "to provide and maintain a healthful environment for the benefit of this and future generations."[3] Accordingly, "resource groundwater" subject to protection under Illinois law is defined as "groundwater that is presently being, or in the future is capable of being, put to beneficial use by reason of being of suitable quality."[4] "No person shall cause, threaten or allow the release of any contaminant to a resource groundwater such that (1) [t]reatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater; or (2) [a]n existing or potential use of such groundwater is precluded."[5]

United States Environmental Protection Agency ("U.S. EPA") policy with respect to coal ash shares this emphasis on preserving water quality into the future. Most recently, the U.S. EPA noted that:

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[3] *City of Chicago v. Krisjon Constr. Co.*, 246 Ill. App. 3d 950, 957 (Ill. 1st Dist. 1993), *citing* Ill. Const. 1970, art. 11, § 1 (emphasis added).
[4] 415 ILCS 5/3.430; 35 Ill. Adm. Code 620.110 (emphasis added); Bd. Interim Op. and Order, PCB 13-15 at 11 (June 20, 2019).
[5] 35 Ill. Adm. Code 620.301(a); Bd. Interim Op. and Order, PCB 13-15 at 11 (June 20, 2019) (emphasis added).

> another significant source of unquantified benefits [of proposed EPA regulations] comes from the protection and remediation of the groundwater contaminated by a legacy CCR [coal combustion residual] surface impoundment [coal ash pond] or CCRMU [coal combustion residual management unit] as at many sites this groundwater is a potential future source of drinking water or other uses. This is distinct from the benefits associated with reducing the risks from contaminants migrating into drinking water wells or surface waters, reduced risks that rely on the presence of a receptor. As EPA explained in the preamble to the original 1979 regulations, sources of drinking water are finite, and future users' interests must also be protected.[6]

The U.S. EPA went on to cite Illinois as a place where the protection of groundwater from coal ash pollution is particularly urgent:

> A significant number of legacy CCR [coal combustion residual] surface impoundments and CCRMU are located in areas that, according to the U.S. Geological Survey (USGS), are experiencing significant groundwater decline and depletion. For example, EPA estimates that 8 potential legacy CCR surface impoundments are located in Iowa, and 20 potential CCRMU [coal combustion residual management unit] are located in Illinois (12) and Minnesota (8); USGS has estimated that these areas experienced 10-25 cubic kilometers of cumulative annual groundwater depletion between 1900 and 2008. Simply stated, the resource is becoming more scarce.[7]

The Board has echoed the same policy in the present case:

> The lack of current receptors is not the equivalent of absence of environmental harm. As the Environmental Groups correctly point out, Waukegan is not covered by a GMZ [Groundwater Management Zones]. Further, a lack of current receptors at the four sites does not equate to an absence of environmental harm. The focus of this enforcement action, the adopted regulations in Part 845, and the rulemaking sub-docket in R20-19A is the preservation of the water, land and air of the State for future use. The Board holds that simply because there are no current receptors, does not mean there exists no risk of current or future contamination from the facilities.[8]

An appropriate remedy must therefore aim to restore groundwater to a "suitable quality" for beneficial use in the future.[9]

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[6] Hazardous and Solid Waste Mgmt. Sys.: Disposal of Coal Combustion Residuals from Elec. Utils.; Legacy CCR Surface Impoundments, Proposed Rule, 88 Fed. Reg. 31982, 31987 (May 18, 2023) (emphasis added).
[7] 88 Fed. Reg. 31987 (internal citations omitted).
[8] Bd. Order, PCB 13-15 at 6 (Dec. 15, 2022).
[9] 415 ILCS 5/3.430; 35 Ill. Adm. Code 620.110.

In crafting that remedy, the Board is directed to consider five factors:

> (i) the character and degree of injury to, or interference with the protection of the health, general welfare and physical property of the people;
> (ii) the social and economic value of the pollution source;
> (iii) the suitability or unsuitability of the pollution source to the area in which it is located, including the question of priority of location in the area involved;
> (iv) the technical practicability and economic reasonableness of reducing or eliminating the emissions, discharges or deposits resulting from such pollution source; and
> (v) any subsequent compliance.[10]

Although the Board must consider each factor, it may do so on the basis of all evidence before it, rather than testing Complainants' evidence under a preponderance standard, as it did during the liability phase. On remedy, Complainants do not bear the burden of proof on each of the factors, and are not required to introduce evidence on each and every factor.[11]

When imposing a civil penalty, the Board begins with a statutory formula found at 415 ILCS 5/42(a), but is authorized to consider mitigating or aggravating factors, including but not limited to the following factors listed at 415 ILCS 5/42(h):

> (h) …the Board is authorized to consider any matters of record in mitigation or aggravation of penalty, including, but not limited to, the following factors:
> > (1) the duration and gravity of the violation;
> > (2) the presence or absence of due diligence on the part of the respondent in attempting to comply with requirements of this Act and regulations thereunder or to secure relief therefrom as provided by this Act;
> > (3) any economic benefits accrued by the respondent because of delay in compliance with requirements, in which case the economic benefits shall be determined by the lowest cost alternative for achieving compliance;
> > (4) the amount of monetary penalty which will serve to deter further violations by the respondent and to otherwise aid in enhancing voluntary compliance with this Act by the respondent and other persons similarly subject to the Act;
> > (5) the number, proximity in time, and gravity of previously adjudicated violations of this Act by the respondent;
> > (6) whether the respondent voluntarily self-disclosed, in accordance with subsection (i) of this Section, the non-compliance to the Agency;

[10] 415 ILCS 5/33(c).
[11] *Ford v. Env't Prot. Agency*, 9 Ill. App. 3d 711, 720-21, (3rd Dist. 1973) ("it cannot be said that the legislature intended the [Complainant] to have the additional burden of introducing proof (affirmatively, as part of complainant's case) relative to each of the factors enumerated in section 33(c)").

> (7) whether the respondent has agreed to undertake a "supplemental environmental project", which means an environmentally beneficial project that a respondent agrees to undertake in settlement of an enforcement action brought under this Act, but which the respondent is not otherwise legally required to perform; and
> (8) whether the respondent has successfully completed a Compliance Commitment Agreement under subsection (a) of Section 31 of this Act to remedy the violations that are the subject of the complaint.

Section 42(h) also requires that the civil penalty be "at least as great as the economic benefits, if any, accrued by the respondent as a result of the violation, unless the Board finds that imposition of such penalty would result in an arbitrary or unreasonable financial hardship."[12] In other words, although the Board has some leeway to impose a penalty that is lower than the statutory maximum, in the absence of financial hardship, that penalty must, at a minimum, be greater than the economic benefits that accrued to MWG from violating the law.[13]

III. FACTUAL BACKGROUND

MWG has neither investigated nor addressed many significant sources of contamination at the four plants. As a result, conditions have failed to improve. The following sections discuss groundwater data, the presence of coal ash in various areas, and MWG's efforts to remove ash, at the four plants.

A. All Four Plants Show Ongoing Groundwater Contamination with No Significant Improvement Over Time.

Groundwater monitoring data continue to show ongoing contamination at all four plants. The last full calendar year of monitoring data in the record is 2021. In that year alone, looking only at the constituents tabulated in the Board's 2019 order,[14] the record shows 223 exceedances of

[12] 415 ILCS 5/42(h).
[13] *See, e.g., People v. ESG Watts, Inc.*, PCB 96-233, 1998 WL 54022, at *8-9 (Feb. 5, 1998).
[14] These include arsenic, boron, selenium, sulfate, thallium, and total dissolved solids ("TDS"). *See* Bd. Interim Op. and Order, PCB 13-15 at 29-35, 43-51, 58-63, and 69-77 (June 20, 2019). The attached list of exceedances omits numerous exceedances of state groundwater standards for chloride, iron and manganese.

Illinois groundwater quality standards, and 200 instances of boron and sulfate exceeding 90th percentile background concentrations.[15]

Organizing these exceedances by power plant, these single-year exceedances include:

- At Joliet 29, there were 10 exceedances of state groundwater standards, and 10 exceedances of 90th percentile background concentrations. It is important to remember that there are multiple coal ash disposal areas at Joliet 29 without groundwater monitoring, so the snapshot presented for this site has limited value – there may be much more contamination the Northeast Ash Landfill, the Southwest Ash Landfill, and the Northwest Area.[16]

- At Powerton, there were 53 exceedances of state groundwater standards, and 56 exceedances of 90th percentile background concentrations.[17]

- At Waukegan, there were 57 exceedances of state groundwater standards, and 57 exceedances of 90th percentile background concentrations.[18]

- At Will County, there were 103 exceedances of state groundwater standards, and 77 exceedances of 90th percentile background concentrations.[19]

Groundwater quality has generally not been improving at the four plants. MWG's experts (Douglas Dorgan and Michael Maxwell, both employed by Weaver Consultants Group and identified below as "Weaver experts") analyzed trends in the data in their 2021 report. Their analysis had many flaws, including arbitrary omissions and double counting of wells (discussed in more detail below), but even with these flaws their analysis shows that the vast majority of wells do not show any reduction in concentrations of contaminants over time. A true improvement in groundwater quality would be evident in a statistically significant downward trend. Specifically:

- At Joliet 29, only 11 of the 132 trend tests performed by MWG's experts (8%) were significantly declining/improving.[20] The rest (92%) were not significantly improving.

[15] *See* Appendix 1.
[16] Ex. 1303 at MWG13-15_118144-154.
[17] Ex. 1307 at MWG13-15_118247-262; Ex. 1325 at MWG13-15_115947-950.
[18] Ex. 1310 at MWG13-15_118497-503; Ex. 1324 at MWG13-15_115602-603.
[19] Ex. 1314 at MWG13-15_118388-397; Ex. 1328 at MWG13-15_116153-155; Ex. 1332 at MWG13-15_125651.
[20] Ex. 1701 at MWG13-15_81507.

- At Powerton, only 25 out of 233 trend tests were significantly downward; the remaining 89% of the data showed no significant improvement.[21]
- At Waukegan, only 9 out of 135 trend tests were significantly improving; the remaining 93% of the data show no significant improvement.[22]
- And at Will County, only 13 out 140 tests were significantly downward; the remaining 91% of the data showed no significant improvement.[23]

In sum, at least 89% of the trends at each site were either static (not significantly upward or downward) or getting worse (significantly upward).

In some places, groundwater quality is either getting worse or fluctuating around very high levels of contamination. For example, boron concentrations at Will County have been gradually rising in most wells, as shown in the plot of boron data attached to the 2021 groundwater monitoring report.[24] At Waukegan, boron in downgradient wells MW-05 and MW-07 continues to fluctuate around levels 10 to 20 times greater than the two mg/L groundwater standard.[25]

In sum, the numerous ongoing exceedances in the most recent complete year of data, the trend analyses showing that most data are not improving, and the specific instances of egregious contamination that is persistent or getting worse, together show that the sources of contamination at the MWG plants have not been controlled.

B. The Open Dumping Violations Identified by the Board Continue Unabated.

In its 2019 Liability Order, the Board found that MWG had violated the Illinois Environmental Protection Act's ("Act") prohibition on open dumping: "MWG violated Section 21(a) of the Act [] at all four Stations by allowing coal ash to consolidate in the fill areas around

[21] *Id*. at MWG13-15_81510.
[22] *Id*. at MWG13-15_81516.
[23] *Id*. at MWG13-15_81513.
[24] Ex. 1314 at MWG13-15_118465.
[25] Ex. 1310 at MWG13-15_118603.

the ash ponds and in historical coal ash storage areas."[26] The "Historical Coal Ash Sites" identified in the Board's 2019 Order include:

- At Joliet 29, (1) the Northeast Ash Landfill, (2) the Southwest Ash Landfill, (3) the Northwest Area, and (4) "Coal Ash Fill Areas Outside Ash Ponds."[27]
- At Powerton, (1) the East Yard Runoff Basin, (2) the Limestone Runoff Basin, (3) the Former Ash Basin, (4) "Coal Ash Fill through the site," and (5) "Ash Cinders Stored on Land."[28]
- At Will County, (1) Pond 1 North ("1N"), (2) Pond 1 South ("1S"), (3) "Coal ash buried around the ash ponds," and (4) the Former Slag and Bottom Ash Placement Area.[29]
- At Waukegan, (1) the "Former Slag/Fly Ash Storage" or FSFA Area and (2) "Coal Ash in Fill Areas" around the ash ponds.[30]

The Board also found, in its 2019 liability order, significant contact between historic ash areas and groundwater at the Powerton, Waukegan, Will County plants.[31] New evidence in the record confirms and bolsters that conclusion. At Waukegan, MWG's experts stated that 20% of the coal ash in the FSFA Area is below the water table.[32] At Will County, the record shows,[33] and MWG's experts confirmed,[34] that the bottoms of the ash ponds, and the ash fill outside of the ash ponds, are in contact with groundwater; and that the overlap between coal ash fill and groundwater

[26] Bd. Interim Op. and Order, PCB 13-15 at 92 (June 20, 2019).
[27] *Id.* at 26-28.
[28] *Id*. at 40-42.
[29] *Id.* at 55-57.
[30] *Id.* at 66-68.
[31] *Id.* at 41, 56 and 67 (June 20, 2019).
[32] June 13, 2023 Hr'g Tr. at 159:10-159:12.
[33] *See* Ex. 1332 at MWG13-15_125661 (showing ash pond bottoms at an elevation of roughly 582 feet and ash fill down to an elevation of roughly 580 feet); *id.* at MWG13-15_125663 (showing ash fill in the vicinity of MW-02 down to an elevation of about 578 feet and groundwater levels at approximately 582.5 feet, resulting in about 4 feet of ash fill being saturated with groundwater); *id.* at MWG13-15_125665 (showing that groundwater in well MW-02 is almost always higher than 582 feet elevation, and more broadly showing that groundwater in numerous wells at Will County is typically between 581 and 583 feet elevation).
[34] June 14, 2023 Hr'g Tr. at 17:20-18:15 (MWG expert Mr. Maxwell confirming that the groundwater elevation in May 2019 was 1.6 feet higher than the bottom of the ash ponds at Will County); *Id.* at 24:11-15 (Mr. Maxwell confirming that the groundwater elevation in November 2021 was higher than the bottom of the ash fill at Will County); *Id.* at 24:1-7 (Mr. Maxwell confirming that the ash fill layer extends down to an elevation of approximately 580 feet); *Id.* at 25:20-28:12 (Mr. Maxwell confirming that the groundwater elevation in MW-02 at Will County is generally higher than 582 feet, and sometimes above 584 feet).

at Will County appears to be roughly four feet or more in some places.[35] As discussed in more detail below, this contact between coal ash and groundwater is an ongoing contamination pathway, and one of the ways in which MWG has failed to "confine the refuse" in violation of Illinois' open dumping prohibition.[36]

i. MWG has not taken steps to cure the open dumping violations at the four plants.

The Board's open dumping liability finding was based on its conclusions that MWG knew about the coal ash buried at the four stations before it began operations, did not take precautions to prevent open dumping, and failed to remove the waste.[37] The Board elsewhere noted repeatedly that MWG had failed to investigate the sources of contamination.[38]

> The monitoring results show that contamination persists after MWG concluded corrective actions . . . MWG is aware of these results but is not undertaking any further actions to stop or even identify the specific source: no further investigation of historic areas is taking place . . . The Board is, thus, not persuaded that MWG took "extensive precautions" to prevent releases.[39]

MWG has not taken steps to cure these violations since the Board's liability findings in 2019, and its proposed remedy would not do anything to cure these violations. MWG has not removed any waste from the historic ash areas, and (with one exception) has not conducted even rudimentary investigations into the extent of coal ash placement in each historic ash area: MWG and its consultants and experts—including their remedy experts at the hearing[40]—have not evaluated the depth or volume of ash, or the extent to which coal ash is in contact with groundwater,

[35] *See supra*, n.33.
[36] Bd. Interim Op. and Order, PCB 13-15 at 91 (June 20, 2019).
[37] *Id*. at 91.
[38] *See, e.g., id*. at 79.
[39] *Id.*
[40] June 14, 2023 Hr'g Tr. at 65:20-66:12.

at any historic coal ash area other than the FSFA Area at Waukegan because they did not think that information was relevant to their proposed remedy.[41]

Notably, MWG has generally failed to use an investigative tool that its own experts support. Specifically, MWG's experts argued that the Leaching Environmental Assessment Framework ("LEAF") test is superior to other leach tests because it uses natural pH, which better approximates field conditions.[42] They also testified that you cannot apply leach tests from one area to another area because leachability varies,[43] meaning that LEAF tests must be conducted at each ash area. Yet MWG has not collected LEAF test data from any historic ash area other than the FSFA Area at Waukegan.[44]

MWG employees responsible for environmental protection have even denied the existence of certain open dumps that the Board identified in its liability order. For example, MWG's Environmental Director, Sharene Shealey,[45] stated repeatedly that she was unaware of there being any coal ash outside of the ponds at Will County,[46] a fact that was established by the Board in 2019.[47] At Joliet 29, Ms. Shealey openly disputed reports documenting the use of the Northeast Area at Joliet 29 as an ash landfill. This testimony conflicts both with the Board's finding in 2019 that "MWG admits, and the record indicates, that [the Northeast Area at Joliet 29] contains historic

[41] June 13, 2023 Hr'g Tr. at 235:2-255:12 (Weaver experts testifying that they did not try to estimate the spatial extent of, or extent of groundwater contact with, various ash areas); *see also* Section V.B.
[42] *See* June 13, 2023 Hr'g Tr. at 256:22-258:22; Ex. 1701 at MWG13-15_81447.
[43] June 13, 2023 Hr'g Tr. at 262:3-266:10; *see in particular id*. at 263:14-19 ("I would not say you can draw the conclusion that pond data and the ash data from the slag area are going to be representative of the same thing. They're different materials, different sources generated at different times located in different areas"); *Id*. at 264:11-15 ("So if you're speaking to specific results from other LEAF samples from other ash materials from the site, I can't necessarily speak to that, but I would stipulate that they would not be necessarily the same").
[44] *See, e.g.*, June 13, 2023 Hr'g Tr. at 267:2-268:15 (no LEAF test data from Joliet 29); *Id*. at 277:16-281:18 (no LEAF test data from Powerton aside from two basins); *Id.* at 281:20-283:11 (discussing leach test data from Will County); Ex. 1701 at MWG13-15_81486 (showing all available leach test data for Will County and showing that the only LEAF test data came from ash ponds 2S and 3S).
[45] May 18, 2023 Hr'g Tr. at 153:2-3 ("I am the Director of Environmental for Midwest Generation…").
[46] May 19, 2023 Hr'g Tr. at 51:5-51:12.
[47] Bd. Interim Op. and Order, PCB 13-15 at 56 (June 20, 2019).

coal ash,"[48] and with other clear evidence of ash in the area, including its name in record documents ("Ash Landfill").[49] It is also based on a faulty understanding of the site history. In her testimony, Ms. Shealey stated her belief that the area contained only "river spoils," based on her inference that it "doesn't make sense" that prior owners of the plant would have driven ash from Joliet 29 to the site.[50] But the Phase I Environmental Site Assessment for Joliet 29 states that, "[a]ccording to ComEd, the site was used for coal ash disposal *by the Joliet #9* Station prior to the construction of Joliet #29 in 1964-1965. Coal ash was primarily disposed in a landfill on the eastern portion of the site."[51]

ii. At the one site where MWG did conduct an investigation, its experts recommend a form of source control.

MWG did investigate one historic ash area.[52] At the Waukegan FSFA Area, MWG conducted a sampling exercise that included a grid of 40 soil borings at a density of four borings per acre, an analysis of the composition of the material in each boring, and leach tests on the material in three of the borings.[53] This investigation produced information that was useful to MWG's experts and informed their opinions about a remedy for the area. Based on the results of this investigation, MWG's experts concluded that, in the FSFA Area, "approximately 20 percent of that waste mass is in contact with the groundwater."[54] The FSFA Area investigation also included three LEAF tests: All three exceeded the Site Remediation Objectives ("SROs") for boron and molybdenum, and one exceeded the SRO for arsenic.[55]

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[48] *Id.* at 26 (June 20, 2019).
[49] Ex. 21 at MWG13-15_25149, Figure 2; Ex. 20D at MWG13-15_23339.
[50] June 14, 2023 Hr'g Tr. at 187:15-188:20.
[51] Ex. 21 at MWG13-15_25150 (emphasis added).
[52] MWG has investigated MW-09 at Joliet 29, but this is not a historic ash area.
[53] Ex. 1330 (grid sampling layout, soil boring diagrams, and soil boring composition results); Ex. 1517 (leach test results); May 17, 2023 Hr'g Tr. at 106:20-120:8 (testimony of Richard Gnat describing the grid sampling exercise at the Waukegan FSFA Area).
[54] June 13, 2023 Hr'g Tr. at 159:10-12.
[55] Ex. 1702 at slide 80; June 13, 2023 Hr'g Tr. at 261:4-19; *see also* Ex. 1701 at MWG13-15_81487. At the June 2023 hearing, MWG attempted to obscure the significance of these results by presenting a slide stating "Natural pH

MWG's experts ultimately concluded that these findings warranted a remedy.[56] The FSFA Area investigation illustrates the kind of investigation that could have been done elsewhere at the four plants, and it illustrates how such an investigation can inform remedial decisions. At the June 2023 hearing, MWG's experts agreed that such an investigation would have been useful at other areas of historic coal ash.[57] MWG has not, since 2019, conducted a similar exercise elsewhere at Waukegan, or anywhere at Joliet 29, Powerton, or Will County.

C. MWG has Failed to Propose a Meaningful Remedy.

For the Joliet 29, Powerton, and Will County stations, MWG states that no remedy is necessary.[58] Alternatively, in the best possible light, MWG's proposed remedy for these three plants is ongoing compliance with environmental laws, and nothing more.[59] For Waukegan, MWG's experts did recommend a remedy beyond what MWG is already doing – a cap over the FSFA Area (a remedy that would fail to control the source, as described in more detail below). Beyond the proposed cap and compliance with the CCAs and state and federal rules, MWG is not recommending any additional actions at Waukegan.[60]

IV. THE BOARD SHOULD CRAFT A REMEDY THAT COMPREHENSIVELY ADDRESSES BOTH ONGOING GROUNDWATER CONTAMINATION AND OPEN DUMPING VIOLATIONS AT THE FOUR MWG SITES.

A. The Section 33(c) Factors All Weigh in Favor of a More Significant and Comprehensive Remedy.

In the following sections, Complainants explore each of the Act's Section 33(c) factors governing how the Board must determine a remedy. Each of the Section 33(c) factors weighs in

LEAF concentrations below Class I GQQD, except: Boron at 3 locations [and] [a]rsenic at 1 location." Although couched as an "except," in fact, because there were only three leach tests in this investigation, meaning that *all* of them exceeded the SRO for boron.

[56] Ex. 1701 at MWG13-15_81469.

[57] June 13, 2023 Hr'g Tr. at 250:1-253:9.

[58] *See* Ex. 1701 at MWG13-15_81468 ("No further remedy is warranted at the Joliet 29, Powerton, and Will County Stations").

[59] *Id*. at MWG13-15_81464 ("[N]o additional action beyond continued compliance with these Rules is warranted").

[60] June 14, 2023 Hr'g Tr. at 14:5-14:15.

favor of the Board crafting a comprehensive remedy that will meaningfully address the full scope of groundwater contamination and open dumping violations at the four MWG plants.

i. MWG's violations of Illinois Law have caused cognizable injury to the health, general welfare and physical property of the people of Illinois.

The first factor that the Board considers in Section 33(c) is "(i) the character and degree of injury to, or interference with the protection of the health, general welfare and physical property of the people."[61] With respect to groundwater contamination, the General Assembly and the Board have already determined what is protective of human health and the environment and codified their determination in Groundwater Quality Standards ("GQS") and the Part 845.600 Groundwater Protection Standards (which are, in large part, the same as the GQS). The GQS are health-based standards:

> The Board promulgated GQS under Section 8 of the Illinois Groundwater Protection Act (IGPA) to protect groundwater from "those contaminants which have been found in the groundwaters of the State and which are known to cause, or are suspected of causing, cancer, birth defects, or any other adverse effect on human health according to nationally accepted guidelines." IGPA, 415 ILCS 55/8(a) (2016); Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 3 (Nov. 7, 1991). "[R]educed health risks through decreased exposure to contaminants in groundwater" is the primary benefit of promulgated GQS. *Id.* at 23…[62]

Exceedances of these standards, by definition, pose a risk to human health and the environment.

The Board has also concluded repeatedly, both in this proceeding and in related proceedings, that the groundwater contamination at the four plants poses a threat to the environment and human health. In 2014, in denying MWG's motion for a stay based on its consideration of multiple factors, the Board concluded that "the risk of environmental harm weighs strongly against a stay."[63] In 2020, the Board found that the groundwater monitoring results

[61] 415 ILCS 5/33(c)(i).
[62] Bd. Interim Op. and Order, PCB 13-15 at 83-84 (June 20, 2019).
[63] Bd. Order, PCB 13-15 at 16 (Apr. 17, 2014).

demonstrated that "groundwater contamination continues at all four stations" and found that there was "ongoing environmental harm at the four Stations."[64] Subsequently, after MWG's third motion to stay, the Board "reiterate[ed] its finding that the potential for environmental harm exists at this juncture."[65] In that Order, the Board responded to MWG's argument about the absence of risk,[66] holding that "[t]he lack of current receptors is not the equivalent of absence of environmental harm."[67] And in October 2023 the Board rejected yet another MWG motion for a stay, this time of MWG's proceeding seeking an adjusted standard for the Waukegan Station, by reiterating yet again that the groundwater contamination poses the risk of environmental harm.[68]

The Board has also embraced the view that groundwater contamination is an environmental harm, and that drinking water is a resource that must be protected for future use, when adopting GQS:

> [T]he Board believes that among the most necessary facets of the State's groundwater protection program is the need to protect all drinkable water at a drinkable level. Similarly, the Board does not believe that current actual use should be the sole control of whether potable groundwater is afforded the protection necessary to maintain potability; we simply cannot allow the sullying of a resource that future generations may need.[69]

In short, the Board has thoroughly established that environmental harm can arise from the contamination that is at the center of this proceeding.

The Illinois Environmental Protection Agency ("IEPA" or "Agency") has also found a risk to human health and the environment in its recommendation in MWG's adjusted standard

[64] Bd. Order, PCB 13-15 at 5-6 (Apr. 16, 2020).
[65] Bd. Order, PCB 13-15 at 5 (Dec. 15, 2022).
[66] Memo to Stay, PCB 13-15 at 2, 7, 17, 19 (Jan. 21, 2022).
[67] Bd. Order, PCB 13-15 at 6 (Dec. 15, 2022).
[68] Bd. Order, AS 21-03 at 4-5 (Oct. 5, 2023) ("The Board agrees with IEPA that exhibits filed by Midwest in this adjusted standard proceeding indicate that the monitoring wells MW-5 and MW-7 show exceedance of Class I Groundwater Quality Standards and groundwater protection standards. The Board finds that there is a threat to the environment and human health at the Waukegan Station…").
[69] Groundwater Quality Standards (35 Ill. Adm. Code 620); Bd. Order, R89-14(B), slip op. at 11 (Nov. 7, 1991) (emphasis added).

proceeding for Waukegan. The Agency's recommendation carries added weight because the Agency is mandated by the legislature to participate, and required by regulation to provide a recommended disposition, in the adjusted standard proceeding.[70] IEPA offered a recommendation stating that exceedances of groundwater standards pose a risk to human health and the environment: "Grassy Field is an inactive surface impoundment that has never been closed by removal, nor has any type of low permeability cover been installed on top of it. The detection of CCR related constituents in excess of applicable groundwater protection standards shows that Grassy Field presents the environmental and human health risks."[71]

Similarly, the Illinois Supreme Court's decision in *Central Illinois Public Service Co. v. Pollution Control Board*[72] adopted the Board's determination that water pollution exists not only when actual harm has occurred or will occur, but rather whenever "harm would occur if the contaminated water were to be used."[73] The Court explicitly agreed with the Board's interpretation that "any contamination which prevents the State's water resources from being usable would constitute pollution."[74] The Board has applied the *Central Illinois Public Service Co.* holding in prior orders in this matter.[75]

There is also federal regulatory and judicial support for the principle that groundwater contamination is a *per se* environmental harm. The U.S. EPA, in a challenge to the federal coal ash rule, expressed its concerns about coal ash contamination of groundwater and the need to protect drinking water resources like the Class I groundwater that MWG is contaminating. "The EPA also expressed concern about the contamination of groundwater that is not currently used as a source

[70] 415 ILCS 5/28.1(d)(3); 35 Ill. Adm. Code 101.202, 104.416(a).
[71] Ex. 1408 at 20, para. 57.
[72] *Cent. Ill. Pub. Serv. Co. v. Pollution Control Bd.*, 116 Ill. 2d 397 (Ill. 1987).
[73] *Id.* at 409 (emphasis in original).
[74] *Id.* at 409–10.
[75] *See, e.g.*, Bd. Interim Op. & Order, PCB 13-15 at 85 (June 20, 2019).

of drinking water because '[s]ources of drinking water are finite, and future users' interests must also be protected.'"[76]

The degree of the injury is significant because the pollution is not improving.[77] An improvement in groundwater quality at the stations would be evidenced by a statistically significant downward trend. As discussed in the Factual Background section, this is not happening. Thus, the groundwater contamination at all four plants, which has continued since 2010 and not shown an improvement, is a grave "injury to, [and] interference with the protection of the health, general welfare and physical property of the people."[78] This factor weighs against MWG and in favor of the imposition of a stringent remedy.

ii. The pollution sources at issue in this case do not have any social or economic value.

The next factor that the Board considers in Section 33(c) is: "(ii) the social and economic value of the pollution source."[79] Broadly speaking, Board precedent indicates that if a source of pollution has no intrinsic value, and its cleanup can be done without affecting plant operations, then this factor should weigh in Complainants' favor. Here, MWG's plants do not have social value both because they are associated with extensive groundwater contamination and open dumping, and because the coal ash waste that is causing the contamination at issue in this case is unaffiliated with actual operation of the generating units.

a. MWG's violations have nullified any social or economic value of the sources.

First, any value that the MWG plants have has been reduced by the violations that the Board has found. The Board has consistently found that Respondents may provide social and

[76] *Util. Solid Waste Activities Grp. v. Env't Prot. Agency*, 901 F.3d 414, 428 (D.C. Cir. 2018) *citing* 80 Fed. Reg. at 21,452.
[77] *See* Section IV.C.ii.
[78] 415 ILCS 5/33(c)(i).
[79] 415 ILCS 5/33(c)(ii).

economic value as an employer and service provider but undercut that value when they fail to comply with the Act or state environmental regulations.

> [I]n considering the social and economic value of the pollution source, the Board would be remiss if it did not observe, as complainant requests, that a pollution source's value depends in part on its ability to achieve overall compliance with the Act. In this case, that social and economic value is undermined by ESG Watts' continued failure to make the technical improvements necessary to control leachate, runoff, and contamination, as well as underfunding of its financial assurance obligation."[80]

The extent of the environmental violations affects the social and economic value that the Board places on the source. In other words, the greater the violations, the less social and economic value that the source will have as the Board weighs this factor. Multiple Board cases show that the social and economic value of the source can be nullified by long-term and extensive statutory and regulatory violations.[81] Like *People v. Prior*, an environmental problem of the extent that MWG has created has no positive social and economic value. MWG's coal ash disposal ponds and historic ash areas have caused groundwater contamination that has now gone on for 13 years or more.[82]

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[80] *People v. ESG Watts, Inc.*, PCB 96-107, 1998 WL 54020, at *43 (Feb. 5, 1998); *see also Env't Prot. Agency v. Daubs*, PCB 77-37, 1979 WL 10554, at *2 (Feb. 15, 1979) ("The Agency recognizes the social and economic value of a properly operated refuse disposal facility; however, the parties agree that a facility which does not comply with regulations is of questionable social and economic value."); *Standard Scrap Metal Co. v. Pollution Control Bd.*, 142 Ill. App. 3d 655, 663 (Ill. App. 1st Dist. 1986) ("[I]t is undisputed that Standard Scrap provides social and economic value in that it employs individuals and serves the steel manufacturing industry. As the Board correctly observed, however, those communities are better served by a facility utilizing controlled emission sources."); *Ill. Env't Prot. Agency, v. Trilla Steel Drum Corp.*, PCB 86-56, 1987 WL 56111, at *3 (June 25, 1987) ("However, the social value of the source is diminished when the source fails to operate in accordance with the law."); *Getty v. Riverside*, Bd. Op. and Order, PCB 86-181, 1989 WL 97039, at *5 (concluding that waste management is of a greater social and economic value when conducted with a permit and in compliance with law).

[81] *See, e.g., People v. Prior*, PCB 93-248, 1995 WL 415822, at *16 (July 7, 1995) ("The Board finds that an environmental problem of this extent has no positive social and economic value (Section 33(c)(2) of the act) and that a pollution source of this nature is unsuitable to any area of the State of Illinois (Section 33(c)(3) of the Act)."); *People v. Cmty. Landfill Co*., PCB 03-191, 2009 WL 1747988 at, *28 (June 18, 2009) ("While properly-run, closed, monitored, and cared for landfills have economic and social value, the Board agrees that the Landfill in its current state is an environmental liability. The Board weighs this factor against respondents."); *People v. Jersey Sanitation Corp.*, PCB 97-02, 2005 WL 330438, at *28 (Feb. 3, 2005) ("Jersey Sanitation's 13-year history of groundwater contamination nullifies any social or economic value it may have had.").

[82] *See, e.g.,* Bd. Interim Op. and Order, PCB 13-15 at 2 (June 20, 2019) (finding violations began in 2010).

MWG has failed to control coal ash leaching into the groundwater and has allowed coal ash waste to sit in groundwater.[83]

It is also rare for the Board to find any value in waste that has been open-dumped, especially if the waste poses a threat to human health or the environment.[84] Thus, because MWG's open-dumped waste remains onsite and is causing groundwater contamination, it has no social and economic value. This factor weighs against Respondent and in favor of the imposition of a stringent remedy.

b. MWG's polluting and open-dumped waste isn't connected to an operating business, so it has no social and economic value.

Even if the Board concludes that the generation units themselves have an economic benefit despite the extensive site contamination associated with their historic operation, that still does not extend to the waste at issue here because the coal ash waste is unconnected with current operation of the generation units. As the Board has repeatedly held, when waste is improperly disposed of and not connected to an ongoing business, then the source has no social or economic value.[85] This general rule plays out in the context of the four MWG plants in a few different ways. First and most obviously, the historic ash areas at all four plants do not have any social or economic value because they have not been used or needed for many years.

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[83] *See, e.g.,* Bd. Interim Op. and Order, PCB 13-15 at 41 (June 20, 2019) ("Environmental Groups also allege that numerous soil borings taken at Powerton at different times show extensive presence of coal ash in fill at elevation that allows up to nine feet of buried ash to be saturated with groundwater. EG Br. at 44. The record supports this. EG Exh. 401 at 48-49 (Table 6)."); Bd. Interim Op. and Order, PCB 13-15 at 67 (June 20, 2019) ("Groundwater elevation at Waukegan fluctuates between 579 and 582 feet above mean sea level, groundwater monitoring from wells around FSFS indicate potential ash buried around 582 feet, leaving about 3 feet of overlap. MWG Exh. 903 at 106 (Table 4-5); EG Exh. 203 at 1-2 (#45648-45649).").

[84] *See, e.g., Johns Manville v. Ill. Dep't of Transp.*, PCB 14-03, 2016 WL 7384358, at *17 (Dec. 15, 2016) ("The Board agrees that road improvements have social and economic value, but there is no value in disposing [asbestos-containing] waste to construct roads. The Board therefore weighs this factor against IDOT.").

[85] *Johns Manville Co. v. Ill. Dep't of Transp.*, PCB 14-03, 2016 WL 4432548, at *30 (Aug. 12, 2016) ("[I]mproper disposal of ACM waste at an unpermitted location, at the expense of endangering public health and welfare, requires that the Board weigh this factor against IDOT …."); *Lake Cnty. Forest Pres. Dist. v. Ostro*, PCB 92-80, 1994 WL 120267, at *9 (Mar. 31, 1994) (finding that discarded barrels containing waste have no social or economic value); *Lefton Iron & Metal Co., Inc. v. City of E. St. Louis*, PCB 89-53, 1990 WL 116997, *3 (Apr. 12, 1990) (finding waste disposed at an unpermitted site has no social or economic value).

Second, both the ash ponds and historic fill areas at three of the plants have no value due recent or upcoming retirements of the generation units they are affiliated with. Waukegan ceased operations as a coal-fired power plant in 2022.[86] Joliet 29 ceased operations as a coal-fired power plant; it has continued to burn natural gas, but natural gas operations were also scheduled to cease in the 2023 calendar year.[87] The Will County Station ceased burning coal in 2022.[88] MWG has plans to make both Will County and Waukegan Stations into battery storage facilities.[89] The coal ash storage and disposal facilities at these three plants are therefore not associated with an ongoing business and are no longer needed or used for active coal ash management, meaning they have no social or economic value.

MWG provides a quantification of the value for these three stations but that quantification was made prior to units retiring. MWG expert witness Brian Richard conceded that if employment numbers are reduced at the plant, there would be less labor income going into the economy.[90] Mr. Richard's analysis of Waukegan does not account for the coal units that retired in 2022.[91] Similarly, Mr. Richard's analysis for Will County does not account for the one remaining coal unit that retired in 2022.[92] Finally, Mr. Richard's analysis does not account for the 2023 retirement of the gas units

[86] June 13, 2023 Hr'g Tr. at 129:19-20.
[87] June 12, 2023 Hr'g Tr. at 197:15-20.
[88] June 13, 2023 Hr'g Tr. at 90:22-24.
[89] June 14, 2023 Hr'g Tr. at 121:9-13.
[90] June 15, 2023 Hr'g Tr. at 36:16-20.
[91] *Id.* at 53:17-54:16 ("Q. So your analysis doesn't account for the coal units retiring, correct? A. Correct. Q. And reduced employment at Waukegan would have an impact on payroll, correct? A. If employment is reduced, payroll is reduced, yes. Q. And reduced payroll at Waukegan would affect the amount of money directed to the local economy, correct? A. Correct. Q. And changes in the amount of money directed to the local economy would affect the amount of money that supports jobs outside the plant, correct? A. Correct. Q. And basically reduced employment at Waukegan would result in fewer jobs outside the plant supported, correct? A. Correct. Q. Also, if there is reduced production from a coal-fired power plant, is there reduced value added? A. Yes.").
[92] *Id.* at 57:20-58:24 ("Q. …You have not updated the inputs for the Will County plant since April of 2021, correct? A. Correct. Q. And are you aware that the operations at the Will County plant changed since April of 2021? A. Yes. Q. And you're aware that Will County ceased operations of its one remaining coal-fired unit in 2022? A. Yes … Q. And now coal-fired operations at the plant no longer continue? A. Yes … Q. And the analysis in your report does not account for the Will County coal unit retiring, correct? A. Correct.").

at Joliet 29.[93] Mr. Richard did concede that if any plant retires, that will affect both the employment level and economic activity of the plant.[94]

Third, even the ash ponds at Powerton, the single plant at issue in this proceeding that continues to operate at presumably the same level as it did in 2020, should not be seen as having value because the contamination associated with them is unrelated to the operation of the generation unit. Clean-up of the coal ash at that site can occur without affecting the electricity generating operations. And if cleanup can be done without impeding operations of the plant (i.e., the activity that provides the plant's social and economic value), then this factor does not weigh in MWG's favor even as to the one plant that is operating.[95] For that reason, the social and economic value of the source does not weigh in MWG's favor.

MWG argues that these facilities have social and economic value for ongoing natural gas operations and battery storage in the future. However, the plan to install battery storage is tentative and has not yet been developed.[96] As such, MWG expert witness Brian Richard could not quantify the value of any such future storage.[97] Moreover, there is no evidence that coal ash cleanup would

[93] *Id.* at 61:18-62:9 ("Q. …Your inputs for Joliet don't account for any potential upcoming retirements at the plant, correct? A. Correct. Q. And if retirement of units at the Joliet plant led to no production from the plant, there would be no value added, correct? A. If there's no production of electricity, there's no value added from production of electricity. Q. Okay. And I just want to turn to Table 1 again, Page 2. The entry for Joliet of 54 employees, does that account for any upcoming unit retirements at the plant? A. No. It's labeled as 2020, so it's employment as of 2020.").
[94] *Id.* at 61:12-16 ("If units at the Joliet plant retire in 2023, do you have an understanding of whether that will impact employment at the station? A. If -- yeah. If economic activity changes, presumably employment will change.").
[95] *Hoffman v. City of Columbia*, PCB 94-146, 1996 WL 633343, at *16 (Oct. 17, 1996) ("We agree with complainant that steps can be taken to abate the noise levels without impeding on the social or economic value of the facility.").
[96] June 15, 2023 Hr'g Tr. at 35:2-6 ("Q. And what was your understanding of the status of the Waukegan station today? A. It has ceased operations as a coal-fired plant, and I believe there are plans to also make that a power storage facility.").
[97] *Id.* at 2023 35:14-17. (Regarding Waukegan, Mr. Richard testified, "So it will have some level of employment labor income and value added impact on the local economy depending on the level of employment."); *Id.* at 36:4-5 (Regarding the operation of the peaker units at Waukegan, Mr. Richard testified that "[T]he operation of those will have some level of economic impact as well."); *Id.* at 65:22-66:7 ("Q. I just want to establish, you don't know the employment figures for future power storage at Will County, correct? A. Correct. Q. And you said presumably that would lead to some level of economic activity, I'm sorry, economic impact? A. Yes. Q. But you can't quantify that, can you? A. Not here today.").

interfere with these plans. Because most of the sources are no longer operating as coal-fired power plants, the waste can be removed without affecting ongoing operations at the plants, and environmental noncompliance negates the value of the sources, Board precedent indicates that there is no social and economic value of the coal ash and this factor weighs against MWG and in favor of the imposition of a stringent remedy.

iii. MWG's sources are unsuitable to the area.

The next factor that the Board considers in Section 33(c) of the Act is: "(iii) the suitability or unsuitability of the pollution source to the area in which it is located, including the question of priority of location in the area involved."[98] As the following sections explain, the sources at the four MWG plants are not suitable to the areas in which they are located due to a combination of being: 1) illegally open-dumped waste; 2) the source of ongoing groundwater contamination; 3) located in Environmental Justice-designated areas; 4) opposed by community members and leaders in public comments; and/or 5) surrounded by inconsistent recreational and residential properties. As a result, this factor weighs against MWG and in favor of the imposition of a stringent remedy.

a. MWG's waste is dumped illegally so it is, de facto, unsuitable to the area in which it is located.

The Board has consistently held that waste disposed of or stored illegally (e.g., in an unpermitted location) is, by definition, a source unsuitable to the area in which it is disposed.[99] In *Johns Manville,* the Complainant contended that the sites at issue in the case were not permitted

[98] 415 ILCS 5/33(c)(iii).

[99] *See Johns Manville Corp.*, 2016 WL 4432548, at *30 ("When waste is disposed of in an unpermitted location, the pollution source should generally be considered de facto unsuitable to the location area." *citing Standard Scrap Metal Co. v. Pollution Control Bd.*, 142 Ill. App. 3d 655, 663-664 (1st Dist. 1986)); *People v. Champion Env't Servs. Inc.,* PCB 05-199, 2014 WL 340171, at *11 (Jan. 23, 2014) (removal of asbestos containing material was done improperly therefore caused the suitability factor to be weighed against the respondent); *People v. AET Env't, Inc.*, PCB 07-95, 2012 WL 4024871, at *15 (Sept. 6, 2012) (holding that waste was unsuitable for a site when the site was not permitted for such waste); *People v. Cash*, PCB 96-75, 1998 WL 12149, at *5 (Jan. 8, 1998) ("Open dumping anywhere other than an approved pollution control facility is likewise unsuitable."); *Lake Cnty. Forest Pres. Dist. v. Ostro*, PCB 92-80, 1994 WL 120267, at *9 (Mar. 31, 1994) (concluding that discarded barrels containing waste materials were unsuitable for the area).

for waste disposal and that therefore the sites were unsuitable for disposing asbestos-containing waste material.[100] Respondent IDOT agreed that disposing asbestos waste was unsuitable on the sites, and the Board found IDOT responsible for allowing open dumping because asbestos waste was disposed on the parcel of land under IDOT control even though IDOT had not itself placed the waste there.[101]

It is undisputed in the present matter that the ash fill outside of the ponds is located in an unpermitted location and that the coal ash both in and outside of the ponds is illegally causing groundwater contamination in violation of the Illinois Environmental Protection Act.[102] These findings alone make the sites unsuitable for the coal ash that was open dumped.[103]

b. Coal ash areas causing contamination that exceeds regulatory limits are, de facto, unsuitable to the area in which they are located.

When a source releases pollution in violation of regulatory limits, the Board will consider the source as not suitable to the area.[104] Standard Scrap Metal operated its facility without the necessary permits and with emissions that exceeded allowable rates.[105] Even though the Standard Scrap Metal facility was in a primarily industrial area, the Illinois Appellate Court concluded "this does not mean that the facility can be operated without proper pollution controls."[106] In upholding the Board's decision, the court stated, "[a]s the Board aptly noted, while the operation may be

[100] *Johns Manville Corp.*, 2016 WL 4432548, at *17.
[101] *Id.*
[102] Bd. Interim Op. and Order, PCB 13-15 at 90-91 (June 20, 2019) ("None of these areas fulfill the requirements of a sanitary landfill. None of them are facilities 'permitted by the Agency for the disposal of waste on land.' None of the ash ponds at the four Station are permitted 'for the disposal of waste.' … None of the fill areas or the historic coal ash storage areas has any permits at all." *citing* MWG Exs. 626 at 2 ¶ 3; 636 at 2 ¶ 3; 656 at 2 ¶ 3; 647 at 2 ¶ 3.).
[103] *See Johns Manville*, 2016 WL 4432548, at *30.
[104] *See, e.g., Standard Scrap Metal Co. v. Pollution Control Bd.*, 142 Ill. App. 3d 655, 657, 663-664 (1st Dist. 1986) (*Standard Scrap Metal* involved an appeal of a Board decision to the Illinois Appellate Court); *Ill. Env't Prot. Agency v. Forest Elec. Co.*, PCB 86-26, 1987 WL 56374, at *2–3 (Nov. 19, 1987).
[105] *Standard Scrap Metal Co. v. Pollution Control Bd.*, 142 Ill. App. 3d 655, 658.
[106] *Id.* at 663.

suited to the area if properly operated, it is not so suited if it is operated without controls."[107] The Board has consistently held that sources violating Illinois law are not suited to the area in which they are located.[108]

MWG's four plants are causing contamination that exceeds limits set by Illinois law. The Board found, in its 2019 liability Order, that MWG violated Sections 12(a) and 21(a) of the Act at all four Stations and 12(d) at Powerton Station."[109] The Board also found that MWG violated Sections 620.115, 620.301(a), and 620.405 of the Board regulations.[110] As discussed in Section IV.C.ii, the contamination at all four plants is not improving and MWG's plants continue to cause contamination in violation of Illinois law, so the four sources are not suitable to the area in which they are located.[111]

Similar to *Standard Scrap Metal* and *Forest Electric Company*, the areas in which MWG's Joliet 29, Powerton, Waukegan and Will County plants are located would be better served by MWG's compliance with Illinois law. Because MWG has ash in unpermitted open dumps, proposes closure plan inconsistent with its CCAs, and continues to cause groundwater contamination in violation of the Act, the sources of groundwater contamination at the four plants are not suitable to the area.

c. The sources at Waukegan, Joliet 29, and Powerton are unsuitable to the areas in which they are located because they are in the proximity of designated Environmental Justice areas.

Some of the sources are also unsuitable to their areas because three of the plants are in the

[107] *Id.* at 663-664.
[108] *IEPA v. Forest Elec. Co.*, 1987 WL 56374, at *2-3 ("[W]hatever the area in which Respondent is located, that area is better served by Respondent's compliance with Illinois law by providing IEPA with data relative to air emissions and by obtaining required permits.").
[109] Bd. Interim Op. and Order, PCB 13-15 at 92-93 (June 20, 2019) (citing 415 ILCS 5/12(a), 12(d) and 21(a) (2016)).
[110] *Id.* at 93 *citing* 35 Ill. Adm. Code 620.115, 620.301(a), 620.405.
[111] *See, e.g., Standard Scrap Metal Co.*, 142 Ill. App. 3d 655, 663-664; *IEPA v. Forest Elec. Co.*, 1987 WL 56374, at *2–3.

proximity of Environmental Justice areas. Chris Pressnall is the Environmental Justice Coordinator for IEPA and administers the Illinois Environmental Protection Agency's Environmental Justice ("EJ") Program.[112] Mr. Pressnall's testimony provided an explanation of Environmental Justice in the rulemaking stemming from the Illinois Coal Ash Pollution Prevention Act.

> Environmental Justice is based on the principle that all people should be protected from environmental pollution and have the right to a clean and healthy environment. Environmental justice is the protection of the health of the people of Illinois and its environment, equity in the administration of the State's environmental programs, and the provision of adequate opportunities for meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.[113]

Mr. Pressnall also described what the IEPA's EJ Program does. "[T]he Illinois Environmental Protection Agency's Environmental Justice Program . . . includes screening of regulated sources of pollution to determine if the source is located in an area of environmental justice concern."[114]

Three of the plants are in designated areas of Environmental Justice concern.[115] MWG consultant KPRG was involved in the preparation of the Initial Operating Permit Applications for both the Joliet 29 Station, Pond 2 and Waukegan Station, East and West Ponds.[116] The applications contain a designation of a closure prioritization category for the relevant ponds.[117] That section of the application for Joliet 29 states that "the Illinois EPA EJ Start tool … was used to determine that Pond 2 is located within one mile of an area of environmental justice concern."[118] For Waukegan,

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[112] Pre-filed Test. of Chris Pressnall, *In re Standards for the Disposal of Coal Combustion Residuals*, R2020-019 at 1 (June 1, 2020). This document was incorporated into the docket of the current proceeding. Hr'g Officer Order, PCB 13-15 at 20 (July 13, 2022).
[113] Pre-filed Test. of Chris Pressnall, *In re Standards for the Disposal of Coal Combustion Residuals*, R2020-019 at 1-2 (June 1, 2020).
[114] *Id.* at 1.
[115] IEPA's Pre-Filed Answers*, In re Standards for the Disposal of Coal Combustion Residuals*, R2020-019 at 181-82 (Aug. 3, 2020) (for Joliet and Waukegan designation); *see* IEPA EJ Start Tool, *available at* https://www.arcgis.com/apps/webappviewer/index html?id=f154845da68a4a3f837cd3b880b0233c (last visited Dec. 18, 2023).
[116] May 17, 2023 Hr'g Tr. at 121:3-21, 122:6-8, 125:8-14, 125:19-126:15; Ex. 1331.
[117] *Id.* at 122:9-12; Ex. 1331 at MWG13-15_110661.
[118] *Id.* at123:15-124:15.

it states that "Midwest Generation used the Illinois EPA EJ Start tool … to determine that the Waukegan Generating Station (401 East Greenwood Ave, Waukegan, 60087) East Ash Pond is within one mile of an area of environmental justice concern."[119] Ms. Shealey confirmed that she was the one who looked up the designation for both Joliet 29 and Waukegan Stations.[120]

Powerton is also in the proximity of an area of environmental justice concern.[121] While this designation appears to have occurred after the remedy hearing in this matter, this type of administrative agency decision or policy falls within the category of agency actions for which the Board may take judicial notice.[122]

Mr. Pressnall's testimony on prioritization of coal ash impoundments in EJ areas explains why coal ash areas that are sources of groundwater contamination are unsuitable to environmental justice areas of concern:

> Prioritization of coal ash impoundments located in areas of environmental justice concern is appropriate given the potential impact of coal ash impoundments on overburdened communities. USEPA defines "overburdened communities" as "minority, low-income, tribal, or indigenous populations or geographic locations in the United States that potentially experience disproportionate environmental harms and risks. This disproportionality can be as a result of greater vulnerability to environmental hazards, lack of opportunity for public participation, or other factors. Increased vulnerability may be attributable to an accumulation of negative or lack of positive environmental, health, economic, or social conditions within these populations or places. The term describes situations where multiple factors, including both environmental and socio-economic stressors, may act cumulatively

[119] Ex. 1331 at MWG13-15_110661.
[120] May 19, 2023 Hr'g Tr. at 65:19-24.
[121] IEPA EJ Start Tool, *available at* https://www.arcgis.com/apps/webappviewer/index html?id=f154845da68a4a3f837cd3b880b0233c (last visited Dec. 18, 2023).
[122] *ESG Watts v. Ill. Pollution Control Bd.*, 668 N.E.2d 1015, 1023 (4th Dist. 1996). (In *ESG Watts*, the 4th District Court of Appeals upheld the Board's decision to allow the State to cite nineteen of petitioner's previous administrative citations in its post-hearing brief without introducing the citations into the record. The court reiterated the standard that parties are placed on official notice when facts are of a nature in which "judicial notice may be taken" and grounded in an "administrative order, determination, or judgment." The Board adopted a similar, expansive exception in *Illinois v. Panhandle Eastern Pipeline Co*., PCB 99-191, 2000 WL 890186, at *2 (June 22, 2000) (finding certain information to be public information which a witness "need not testify about this type of information for it to be considered by the Board."). As a result, the Board in the present case may take judicial notice of the designation of the Powerton facility as in the proximity of an area of environmental justice concern.).

> to affect health and the environment and contribute to persistent environmental health disparities."[123]

The three plants located within areas of designated environmental justice concern are not suitable to the area in which they are located.

d. The Waukegan and Will County sources are unsuitable to the areas in which they are located because the community and elected officials have raised concerns.

At the Waukegan and Will County, the sources of coal ash contamination have also raised concerns for elected officials, further underscoring that the sources are not suitable to the areas in which they are located. In Waukegan, where the sources are located immediately adjacent to Lake Michigan, Mayor Ann Taylor offered public comments that included the following:

> The coal plant in Waukegan, unlike many other communities, is very -- in very close proximity to Lake Michigan, adjacent to the Waukegan municipal beach and the city's water treatment plant. … The city has been requesting that Midwest Generation clean up all the toxic coal ash from the coal ponds in the city and other surface coal ash, but they have blatantly refused. … Despite overwhelming public input in favor of removing all the coal ash from the site at their public closure meetings, Midwest Generation has not changed its original plans to leave unlined coal ash at the site.[124]

MWG's expert witness acknowledged that the sources are on the banks of Lake Michigan and also adjacent to Waukegan's municipal beach.[125] This public comment and expert testimony establishes that the Waukegan Station and its pollution sources are not suitable to the area.

Elected officials are also concerned about the sources of coal ash contamination at the Will County Station, indicating that the source is not suitable to the area. Destiny Ortiz, an elected member of the Will County Board recounted how she had presented:

> a bipartisan statement rejecting [Midwest Generation's] proposal for a cap-and-place closure method for four coal ash ponds in my district. The statement signed

[123] Pre-filed Test. of Chris Pressnall, *In re Standards for the Disposal of Coal Combustion Residuals*, R2020-019 at 1 (June 1, 2020).
[124] June 13, 2023 Hr'g Tr. at 126:2-24.
[125] *Id.* at 130:3-4; June 14, 2023 Hr'g Tr. at 60:3-6 ("MR. RUSS: Are you aware that there are public beaches to the east of those ash ponds? MR. DORGAN: Yes. We are aware of that, and I believe we mentioned that.").

> over -- signed by over 20 local and state elected officials reads as follows, signed on June 7, 2023, and addressed to Midwest Generation's CEO, CPO and the Illinois EPA Director. We support the residents of Romeoville and the surrounding areas who are petitioning for the clean closure of the Will County Generating Station's coal ash ponds by excavation and complete removal of the ash from the waste ponds.[126]

Board Member Ortiz concluded her statement by saying "[o]ur community is calling on Midwest Generation to submit an application to the IEPA to remove the coal ash from the Will County Generating Station's waste pond."[127] State Representative Dagmara Avelar from the 85th District of Illinois, which includes the Will County Station, also offered public comment:

> "Significant portions of my district surrounding the coal ash site are environmental justice communities with working class families living in the surrounding areas. Constituents in my district have been concerned about the impacts and legacy of coal ash pollution for over a decade and have asked to have these sites cleaned to no avail…So I am here to urge the Board to reach a timely decision in the case and to require energy [sic] to properly clean up their coal ash and remove it from the groundwater."[128]

MWG's expert witness indicated that the Will County plant has surface waters on two sides: "the Chicago Sanitary Ship Canal to the east, the Des Plaines River to the west."[129] The Weaver witnesses also acknowledged that Isle a la Cache is near the plant.[130] The surface waters surrounding the site and the public uses of places like Isle a la Cache, along with the concerns of public officials, indicate that the Will County Station coal ash sources are not suitable to the area.

e. The Powerton sources are unsuitable to the area because they are incompatible with the surrounding uses.

As to the Powerton Station, despite MWG's Weaver experts' claims, an examination of the surrounding area indicates that polluting sources are incompatible with all adjacent uses. The Powerton Station is located "with the Illinois River and Powerton Lake being located to the west

[126] June 13, 2023 Hr'g Tr. at 122:17-123:6.
[127] *Id.* at 124:24-125:3.
[128] *Id.* at 8:13-16, 8:23-9:5, 10:1-4.
[129] *Id.* at 90:24-91:8.
[130] June 14, 2023 Hr'g Tr. at 57:2-58:16; Ex. 1702 at slide 62 (Isle a la Cache appearing in the top left corner).

and north. To the south we have more agricultural uses once you move off the station and across the roads."[131] To the west is Powerton Lake, which is itself next to a "Fish and Wildlife Area" suggesting it is open to public use.[132] . There is also a residential area to the east.[133] The full extent of this residential area is visible on Exhibit 901. Thus, immediately adjacent to the Powerton Station are surface waters, a Fish and Wildlife Area, agricultural land, and a residential neighborhood. Powerton's coal ash ponds and open dumps are not compatible with any of the surrounding uses and are not suitable to the area.

iv. Reducing or eliminating the contamination from the sources is technically practicable and economically reasonable.

The next factor that the Board considers is "the technical practicability and economic reasonableness of reducing or eliminating the emissions, discharges or deposits resulting from such pollution source…"[134] The following two sections explain that removal of the coal ash ponds and fill, and an investigation of the historic ash areas, are technically practicable and economically reasonable, and the Board should not limit its proposed remedy based on this factor.

a. Removal of the coal ash ponds and fill is technically practicable and economically reasonable.

MWG's own exhibits, closure plans, and testimony indicate that closure of all the ash ponds by removal is both economically reasonable and technically feasible. The list of removals from Mark Quarles's expert report provides the factual evidence (not opinion)[135] that removal is

[131] June 13, 2023 Hr'g Tr. at 46:1-7.
[132] Ex. 901 at 39.
[133] June 14, 2023 Hr'g Tr. at 54:11-17 ("Q: So then if you move east from that point in the property boundary in the middle of the "X" there, what is directly east of that intersection? MR. DORGAN: That appears to be some -- a residential area, which I mentioned in my testimony yesterday.").
[134] 415 ILCS 5/33(c)(iv).
[135] Complainants acknowledge that the Board in its Order of Oct. 5, 2023 indicated that the Board "will consider [Mr. Quarles'] opinions and testimony only to the extent they are consistent with the Board's orders when determining the appropriate remedy for the four facilities." Bd. Order, PCB 13-15 at 13 (Oct. 5. 2023). Table 1 of Mr. Quarles initial report is not opinion testimony but is factual evidence. As factual evidence of removals, the Board should give it full weight; it is not opinion testimony that is subject to the Board's test of consistency with the Board's prior orders. In addition, the Board's ruling on Mr. Quarles is in error because it misstates the case history on the previous orders regarding Mr. Quarles, the prior orders failed to put Complainants on notice as to the standard

technically feasible and economically reasonable.[136] The list of removals comprises 127 ponds where removal of ash had already been completed or was proposed as of January 2021, the date when the exhibit was prepared. Forty-one of the ponds on that list were already closed by removal.[137] Those forty-one ponds closed by removal were owned by thirteen different owners and located in fourteen states.[138] Seventy-two additional ponds owned by companies other than MWG or its affiliates were proposed to be closed by removal.[139] MWG and its affiliates (also owned by NRG) have proposed closure by removal for fourteen different ponds at six different plants located in both Texas and Illinois.[140] The number of ponds, number of owners, and number of states in which they are located demonstrates that closure by removal is technically feasible and economically reasonable in a variety of different circumstances and under a variety of different conditions.

In addition, closure of the ash ponds by removal is technically practicable and economically reasonable because MWG had already been routinely removing ash from ponds at the four MWG plants. MWG Exhibit 901 states that there had been "scheduled ash removal" for nearly every ash pond at issue in this proceeding. The ponds where scheduled ash removal had either taken place or was ongoing included Joliet 29 Ponds 1 and 2; Powerton Ash Surge Basin, Ash Bypass Basin, and Metal Cleaning Basin; Waukegan East and West Ash Ponds; and Will County 2 South and 3 South.[141] Similarly, the Board found that the ponds were dredged for ash

to which the Board was holding Complainants, and the Board's standard is inconsistent with the caselaw on substitution of experts. As a result, after the Board issues a final order in this proceeding, Complainants intend to consider all options for appeal of the Board's October 5, 2023 order.

[136] *See* Ex. 1101 at 29-37.

[137] *Id.*

[138] *Id.*

[139] *Id.*

[140] *Id.* at 29.

[141] Ex. 901 at 16, 28, 46, 60.

removal on a regular basis at all four plants.[142] This dredging took place anywhere from annually to every 6-8 years.[143] Some of this dredged ash was removed to a landfill.[144] The Board has looked at prior actions by a Respondent as evidence of economic reasonability and technical feasibility.[145] For instance, if a company has removed waste for offsite disposal in the past, that is evidence of economic reasonability and technical feasibility going forward.[146] MWG's prior dredging of the ponds and removal of the ash offsite is evidence of the technical feasibility and economic reasonability of removing the coal ash waste from the sites.

Removal of coal ash fill at MWG's four plants is also technically feasible and economically reasonable. MWG has, prior to 2019, removed ash from areas outside of the ponds, demonstrating that removal of ash fill is technically feasible and economically reasonable.[147] Finally, in previous cases the Board has found removal of open dumped waste to be technically feasible and economically reasonable.[148]

In sum, it is technically feasible and economically reasonable to remove both ash fill and ash ponds from the MWG plants.

b. Investigation of the nature and extent of coal ash fill is also technically practicable and economically reasonable.

Further investigation into the nature and extent of select coal ash fill areas is also technically feasible and economically reasonable. It is common practice for the Board to order a

[142] Bd. Interim Op. and Order, PCB 13-15 at 23, 36-37, 52, 64 (June 20, 2019).
[143] *Id.*
[144] *Id.* at 23.
[145] *Krautsack v. Patel*, PCB 95-143,1997 WL 530501, at *5 (Aug. 21, 1997).
[146] *Krautsack*, 1997 WL 530501, at *5 ("Next, there is no question that it is technically practical to eliminate this environmental harm through monitored waste management at the site and proper off-site disposal. In fact the depositions and Uniform Hazardous Waste Manifests indicate that there were instances when EIC did send the wastes off-site.").
[147] May 19, 2023 Hr'g Tr. at 214:1-215:7 ("And then we excavated that soil -- that material from -- from the area and removed it offsite for offsite landfill disposal. Q. Looking at Page MWG13-15 underscore 18825, at the bottom of the page, how much material was removed? A. Approximately 1,062.88 tons").
[148] *See, e.g., People v. J & F Hauling, Inc.*, PCB 02-21, 2003 WL 728350, at *7 (Feb. 6, 2003) ("[W]ithin nine months J&F must remove the remaining open waste from its property to a properly permitted landfill").

study of the sources, scope of the violation, and the gamut of potential remedies.[149] The range of cases in which investigations have been ordered establish that investigations of the nature and extent of the sources, impacts, and possible remedies is both economically reasonable and technically practicable.

v. MWG has neither complied with the Act, nor made reasonable efforts to comply with the Act.

The final factor that the Board considers in determining a remedy is "any subsequent compliance."[150] This factor also weighs against MWG. As Complainants explain in more detail when discussing due diligence in Section V.B, successful completion of CCAs in Section V.F, and ongoing contamination in Section III.A, Respondent has not complied with the Act subsequent to the filing of the Complaint or subsequent to the Board's 2019 liability Order. To the contrary, Respondent has allowed groundwater contamination to continue unabated (as a result of which Groundwater Management Zones ("GMZs") are still in place). This factor therefore weighs against Respondent and in favor of the imposition of a stringent remedy.

B. The Board Should Order a Remedy that Includes Some Combination of Investigation and Removal of All Known and Potential Coal Ash Materials at the Four MWG Plants.

i. The Board has the authority to order comprehensive removal of all coal ash materials.

[149] *See, e.g., Lake Cnty. Forest Pres. Dist. v. Ostro*, PCB 92-80, 1994 WL 120267, at *9 (Mar. 31, 1994) ("We order the Ostros to further investigate possible contamination of the stockpiled soil and the excavation pit. Depending upon the results of that investigation, the Ostros must perform necessary remediation."); *Zarlenga v. P'ship Concepts*, PCB 89-169, 1992 WL 196669, at *1 (July 30, 1992) ("[I]n order to assist the Board in determining the most appropriate remedial action for the abatement of the noise, the Board ordered respondents to have a competent individual or firm prepare a report describing, evaluating, and analyzing, to the maximum extent possible, all methods of control."); *Svoboda v. Dupage Pub. Works Dep't*, PCB 77-328, 1978 WL 9016, at *3 (Oct. 4, 1978) ("The Department shall conduct an investigation to determine the precise cause and any factors contributing to the back-ups in the sanitary sewer line tributary to the Argonne Ridge Drive lift station."); *Env't Prot. Agency v. Baird Chem., Inc.*, PCB 72-226, 1973 WL 5528, at *2 (Oct. 25, 1973) (ordering Respondent to "Investigate as soon as possible to determine if any seepage from Respondent's waste water treatment system is leaking into Mapleton Creek.").

[150] 415 ILCS 5/33(c).

As an initial matter, Complainants note that the Board has the authority to order comprehensive removal of all coal ash materials at the four plants. The Board found violations of the Section 21(a) open dumping prohibition at all four plants, noting that "MWG did allow consolidation of coal ash *by failing to remove it* from the fill areas and historical coal ash storage areas, and by allowing contaminants to leak into the environment."[151] The natural remedy to a violation that stems from a failure to remove waste is removal of that waste. Indeed, this Board has previously held that when waste has been dumped at an unpermitted location, it is reasonable to require removal of the waste to a properly permitted location (e.g., a permitted and lined landfill).[152]

There are also compelling technical reasons for ordering removal of coal ash, particularly from areas where the coal ash is saturated with groundwater. These are described in detail in Section IV.B.iii. In short, coal ash located below the water table is constantly or intermittently exposed to water regardless of any cap placed over the waste, so pollutants will continue to leach out of the waste indefinitely, often at rates that exceed those predicted by leach tests.

The need for a nature and extent investigation is discussed in more detail below. If the Board finds that a nature and extent study is not necessary, then the Board should order MWG to cease its open dumping by immediately removing the coal ash from the historical fill areas. If, on the other hand, the Board determines that a nature and extent study is necessary, it should order MWG to conduct such a study with the oversight of IEPA to be followed by Agency-approved source control measures. At the very least, the Board must order the removal of coal ash from areas

[151] Bd. Interim Op. and Order, PCB 13-15 at 91 (June 20, 2019) (emphasis added).
[152] *People v. J & F Hauling, Inc.*, PCB 02-21, 2003 WL 728350, at *5 (Feb. 6, 2003).

that are in sustained or intermittent contact with groundwater and ensure that the remedy prevents such contact in the future.

ii. The Board should, at a minimum, order immediate removal of coal ash from the ponds and immediate removal of historic coal ash in sustained or intermittent contact with groundwater.

As discussed at length in Section V.F, removal of ash from the ponds is required upon closure of the ponds because the Compliance Commitment Agreements that MWG agreed to prohibit the use of the ash ponds as permanent disposal sites.[153] Consistent with that mandate in the CCAs, the Board should at a minimum require immediate closure by removal of those ponds.

The ponds where the Board should order the coal ash removal based on the provisions of the CCAs are listed below and in Exhibits. 626, 636, 647, and 656. Additionally, ponds where there is ash (in the form of Poz-O-Pac), either as the pond liner or beneath the pond liner, are indicated. Even if the ponds are emptied of impounded ash, where ash remains in the liner or beneath the liner it cannot be left permanently for disposal.[154]

- Joliet 29[155]
    1. Pond 1; Poz-O-Pac beneath HDPE liner[156]
    2. Pond 2; Poz-O-Pac beneath HDPE liner[157]
    3. Pond 3; Poz-O-Pac beneath HDPE liner[158]
- Powerton[159]
    1. Ash Surge Basin; Poz-O-Pac beneath HDPE liner[160]
    2. Ash Bypass Basin; Poz-O-Pac beneath HDPE liner[161]
    3. Secondary Ash Basin (Secondary Settling Basin)[162]

[153] Bd. Interim Op. and Order, PCB 13-15 at 24, 37-38, 52-53, 65, 90 (June 20, 2019); Exs. 626, 636, 647, 656.
[154] *See* Ex. 1409 at 27 ("Illinois EPA maintains that Petitioner's proposed adjusted standard is not justified because MWG performed construction and placed CCR materials as the structural and foundation backfill underlying the HDPE liner without first screening the materials for environmental suitability. The placement of CCR materials below the liner render the ability to leave the liner in place incongruent with a number of geotechnical and environmental factors…").
[155] Bd. Interim Op. and Order, PCB 13-15 at 23 (June 20, 2019).
[156] Ex. 901 at 16.
[157] *Id.*
[158] *Id.*
[159] Bd. Interim Op. and Order, PCB 13-15 at 36-37, 40-41 (June 20, 2019).
[160] Ex. 901 at 28.
[161] *Id.* at 28, 31.
[162] *Id.* at 28, 32.

4. Limestone Runoff Basin; Poz-O-Pac liner[163]
5. Metal Cleaning Basin; Poz-O-Pac beneath HDPE liner[164]

- Waukegan[165]
  1. East Pond; Ash used in construction of ponds[166]
  2. West Pond; Ash used in construction of ponds[167]
- Will County[168]
  1. 1 North; Poz-O-Pac liner remains[169]
  2. 1 South; Poz-O-Pac liner remains[170]
  3. 2 South; Poz-O-Pac beneath HDPE liner[171]
  4. 3 South; Poz-O-Pac beneath HDPE liner[172]

The Board should also ensure that all coal ash in sustained or intermittent contact with groundwater be removed as soon as possible. Federal and state regulations prohibit the closure of coal ash units in a way that leaves coal ash in contact with groundwater. Illinois regulations, like their federal counterpart, have closure standards for "leaving CCR in place" that require owners and operators to eliminate free liquids and to "[c]ontrol, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste."[173] Closure plans that allow ongoing contact between groundwater and coal ash clearly violate this requirement, and the U.S. EPA has found companies engaged in this practice to be in violation of the rules. For example, in November 2022 the U.S. EPA denied a request for an extension of the "cease receipt of waste" deadline at the Gavin Power plant in Ohio, in part because the Agency found that:

> Gavin has not demonstrated that it complied with the closure performance standards in 40 C.F.R. 257.102(d) when it closed the Fly Ash Reservoir, a separate CCR surface impoundment at the Gavin Plant, with at least a portion of the CCR in the closed unit in continued contact with groundwater, and without taking any

[163] Bd. Interim Op. and Order, PCB 13-15 at 36-37, 40 (June 20, 2019).
[164] Ex. 901 at 28.
[165] Bd. Interim Op. and Order, PCB 13-15 at 64 (June 20, 2019).
[166] Ex. 14C at Comp_7166-75; Ex. 401 at 24-25.
[167] *Id.*
[168] Bd. Interim Op. and Order, PCB 13-15 at 52, 56 (June 20, 2019))
[169] Ex. 901 at 60.
[170] *Id.*
[171] *Id.*
[172] *Id.*
[173] 35 Ill. Adm. Code 845.750(a)(1), (b)(1); *see also* 40 C.F.R. §§ 257.102(d)(1)(i), (d)(2)(i).

> measures to address the groundwater continuing to migrate into and out of the impoundment."[174]

Although these state and federal closure standards do not currently apply to the historic ash areas at the four plants,[175] the basic hydrological principles they implement are directly relevant—leaving ash in contact with groundwater allows for ongoing contamination to continue.[176]

In May 2023, U.S. EPA proposed rules for inactive surface impoundments at inactive facilities (legacy coal combustion residual ("CCR") surface impoundments) and for CCR management units at regulated CCR facilities.[177] In the proposed rules, the U.S. EPA explained in detail why disposal of coal ash below the water table increases risk relative to other coal ash units. First, coal ash saturated with water, even intermittently, is hydrologically "more like an operating CCR surface impoundment."[178] Furthermore, saturated conditions can cause the mobilization of arsenic and other pollutants at levels much higher than leach testing would predict.[179] The Agency ultimately concluded that "it is likely that long-term disposal of CCR below the groundwater table, whether in a closed or partially dewatered impoundment, a closed or inactive landfill, or other

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[174] Hazardous Solid Waste Mgmt. Sys.: Disposal of Coal Combustion Residuals from Elec. Utils.; A Holistic Approach to Closure Part A: Final Decision on Request for Extension of Closure Date Submitted by Gavin Power, LLC, 87 Fed. Reg. 72,989, 72,990 (Nov. 28, 2022).

[175] In May 2023, the U.S. EPA proposed applying these closure standards (along with other provisions of the federal CCR rule) to "CCR management units," a term that means "any area of land on which any non-containerized accumulation of CCR is received, placed, or otherwise managed at any time, that is not a CCR unit [landfill or surface impoundment]." 88 Fed. Reg. 31982, 32034. Part of EPA's justification for the proposal was that "[the] risk estimate for historical landfills would be almost an order of magnitude higher than the national-scale risks associated with the management of CCRs in landfills modeled in the 2014 Risk Assessment"). *Id*. at 32010.

[176] *See supra*, n.122.

[177] 88 Fed. Reg. 31982.

[178] 88 Fed. Reg. at 32011. *See also id*. ("[W]here any part of the unit is actually constructed below the water table, the conditions caused by the continuous saturation of the CCR by the groundwater flowing in and out of the unit allow the contaminants in the unit to continuously leach directly into the nearby ground and surface waters, even without any downward pressure from hydraulic head pushing leachate out of the unit").

[179] *Id*. According to the U.S. EPA, "[d]ata collected using LEAF methods, like all standardized leaching tests, tend to reflect oxidizing conditions due to contact between the sample and the atmosphere during sample collection and laboratory analysis." Saturated coal ash, on the other hand, is typically associated with depleted oxygen (i.e., reducing conditions). This difference can dramatically affect real-world releases of contamination. For example, in the U.S. EPA database, arsenic concentrations in water intermingled with coal ash below the water table were 200 times higher than LEAF test results from the same ash (4,100 µg/L vs. 20 µg/L).

method of management, can pose risks similar to or even greater than previously modeled for operating surface impoundments."[180]

Indeed, experience shows that models will underestimate contamination where the models fail to account for coal ash below the water table. As discussed in Exhibit 1103, over twenty years ago the Electric Power Research Institute ("EPRI") reported on a comparison of post-closure groundwater monitoring and predictive modeling at three ash impoundments.[181] At one of the three impoundments, identified as the "HNW impoundment," EPRI's models predicted steep declines in groundwater contaminations after dewatering.[182] However, the opposite occurred—"[m]edian concentrations of most constituents . . . increased during the four years since this impoundment was removed from service."[183] The authors attributed this difference to the fact that much of the ash was located below the water table, something they were not aware of when they ran their models: "The model did not account for leaching from saturated ash, the full extent of which was discovered subsequent to the modeling and closure."[184] The authors went on to explain precisely why contamination increased after dewatering:

> [W]hen ash remains below the water table, dewatering may be less effective because groundwater continues to leach constituents from the saturated ash, particularly if the impoundment is underlain by geologic media with relatively high rates of groundwater flow. In the case of HNW, concentrations increased because groundwater contact time with the saturated ash increased when the hydraulic gradient of the pond was removed.[185]

The authors also observed that a cap "would have had little or no effect" on the increase in contamination.[186] Any meaningful remedy in the present matter must preclude sustained or

[180] *Id*. at 32011-32012.
[181] Ex. 1103.
[182] *Id*. at Comp_065982-83.
[183] *Id*. at Comp_065983; *see also id*. at Comp_065985, Figure 4-8 ("Comparison of model-predicted and observed boron concentrations at HNW").
[184] *Id*. at Comp_065985.
[185] *Id*. at Comp_065989.
[186] *Id*. at Comp_065928.

intermittent contact between ash and groundwater, something that can be effectively accomplished by simply removing ash from below the water table.

The areas where the Board should order removal of ash due to contact between ash and groundwater are as follows:

- Powerton
  - The fill near monitoring wells MW-06 and MW-08 and all adjacent ash fill that is in sustained contact with groundwater.[187]
- Waukegan
  - Former Slag/Fly Ash Storage Area: Evidence indicates coal ash wet with groundwater.[188]
- Will County
  - Coal ash buried around the ash ponds: Evidence indicates coal ash wet with groundwater.[189]

iii. A maximally precise and effective remedy will require an investigation of the nature and extent of contamination.

Witnesses for both the Complainants and the Respondents agree that a meaningfully targeted remedy must begin with a comprehensive investigation.[190] When asked about the best way to conduct a corrective action, MWG's Environmental Director[191] Sharene Shealey stated that "[y]ou start with understanding what needs correcting. So an investigation, and then depending on what the investigation finds, you develop a plan and execute that plan."[192] Even more succinctly, Ms. Shealey stated that "[y]ou have to investigate to be able to mitigate."[193]

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[187] *See, e.g.*, Bd. Interim Op. and Order, PCB 13-15 at 41 (June 20, 2019) ("Environmental Groups argue that coal ash is buried as low as 443 feet above mean sea level (MSL), which allows it to be saturated with groundwater at times up to nine feet . . . "); *see also* Ex. 13C at MWG13-15_7101-02, 7113, 7118-19.
[188] *See, e.g.,* Bd. Interim Op. and Order, PCB 13-15 at 67 (June 20, 2019); Ex. 1330 at MWG13-15_79496, 79499, 79525, 79531, 79533.
[189] *See, e.g.*, Bd. Interim Op. and Order, PCB 13-15 at 56 (June 20, 2019); Ex 901 at 61, 63 (groundwater depth ranging from 581-583 ft.); Ex. 15C at MWG13-15_7252-7253 (borings showing wet ash fill from 578-580 ft.).
[190] Complainants' expert Mark Quarles presented the opinion that, before a remedy is selected, "MWG must first identify the source(s) of contamination and then determine the nature and extent of that contamination." Ex. 1101 at 14.
[191] May 18, 2023 Hr'g Tr. at 153:2-3
[192] June 14, 2023 Hr'g Tr. at 201:3-201:6.
[193] May 19, 2023 Hr'g Tr. at 11:24-12:1.

It is also worth noting that U.S. EPA guidance on the use of monitored natural attenuation, an element of MWG's proposed remedy, requires a detailed site characterization.[194]

> Decisions to employ MNA as a remedy or remedy component should be thoroughly and adequately supported with site-specific characterization data and analysis. In general, the level of site characterization necessary to support a comprehensive evaluation of MNA is more detailed than that needed to support active remediation…MNA may require analytical or numerical simulation of complex attenuation processes. Such analyses, which are critical to demonstrate natural attenuation's ability to meet remediation objectives, generally require a detailed conceptual site model as a foundation.[195]

Even though MWG's failure to investigate its coal ash dumps contributed to the Board's liability finding, MWG has still not undertaken certain rudimentary steps at many areas, including groundwater monitoring to evaluate the extent of contamination and soil borings to evaluate the extent of each coal ash dump.

The record shows what can be done: At the FSFA Area at Waukegan, MWG conducted a systematic survey of soil boring and leach testing.[196] This survey showed coal ash as deep as 17.5 feet below the surface, often in saturated conditions.[197] When MWG conducted leach tests on a subset of the samples, they all showed boron and molybdenum above site remediation objectives, and one of the three tests also showed arsenic above the site remediation objective.[198] These results led MWG's experts to recommend additional remedial steps for this area. But this is the only

[194] In the present context, a site characterization is essentially the same as a site investigation. The Federal Coal Ash Rule has its own specific articulation of site characterization: "Characterize the nature and extent of the release and any relevant site conditions that may affect the remedy ultimately selected. The characterization must be sufficient to support a complete and accurate assessment of the corrective measures necessary to effectively clean up all releases from the CCR unit pursuant to § 257.96." 40 C.F.R. § 257.95(g)(1)
[195] Ex. 1104 at Comp_67361-62.
[196] Ex. 1330 (grid sampling layout, soil boring diagrams, and soil boring composition results); Ex. 1517 (leach test results); May 17, 2023 Hr'g Tr. at 106:20-120:8 (testimony of Richard Gnat describing the grid sampling exercise at the Waukegan FSFA Area).
[197] *See* Ex. 1330 at MWG13-15_79493 (overview of boring layout at the Waukegan FSFA Area); *Id*. at MWG13-15_79526 (boring log D3, showing "ash and slag" to a depth of 17.5 feet below the surface, accompanied by the descriptor "wet"); *see also* May 17, 2023 Hr'g Tr. at 110:9-13 (MWG consultant Richard Gnat testifying that "wet" conditions signify saturation).
[198] June 13, 2023 Hr'g Tr. at 261:4-19; *see also* Ex. 1701 at MWG13-15_81487.

historic coal ash area that MWG investigated in this way. MWG has still failed to monitor groundwater at the historic ash areas at Joliet 29, has not performed a comprehensive soil boring survey of any historic ash area (at any of the four plants) other than the Waukegan FSFA Area, and has generally failed to investigate its historic ash areas.[199]

MWG's experts did not ask MWG for more information, and instead "worked with what they had," even while they acknowledge that there were gaps in the available information.[200] As a result, we still don't know how much coal ash is buried in most of the open dumps at issue in this case. As discussed below in reference to remedial costs, it is premature to estimate the cost of a remedy because we still don't know how much ash would have to be removed.[201]

MWG has raised questions about who would oversee an investigation and selection of remedy and, in doing so, raised the specter of another hearing in this matter.[202] That possibility is not and should not be a barrier to an appropriate remedy here; the Board has the authority to provide for Agency oversight of an investigation and selection of a remedy.[203] It is well within the Board's purview to order an investigation into the nature and scope of the contamination and possible remedies thereto, with the Agency overseeing the investigation, results, and selection of

[199] *See* May 17, 2023 Hr'g Tr. at 91:14-95:13, 160:18-162:10, 165:8-167:2 (Richard Gnat testifying that KPRG did not estimate the volume of, or sample, any areas of ash outside of the ash ponds (and aside from a small area around well MW-09 at Joliet 29) at Joliet 29, Powerton, and Will County); *Id.* at 163:11-19 (Richard Gnat testifying that KPRG did not conduct soil borings outside of the FSFA Area at Waukegan); May 18, 2023 Hr'g Tr. at 227:24-229:23, 298:7-21 (MWG Environmental Director Sharene Shealey testifying that she was unaware of any ash removal, attempts to estimate the volume of ash, or leach tests outside the ash ponds at Powerton); May 19, 2023 Hr'g Tr. at 27:16-29:17 (Ms. Shealey testifying that she was unaware of any ash removal or ash sampling outside of the ash ponds at Joliet 29, and confirming that the historic ash areas at Joliet 29 have neither liners nor caps); *Id.* at 51:1-53:24 (Ms. Shealey testifying that there was no ash removal, no leach tests, no volume estimates, no caps, and no liners at the historic ash areas at Will County); June 13, 2023 Hr'g Tr. at 235:2-255:12 (Weaver experts testifying that they did not try to estimate the spatial extent of, or extent of groundwater contact with, various ash areas).
[200] June 14, 2023 Hr'g Tr. at 65:20-66:12; June 13, 2023 Hr'g Tr. at 180:4-5; *Id*. at 250:1-20.
[201] *See* Section V.C.
[202] *See, e.g.,* May 15, 2023 Hr'g Tr.at 163:20-164:8; 169:21-170:11.
[203] *See, e.g., Lake Cnty. Forest Pres. Dist. v. Ostro*, PCB 92-80, 1994 WL 120267, at *9 (Mar. 31, 1994) ("Both the investigation and remediation are to be done at the direction of, and with the approval of, the Agency. This includes, of course, obtaining any necessary permits."); *Env't Prot. Agency v. Baird Chem.l*, PCB 72-226, 1973 WL 5528, at *2 (Oct. 25, 1973) (Ordering an "investigation [that] will be conducted in cooperation with the Agency.").

a remedy.

The ash areas where the Board should order an investigation into the nature and extent of the ash fill and contamination with IEPA's oversight and approval of appropriate source control are as follows (note that this list excludes historic coal ash areas where coal ash should be immediately removed due to contact with groundwater, listed in Section IV.B.ii above):

- Joliet 29[204]
    1. The Northeast Ash Landfill (the Northeast Area)
    2. The Northwest Area
    3. The Southwest Ash Landfill (the Southwest Area)
    4. Coal Ash in Fill Areas Outside Ash Ponds
- Powerton[205]
    1. East Yard Runoff Basin
    2. Coal Ash Fill Throughout the Site
- Waukegan[206]
    1. Coal Ash in Fill Areas
- Will County[207]
    1. Former Slag and Bottom Ash Placement Area

C. The Remedy Proposed by MWG's Experts is Flawed in Numerous Ways.

MWG's proposed remedy is, aside from a cap at the Waukegan FSFA Area, nothing more than ongoing compliance with environmental laws.[208] After over a decade of noncompliance, MWG's promise of future compliance is simply not credible due to their decade-long history of avoiding compliance with environmental laws. Moreover, current state and federal CCR rules do not apply to many of the historic ash areas at the plants, so compliance with current coal ash rules would have no effect on ongoing contamination from historic ash areas. MWG's proposed remedy for historic ash areas pledges compliance with any future rules that might apply to historic ash

[204] Bd. Interim Op. and Order, PCB 13-15 at 26-28 (June 20, 2019).
[205] *Id.* at 40-42. (The evidence in the record more than supports either removal at the Powerton Former Ash Basin (due to the CCA's prohibition on use of the ponds for permanent disposal) or, at a minimum, an investigation into the nature and extent of contamination at the Former Ash Basin. Out of respect to the Board's Interim Opinion and Order of June 20, 2019, however, Complainants are foregoing any request for a remedy at the Former Ash Basin.)
[206] *Id.* at 67-68.
[207] *Id.* at 56-57.
[208] Ex. 1701 at 47 ("[N]o additional action beyond continued compliance with these Rules is warranted").

areas,[209] but this is wholly inadequate both because of MWG's credibility problem and because it is speculative—we do not yet know if or when rules will be enacted or the what the final scope or applicability of these proposed rules will be.

MWG's remedy is also inadequate because it omits any new investigations of the four plants. MWG's experts argue that no additional investigation is warranted,[210] but, as discussed above in Section IV.B.iii, a comprehensive remedy must begin with an investigation.[211] As discussed above, MWG's environmental director testified that "[y]ou have to investigate to be able to mitigate."[212] MWG's opposition to investigation also directly contradicts the Board's 2019 Order, which faulted MWG for not investigating the sources of contamination.[213]

One critical piece of information that must inform the remedy is the extent to which ash is in contact with groundwater. When asked by counsel for MWG about a "mass analysis," Mr. Dorgan described it as follows:

> So an understanding of what the materials are, how much contact there is with the groundwater, how long a period of time that those materials have been in contact with the groundwater are variables that need to be considered with respect to assessing remedy and appropriate actions.[214]

Yet it appears MWG never collected the information necessary to do this, with the possible exception of the FSFA Area. More broadly, the record shows that MWG's experts never asked MWG to collect any new information at all, about anything.[215] At one point the Weaver experts acknowledged that there were remaining data gaps, but suggested that they could be filled after the remedy is selected.[216] It doesn't make any sense to collect information after the remedy is

[209] Ex. 1702 at slide 92.
[210] Ex. 1701 at MWG13-15_81444, MWG13-15_81449.
[211] *Id.* at MWG13-15_81444, MWG13-15_81450; *see also* Ex. 1702 at slide 92.
[212] May 19, 2023 Hr'g Tr. at 11:24-12:5.
[213] Bd. Interim Op. and Order, PCB 13-15 at 79 (June 20, 2019).
[214] June 12, 2023 Hr'g Tr. at 245:3-9 (emphasis added).
[215] June 14, 2023 Hr'g Tr. at 65:20-66:12.
[216] June 13, 2023 Hr'g Tr. at 180:4-5; *see also id*. at 250:1-20.

selected—information is needed to inform the selection of a remedy. In short, an investigation must be part of whatever remedy the Board orders.

MWG's remedy is also flawed because it does not address, and would not cure, all the violations found by the Board. MWG's experts concede that their proposed remedy does "not necessarily cure each and every violation that the Board called out."[217] MWG's proposed remedy notably does nothing to address the numerous open dumping violations at the four plants.[218] In fact, MWG's experts don't even know what the open dumping violations are, which suggests that MWG never asked their experts to consider the open dumping violations.[219] Relatedly, MWG's experts omitted historic ash areas from their overall "cheat sheet" or summary table with current information about each surface impoundment at all of the stations.[220] A remedy that fails to cure the open dumping violations at the historic ash areas is wholly inadequate.

At the Waukegan FSFA Area, the proposed remedy would include a cap. However, MWG's experts did not estimate whether the cap would reduce leaching[221] (even though they are familiar with models that can be used to make such an estimate),[222] and they did not estimate how long the remedy would take to achieve compliance.[223] MWG's experts also failed to account for,

[217] June 14, 2023 Hr'g Tr. at 65:3-10.
[218] *See* June 14, 2023 Hr'g Tr. at 60:12-63:22 (MWG expert Mr. Dorgan failing to explain how the proposed remedy would cure the open dumping violations at Powerton); *Id.* at 64:9-65:10 (Mr. Dorgan failing to explain how the proposed remedy would cure open dumping violations at Joliet 29).
[219] *See, e.g.*, June 13, 2023 Hr'g Tr. at 179:10-17 (confusing 12(d) and 21(a) violations, and erroneously arguing that the 21(a) violations were "very brief two- to three-month type of thing"); *see also* June 14, 2023 Hr'g Tr. at 60:12-63:3 (MWG expert Mr. Dorgan again confusing the 12(d) and 21(a) violations and mistakenly assuming that the coal ash temporarily stored above ground was the only subject of the Board's open dumping holding at Powerton, where the subject of that holding was in fact the widespread historic coal ash fill at the site).
[220] *See, e.g.*, June 12, 2023 Hr'g Tr. at 215:13-21 (discussing the Weaver experts' "cheat sheet"); Ex. 1702 at slide 97; June 14, 2023 Hr'g Tr. at 38:5-14 (Weaver experts acknowledging that their cheat sheet was limited to ash ponds).
[221] *See* June 13 Hr'g Tr. at 286:6-287:1 ("Q: Okay. So the HELP model doesn't estimate changes in leaching behavior, for example; is that right? A: No, it doesn't").
[222] *Id*. at 286:19-288:1.
[223] June 14, 2023 Hr'g Tr. at 13:17-14:15.

or estimate changes in leaching from, ash below the water table,[224] though they acknowledged that 20% of the ash in that area was in fact below the water table.[225] The fundamental problem with MWG's proposed remedy is that it would not reduce the ongoing release of contaminants from the ash in contact with groundwater. The proposed cap would reduce the infiltration of liquid from above. This would not reduce the lateral infiltration of groundwater, which would continue to move through the ash. The proposed cap may even make things worse: Exhibit 1103 shows that pollutant "concentrations increased because groundwater contact time with the saturated ash increased when the hydraulic gradient of the pond was removed."[226] The authors also observed that a cap "would have had little or no effect" on the increase in contamination.[227] MWG's experts concede that their proposed cap would, like the dewatering in the EPRI study, remove the vertical hydraulic gradient.[228] That could, as in the EPRI study, increase contaminant concentrations by increasing the duration of contact between groundwater and coal ash. MWG's experts did not account for this possibility.

Finally, MWG's remedy is flawed because it relies on the CCAs for the currently regulated units (the ash ponds), with no additional source control. According to Mr. Dorgan, the Weaver experts "did not specify a remedy for the CCR regulated units themselves."[229] This is problematic for several reasons. First, MWG views the CCAs as no longer binding and is now taking actions that are inconsistent with the CCAs—specifically by leaving ash in the ponds after closure, which is contrary to CCA conditions that limit use of the ponds to temporary storage of ash.[230] Second,

[224] June 13, 2023 Hr'g Tr. at 285:3-286:5.
[225] *Id.* at 159:10-12.
[226] Ex. 1103 at Comp_065989.
[227] *Id*. at Comp_065928.
[228] June 13, 2023 Hr'g Tr. at 291:10-292:3.
[229] June 12, 2023 Hr'g Tr. at 255:4-5.
[230] June 14, 2023 Hr'g Tr. at 314:2-316:17 (MWG Environmental Director Ms. Shealey testifying the CCA terms prohibiting permanent disposal are no longer applicable). *See* Section V.F.

the CCAs did not account for ash outside of the ash ponds,[231] which we now know to be a major source of contamination at the four plants. Third, the Weaver experts' interpretation of the CCAs is that they require no active remedy going forward and only maintenance of the institutional controls (Environmental Land Use Controls, or ELUCs) and monitored natural attenuation (under the GMZs).[232] As discussed in the next section, monitored natural attenuation is insufficient.

i. Monitored natural attenuation is not, by itself, a remedy.

MWG's proposed remedy leans heavily on monitored natural attenuation ("MNA").[233] Yet MNA is not, in and of itself, a remedy. While MNA has a role to play in some remedial plans, any meaningful remedy must also include some form of source control. This is a point on which the U.S. EPA, Complainants' expert, [234] and even MWG witnesses all agree.

U.S. EPA's 1999 comprehensive guidance on the use of MNA, Exhibit 1104, explains why MNA should not be considered a stand-alone remedy. This is particularly true at sites where the contaminants of concern are inorganic like the arsenic, boron, and sulfate found at the MWG sites:

- Broadly speaking, "MNA should not be considered a default or presumptive remedy at any contaminated site."[235]
- With inorganic contaminants, EPA cautions that "except for radioactive decay, they are not degraded by the other natural attenuation processes," and so "natural attenuation of inorganic contaminants is most applicable to sites where immobilization or radioactive decay is demonstrated to be in effect and the process/mechanism is irreversible."[236] Radioactive decay is not relevant to the contaminants of concern in this case, and there is no evidence in the record of immobilization (e.g., adsorption onto soil minerals), much less irreversible immobilization, of the contaminants of concern, which suggests that MNA is not applicable here.

[231] *See, e.g.*, June 14, 2023 Hr'g Tr. at 17:15-18 (MWG expert witness Mr. Dorgan stating that "The CCAs don't specifically speak to areas outside of the regulated units, other than what is comprised of the regulated unit itself").
[232] *See, e.g.,* Ex. 1701 at MWG13-15_81467; Ex. 1702 at slide 4; June 12, 2023 Hr'g Tr. at 209:9-11 (Weaver expert testifying that "The fact that we have the CCAs that are still present, and with the GMZs and the related ELUCs that continued to apply ….").
[233] *Id.*
[234] *See, e.g.*, May 15, 2023 Hr'g Tr. at 107:1-7 ("[M]onitored natural attenuation is a – is not a sole remedy. It's used in conjunction with other types of remedies, and it also has to have an – an end goal of – of meeting the water quality objectives within a reasonable time frame compared to other alternatives").
[235] Ex. 1104 at Comp_67359.
[236] *Id.* at Comp_67357.

- Most importantly, EPA notes that MNA must be accompanied by source control and in some cases other forms of active remediation: "*Following source control measures*, natural attenuation may be sufficiently effective to achieve remediation objectives at some sites without the aid of other (active) remedial measures. Typically, however, MNA will be used in conjunction with active remediation measures."[237] And "[a]n example of a situation where MNA may be appropriate is a remedy that includes source control, a pump-and-treat system to mitigate the highly-contaminated plume areas, and MNA in the lower concentration portions of the plume."[238]
- Regarding source control, EPA states that "[s]ource control measures should be evaluated as part of the remedy decision process at *all* sites, particularly where MNA is under consideration as the remedy or as a remedy component. Source control measures include removal, treatment, or containment, or a combination of these approaches."[239] And "source control and long-term performance monitoring will be fundamental components of any MNA remedy."[240]

Even MWG's witnesses agreed that MNA is not, by itself, a remedy. Richard Gnat, a MWG consultant and witness in this case, reiterated: "[Y]ou know, just standard monitored natural attenuation remedies aren't – you have to have something additional in terms of source control, removal, whatnot, to augment that."[241] And MWG expert Michael Maxwell also stated: "So MNA is the process that's part of the evaluation of the GMZ. Typically, I mentioned the cap example. The cap is the active management aspect and the monitoring goes with that in order to evaluate whether or not the cap is actually having, in this example, the intended benefit".[242] In short, while MNA can be a component of a remedy that also includes source control, it is not a remedy by itself.

ii. MWG's trend analysis is flawed, does not show improvement in groundwater quality and does not support MWG's proposed remedy.

The Weaver experts analyzed data in a way that was neither systematic nor comprehensive. Through a combination of double-counting and selective omissions, the Weaver experts ended up

[237] *Id.* at Comp_67352 (emphasis added).
[238] *Id*. at Comp_67366.
[239] Ex. 1104 at Comp_67369 (emphasis in original).
[240] *Id*. at Comp_67351.
[241] May 18, 2023 Hr'g Tr. at 118:1-5 (emphasis added).
[242] June 12, 2023 Hr'g Tr. at 202:23-203:5.

analyzing an arbitrary patchwork of data points that does not reliably reflect conditions at the four sites.

First, the Weaver experts omitted some of the most contaminated wells from their analysis. For example at Will County, the Weaver experts omitted well MW-02, in which boron concentrations have been steadily increasing to roughly three times the standard in the most recent data, and well MW-04, where boron concentrations have never been below the standard.[243] At Waukegan, the Weaver experts omitted well MW-05, which has very high concentrations of boron and sulfate,[244] and also shows arsenic concentrations that increased between 2010 and 2021 and were generally above the state groundwater standard since 2016.[245]

Second, despite claiming to be focused on the downgradient edge of each site, the Weaver experts omitted several of the most representative and most downgradient wells. Under direct examination, Mr. Maxwell stated that "we did not use all of the wells . . . what we feel to be the most critical wells were evaluated, those wells that were on the downgradient side of the ponds."[246] This echoes the Weaver report, which states that they evaluated "the wells that were at the farthest downgradient locations."[247] But this is not what the Weaver experts actually did. In fact, they omitted several of the most downgradient wells at multiple sites. For example, when asked at the hearing which wells at Waukegan were downgradient, MWG expert Mr. Dorgan answered that monitoring wells 1, 2, 3, 4, *and 7* were downgradient.[248] Yet the MWG experts excluded well 7 from their analysis. Not only is well 7 one of the most downgradient wells at Waukegan,[249] it also

[243] June 13, 2023 Hr'g Tr. at 221:9-224:5; *see also* Ex. 1314 at MWG13-15_118465.
[244] *See* Ex. 1310 at MWG13-15_118603, MWG13-15_118622.
[245] *Id*. at MWG13-15_118600.
[246] June 12, 2023 Hr'g Tr. at 233:12-18.
[247] Ex. 1701 at MWG13-15_81460.
[248] June 13, 2023 Hr'g Tr. at 229:10-230:12; *see also* Ex. 1310 at MWG13-15_118493.
[249] *See* Ex. 1310 at MWG13-15_118493 (showing that only one well has a lower groundwater elevation than MW-07, and that is MW-16, which was also excluded from the Weaver experts' trend testing (as shown in Ex. 1701 at MWG13-15_81514)).

has some of the highest boron and sulfate concentrations at the site.[250] The Weaver experts also omitted MW-05 at Joliet 29 and MW-02 at Powerton, even though they acknowledged at the hearing that both wells were downgradient.[251]

Third, MWG's experts generated trends for both the dissolved and the total results for some, but not all, of the constituent/well combinations at the plants (e.g., arsenic in well MW-04 at Joliet 29).[252] Witnesses for MWG, including the Weaver experts, have noted that dissolved (field-filtered) and total (not filtered) results are "pretty much the same" at the four MWG plants.[253] The fact that some constituent/well combinations were trend tested twice (with dissolved and total data), while others were tested only once (with dissolved or total data), means that the dataset was distorted, and skewed in favor of those wells that were tested twice.

Finally, MWG's experts inappropriately omitted data showing no trend from their comparisons of trend results.[254] Data with no trend are static, and not improving. This is directly

[250] *See* Ex. 1310 at MWG13-15_118603 (showing, in the most recent data, that MW-07 had the highest boron concentrations at the site at roughly 20 times above the 2 mg/L standard); *see also id*. at MWG13-15_118622 (showing that MW-07 had the highest sulfate concentrations at the site in the most recent data).
[251] June 13 Hr'g Tr. at 227:15-229:9 (discussing MW-05 at Joliet 29); Ex. 1303 at MWG13-15_118138 (showing groundwater elevations at Joliet 29); June 13 Hr'g Tr. at 230:13-231:9 (discussing MW-02 at Powerton); Ex. 1307 at MWG13-15_118241, 118243 (showing groundwater elevations at Powerton).
[252] *See* June 13, 2023 Hr'g Tr. at 205:24-207:19; *see also* Ex. 1701 at MWG13-15_81517 (showing four wells with only dissolved arsenic trend results at Joliet 29 (MW-01, MW-02, MW-06, and MW-07) and two wells with both dissolved and total trend results (MW-03 and MW-04)); *see also id*. at MWG13-15_81505-81507 (showing the same thing – four wells with only dissolved trend results and two wells with both dissolved and total trend results—for numerous pollutants at Joliet 29); *see also id*. at MWG13-15_81508-81510 (showing, for numerous pollutants at Powerton, that there were five wells with both dissolved and total trend results, and another four wells with only dissolved trend results); *see also id*. at MWG13-15_81511-81513 (showing, for numerous pollutants at Will County, that there were two wells with only dissolved trend results (MW-07 and MW-08), two wells with only total trend results (MW-11 and MW-12), and two wells with both dissolved and total trend results (MW-09 and MW-10).
[253] *See, e.g.*, May 17 Hr'g Tr. at 64:17-66:3 (explaining that dissolved results are field-filtered, while total results are not); *see also id*. at 67:24-68:7 ("And I believe in our previous hearings, it was even determined by both sides and agreed to by both sides that really at these sites, the differences in concentrations between dissolved and totals were not all that different. In other sites, they might be. But in these, they were for the most part pretty much the same"); *see also* June 12 Hr'g Tr. at 191:23-193:10 (Weaver expert Mr. Dorgan paraphrasing Mr. Gnat's assessment as "they [the filtered and non-filtered results] are largely the same, very little difference between the two," and agreeing with that assessment); *see also* June 13 Hr'g Tr. at 194:1-195:20 (explaining how the sampling methods used at the four plants would result in very little difference between total and dissolved measurements).
[254] *See, e.g.*, Ex. 1701 at MWG13-15_81461 (presenting percentages of the data that exclude "no trend" results, for example stating that at Joliet 29, "of the data where a trend was observed, 72% of the trends are downward and 28% upward").

relevant to the question before the Board, which is whether the status quo remedy proposed by MWG has been working. MWG's experts justified excluding the "no trend" data by arguing that the underlying data were mostly below detection.[255] However, at the June hearing, counsel for Complainants pointed out that this is frequently not the case. There are data in the record where, for example, none of the data are below detection and the result is still "no trend."[256] Perhaps recognizing the error in their report, MWG's experts testified at the June hearing that between 17% and 32% of the "no trend" results at each site were not due to the presence of nondetects.[257] There was no basis for omitting these results from the comparisons of trend results. In short, the Weaver experts threw the baby out with the bathwater—because some of the "no trend" results were due to the presence of nondetects, they threw out all the "no trend" results, including numerous perfectly valid data points. This inappropriately distorted the results by reducing the number of data points showing static (i.e., not improving) groundwater quality.

Even with all the arbitrary data selection issues, MWG's experts' analysis showed, quite clearly, that groundwater is not improving. A true improvement in groundwater quality would be evident in a statistically significant downward trend. This is not happening in the vast majority of cases:

- At Joliet 29, only 8% of the trends analyzed by MWG's experts were significantly declining/improving.[258] The rest (92%) were not significantly improving.
- At Powerton, 89% of the data show no significant improvement.[259]

[255] *See* Ex. 1701 at MWG13-15_81461 (stating that "many of the trend tests returned 'no trend' results because the majority of the constituents evaluated were reported as not detected by the laboratory").
[256] June 13, 2023 Hr'g Tr. at 210:22-211:16 (discussing results for arsenic in MW-04); *see also id*. at 214:5-20 (discussing "no trend" results for dissolved barium in well MW-07 and total boron in well MW-04, both at Joliet 29, and both showing 0% nondetects).
[257] June 13, 2023 Hr'g Tr. at 28:10-14 (58 out of 85 "no trend" results at Joliet 29 were "primarily related to non-detect data." This leaves 27 valid data points, or 32% of the 85 "no trend" results); *id*. at 75:3-7 (100 of 148 "no trend" results at Powerton were "primarily related to non-detect results"); *id*. at 106:6-12 (62 of 80 "no trend" results at Will County were "primarily related to the non-detect results); *id*. at 146:23-147:3 (67 of 81 "no trend" results at Waukegan were "primarily related to non-detect analytical results").
[258] Ex. 1701 at MWG13-15_81507.
[259] *Id*. at MWG13-15_81510.

- At Waukegan, 93% of the data show no significant improvement.[260]
- And at Will County, 91% of the data show no significant improvement.[261]

In short, groundwater contamination at the four plants is not improving, and MWG's self-serving narrative to the contrary is unsupported by their own experts' analysis. Groundwater quality is not improving because MWG has generally failed to investigate or control the sources of contamination.

V. THE BOARD SHOULD ASSESS A PENALTY TO MWG THAT IS SIGNIFICANTLY HIGHER THAN THE ECONOMIC BENEFIT IT ACCRUED BY VIOLATING ILLINOIS LAW

Illinois law requires the Board to impose penalties on entities who violate the law in order to create a disincentive to violating the law. The *Toyal America, Inc. v. Illinois Pollution Control Board* case, in which the appellant had committed years of violations, is illustrative. As stated by the Appellate Court in affirming the Board's decision:

> [I]t is imperative that a violating entity, who has failed to comply with regulations for eight years, be held accountable for its actions, or lack thereof. Failure to do so would not only defeat the purpose of the Act, but would also likely result in more entities avoiding compliance due to the fact that there would be no consequences to their actions. [262]

Illinois law further provides a benchmark penalty amount to help guide the Board's imposition of penalties: the Board may impose up to a $50,000 penalty for a violation of the Illinois Environmental Protection Act (including violations of regulations implementing the Act, such as the Part 620 Groundwater Quality Standards), as well as an additional $10,000 per day for violations that span multiple days.[263]

Complainants have provided below a conservative calculation of this statutory maximum penalty, based on the violations the Board has identified as beginning in 2010, through those

[260] *Id*. at MWG13-15_81516.
[261] *Id*. at MWG13-15_81513.
[262] *Toyal Am., Inc. v. Ill. Pollution Control Bd.*, 966 N.E.2d 73, 83 (Ill. App. 3d Dist. 2012).
[263] 415 ILCS 5/42(a).

apparent in the most recent available full year of data (2021). This calculation does not include any modifications based on potential aggravating or mitigating circumstances:

Statutory Maximum Penalty[264]

Joliet 29	
Section 12(a) Violations	$40,010,000.00
Section 21(a) Violations	$65,950,000.00
Total	$105,960,000.00

Powerton	
Section 12(a) Violations	$40,150,000.00
Section 12(d) Violations	$640,000.00
Section 21(a) Violations	$65,950,000.00
Total	$106,740,000.00

Waukegan	
Section 12(a) Violations	$40,330,000.00
Section 21(a) Violations	$65,950,000.00
Total	$106,280,000.00

Will County	
Section 12(a) Violations	$40,020,000.00
Section 21(a) Violations	$65,950,000.00
Total	$105,970,000.00

Total	$424,950,000.00

The maximum penalty here is larger than penalties that have been assessed by the Board in the past, but Complainants note that penalties in excess of $10 million have been assessed against and/or agreed to by large corporate actors like MWG that have similarly violated environmental laws at multiple sites over multiple years in other jurisdictions.[265]

[264] Details regarding these calculations are attached as Appendix 2.

[265] *See e,g.*, Navistar, Inc. Clean Air Act Settlement[265] ($52 million penalty); *United States v. Smithfield Foods, Inc.*, 972 F. Supp. 338, 353-54 (E.D. Va. 1997) aff'd 191 F.3d 516 (4th Cir. 1999) ($12 million penalty); Massey Clean Water Act Settlement[265] ($20 million penalty).

The Act imposes only one restriction on the Board apart from the statutory maximum: it must impose a penalty "at least as great as the economic benefits, if any, accrued by the respondent as a result of the violation, unless the Board finds that imposition of such penalty would result in an arbitrary or unreasonable financial hardship."[266] In this case, there are no circumstances that warrant imposing a penalty that is lower than MWG's economic benefit; indeed, the Board could assess the statutory maximum penalty if it deems that amount to be appropriate. The Board's penalty determination cannot be limited by any claim of financial hardship because MWG has not offered any evidence or testimony claiming such a hardship. To the contrary, MWG has argued repeatedly and successfully that, because it has never claimed it would be unduly economically impacted by a potential penalty, Complainants should not be allowed to discuss the economic impact of any penalty on MWG.[267] Respondent's repeated and consistent position that MWG's financial health should not be considered in imposing a penalty was the basis for the Board's multiple decisions disallowing evidence and testimony provided by Complainants addressing MWG's overall financial health, including the nature of its relationship to its corporate owner.[268] Because MWG has not claimed any financial constraints on its ability to provide relief or pay applicable civil penalties, there is no basis for the Board to impose a penalty below the economic benefit that accrued to MWG from its violation of Illinois law.

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[266] 415 ILCS 5/42(h).

[267] Midwest Generation LLC's Resp. in Opp'n to Compl.'s Mot. *In Lim.* to Exclude Portions of Gayle Koch's Expert Rep. at 4 (Mar. 4, 2022) ("No one, not MWG nor Ms. Koch, has stated that MWG has an inability to pay for any remedy or penalty."); *Id.* at 2 (claiming that Ms. Koch's opinions regarding MWG's financial capabilities were provided "solely in rebuttal to Mr. Shefftz"); Hr'g Officer Order at 14 (July 13, 2022) (allowing Ms. Koch's report to include a discussion regarding MWG's ability to pay because it "was merely rebutting Mr. Shefftz's report regarding MWG's ability to pay"); June 15, 2023 Hr'g Tr. at 128:118-20 (testimony from Ms. Koch that "I have not performed an ability to pay analysis, and that is not what is reflected [in my report]."); Midwest Generation LLC's Resp. to Compl.'s Mot. for Interlocutory Appeal of the Hr'g Officer's Order Regarding Econ. Impact Test. at 2-4 (Aug. 16, 2023) (identifying various purposes for pages 28-29 of Ms. Koch's report that do not include any contention that MWG might be financially harmed by any penalty amount).

[268] Bd. Order, PCB 13-15 at 8 (Sept. 9, 2021) ("Midwest has not put forth an inability to pay argument at this time [and i]t is therefore inappropriate to consider NRG's financials . . . under Section 42(h) of the Act.")

Ultimately, the Board must decide where the appropriate penalty lies on the spectrum between MWG's economic benefit from noncompliance and the statutory maximum; and that determination must be guided by some combination of the statutory penalty factors laid out in the "Statement of Law" above.[269] However, the Board has stated that the maximum penalty "is a natural or logical benchmark from which to begin considering factors in aggravation and mitigation of the penalty amounts."[270] In the following sections, Complainants discuss each of the factors that the Board may consider in setting penalties. As explained below, all of the evidence in the record falling under the Illinois Environmental Protection Act Section 5/42(h) factors weighs in favor of a larger penalty.

A. The Duration and Gravity of MWG's Violations Weigh in Favor of a Larger Penalty.

The first of the 42(h) factors that the Board considers is "the duration and gravity of the violation."[271] The Board has found that this factor should aggravate the penalty in situations where violations have been ongoing for "months" and where violations have continued even following the filing of a complaint.[272] Here, the thirteen years of violations MWG has allowed to occur since monitoring began—which includes eleven years since the filing of the original complaint in the present case—exceed even the most persistent ongoing violations in prior Board cases. This level of noncompliance is not merely sufficient to serve as an aggravating factor in the Board's penalty determination: it warrants a precedent-setting penalty.

That the violations have continued for eleven years after the filing of the initial complaint is relevant because the Board considers ongoing violations taking place "after filing of an initial

[269] 415 ILCS 5/42(h).
[270] *Ill. Env't Prot. Agency v. Barry,* PCB 88-71, 1990 WL 271319, at *48 (May 10, 1990) *cited in People v. ESG Watts, Inc.,* Bd. Interim Op. and Order, PCB 01-167 at 16 (Jan. 8, 2004).
[271] 415 ILCS 5/42(h)(1).
[272] *People v. Watts*, PCB 94-127, 1995 WL 283727, at *9 (May 4, 1995).

complaint to be an aggravating factor in a penalty determination."[273] And the duration of the violations even after the Board's liability finding was established is particularly egregious in the present case: the groundwater monitoring reports show exceedances through at least 2021, which is the most recent full year of data available in the record, and those exceedances presumably continue today because nothing in the record indicates that MWG remedied the sources of the violations in the last two years. Likewise, the open dumping violations continue through the present, because MWG has not done anything to remedy those violations.

The Board has found ten years to be a significant duration in previous cases.[274] The Illinois Appellate Court has upheld the Board's findings that a company's noncompliance for ten years constitutes a blatant disregard of environmental regulations.[275] The Board has found as little as two years to be a factor that "aggravate[s] the penalty imposed."[276] In short, MWG's period of noncompliance is as long or longer than the vast majority of situations. As a result, this factor weighs strongly in favor of a larger penalty

B. MWG's Ongoing Failure to Conduct Due Diligence Weighs in Favor of a Larger Penalty.

The second 42(h) factor that the Board considers is due diligence: "the presence or absence of due diligence on the part of the respondent in attempting to comply with requirements of this

[273] *People v. Ill. Fuel Co.*, PCB 10-86, 2019 WL 3715082, at *15 (July 25, 2019) (citing *People v. Watts*, PCB 94-127, slip op. at 11-12 (May 4, 1995), *aff'd sub nom*. *ESG Watts, Inc. v. PCB*, 282 Ill. App. 3d 43, 668 N.E.2d 1015 (4th Dist. 1996)).

[274] *People v. Ill. Fuel Co.*, PCB 10-86, 2019 WL 3715082, at *15 (July 25, 2019) ("Based on the number of exceedances, their occurrence over ten years, and their continuation after the filing of the original complaint, the Board finds that the duration and gravity of the violations are a significant aggravating factor in determining an appropriate civil penalty.").

[275] *Standard Scrap Metal Co. v. Ill. Pollution Control Bd.*, 142 Ill.App.3d 655, 662 (Ill. App. 1st Dist. 1986) ("Clearly, the record before us reveals a continuing lack of good faith on the part of Standard Scrap. For ten years, MWG demonstrated a blatant disregard for the requirements and procedures designed to protect the environment); *see also People v. Freedom Oil Co.*, PCB 93-59, 1994 WL 185681, at *7 (May 5, 1994) (finding 3.5 years of doing "next to nothing to comply" shows a lack of due diligence).

[276] *People v. ESG Watts, Inc.*, PCB 96-237, 1998 WL 83678, at *6 (Feb. 19, 1998); *see also Illinois v. Ogoco, Inc.*, PCB 06-16, 2006 WL 2869938, at *9 (Sept. 21, 2006) (finding three years of violations to be "aggravating the amount of a civil penalty").

Act and regulations thereunder or to secure relief therefrom as provided by this Act."[277] As the evidence makes clear, MWG has made no meaningful effort to come into compliance with the Illinois Groundwater Quality Standards or cure its violations of the Illinois Environmental Protection Act. MWG has identified various compliance activities it has undergone in the past decade, but it's myriad compliance efforts at the four plants have been largely directed towards compliance with the Federal CCR Rules or Part 845, the Illinois CCR Rules.[278] These efforts have also been largely on paper,[279] as opposed to being designed to actually remedy the violations identified in the Complaint or found by the Board in the Interim Opinion and Order of 2019. They therefore do not constitute due diligence, because the record clearly demonstrates that compliance with those rulemakings is insufficient to remediate the violations the Board has identified.[280]

> The Board weighs good faith efforts to come into compliance and due diligence heavily.
>
> > The Board has noted in previous cases that "[t]he courts have found evidence of the presence or absence of good faith to be a very significant determinant of a penalty...[G]ood faith has been inferred from behavior which reflects diligence and which is reasonably directed towards the goal of achieving compliance. The acceptable efforts have included hiring engineers to find a cure for pollution, attempting to secure permits, installing pollution control equipment at considerable expense, and abandoning offensive practices altogether." (See, People v. Kershaw, PCB 92-164 (April 20, 1995) . . .)[281]

The due diligence factor weighs heavily against MWG and in favor of a larger penalty because MWG has not demonstrated any interest in achieving compliance with the Act and has not taken any action to bring the sources into compliance with the Act's open dumping or water pollution prohibitions.

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[277] 415 ILCS 5/42(h)(2).
[278] *See, e.g.,* May 19, 2023 Hr'g Tr. at 141:17-143:10, 145:17-146:3, 146:23-147:9, 147:14-148:13.
[279] For instance, as discussed below, MWG has submitted groundwater monitoring reports and permit applications.
[280] *See* Section IV.C.
[281] *People v. Watts*, PCB 94-127, 1995 WL 283727, at *7 (May 4, 1995) (additional internal citations omitted).

The Board is clear that in cases like MWG's, an investigation into the extent of the contamination is needed to identify the steps needed to come into compliance.

> For at least 3 and 1/2 years and two years at the Savoy and Oblong sites, respectively, the presence of ground water, as well as soil, contamination remained undetermined. The reporting requirements are there to prompt the investigation necessary to determine the extent of contamination and remediation. Left uninvestigated, the pollution can migrate and cause more damage than it did initially. Not only did Freedom fail to submit the reports despite the Agency's repeated requests for them, it also failed to undertake the investigations required at each site to insure [sic] that the environment is protected.[282]

And it is not enough to conduct an extensive investigation if that investigation is not appropriately tailored to the likely source of contamination. For instance, in *Illinois v. Ogoco, Inc.*, the Board noted that although the respondent conducted a full examination of several types of contamination, including taking soil and sediment samples and testing for multiple toxins, its failure to test for all the potential contamination (in that case, sulfate and chloride contamination from saltwater releases) constituted a lack of due diligence and was an aggravating factor in the penalty calculation.[283]

Even as it has conducted extensive groundwater monitoring in portions of its sites, MWG has completely failed to investigate historic ash areas and failed to make any good faith effort to come into compliance with the Act. The only areas that MWG investigated were the area around MW-09 at Joliet 29 and the FSFA Area at Waukegan. Instead of investigating historic ash landfills at Joliet 29, MWG engaged in a self-serving investigation of monitoring well 9 to show that it was not affected by coal ash.[284] Richard Gnat, in discussing Exhibit 1503, explained that MWG

[282] *People v. Freedom Oil Co.*, PCB 93-59, 1994 WL 185681, at *7 (May 5, 1994).
[283] *People v. Ogoco, Inc.,* 2006 WL 2869938, at *9.
[284] May 19, 2023 Hr'g Tr. at 159:11-17.

installed temporary wells around MW-09.[285] Mr. Gnat went on to indicate that MW-09 was an outlier among the monitoring wells at Joliet 29.

> Q. And I think you said there was -- this is a figure of an investigation near -- up near monitoring well 9? Is that what you said?
>
> A. Correct.
>
> Q. What was the purpose of the investigation?
>
> A. Monitoring well 9 was kind of a unique well. It was displaying some characteristics that weren't seen in any of the other 11 monitoring wells, well 9 being sampled as part of the CCA program. And none of the other CCA wells displayed this type of signature where, all of a sudden, we started seeing the pH of the water, which was, generally, if I remember right, you know, in the neutral range 7, maybe a little bit -- 7 1/2. I don't know the exact range. But all of a sudden the pH in this water started dropping. And I believe it got as low as -- as 3 1/2 or so, something like that, which is a fairly acidic pH for groundwater. And -- and we started seeing a handful of metals increasing in concentration associated with that decrease in the pH.[286]

Again, instead of installing any monitoring wells around the multiple known coal ash landfills at Joliet 29, MWG instead focused on an "outlier" that it believed was unaffected by coal ash.

At Waukegan, MWG investigated the FSFA Area, although that investigation coincides with IEPA identifying the area (also known as the "Old Pond" or, to MWG, the "Grassy Field") as a pond covered by the Illinois Part 845 Coal Ash Rules.[287] After MWG's investigation of the FSFA Area and the adoption of the Illinois Part 845 Coal Ash Rules, MWG petitioned the Board for a

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[285] May 19, 2023 Hr'g Tr. at 158:8-18 ("Q. So turning to the next tab, which is marked for identification purposes as 1503, and the Bates number is 7944 -- excuse me. The Bates number is MWG13-15 underscore 79442. Mr. Gnat, what is this figure? A. This is a figure showing boring locations around -- and two or three tem- -- TW locations, temporary well locations, around well -- or in the vicinity of well MW-09. And this is at the Joliet 29 station.").

[286] May 19, 2023 Hr'g Tr. at 159:7-160:5.

[287] Ex. 1408 at 3, para. 2 ("On April 15, 2021, the Board adopted new regulations providing standards for disposal of CCR in surface impoundments at 35 Ill. Adm. Code 845 ("Part 845"). R-20-19, Final Order (April 15, 2021). The Part 845 rules became effective on April 21, 2021. 45 Ill. Reg. 5884 (May 7, 2021)."); *See In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845*, R 20-19, *available at* https://pcb.illinois.gov/Cases/GetCaseDetailsById?caseId=16858 (Proceedings in the R-20-19 rulemaking began in March of 2020); Ex. 1408 at 4, para. 4 ("On May 11, 2021, MWG filed a "Petition for an Adjusted Standard and a Finding of Inapplicability for Waukegan Station" ("Petition" or "Pet."), concerning two areas that Petitioner designates as: (1) the East Pond, and (2) the Grassy Field. *See* Petition at 1."); Ex. 1330 at MWG13-15_79494-79533 (The borings at the Waukegan Former Slag/Fly Ash Storage Area took place on November 24-25, 2020).

finding of inapplicability of Part 845 to the FSFA Area. But, as IEPA pointed out, "[t]he Petitioner doesn't deny that Grassy Field contains CCR, or that it is a readily identifiable source of CCR contaminants in groundwater."[288] Further, IEPA also pointed out that despite its investigation into the FSFA Area, MWG never took any action to reduce the contamination coming from the FSFA Area or to remediate the contamination present in the groundwater.[289]

In the past ten years, MWG has not taken any further steps toward achieving compliance with the Act and, therefore, MWG has not displayed due diligence. Any steps that MWG has taken have been for the sake of complying with the Federal and Part 845 Coal Ash Rules and have been, for the most part, preparation of documents such as demonstrations, reports and permit applications.[290] The list of things that MWG hasn't done is much longer. In 2019, the Board found that MWG had failed to take extensive precautions historic ash areas or ponds.[291] Since 2019, MWG has also failed to take extensive precautions or the steps necessary to come into compliance.

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[288] Ex. 1408 at 18, para. 50.

[289] Ex. 1408 at 18, para. 51 ("There are exceedances of Section 620.410(a) standards down gradient of Grassy Field (e.g. Boron, Sulfate and TDS), therefore corrective action would be required. To date, the Agency is not aware of any actions voluntarily initiated by MWG to mitigate the release of contaminants from Grassy Field.").

[290] May 19, 2023 Hr'g Tr. at 145:17-146:3, 146:23-147:9, 147:14-148:13; May 17, 2023 Hr'g Tr. at 9:1-8; The exception to the flurry of documents in coal ash regulatory compliance efforts are the liner/pond inspections and monitoring/sampling. May 19, 2023 Hr'g Tr. at 141:17-143:10. MWG also developed ASD which involved leach testing; however, the ASDs are not for the purposes of compliance but generally are for the purposes of avoiding the imposition of more stringent requirements: assessment monitoring and, possibly, corrective action. May 19, 2023 Hr'g Tr. at 144:1-4, 154:8-19, 157:3-16.

[291] Bd. Interim Op. and Order, PCB 13-15 at 79 (June 20,2019) ("The monitoring results show that contamination persists after MWG concluded corrective actions required by its CCAs and GMZs. MWG is aware of these results but is not undertaking any further actions to stop or even identify the specific source: no further investigation of historic areas is taking place; no additional monitoring wells are installed; and, no further inspection of ash ponds or land around the ash ponds in the locations that show persistent exceedances is taking place. The Board is, thus, not persuaded that MWG took 'extensive precautions' to prevent the releases. *Davinroy*, 249 Ill. App. 3d at 794; *Perkinson v. PCB*, 187 Ill. App. 3d 689 (3rd Dist. 1989); *People v. William Charles*, PCB 10-108, slip op. at 25-27 (Mar.17, 2011); *City of Chicago v. Speedy Gonzales Landscaping*, *Inc*, AC 06-39, AC 06-40, AC 04-41, AC 07-25, (Mar. 19, 2009); *County of Jackson v. Taylor*, AC 89-258, (Jan. 10, 1991); *Phillips Petro. Co. v. PCB*, 72 Ill. App. 3d 217 (2nd Dis. 1979); *IEPA v. Coleman*, AC04-46, at 7 (Nov. 4, 2004). Other than establishing an ELUC at Powerton, Waukegan, and Will County that restricts use of the area, for example for installing potable wells, MWG also did not take active actions to ensure that the contamination does not spread beyond its property. MWG knew that contaminants that include coal ash constituents are leaking from its property but did not fully investigate specific source or prevent further release, …").

Since 2019 at Joliet 29, MWG did not investigate the volume of ash outside of ponds, did not install any additional permanent groundwater monitoring wells, did not remove any ash from historic ash areas, and did not install any caps or liners.[292] Since 2019 at Powerton, MWG did not investigate the volume of ash outside of ponds, did not do any testing of leachate beyond that needed for alternate source determinations, did not look for seeps on the banks of the Illinois River, and did not test shallow sediments from the Illinois River.[293] MWG has not offered any evidence that it has installed any caps or liners at the site either. Since 2019 at Waukegan, MWG did not install any additional groundwater monitoring, investigate any shallow sediments from Lake Michigan, or install a liner in the FSFA Area.[294] Since 2019 at Will County, aside from installing monitoring wells for compliance with Illinois CCR Rules Part 845, MWG has not installed any

[292] May 17, 2023 Hr'g Tr. at 93:20-23 ("Q. So, the answer is, no, KPRG has not done any investigation into the volume of ash outside of ponds at Joliet 29? A. That's correct. …"); May 19, 2023 Hr'g Tr. at 24:9-19 ("As I sit here today, I do not believe that any monitoring wells have been installed at Joliet 29 since 2019. Q. Understood. Okay. And that would include the area known as the northeast area of the site? A. Correct. Q. And that would also include the area known as the northwest area of the site? A. My statement was inclusive of the entire property that is Joliet 29, yes."); *Id.* at 28:9-14 ("Other than the silos and the ponds, to your knowledge, has Midwest Generation removed ash from anywhere at the Joliet 29 site since 2016? A. I can't really timestamp it, but not to the best of my recollection right now, as I sit here."); *Id.* at 28:15-22 ("Q. To the best of your recollection, has Midwest Generation installed any caps at Joliet 29 since 2019? A. No. Q. To the best of your recollection, has Midwest Generation installed any liners at Joliet 29 since 2019? A. No."); *Id.* at 29:5-17 ("Q. Has Midwest Generation performed any soil testing at the Joliet 29 site for coal ash constituents since June of 2019? A. I -- I cannot speak to the entire site, so I -- I am not aware of any, but I don't know. And -- I do not know the answer to that question in its entirety. Q. But you're not aware of any? A. That's what I said. I'm not aware of any. Q. And that includes Midwest Generation directing someone else to have done so? A. That would include that, yes.").

[293] May 17, 2023 Hr'g Tr. at 160:22-161:2 ("Q. …Do you know of any investigation to identify the volume of CCR material outside of ponds in any area at Powerton since October of 2017? A. Not that KPRG was involved with."); *Id.* at 162:5-10 ("Q. And also setting aside alternate source demonstrations since we've already talked about those, do you know of any testing of leachate from CCR material that has been done at Powerton since October of 2017? A. Not that I'm aware of." *Id.* at 162:18-20 ("Q. Mr. Gnat, do you ever walk the bank of the Illinois River at Powerton? A. No. I haven't found the need to …"); *Id.* at 163:1-4 ("Q. Has KPRG ever been involved in sampling of shallow sediments in the Illinois River at Powerton? A. No, we have not.").

[294] May 17, 2023 Hr'g Tr. 163:7-10 ("Q. …Do you know if any new monitoring wells have been installed at Waukegan since 2017? A. I don't think so, no. I think those were all installed pre-2017."); *Id.* at 163:14-19 (Aside from the field investigation of the Old Pond or the Grassy Field, "do you know if any other soil borings have been taken at Waukegan since 2017? A. I'm not aware of anything by KPRG. Perhaps another consultant or contractor might have been contracted to do it, but I don't know."); *Id.* at 164:5-8 ("Q. Has KPRG ever investigated any shallow sediments from Lake Michigan for evidence of CCR contamination at Waukegan? A. No, we have not."); May 19, 2023 Hr'g Tr. at 71:11-14 ("Q. …And Midwest Generation has never installed a lined -- an HDPE line- -- liner in the grassy field at Waukegan, correct? A. Not to my knowledge, no.").

additional monitoring wells, has not investigated the volume of ash outside of ash ponds, has not removed any coal ash from areas outside of ash ponds, and has not installed any caps or liners.[295]

Instead of trying to identify and remediate the sources of the contamination documented in its groundwater monitoring results, MWG uses alternate source demonstrations to try to lay the blame on any source other than the impoundments, going so far as to point to other localized sources of contamination.[296] MWG admits to not having done anything to identify the sources of those impacts.[297] MWG's abdication of responsibility for the localized sources of coal ash contamination is further evidence of its lack of due diligence here.

[295] May 17, 2023 Hr'g Tr. at 165:3-7 (Wells 13, 14, and 15 were installed for purposes of compliance with Illinois CCR Rules, Part 845. "And aside from wells 13, 14 and 15, do you know of any other monitoring wells that have been installed at Will County since October of 2017? A. Not that I'm aware of. "); *Id.* at 165:10-15 ("Q. …Do you know if there has been any investigation to identify the volume of CCR in any area outside of the ponds at Will County since October of 2017? A. Not that KPRG has been involved with, not that I'm aware of."); *Id.* at 168:7-10 ("Have you ever inspected any of the shallow sediments from the Des Plaines River at Will County for evidence of CCR contamination? A. Not KPRG, not that I'm aware of."); May 19, 2023 Hr'g Tr. 47:24-48:4 ("Q. Has Midwest Generation installed any new groundwater monitoring wells at the Will County site since 2019? A. I believe -- I believe there are two new monitoring wells that were installed in '19 or '20."); *Id.* at 50:15-21 ("Q. So Midwest Generation has installed two monitoring wells at the Will County site? A. I believe at least two I think is what I said. Q. At least two, and those were installed pursuant to Part 845, correct? A. I believe so, yes."); *Id.* at 51:1-7. ("To your knowledge has Midwest Generation removed CCR from areas outside of the surface impoundments at the Will County site since June of 2019? A. I am not aware of CCR outside of the impoundments at Will County site, so I would have to answer no."); *Id.* at 51:23-52:4 ("Q. Has Midwest Generation performed any activities to assess the volume of ash outside of the impoundments in the -- at the Will County site? A. I stated I am not aware of any ash outside of the impoundments, so I would have to say no."); *Id.* at 53:18-24 ("Q. Okay. Has Midwest Generation installed any caps at Will County station since 2019? A. Again, that would be in violation of public acts. Q. And the same answer for liners? A. No, we have not installed any liners since 2019."); *Id.* at 70:20-71:10 ("Q. Has Midwest Generation ever installed an HDPE liner at Pond 1N at Will County? A. My knowledge of that is that when -- when the pond relinings were done, yes, at Will County 1N and 1S were out of service. They were specific to units 1 and 2-- generating units 1 and 2 at Will County station. And so as part of -- I believe it's in the CCA for Will County. As part of the CCA, instead of relining, they installed what I would consider to be an under-drain system so that the pond cannot contain water. Q. And is that also true of Pond 1S -- A. Yes. Q. -- at Will County?").

[296] May 17, 2023 Hr'g Tr. at 37:20-38:9; *see also* 40 C.F.R. § 257.95(g)(4).

[297] May 18, 2023, Hr'g Tr. at 274:2-23 ("Q. And as you sit here today, has Midwest Generation subsequently identified the source of these levels -- these elevated levels? A. Not to the best of my recollection, no. Q. Okay. And to your knowledge, has anyone, you know, a consultant working on behalf of Midwest Generation identified the source of the levels? A. Oh, I assumed that that's what you meant by your first question. Q. Okay. A. A consultant would not work unless they were directed by Midwest Generation. Q. Are you aware of any action taken by Midwest Generation since the date of this alternate source demonstration to determine the source of these elevated levels? A. Powerton. As I sit here today, I -- nothing comes to mind, ma'am. Q. So you can't recall any? A. No, I -- I cannot.").

At the hearing, MWG attempted to justify this inaction by claiming it is prohibited from acting to address the violations found in the Board's 2019 Order by the requirements of Part 845.[298] The requirement to obtain a construction permit from IEPA for ash pond relining or ash pond closures does not excuse MWG's lack of action after the Board's Interim Opinion and Order and liability findings in June 2019. There are plenty of other actions MWG could have taken after 2019 for which no permit is required. MWG could have installed additional monitoring wells, taken soil borings, investigated the scope and volume of ash outside of ponds, tested soil samples, and conducted leach testing all without seeking a permit from or the approval of IEPA.[299] Further, prior to April 21, 2021, MWG could have sought agency approval for pond closures.[300] The Coal Ash Pollution Prevention Act also does not apply to ash outside of impoundments, so there were no coal combustion residuals regulations that applied to any action MWG might have taken to address coal ash fill, historic coal ash areas, or other coal ash outside of the ponds between the June 2019 Board Interim Opinion and Order and now. Yet, MWG still opted to do nothing in response to the

[298] *See, e.g.,* May 19, 2023 Hr'g Tr. at 9:17-11:10 ("Q. Okay. Are you aware of any mitigation actions taken since October of 2022 when this was filed? A. Again, timing is -- timing is -- is fuzzy for me. I -- I'm sure that we did an investigation of the grassy field. Q. Midwest Generation has taken borings from the grassy field site, correct? A. Which I would consider investigation, yes. Q. Okay. Can you think of any other mitigation activities besides those borings? A. This is in dispute. If it is a -- if the Board agrees that it is a CCR surface impoundment -- (Reporter interruption.) BY THE WITNESS: A. If the Board -- I -- rephrase. If the Board agrees that it's a CRR surface impoundment, we would have different steps under regulations we would have to take than if it's not a regulated unit. BY MS. WACHSPRESS: Q. I understand, but I'm asking about actions Midwest Generation has taken. A. If -- if the Board is -- I mean -- I'm sorry. If the Agency -- if the Board accepts the Agency's recommendation, we would be in violation of the public act that is the foundation of Part 845 if we acted on that area. Q. So it's Midwest Generation's position that it cannot take any actions with respect to the grassy field site until the Board has acted with respect to the adjusted standard petition? A. No -- (Reporter interruption.) MS. WACHSPRESS: The adjusted standard petition. BY THE WITNESS: A. No. It is our position that -- our position that we cannot take any action without Agency agreement."); *Id.* 53:18-24 ("Again, that would be in violation of public acts"); May 18, 2023 Hr'g Tr. at 244:10-18 ("Q. Was closure completed in 2020? A. No. In 2019, a state law -- what I would call Senate Bill 9, but I can't remember the exact name. It was passed, and that prohibited us from closing anything, because that became -- those laws led to -- or that law, I guess, led to Part 845 of the Board rules. So, no, we did not. Q. Okay. A. Because that would be a violation.").

[299] 35 Ill. Adm. Code 845.200(a).

[300] 35 Ill. Adm. Code 845.100(i) ("If a CCR surface impoundment has completed an Agency-approved closure before April 21, 2021, this Part does not require the owner or operator of the CCR surface impoundment to resubmit to the Agency any closure plan, closure report, or closure certification for that completed closure.").

Board's liability findings and do nothing beyond what was they believed was required of them under Illinois Part 845 and the Federal CCR Rule. For these reasons, MWG has shown an "absence of due diligence … in attempting to comply with requirements of this Act and regulations" and this is an aggravating factor in the calculation of the civil penalty that the Board should impose on MWG.[301]

C. The Board Must Determine the Economic Benefit MWG Has Accrued Based on Its Determination of an Appropriate Remedy and the Available Record.

As discussed above, the economic benefit that accrued to MWG as a result of its failure to remedy the contamination at the four plants must serve as the minimum penalty that the Board should assess. Complainants' expert Jonathan Shefftz has provided to the Board a comprehensive methodology for calculating that economic benefit.[302] Mr. Shefftz is a prominent authority in economic benefit calculations who regularly appears as an expert witness on various economic matters in U.S. District Court trials and hearings, Administrative Court hearings of the U.S. Environmental Protection Agency ("EPA"), and state courts trials.[303] Mr. Shefftz describes at length the process by which one should calculate the economic benefit in cases like this one. As he explains:

> When companies like Respondent in this case delay and/or avoid undertaking measures that would prevent noncompliance with environmental requirements, an economic benefit can occur from such delay and/or avoidance. By postponing such measures, companies can realize a benefit from delaying investing in capital equipment and/or incurring other costs, from delaying or avoiding business interruption losses necessitated by upgrades for compliance, and/or from avoiding the payment of certain necessary ongoing costs. Economic benefit is simply a term for the financial gains that accrue through such delayed and/or avoided expenditures. Funds not spent on environmental compliance are available for financially productive economic activities or, alternatively, the costs associated with obtaining additional funds for environmental compliance are avoided.

[301] 415 ILCS 5/42(h)(2).
[302] Ex. 1201. In both this and all following references to confidential transcripts and exhibits containing confidential information, Complainants have limited discussion in this brief to basic principles that are outside the scope of material that any party has claimed to be confidential. All of the specific numeric inputs and analysis can be reviewed in the referenced source material.
[303] *Id.* at 3.

> Economic benefit is hence the amount by which companies . . . are financially better off as a result of not having complied with environmental requirements in a timely manner.[304]

The "time value of money" is crucial here: "a dollar yesterday is worth more than a dollar today, because one had investment opportunities for yesterday's dollar."[305]

Mr. Shefftz recommends accounting for the time value of money by comparing the "on-time" costs, representing expenditures that would have avoided a violation; with "delay" costs, representing expenditures that will result from a tribunal's remedy determination.[306] This effort forms the primary component of his testimony, which essentially presents an economic model that uses formulas to account for economic factors such as discounting, compounding, inflation, tax deductions, and present value when calculating economic benefit.[307] Mr. Shefftz goes on in his report to explain in great detail how he uses that model to execute the economic benefit calculation.[308]

As Mr. Shefftz discusses at length in his reports, in order to produce a final estimate of MWG's economic benefit, he needed to enter certain inputs into this model, including estimates of remedy costs, dates of initial noncompliance, dates of compliance, length of remedy, and anticipated penalty payment dates.[309] Such inputs are outside of his area of expertise.[310] Furthermore, as Complainants have made clear in previous briefing regarding the admissibility of Mr. Shefftz's testimony, the cost of an eventual remedy depends a great deal on what that remedy

[304] *Id.* at 7 (internal citations and line breaks omitted).
[305] *Id.* at 9.
[306] *Id.* at 10.
[307] *See id.* at 9-11.
[308] *Id.* at 11-27; *see also* Ex. 1203 at 6-22 (revising and updating those calculations to reflect both the passage of time and additional data).
[309] Ex. 1201 at 22-24.
[310] May 16, 2023 Conf. Hr'g Tr. at 25:13-24 ("[T]ypically in these cases the outputs from an environmental engineer serve as some of the inputs to my analysis. It's almost like a relay race in that sense. He hands off the baton to me…").

is, which has not yet been determined in this case. And in the absence of a known remedy, upon instruction from Complainants' counsel, Mr. Shefftz based his calculation of economic benefit on the best available cost estimate associated with the complete removal of coal ash materials at each of the four sites at issue here.[311]

In calculating the benefit that MWG accrued as a result of its delay, Mr. Shefftz reasonably relied on the best available cost estimate associated with complete coal ash removal, because that is one of the remedies available to the Board as a matter of law, and one which Complainants have explained in Section IV.B would be appropriate here. In the liability portion of this case, the Board found violations of the Section 21(a) open dumping prohibition at all four plants, noting that "MWG did allow consolidation of coal ash by failing to remove it from the fill areas and historical coal ash storage areas, and by allowing contaminants to leak into the environment."[312] Since the Section 21(a) violations stem from MWG's failure to remove the coal ash from historical fill areas, it logically follows that the presumptive remedy to cure the violation is removal of the coal ash. Absent information on the scope of ash dumped outside of the ponds and the extent of groundwater contamination, the only remedy that can cure the violations would be removal of all the coal ash. When waste has been dumped at an unpermitted location, it is reasonable to require removal of the waste to a properly permitted location (e.g., a permitted and lined landfill).[313] In other words, removal of all coal ash at the four MWG plants is the presumptive remedy in the absence of specific evidence that a more limited cleanup activity can actually remediate the contamination. Thus, Mr. Shefftz's reliance on an estimate of complete coal ash removal was reasonable under the circumstances.

[311] Ex. 1201 at 22.
[312] Bd. Interim Op. and Order, PCB 13-15 at 91 (June 20, 2019) (emphasis added).
[313] *People v. J & F Hauling, Inc.*, PCB 02-21, 2003 WL 728350, at *5 (Feb. 6, 2003).

However, ultimate responsibility for the calculation of the economic benefit rests not with Mr. Shefftz, but with the Board. The final estimates presented in Mr. Shefftz's report, which are based upon removal as a proxy, are not intended to be, nor could they be, a replacement for the Board's own economic benefit determination.[314] The Board should consider Mr. Shefftz's numeric conclusions as a reasonable estimation of MWG's economic benefit in the event that Board determines that removal of all coal ash waste from the four MWG sites is the most appropriate remedy. But if it determines that a different remedy is more appropriate, it should instead use the model Mr. Shefftz has painstakingly prepared and explained, with the costs (and expected expenditure timeline) of the Board's selected remedy plugged in to the model, to estimate the economic benefit MWG accrued through its delayed compliance with Illinois Law.

At the heart of MWG's stated objection to Mr. Shefftz's testimony is its contention that Mr. Shefftz has based his calculation of economic benefit on a set of numbers that have not been supported in the record.[315] However, this argument suffers from two principal flaws. First, MWG improperly places on parties, rather than the Board, the responsibility of calculating MWG's exact economic benefit from its decade-long violation of Illinois law. Because the Board will be determining a remedy and penalty simultaneously, and the economic benefit calculation depends directly on the Board's selected remedy, there is no way for any economic expert to rely on precise, finalized remedy cost inputs: those inputs *do not yet exist*. In recognition of this limitation of the role of the parties, Complainants have offered expert testimony whose purpose is to guide the Board in its determination of a final penalty. To restate our previous briefing on this point: Mr. Shefftz presents in his reports, and provided via his testimony at the remedy hearing, both an

[314] As discussed in Section II, Complainants do not bear the burden of suggesting a specific penalty here.
[315] *See, e.g.*, Midwest Generation, LLC's Appeal of the Hr'g Officer's Ruling Denying Its Objection to Jonathan Shefftz's Ops., PCB 13-15 (July 26, 2023).

estimate of economic benefit based on one possible remedy the Board could order, and an economic model framework into which the Board must provide the final inputs based on its eventual determination what the appropriate remedy should be in this case.[316]

MWG's expert Gayle Koch, by contrast, offers the Board nothing more than a rote application of economic principles, which Mr. Shefftz first developed decades ago,[317] to MWG's suggested remedy in this case, which involves doing almost nothing beyond what MWG has already done and which Complainants have explained in Section IV.C could not possibly remediate ongoing contamination of groundwater at the four sites.[318] Ms. Koch has taken the position that an expert's principal role is to assist the Board with issues within their areas of expertise;[319] but her testimony relies exclusively on the expert opinions offered by MWG's Weaver experts, and she offers the Board no general tools to adjust her estimates in the event the Board finds the Weaver experts less credible than she does. Ultimately, Ms. Koch was subject to the same constraint Mr. Shefftz was in this case: without knowing what the Board's remedy would be, she was in no position to offer the Board a concrete estimate of economic benefit outside of the very limited circumstance where the Board agreed to use her exact inputs. But in failing to offer the Board context for how different inputs impacted her calculations, she has limited the utility of her testimony to the circumstance where the Board agrees with the Weaver experts.

Second, MWG ignores the ease with which the financial inputs undergirding Mr. Shefftz's calculations may be modified to match the remedy the Board imposes. This is a crucial element of Mr. Shefftz's expert testimony, because it serves the purpose Ms. Koch claims should be the goal

[316] Ex. 1203 at 12, Table 3, Columns (b), (c); *see also* May 16, 2023 Conf. Hr'g Tr. at 25:3-28:9 (describing how Mr. Shefftz entered cost and expenditure data as inputs into his economic model); *Id.* at 63:2-65:16 (describing how changing those inputs would impact Mr. Shefftz's calculations).
[317] May 16, 2023 Conf. Hr'g Tr. at 8:3-9:13, 57:9-59:9.
[318] *See generally* Ex. 1901; *see also infra* Section IV.C (explaining why the Weaver experts' suggested remedy will not have any impact in remediating contamination of the four plants).
[319] June 15, 2023 Conf. Hr'g Tr. at 11:10-14.

of any testifying expert: it "assists the Board" by offering a methodology for the Board to use once it has determined what the remedy should be in this litigation. Specifically, as Mr. Shefftz testified, a simple change to the magnitude of a remedy cost will result in a perfectly proportionate change to the magnitude of MWG's economic benefit (as compared to Mr. Shefftz's calculation of that benefit).[320] Mr. Shefftz also offered a sense of directional adjustments that would be made if the expenditure assumptions were changed in various other ways; for instance, accelerating the expenditure timeline so that MWG spends more money more quickly (in both the on-time and delayed compliance scenarios) will tend to increase the economic benefit MWG has received from delay.[321] This discussion offers some context to the Board as it considers an appropriate remedy and penalty, and is significantly more helpful to the Board than Ms. Koch's static analysis.

Ultimately, calculation of the economic benefit accruing from violations of the law falls within the purview of the Board, and not the parties.[322] Complainants have provided expert testimony from Mr. Shefftz that is designed both to provide a reasonable estimate of that value based on one possible remedy, which is the full removal of all coal ash from all four plants, which is within the scope of remedies available to the Board; and also empowers the Board to adjust those inputs as needed based on the remedy the Board ultimately selects.

D. The Board Should Impose a Penalty Significantly Higher than MWG's Economic Benefit, in Order to Deter Similar Violations.

The fourth consideration the Board is tasked with evaluating in the penalty determination is "the amount of monetary penalty which will serve to deter further violations by the respondent and to otherwise aid in enhancing voluntary compliance with this Act."[323] This question is inextricably bound with the economic benefit calculation: a small penalty here would create an

[320] Ex. 1203 at 22, Table 5; May 16, 2023 Conf. Hr'g Tr. at 63:2-19.
[321] May 16, 2023 Conf. Hr'g Tr. at 63:20-65:16.
[322] 415 ILCS 5/42(h).
[323] 415 ILCS 5/42(h)(4).

inadvertent incentive for MWG and other businesses operating in Illinois to disregard Illinois's groundwater protections. A penalty that is significantly higher than the economic benefit MWG experienced from its delayed compliance is necessary to account for the difficulty of enforcing the Act. As Complainants' expert Jonathan Shefftz has explained, calculation of an appropriate penalty should account for the probability of detection, i.e. the economic benefit floor should be increased to reflect the fact that imposition of a penalty in this case was far from certain.[324] By way of analogy, it would be not much of a disincentive to committing larceny if the worst penalty that could be assessed is that the thief had to give the money back, or if the penalty was a tiny fraction of amount stolen. Illinois courts have also recognized this necessity in calculating an appropriate case penalty.[325] And a penalty that is more commensurate with the statutory maximum penalty—i.e., significantly higher than MWG's economic benefit—will be particularly important if the Board does not order removal of all the waste from the sites that MWG contaminated for years because then MWG will never have expended the funds they should have in the first place, and will have, through their violations, limited their liability to such partial costs and the time-value of the whole. A rational large company operating in Illinois would, in view of such an outcome, strategically ignore contamination at large sites requiring extensive cleanup as economically advantageous relative to compliance.

E. MWG's Long History of Violations and Aggressive Denial of Liability Even After the Close of the Liability Phase of this Hearing Weighs in Favor of a Larger Penalty.

The fifth, sixth, and seventh factors the Board is tasked with considering examine previously adjudicated violations of the Act: whether MWG has voluntarily self-disclosed

[324] Ex. 1201 at 8. Complainants observe here that they have spent over a decade and thousands of attorney hours prosecuting this enforcement action to this point, at great expense; it is simply not possible to similarly enforce all such violations of the Act that might occur across the state.
[325] *People ex rel. Madigan v. J.T. Einoder, Inc.,* 2 N.E.3d 1097 (Ill. App. 1st Dist. 2013).

violations; and whether MWG has voluntarily agreed to undertake a supplemental environmental project.[326] MWG has not previously had violations of these groundwater protections adjudicated; however, all four MWG plants have each received a violation notice from the IEPA, covering a multi-year period.[327] MWG has not voluntarily disclosed any violations. MWG claims that its groundwater testing regime constitutes voluntary compliance, but that testing regime was set up only after being prodded by the IEPA.[328] Furthermore, during the liability phase of this litigation, MWG continuously and strenuously denied that it was in violation of the Act;[329] and it has even attempted to undermine elements of the Board's liability finding in subsequent briefing.[330] This behavior further undercuts any possible claim MWG could have to be voluntarily self-disclosing its violations of Illinois law. Finally, Complainants are unaware of any context in which MWG has suggested it might undertake a supplemental environmental project. Thus, on balance these three factors weigh in favor of a more aggravated, i.e. higher, penalty determination.

F. MWG's Failure to Successfully Implement the Terms of its Compliance Commitment Agreements Weighs in Favor of a Larger Penalty.

The eighth and final penalty factor delineated in the Act is "whether the respondent has successfully completed a Compliance Commitment Agreement under subsection (a) of Section 31 of this Act to remedy the violations that are the subject of the complaint."[331] This factor also weighs in favor of a higher penalty amount, because MWG has not successfully completed the CCAs. This failure is exacerbated by the fact that MWG has also failed to comply with the terms of CCAs that covered some of the same violations, and has allowed groundwater contamination to continue

[326] 415 ILCS 5/42(h)(5)-(7).
[327] Exs. 1A, 2A, 3A, 4A.
[328] Oct. 30, 2017 Hr'g Tr. at 44:14-45:1.
[329] There is substantial evidence of this, but the clearest example of this years-long position can be seen in Respondent Midwest Generation, LLC's Post-Hearing Brief, PCB 13-15 (July 20, 2018).
[330] Midwest Generation, LLC's Mot. for Interlocutory Appeal from Hr'g Officer Order Den. Three Mots. to Exclude Evid. of Remedy, PCB 13-15 (July 27, 2022) (claiming that its unlawful conduct fell under an exception to liability contained in Section 21(r) of the Act).
[331] 415 ILCS 5/42(h)(8).

unabated (as a result of which GMZs are still in place). As a result, this factor weighs heavily in favor of the Board imposing a more significant penalty.

MWG has not presented in this hearing any evidence of a Compliance Certification or claimed that they have certified completion of the CCAs. MWG has not demonstrated successful completion of the corrective process or successful completion of the CCAs because that requires Completion Certifications that "must include monitoring data demonstrating successful completion of the corrective process and include the resulting restoration concentrations of chemical constituents in the groundwater."[332] MWG also introduced no evidence at the hearing indicating that they have submitted monitoring data demonstrating successful completion of the corrective process. And without monitoring data demonstrating successful completion of the corrective process, MWG cannot claim that it has "successfully completed a CCA under subsection (a) of Section 31 of this Act to remedy the violations that are the subject of the complaint."[333]

If MWG argues that the Compliance Statements show completion,[334] that is at odds with MWG's prior statements in this proceeding and prior Board determinations. The 2013 Compliance Statements are distinct from Compliance Certifications and MWG argued as such to the Board. In February of 2020, the Board concluded that 2013 Compliance Statements did not terminate the CCAs.[335] The Board found in February of 2020 that 2013 Compliance Statements are distinct from the Completion Certifications.

> MWG submitted the 2013 Compliance Statements to the Agency under the CCAs, but MWG has not submitted documentation confirming that the corrective action taken under Section 620.250(a)(1) is complete. … It is likewise the case for Part IV of the form, which is a "Completion Certification" that must include monitoring

[332] Bd. Order, PCB 13-15 at 12 (Feb. 6, 2020).
[333] 415 ILCS 5/42(h)(8).
[334] May 19, 2023 Hr'g Tr. at 86:4-23 (Referring to Exhibits 630, 661, 637, and 651, "And these are the signed compliance statements for the four CCAs, correct? A. Yes, they are. Q. And these indicate that the terms in the CCAs have been completed, correct? A. Yes, they did.").
[335] Bd. Order, PCB 13-15 at 10 (Feb. 6, 2020) ("In submitting the 2013 Compliance Statements, MWG claims it did not intend to terminate the CCA." (internal citation omitted)).

> data demonstrating successful completion of the corrective process and include the resulting restoration concentrations of chemical constituents in the groundwater. Id. MWG has not yet submitted Part IV or otherwise provided the information it calls for. MWG's 2013 Compliance Statements—each a page in length—merely certified the completion of those CCA steps that had been taken as of that date. They are distinct from documentation confirming that the corrective action taken under Section 620.250(a)(1) is complete.[336]

In short, as the Board concluded in 2020, the CCAs are still in effect.[337]

Further, MWG concedes that it is obligated to continue conducting groundwater monitoring/sampling and meeting other requirements under the CCAs. When asked about her responsibilities under the CCAs, Ms. Shealey testified, "I know that I have to -- Midwest Gen has to continue to monitor groundwater."[338] And MWG in fact continues to conduct groundwater sampling for the purpose of meeting the obligation under the CCAs.[339] Richard Gnat, consultant to MWG, also acknowledges that MWG has ongoing obligations under the CCAs.[340] And MWG's Weaver experts, also acknowledged that the CCAs are still in place: "The fact that we have the CCAs that are still present, and with the GMZs and the related ELUCs that continued to apply, and then, of course, we continue to have data being collected, and it will continue to be collected as a result of the monitoring networks that exist for the regulated units at the site."[341] MWG's ongoing

[336] *Id.* at 12.
[337] Bd. Order, PCB 13-15 at 16 (Feb. 6, 2020) ("Upon reconsideration, the Board takes the GMZ requirements of 35 Ill. Adm. Code 620 into account and to that end, grants the requested reconsideration and finds upon reconsideration that the CCAs at the Stations have not been terminated and are still in effect.").
[338] May 18, 2023 Hr'g Tr. at 187:24 -188:17; *see also id.* at 197:22-198:12 ("Q. Okay. And do you have any responsibility with respect to complying with the terms of this CCA? A. Yes. Q. Okay. And what are those responsibilities? A. I cannot -- without having read this line by line immediately, I cannot -- it goes back to the other ones. I cannot without reading them line by line tell you what all of my responsibilities are for compliance. Some of these things happened before I even knew Midwest Gen existed, but currently the thing that comes to mind first is responsibility for ensuring that the groundwater monitoring is done.").
[339] May 19, 2023 Hr'g Tr. at 87:8-11 ("Q. Under the GMZs and under these CCAs, Midwest Generation continues to conduct the CCA sampling end of it, correct? A. Yes."); *see also id.* at 114:11-17, 118:3-7, 118:24-119:5, 120:3-10, 122:9-13.
[340] May 18, 2023 Hr'g Tr. at 121:23-24 ("I can't stop fulfilling CCA requirements.").
[341] June 12, 2023 Hr'g Tr. at 209:9-15.

monitoring efforts, along with other efforts to meet the CCA requirements, indicates the CCAs are still in effect and MWG has not successfully completed them.

Second, for this factor from 42(h) to weigh in MWG's favor, the CCAs must cover the same "violations that are the subject of the complaint." Even if MWG argues that it has successfully completed the corrective process under the CCA, it cannot credibly argue that the CCAs cover the same violations as the Complaint. MWG has already made that argument in a motion to dismiss and the Board has rejected it, concluding that the CCAs covered different violations from the Complaint. The Board found that the Complaint in this action was not duplicative of the violation notices that were resolved by the CCAs.[342] Finally, following the decision on MWG's motion to dismiss, Complainants' amended their Complaint to cover ash repositories—ash outside of ash ponds or historical ash areas—that were explicitly not covered by the violation notices ("VNs") which only covered ash ponds.[343] Since the CCAs are not successfully completed and they do not cover the same violations, this factor weighs against MWG.

In fact, not only has MWG not successfully completed their CCAs, MWG has disregarded the CCAs prohibition on using the ash ponds for permanent disposal by proposing to cap and close multiple ash ponds in place, permanently leaving ash in those ponds. Each of the CCAs for each of the four plants—Powerton, Joliet 29, Waukegan and Will County—provides that:

> Respondent agrees to undertake and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the

[342] Bd. Order, PCB 13-15 at 22 (Oct. 3, 2013) ("[W]hile the VNs and the complaint in this action both include water pollution claims under the Act and the Board's GQSs (*compare* Comp. at ¶¶ 52-62, *with id.* at Exhs. K-N), the complaint, unlike the VNs, also alleges open dumping violations (*see* Comp. at ¶¶ 42-50)."); *Id.* at 23 ("Likewise, the time period of the alleged violations overlaps to a considerable extent, but the complaint does allege additional violations of Class I GQSs at the Joliet 29 and Waukegan plants on various dates before and after the alleged violations set forth in the respective VNs. *Compare* Comp. at Exh. B *with id.* at Exhs. K, M.").

[343] *Compare* Exs. 1A. 2A, 3A, 4A (alleging "operations at *ash impoundments* have resulted in violations of Groundwater Quality Standards") (emphasis added); *with* First Amended Compl., ¶¶ 1, 3, 5, 7, PCB 13-15 (Jan. 14, 2015).

> allegations contained in [Violation Notice number]:
>
> a) The ash ponds at [the station] shall not be used as permanent disposal sites and shall continue to function as treatment ponds to precipitate ash. Ash shall continue to be removed from the ponds on aperiodic basis.[344]

The Board has held that this is a prohibition on using the ash ponds as permanent disposal sites.[345]

In proposing to close numerous ash ponds in place, MWG is reneging on its agreement with IEPA. MWG Director of Environmental, Sharene Shealey explains MWG's noncompliance with the CCAs as follows:

> Q. …So the temporary storage is what I'm wondering about. That was a term in the CCA, and I believe you said that doesn't -- that's not applicable anymore, because the coal -- the plant stopped operating? A. I don't think that's what I said. Q. Okay. Can you clarify what -- A. It -- I think the biggest reason it's not applicable is that -- are the new regulations that have been promulgated. Secondly, they are not orders. They are agreements, and the Agency considered them complete. They signed the -- they returned the signed compliance commitment agreements.[346]

This is a contorted reading of the CCAs and the provision prohibiting use of the ash ponds for permanent disposal. If the CCAs are still in effect to require ongoing monitoring then they are still in effect in their prohibition on permanent disposal. MWG cannot pick and choose which CCA terms it will comply with when the CCAs are still fully in effect.

MWG's closure plans for the East Ash Pond at Waukegan, Ponds 1N, 1S, 2S and 3S at Will County, and Powerton's Former Ash Basin all violate MWG's CCAs. The Initial Operating Permit Application for Waukegan's East and West Ash Ponds provides "The East Ash Pond will be closed with the CCR remaining in place and constructing a final cover system …."[347] The Initial Operating Permit Application for Will County's Ponds 1N and 1 South 1S provides "Pond 1N and

[344] Ex. 626 at 2, para. 5(a); Ex. 636 at 2, para. 5(a); Ex. 656 at 2, para. 5(a); Ex. 647 at 2, para. 5(a).
[345] Bd. Interim Op. and Order, PCB 13-15 at 90 (June 20, 2019) "The four CCAs specifically prohibit using any of the ash ponds as permanent disposal sites." (citing MWG Exhs. 626 at 2 ¶ 3; 636 at 2 ¶ 3; 656 at 2 ¶ 3; 647 at 2 ¶ 3).
[346] June 14, 2023 Hr'g Tr. at 316:4-17.
[347] Ex. 1331 at MWG13-15_110658.

Pond 1S will be closed with the CCR remaining in place and topped with a final cover system."[348] Ms. Shealey testified that the current closure plan for Ponds 2 South and 3 South provides that the ash in the impoundments will be left in place upon closure.[349] Ms. Shealey confirmed that the Final Written Draft, Final Written Closure Plan for South Ash Pond 2 and South Ash Pond 3, dated May 8th, 2023 provides that the two ponds will be closed with ash in place.[350] MWG also proposes to close the Former Ash Basin at Powerton in a manner that does not comply with the Powerton CCA.[351] As of November 22, 2022, MWG intended to close the Former Ash Basin by leaving the ash in place.[352] After being asked the question, "[a]s of November 2022, the date on this document, was it Midwest Generation's intention to close the former ash basin with CCR materials in place?"[353] and being directed to answer the question over MWG's objection,[354] Ms. Shealey testified that "[i]t was our intention at this time to remove the ash north of the rail line, and consolidate it south of the rail line, and close that portion in place."[355] Ms. Shealey could not

[348] Ex. 1332 at MWG13-15_125639.
[349] May 19, 2023 at 34:16-23 ("Q. …The current closure plan for Pond 2 anticipates leaving impounded ash in place, correct? A. To what? Q. South Pond 2 anticipates leaving impounded ash in place, correct? A. I believe so. I don't have the closure plan in front of me, yeah, but I believe so.").
[350] May 19, 2023 Hr'g Tr. at 36:10-37:2 ("Q. … Pursuant to 35 Illinois Administrative Code 845.750(a) and 40 CFR 257.102(d) south ash Ponds 2 and 3 will be closed by leaving the CCR stored in each pond in place -- . . . Stored in each pond in place and installing a vinyl cover system over each impoundment. Have I read that correctly? A. Yes, I believe so. Q. And does that refresh your recollection as to the current closure plans for Pond -- south Ponds 2 and 3? A. Yes, that is our plan as it stands today.").
[351] MWG will likely argue that the Former Ash Basin is outside the scope of the remedy phase of this proceeding. Complainants agree that the Board found that there was insufficient evidence to establish that the Former Ash Basin is a source of contamination at the Station in the liability phase order. Bd. Interim Op. and Order, PCB 13-15 at 41 (June 20, 2019). The Former Ash Basin is relevant however, because it was covered by the VN and the CCA. This is evidenced by the groundwater monitoring at Powerton encircling the Former Ash Basin (*see* Ex. 901, at 33) and by the GMZ and ELUC at Powerton encompassing the Former Ash Basin. Ex. 901 at 39-40. Since the VN and CCA at Powerton covered the former ash basin, and since noncompliance with the CCA is relevant because of the areas where this matter and the CCAs overlap, then noncompliance at the former ash basin is relevant.
[352] May 18, 2023 Hr'g Tr. at 242:24-243:3.
[353] *Id.* at 242:1-4.
[354] *Id.* at 242:6-12.
[355] *Id.* at 242:24-243:3.

recollect if MWG's plans regarding closure of the Former Ash Basin had changed subsequent to November of 2022.[356]

VI. CONCLUSION

WHEREFORE, Complainant, SIERRA CLUB, ENVIRONMENTAL LAW & POLICY CENTER, PRAIRIE RIVERS NETWORK, AND CITIZENS AGAINST RUINING THE ENVIRONMENT, respectfully requests that the Board enter an Order against the Respondent MIDWEST GENERATION, LLC., for the following relief:

1. Finding that Respondent has violated Sections 12(a), 12(d) and 21(a) of the Environmental Protection Act (415 ILCS 5/12(a), 12(d), 21(a)) and Sections 620.115, 620.301(a), and 620.405 of the Board regulations (35 Ill. Adm. Code 620.115, 620.301(a), 620.405);

2. Ordering the Respondent to cease and desist from any further violations of Sections 12(a), 12(d) and 21(a) of the Environmental Protection Act (415 ILCS 5/12(a), 12(d), 21(a)) and Sections 620.115, 620.301(a), and 620.405 of the Board regulations (35 Ill. Adm. Code 620.115, 620.301(a), 620.405);

3. Ordering the Respondent to

a. Remove all coal ash stored or disposed of in the following surface impoundments, including all coal ash used to construct the surface impoundments, and including all coal ash in the berms, in the ramps, under the liner and in the Poz-O-Pac beneath the liner, in: Joliet Pond 1, Pond 2, Pond 3; Powerton Ash Surge Basin Ash Bypass Basin, Secondary Ash Basin (Secondary Settling Basin or Service Water Basin), Limestone Runoff Basin, Metal Cleaning Basin; Waukegan East Pond, West Pond; and Will County 1 North, 1 South, 2 South, 3 South;

b. Either remove all of the ash in the following areas or, with IEPA oversight and approval, investigate the nature and extent of the coal ash fill and/or

[356] *Id.* at 239:3-14 ("Q. Okay. So does Midwest Generation still intend to close the former ash basin by leaving CCR in place? A. Again, I-- so seven months have passed since this. I would have to review the CCR operating record to ensure that this is the current and -- the most current plan. I believe it is the most current plan, but without reviewing the CCR operating record, I can't assure you of that. So I would hate to represent -- I would hate to misrepresent if we made an edit in February. That's my point.").

contamination in the following areas and identify and implement appropriate source control for the following areas: Joliet Northeast Ash Landfill (the Northeast Area), Northwest Area, Southwest Ash Landfill (the Southwest Area), Coal Ash in Fill Areas Outside Ash Ponds; Powerton East Yard Runoff Basin, Coal Ash Fill Throughout the Site, Areas Where Coal Ash Cinders Were Stored on Land; Waukegan Coal Ash in Fill Areas; and Will County Former Slag and Bottom Ash Placement Area; and

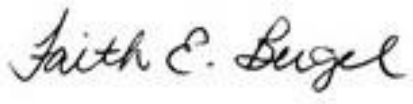
c. Remove all the coal ash stored or disposed of in the following areas: Historic coal ash fill around monitoring wells MW-06 and MW-08 at Powerton and all adjacent ash fill that is in sustained or intermittent contact with groundwater; the Former Slag/Fly Ash Storage Area (also known as the Old Pond or Grassy Field) at Waukegan; coal ash buried around the ash ponds at Will County.

4. Assessing against Respondent a civil penalty that is significantly higher than either $41.6 million or the economic benefit MWG incurred as a result of its noncompliance with Illinois Law.

5. Granting such other relief as the Board deems appropriate and just.

Dated: January 18, 2023

Respectfully submitted,



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COMPLAINANTS' POST-HEARING REMEDY BRIEF

APPENDIX 1

2021 EXCEEDANCES AT JOLIET 29, POWERTON, WAUKEGAN, AND WILL COUNTY

APPENDIX 1: 2021 EXCEEDANCES AT JOLIET 29, POWERTON, WAUKEGAN, AND WILL COUNTY

The following table compiles 2021 groundwater monitoring data that exceeded either (a) Illinois Class I Groundwater Quality Standards (35 Ill. Adm. Code 620.410) or (b), for boron and sulfate, 90th percentile statewide background concentrations. *See* Bd. Interim Op. and Order, PCB 13-15 at 16-17, 33-35, 50-51, 63, 76-77 (June 20, 2019); *see also id*. at 85 ("The Board also finds that exceedances of the statewide 90th percentile in some of the monitoring wells for some of the coal ash indicator constituents also constitute water pollution and violation of Article 12(a) of the Act"). The 90th percentile background concentrations of boron and sulfate are 0.7 and 175 mg/L, respectively, for the Joliet 29, Powerton, and Waukegan plants, where groundwater should be compared to statewide sand and gravel aquifer data, while the 90th percentile background concentrations for Will County, where groundwater should be compared to statewide shallow bedrock aquifer data, are 1.25 mg/L (boron) and 550 mg/L (sulfate). *See* Citizen Grp.'s Opening Post-Hr'g Br. at 21-22 (July 20, 2018), *cited by* Bd. Interim Op. and Order at 16-17.

Note that the following table excludes exceedances for pollutants that the Board excluded from its tables of exceedances (e.g., chloride, iron and manganese). *See, e.g.*, Bd. Interim Op. and Order at 30, Table 1. The following table also excludes exceedances in Waukegan wells MW-06, MW-11 and MW-14, which are generally upgradient of the FSFA Area. *See* Bd. Interim Op. and Order at 68.

Data can be found in Exhibits 1303 (Joliet 29), 1307 and 1325 (Powerton), 1310 and 1324 (Waukegan), and 1314, 1328 and 1332 (Will County) at the pages shown in the following table.

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Joliet 29	MW-03	Sulfate	5/18/2021	190	400		175	1	MWG13-15_118146
Joliet 29	MW-04	Sulfate	5/18/2021	190	400		175	1	MWG13-15_118147
Joliet 29	MW-07	TDS	5/17/2021	1,300	1,200	1			MWG13-15_118150
Joliet 29	MW-08	Sulfate	2/11/2021	260	400		175	1	MWG13-15_118151
Joliet 29	MW-08	Sulfate	5/17/2021	190	400		175	1	MWG13-15_118151
Joliet 29	MW-08	TDS	5/17/2021	1,300	1,200	1			MWG13-15_118151
Joliet 29	MW-09	Sulfate	3/2/2021	7,400	400	1	175	1	MWG13-15_118152
Joliet 29	MW-09	Sulfate	5/17/2021	3,300	400	1	175	1	MWG13-15_118152
Joliet 29	MW-09	Sulfate	8/27/2021	3,300	400	1	175	1	MWG13-15_118152
Joliet 29	MW-09	Sulfate	11/15/2021	3,800	400	1	175	1	MWG13-15_118152
Joliet 29	MW-09	TDS	3/2/2021	12,000	1,200	1			MWG13-15_118152
Joliet 29	MW-09	TDS	5/17/2021	5,600	1,200	1			MWG13-15_118152
Joliet 29	MW-09	TDS	8/27/2021	4,900	1,200	1			MWG13-15_118152
Joliet 29	MW-09	TDS	11/15/2021	6,100	1,200	1			MWG13-15_118152
Joliet 29	MW-10	Sulfate	5/18/2021	210	400		175	1	MWG13-15_118153
Joliet 29	MW-11	Boron	3/2/2021	1.20	2.00		0.70	1	MWG13-15_118154
Powerton	MW-06	Sulfate	2/23/2021	240	400		175	1	MWG13-15_118252
Powerton	MW-06	Sulfate	5/10/2021	400	400		175	1	MWG13-15_118252
Powerton	MW-06	Sulfate	8/25/2021	270	400		175	1	MWG13-15_118252
Powerton	MW-06	Sulfate	11/30/2021	230	400		175	1	MWG13-15_118252
Powerton	MW-07	Arsenic	2/23/2021	0.120	0.010	1			MWG13-15_118253
Powerton	MW-07	Arsenic	5/10/2021	0.140	0.010	1			MWG13-15_118253
Powerton	MW-07	Arsenic	8/25/2021	0.130	0.010	1			MWG13-15_118253
Powerton	MW-07	Arsenic	11/30/2021	0.140	0.010	1			MWG13-15_118253
Powerton	MW-09	Boron	2/24/2021	2.20	2.00	1	0.70	1	MWG13-15_118255
Powerton	MW-09	Boron	5/13/2021	1.90	2.00		0.70	1	MWG13-15_118255
Powerton	MW-09	Boron	8/25/2021	2.20	2.00	1	0.70	1	MWG13-15_118255
Powerton	MW-09	Boron	12/1/2021	3.30	2.00	1	0.70	1	MWG13-15_118255
Powerton	MW-10	Boron	2/23/2021	0.97	2.00		0.70	1	MWG13-15_118256
Powerton	MW-11	Arsenic	5/13/2021	0.011	0.010	1			MWG13-15_118257
Powerton	MW-11	Arsenic	8/25/2021	0.015	0.010	1			MWG13-15_118257
Powerton	MW-11	Boron	2/25/2021	1.300	2.00		0.70	1	MWG13-15_118257
Powerton	MW-11	Boron	5/11/2021	1.100	2.00		0.70	1	MWG13-15_118257
Powerton	MW-11	Boron	8/25/2021	0.850	2.00		0.70	1	MWG13-15_118257

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Powerton	MW-11	Boron	12/1/2021	0.990	2.00		0.70	1	MWG13-15_118257
Powerton	MW-11	Sulfate	2/25/2021	240	400		175	1	MWG13-15_118257
Powerton	MW-11	Sulfate	5/11/2021	240	400		175	1	MWG13-15_118257
Powerton	MW-11	Sulfate	8/25/2021	200	400		175	1	MWG13-15_118257
Powerton	MW-12	Arsenic	12/1/2021	0.011	0.010	1			MWG13-15_118258
Powerton	MW-12	Sulfate	2/25/2021	270	400		175	1	MWG13-15_118258
Powerton	MW-12	Sulfate	5/13/2021	340	400		175	1	MWG13-15_118258
Powerton	MW-12	Sulfate	8/25/2021	220	400		175	1	MWG13-15_118258
Powerton	MW-12	Sulfate	12/1/2021	180	400		175	1	MWG13-15_118258
Powerton	MW-13	Arsenic	2/24/2021	0.023	0.010	1			MWG13-15_118259
Powerton	MW-13	Arsenic	5/13/2021	0.023	0.010	1			MWG13-15_118259
Powerton	MW-13	Arsenic	8/23/2021	0.022	0.010	1			MWG13-15_118259
Powerton	MW-13	Arsenic	11/30/2021	0.023	0.010	1			MWG13-15_118259
Powerton	MW-13	Boron	2/24/2021	2.800	2.00	1	0.70	1	MWG13-15_118259
Powerton	MW-13	Boron	5/13/2021	3.200	2.00	1	0.70	1	MWG13-15_118259
Powerton	MW-13	Boron	8/23/2021	2.800	2.00	1	0.70	1	MWG13-15_118259
Powerton	MW-13	Boron	11/30/2021	2.600	2.00	1	0.70	1	MWG13-15_118259
Powerton	MW-13	Sulfate	2/24/2021	1,400	400	1	175	1	MWG13-15_118259
Powerton	MW-13	Sulfate	5/13/2021	1,500	400	1	175	1	MWG13-15_118259
Powerton	MW-13	Sulfate	8/23/2021	1,100	400	1	175	1	MWG13-15_118259
Powerton	MW-13	Sulfate	11/30/2021	1,000	400	1	175	1	MWG13-15_118259
Powerton	MW-13	TDS	2/24/2021	2,500	1,200	1			MWG13-15_118259
Powerton	MW-13	TDS	5/13/2021	2,600	1,200	1			MWG13-15_118259
Powerton	MW-13	TDS	8/23/2021	1,900	1,200	1			MWG13-15_118259
Powerton	MW-13	TDS	11/30/2021	2,100	1,200	1			MWG13-15_118259
Powerton	MW-14	Boron	2/24/2021	2.200	2.00	1	0.70	1	MWG13-15_118260
Powerton	MW-14	Boron	5/12/2021	2.100	2.00	1	0.70	1	MWG13-15_118260
Powerton	MW-14	Boron	8/23/2021	1.900	2.00		0.70	1	MWG13-15_118260
Powerton	MW-14	Boron	11/29/2021	1.500	2.00		0.70	1	MWG13-15_118260
Powerton	MW-14	Sulfate	2/24/2021	700	400	1	175	1	MWG13-15_118260
Powerton	MW-14	Sulfate	5/12/2021	660	400	1	175	1	MWG13-15_118260
Powerton	MW-14	Sulfate	8/23/2021	570	400	1	175	1	MWG13-15_118260
Powerton	MW-14	Sulfate	11/29/2021	530	400	1	175	1	MWG13-15_118260
Powerton	MW-14	TDS	2/24/2021	1,800	1,200	1			MWG13-15_118260

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Powerton	MW-14	TDS	5/12/2021	1,600	1,200	1			MWG13-15_118260
Powerton	MW-14	TDS	8/23/2021	1,500	1,200	1			MWG13-15_118260
Powerton	MW-14	TDS	11/29/2021	1,600	1,200	1			MWG13-15_118260
Powerton	MW-14	Thallium	5/12/2021	0.002	0.002	1			MWG13-15_118260
Powerton	MW-14	Thallium	8/23/2021	0.003	0.002	1			MWG13-15_118260
Powerton	MW-15	Boron	2/25/2021	1.200	2.00		0.70	1	MWG13-15_118261
Powerton	MW-15	Boron	5/12/2021	1.300	2.00		0.70	1	MWG13-15_118261
Powerton	MW-15	Boron	8/23/2021	1.500	2.00		0.70	1	MWG13-15_118261
Powerton	MW-15	Boron	11/29/2021	1.700	2.00		0.70	1	MWG13-15_118261
Powerton	MW-15	Selenium	11/29/2021	0.071	0.050	1			MWG13-15_118261
Powerton	MW-15	Sulfate	2/25/2021	440	400	1	175	1	MWG13-15_118261
Powerton	MW-15	Sulfate	5/12/2021	470	400	1	175	1	MWG13-15_118261
Powerton	MW-15	Sulfate	8/23/2021	440	400	1	175	1	MWG13-15_118261
Powerton	MW-15	Sulfate	11/29/2021	480	400	1	175	1	MWG13-15_118261
Powerton	MW-15	TDS	2/25/2021	1,300	1,200	1			MWG13-15_118261
Powerton	MW-15	TDS	5/12/2021	1,500	1,200	1			MWG13-15_118261
Powerton	MW-15	TDS	8/23/2021	1,400	1,200	1			MWG13-15_118261
Powerton	MW-15	TDS	11/29/2021	1,700	1,200	1			MWG13-15_118261
Powerton	MW-17	Boron	5/12/2021	0.990	2.00		0.70	1	MWG13-15_115948
Powerton	MW-17	Boron	8/23/2021	0.920	2.00		0.70	1	MWG13-15_115948
Powerton	MW-17	Boron	11/29/2021	1.000	2.00		0.70	1	MWG13-15_115948
Powerton	MW-17	Sulfate	5/12/2021	480	400	1	175	1	MWG13-15_115948
Powerton	MW-17	Sulfate	8/23/2021	500	400	1	175	1	MWG13-15_115948
Powerton	MW-17	Sulfate	11/29/2021	430	400	1	175	1	MWG13-15_115948
Powerton	MW-18	Sulfate	5/10/2021	350	400		175	1	MWG13-15_115948
Powerton	MW-18	Sulfate	8/26/2021	340	400		175	1	MWG13-15_115948
Powerton	MW-18	Sulfate	12/1/2021	310	400		175	1	MWG13-15_115948
Powerton	MW-19	Boron	5/10/2021	2.300	2.00	1	0.70	1	MWG13-15_115947
Powerton	MW-19	Boron	8/26/2021	2.100	2.00	1	0.70	1	MWG13-15_115947
Powerton	MW-19	Boron	12/1/2021	3.500	2.00	1	0.70	1	MWG13-15_115947
Waukegan	MW-01	Arsenic	3/1/2021	0.026	0.010	1			MWG13-15_118497
Waukegan	MW-01	Arsenic	5/5/2021	0.024	0.010	1			MWG13-15_118497
Waukegan	MW-01	Arsenic	8/18/2021	0.023	0.010	1			MWG13-15_118497
Waukegan	MW-01	Arsenic	11/3/2021	0.022	0.010	1			MWG13-15_118497

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Waukegan	MW-01	Boron	3/1/2021	3.70	2.00	1	0.70	1	MWG13-15_118497
Waukegan	MW-01	Boron	5/5/2021	3.20	2.00	1	0.70	1	MWG13-15_118497
Waukegan	MW-01	Boron	8/18/2021	2.70	2.00	1	0.70	1	MWG13-15_118497
Waukegan	MW-01	Boron	11/3/2021	2.70	2.00	1	0.70	1	MWG13-15_118497
Waukegan	MW-01	Sulfate	3/1/2021	210	400		175	1	MWG13-15_118497
Waukegan	MW-01	Sulfate	5/5/2021	190	400		175	1	MWG13-15_118497
Waukegan	MW-01	Sulfate	11/3/2021	180	400		175	1	MWG13-15_118497
Waukegan	MW-02	Arsenic	3/1/2021	0.013	0.010	1			MWG13-15_118498
Waukegan	MW-02	Boron	3/1/2021	4.60	2.00	1	0.70	1	MWG13-15_118498
Waukegan	MW-02	Boron	5/5/2021	4.60	2.00	1	0.70	1	MWG13-15_118498
Waukegan	MW-02	Boron	8/18/2021	4.10	2.00	1	0.70	1	MWG13-15_118498
Waukegan	MW-02	Boron	11/3/2021	4.20	2.00	1	0.70	1	MWG13-15_118498
Waukegan	MW-02	Sulfate	3/1/2021	190	400		175	1	MWG13-15_118498
Waukegan	MW-02	Sulfate	5/5/2021	200	400		175	1	MWG13-15_118498
Waukegan	MW-02	Sulfate	8/18/2021	190	400		175	1	MWG13-15_118498
Waukegan	MW-03	Boron	3/1/2021	4.80	2.00	1	0.70	1	MWG13-15_118499
Waukegan	MW-03	Boron	5/5/2021	5.80	2.00	1	0.70	1	MWG13-15_118499
Waukegan	MW-03	Boron	8/18/2021	3.20	2.00	1	0.70	1	MWG13-15_118499
Waukegan	MW-03	Boron	11/3/2021	3.10	2.00	1	0.70	1	MWG13-15_118499
Waukegan	MW-03	Sulfate	3/1/2021	290	400		175	1	MWG13-15_118499
Waukegan	MW-03	Sulfate	5/5/2021	220	400		175	1	MWG13-15_118499
Waukegan	MW-03	Sulfate	8/18/2021	280	400		175	1	MWG13-15_118499
Waukegan	MW-03	Sulfate	11/3/2021	240	400		175	1	MWG13-15_118499
Waukegan	MW-04	Boron	3/1/2021	3.30	2.00	1	0.70	1	MWG13-15_118500
Waukegan	MW-04	Boron	5/5/2021	3.20	2.00	1	0.70	1	MWG13-15_118500
Waukegan	MW-04	Boron	8/18/2021	3.00	2.00	1	0.70	1	MWG13-15_118500
Waukegan	MW-04	Boron	11/3/2021	2.70	2.00	1	0.70	1	MWG13-15_118500
Waukegan	MW-04	Sulfate	3/1/2021	230	400		175	1	MWG13-15_118500
Waukegan	MW-04	Sulfate	5/5/2021	190	400		175	1	MWG13-15_118500
Waukegan	MW-04	Sulfate	8/18/2021	210	400		175	1	MWG13-15_118500
Waukegan	MW-05	Arsenic	3/1/2021	0.040	0.010	1			MWG13-15_118501
Waukegan	MW-05	Arsenic	5/7/2021	0.021	0.010	1			MWG13-15_118501
Waukegan	MW-05	Arsenic	8/20/2021	0.017	0.010	1			MWG13-15_118501
Waukegan	MW-05	Arsenic	11/5/2021	0.039	0.010	1			MWG13-15_118501

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Waukegan	MW-05	Boron	3/1/2021	33.00	2.00	1	0.70	1	MWG13-15_118501
Waukegan	MW-05	Boron	5/7/2021	33.00	2.00	1	0.70	1	MWG13-15_118501
Waukegan	MW-05	Boron	8/20/2021	29.00	2.00	1	0.70	1	MWG13-15_118501
Waukegan	MW-05	Boron	11/5/2021	25.00	2.00	1	0.70	1	MWG13-15_118501
Waukegan	MW-05	Sulfate	3/1/2021	880	400	1	175	1	MWG13-15_118501
Waukegan	MW-05	Sulfate	5/7/2021	850	400	1	175	1	MWG13-15_118501
Waukegan	MW-05	Sulfate	8/20/2021	800	400	1	175	1	MWG13-15_118501
Waukegan	MW-05	Sulfate	11/5/2021	700	400	1	175	1	MWG13-15_118501
Waukegan	MW-05	TDS	3/1/2021	1,800	1,200	1			MWG13-15_118501
Waukegan	MW-05	TDS	5/7/2021	1,700	1,200	1			MWG13-15_118501
Waukegan	MW-05	TDS	11/5/2021	1,600	1,200	1			MWG13-15_118501
Waukegan	MW-07	Boron	3/1/2021	39.00	2.00	1	0.70	1	MWG13-15_118503
Waukegan	MW-07	Boron	5/7/2021	48.00	2.00	1	0.70	1	MWG13-15_118503
Waukegan	MW-07	Boron	8/20/2021	49.00	2.00	1	0.70	1	MWG13-15_118503
Waukegan	MW-07	Boron	11/5/2021	45.00	2.00	1	0.70	1	MWG13-15_118503
Waukegan	MW-07	Sulfate	3/1/2021	960	400	1	175	1	MWG13-15_118503
Waukegan	MW-07	Sulfate	5/7/2021	1,000	400	1	175	1	MWG13-15_118503
Waukegan	MW-07	Sulfate	8/20/2021	1,100	400	1	175	1	MWG13-15_118503
Waukegan	MW-07	Sulfate	11/5/2021	990	400	1	175	1	MWG13-15_118503
Waukegan	MW-07	TDS	3/1/2021	1,900	1,200	1			MWG13-15_118503
Waukegan	MW-07	TDS	5/7/2021	2,000	1,200	1			MWG13-15_118503
Waukegan	MW-07	TDS	8/20/2021	1,900	1,200	1			MWG13-15_118503
Waukegan	MW-07	TDS	11/5/2021	2,000	1,200	1			MWG13-15_118503
Waukegan	MW-09	Boron	5/6/2021	31.00	2.00	1	0.70	1	MWG13-15_115602
Waukegan	MW-09	Boron	8/19/2021	7.20	2.00	1	0.70	1	MWG13-15_115602
Waukegan	MW-09	Boron	11/4/2021	10.00	2.00	1	0.70	1	MWG13-15_115602
Waukegan	MW-09	Selenium	8/19/2021	0.071	0.050	1			MWG13-15_115602
Waukegan	MW-09	Selenium	11/4/2021	0.097	0.050	1			MWG13-15_115602
Waukegan	MW-09	Sulfate	5/6/2021	420	400	1	175	1	MWG13-15_115602
Waukegan	MW-09	Sulfate	8/19/2021	210	400		175	1	MWG13-15_115602
Waukegan	MW-09	Sulfate	11/4/2021	180	400		175	1	MWG13-15_115602
Waukegan	MW-16	Boron	5/6/2021	3.10	2.00	1	0.70	1	MWG13-15_115603
Waukegan	MW-16	Boron	8/18/2021	3.10	2.00	1	0.70	1	MWG13-15_115603
Waukegan	MW-16	Boron	11/4/2021	3.00	2.00	1	0.70	1	MWG13-15_115603

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Waukegan	MW-16	Sulfate	5/6/2021	300	400		175	1	MWG13-15_115603
Waukegan	MW-16	Sulfate	8/18/2021	320	400		175	1	MWG13-15_115603
Waukegan	MW-16	Sulfate	11/4/2021	290	400		175	1	MWG13-15_115603
Will County	MW-01	Boron	2/23/2021	2.40	2.00	1	1.25	1	MWG13-15_118388
Will County	MW-01	Boron	5/24/2021	2.20	2.00	1	1.25	1	MWG13-15_118388
Will County	MW-01	Boron	8/23/2021	2.50	2.00	1	1.25	1	MWG13-15_118388
Will County	MW-01	Boron	11/19/2021	2.10	2.00	1	1.25	1	MWG13-15_118388
Will County	MW-01	Sulfate	8/23/2021	410	400	1	550		MWG13-15_118388
Will County	MW-02	Arsenic	11/19/2021	0.011	0.010	1			MWG13-15_118389
Will County	MW-02	Boron	2/25/2021	5.40	2.00	1	1.25	1	MWG13-15_118389
Will County	MW-02	Boron	5/24/2021	5.20	2.00	1	1.25	1	MWG13-15_118389
Will County	MW-02	Boron	8/23/2021	4.90	2.00	1	1.25	1	MWG13-15_118389
Will County	MW-02	Boron	11/19/2021	5.70	2.00	1	1.25	1	MWG13-15_118389
Will County	MW-02	Sulfate	2/25/2021	520	400	1	550		MWG13-15_118389
Will County	MW-02	Sulfate	5/24/2021	550	400	1	550		MWG13-15_118389
Will County	MW-02	Sulfate	8/23/2021	540	400	1	550		MWG13-15_118389
Will County	MW-02	Sulfate	11/19/2021	510	400	1	550		MWG13-15_118389
Will County	MW-03	Boron	3/1/2021	3.60	2.00	1	1.25	1	MWG13-15_118390
Will County	MW-03	Boron	5/24/2021	3.00	2.00	1	1.25	1	MWG13-15_118390
Will County	MW-03	Boron	8/24/2021	3.50	2.00	1	1.25	1	MWG13-15_118390
Will County	MW-03	Boron	11/19/2021	3.70	2.00	1	1.25	1	MWG13-15_118390
Will County	MW-04	Boron	2/22/2021	5.30	2.00	1	1.25	1	MWG13-15_118391
Will County	MW-04	Boron	5/24/2021	5.10	2.00	1	1.25	1	MWG13-15_118391
Will County	MW-04	Boron	8/24/2021	5.90	2.00	1	1.25	1	MWG13-15_118391
Will County	MW-04	Boron	11/19/2021	6.00	2.00	1	1.25	1	MWG13-15_118391
Will County	MW-04	Sulfate	2/22/2021	860	400	1	550	1	MWG13-15_118391
Will County	MW-04	Sulfate	5/24/2021	990	400	1	550	1	MWG13-15_118391
Will County	MW-04	Sulfate	8/24/2021	1,100	400	1	550	1	MWG13-15_118391
Will County	MW-04	Sulfate	11/19/2021	850	400	1	550	1	MWG13-15_118391
Will County	MW-04	TDS	2/22/2021	1,900	1,200	1			MWG13-15_118391
Will County	MW-04	TDS	5/24/2021	2,000	1,200	1			MWG13-15_118391
Will County	MW-04	TDS	8/24/2021	2,100	1,200	1			MWG13-15_118391
Will County	MW-04	TDS	11/19/2021	1,900	1,200	1			MWG13-15_118391
Will County	MW-05	Boron	2/23/2021	5.60	2.00	1	1.25	1	MWG13-15_118392

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Will County	MW-05	Boron	5/24/2021	4.90	2.00	1	1.25	1	MWG13-15_118392
Will County	MW-05	Boron	8/24/2021	4.60	2.00	1	1.25	1	MWG13-15_118392
Will County	MW-05	Boron	11/23/2021	5.40	2.00	1	1.25	1	MWG13-15_118392
Will County	MW-05	Sulfate	5/24/2021	440	400	1	550		MWG13-15_118392
Will County	MW-06	Boron	2/23/2021	2.80	2.00	1	1.25	1	MWG13-15_118393
Will County	MW-06	Boron	5/24/2021	2.50	2.00	1	1.25	1	MWG13-15_118393
Will County	MW-06	Boron	8/24/2021	2.90	2.00	1	1.25	1	MWG13-15_118393
Will County	MW-06	Boron	11/23/2021	2.90	2.00	1	1.25	1	MWG13-15_118393
Will County	MW-07	Boron	3/1/2021	4.10	2.00	1	1.25	1	MWG13-15_118394
Will County	MW-07	Boron	5/24/2021	3.70	2.00	1	1.25	1	MWG13-15_118394
Will County	MW-07	Boron	8/25/2021	3.10	2.00	1	1.25	1	MWG13-15_118394
Will County	MW-07	Boron	11/19/2021	5.90	2.00	1	1.25	1	MWG13-15_118394
Will County	MW-07	Sulfate	3/1/2021	680	400	1	550	1	MWG13-15_118394
Will County	MW-07	Sulfate	5/24/2021	530	400	1	550		MWG13-15_118394
Will County	MW-07	Sulfate	8/25/2021	460	400	1	550		MWG13-15_118394
Will County	MW-07	Sulfate	11/19/2021	730	400	1	550	1	MWG13-15_118394
Will County	MW-07	TDS	3/1/2021	1,500	1,200	1			MWG13-15_118394
Will County	MW-07	TDS	11/19/2021	2,100	1,200	1			MWG13-15_118394
Will County	MW-08	Boron	3/1/2021	1.60	2.00		1.25	1	MWG13-15_118395
Will County	MW-08	Boron	5/25/2021	2.50	2.00	1	1.25	1	MWG13-15_118395
Will County	MW-08	Boron	8/25/2021	3.10	2.00	1	1.25	1	MWG13-15_118395
Will County	MW-08	Boron	11/19/2021	3.80	2.00	1	1.25	1	MWG13-15_118395
Will County	MW-08	Sulfate	5/25/2021	540	400	1	550		MWG13-15_118395
Will County	MW-08	Sulfate	8/25/2021	500	400	1	550		MWG13-15_118395
Will County	MW-08	Sulfate	11/19/2021	620	400	1	550	1	MWG13-15_118395
Will County	MW-08	TDS	5/25/2021	1,600	1,200	1			MWG13-15_118395
Will County	MW-08	TDS	11/19/2021	2,000	1,200	1			MWG13-15_118395
Will County	MW-09	Boron	3/1/2021	1.30	2.00		1.25	1	MWG13-15_118396
Will County	MW-09	Boron	5/25/2021	1.40	2.00		1.25	1	MWG13-15_118396
Will County	MW-09	Boron	8/25/2021	1.70	2.00		1.25	1	MWG13-15_118396
Will County	MW-09	Boron	11/23/2021	1.80	2.00		1.25	1	MWG13-15_118396
Will County	MW-10	Arsenic	5/25/2021	0.011	0.010	1			MWG13-15_118397
Will County	MW-10	Arsenic	11/23/2021	0.018	0.010	1			MWG13-15_118397
Will County	MW-10	Boron	2/25/2021	2.90	2.00	1	1.25	1	MWG13-15_118397

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Will County	MW-10	Boron	5/25/2021	3.20	2.00	1	1.25	1	MWG13-15_118397
Will County	MW-10	Boron	8/26/2021	2.60	2.00	1	1.25	1	MWG13-15_118397
Will County	MW-10	Boron	11/23/2021	3.60	2.00	1	1.25	1	MWG13-15_118397
Will County	MW-11	Boron	5/25/2021	3.80	2.00	1	1.25	1	MWG13-15_116153
Will County	MW-11	Boron	11/23/2021	2.00	2.00		1.25	1	MWG13-15_116153
Will County	MW-12	Boron	5/25/2021	1.80	2.00		1.25	1	MWG13-15_116153
Will County	MW-12	Boron	11/23/2021	2.30	2.00	1	1.25	1	MWG13-15_116153
Will County	MW-13	Boron	5/4/2021	1.70	2.00		1.25	1	MWG13-15_125651
Will County	MW-13	Boron	5/26/2021	1.80	2.00		1.25	1	MWG13-15_125651
Will County	MW-13	Boron	6/7/2021	2.20	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-13	Boron	7/12/2021	1.60	2.00		1.25	1	MWG13-15_125651
Will County	MW-13	Boron	8/2/2021	1.60	2.00		1.25	1	MWG13-15_125651
Will County	MW-13	Boron	8/26/2021	2.00	2.00		1.25	1	MWG13-15_125651
Will County	MW-13	Boron	11/23/2021	1.80	2.00		1.25	1	MWG13-15_125651
Will County	MW-14	Boron	5/4/2021	4.80	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Boron	5/25/2021	5.10	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Boron	6/7/2021	5.70	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Boron	6/28/2021	3.10	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Boron	7/12/2021	5.20	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Boron	8/2/2021	4.70	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Boron	8/25/2021	4.10	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Boron	11/23/2021	3.00	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-14	Sulfate	5/4/2021	490	400	1	550		MWG13-15_125651
Will County	MW-14	Sulfate	5/25/2021	550	400	1	550		MWG13-15_125651
Will County	MW-14	Sulfate	6/7/2021	530	400	1	550		MWG13-15_125651
Will County	MW-14	Sulfate	7/12/2021	470	400	1	550		MWG13-15_125651
Will County	MW-14	Sulfate	8/2/2021	470	400	1	550		MWG13-15_125651
Will County	MW-14	Sulfate	8/25/2021	440	400	1	550		MWG13-15_125651
Will County	MW-14	Sulfate	11/23/2021	460	400	1	550		MWG13-15_125651
Will County	MW-14	TDS	5/25/2021	1,300	1,200	1			MWG13-15_125651
Will County	MW-15	Boron	5/4/2021	3.10	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-15	Boron	5/25/2021	3.20	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-15	Boron	6/7/2021	3.80	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-15	Boron	6/25/2021	3.40	2.00	1	1.25	1	MWG13-15_125651

Site	Well	Constituent	Date	Concentration (mg/L)	Class I Groundwater Quality Standard (mg/L)	Exceed (1=Y)	Statewide 90th percentile background (mg/L)	Exceed (1=Y)2	Bates Page
Will County	MW-15	Boron	7/12/2021	3.30	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-15	Boron	8/2/2021	3.10	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-15	Boron	8/25/2021	3.20	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-15	Boron	11/19/2021	2.90	2.00	1	1.25	1	MWG13-15_125651
Will County	MW-15	Sulfate	5/4/2021	510	400	1	550		MWG13-15_125651
Will County	MW-15	Sulfate	5/25/2021	600	400	1	550	1	MWG13-15_125651
Will County	MW-15	Sulfate	6/7/2021	570	400	1	550	1	MWG13-15_125651
Will County	MW-15	Sulfate	6/25/2021	550	400	1	550		MWG13-15_125651
Will County	MW-15	Sulfate	7/12/2021	510	400	1	550		MWG13-15_125651
Will County	MW-15	Sulfate	8/2/2021	550	400	1	550		MWG13-15_125651
Will County	MW-15	Sulfate	8/25/2021	510	400	1	550		MWG13-15_125651
Will County	MW-15	Sulfate	11/19/2021	570	400	1	550	1	MWG13-15_125651
Will County	MW-15	TDS	5/4/2021	1,400	1,200	1			MWG13-15_125651
Will County	MW-15	TDS	5/25/2021	1,400	1,200	1			MWG13-15_125651
Will County	MW-15	TDS	6/25/2021	1,300	1,200	1			MWG13-15_125651
Will County	MW-15	TDS	7/12/2021	1,300	1,200	1			MWG13-15_125651
Will County	MW-15	TDS	11/19/2021	1,300	1,200	1			MWG13-15_125651

Totals	Class I Groundwater Quality Standard (mg/L)	Statewide 90th percentile background concentration (mg/L)
Joliet 29	10	10
Powerton	53	56
Waukegan	57	57
Will County	103	77

COMPLAINANTS' POST-HEARING REMEDY BRIEF

APPENDIX 2
STATUTORY MAXIMUM PENALTY CALCULATIONS

APPENDIX 2: STATUTORY MAXIMUM PENALTY CALCULATIONS

The following calculations apply the statutory maximum penalty formula found at 415 ILCS 5/42(a), which authorizes the imposition of a $50,000 penalty for a violation of the Illinois Environmental Protection Act (including violations of regulations, such as the Part 620 Groundwater Quality Standards) and authorizes an additional $10,000 per day for violations that span multiple days. The following calculations are conservative in that they omit:

- All Part 620 groundwater standard violations
- All Section 12(a) violations after the fourth quarter of 2021

More broadly, these calculations omit all well- or pollutant-specific violations and instead assume that each power plant will, on any given day, have no more than one Section 12(a) violation, one Section 12(d) violation, and one Section 21(a) violation, regardless of how many wells and pollutants exceed groundwater standards or statewide background concentrations.

Groundwater monitoring data through mid-2017 were presented to the Board in Complainants' 2018 Post-Hearing Brief[1] and summarized in the Board's 2019 liability Order.[2] Data from mid-2017 through 2021 can be found in the following record documents:

- For Joliet 29 wells MW-01 through MW-11, Ex. 1301 at MWG13-15_63819-829 (4th quarter 2016 through 3rd quarter 2019) and Ex. 1303 at MWG13-15_118144-154 (4th quarter 2019 through 4th quarter 2021).

- For Powerton wells MW-01 through MW-16, Ex. 1304 at MWG13-15_66106-121 (3rd quarter 2017 through 3rd quarter 2019) and Ex. 1307 at MWG13-15_118247-262 (4th quarter 2019 through 4th quarter 2021).

- For Powerton wells MW-17 through MW-19, Ex. 1325 at MWG13-15_115947-950 (November 2015 through 2nd quarter 2022).

- For Waukegan wells MW-01 through MW-07, Ex. 1308 at MWG13-15_68268-274 (3rd quarter 2017 through 3rd quarter 2019) and Ex. 1310 at MWG13-15_118497-503 (4th quarter 2019 through 4th quarter 2021).

- For Waukegan wells MW-09, MW-11, MW-14, and MW-16, Ex. 1324 at MWG13-15_115601-603 (November 2015 through 1st quarter 2022).

- For Will County wells MW-01 through MW-10, Ex. 1311 at MWG13-15_69954-963 (1st quarter 2017 through third quarter 2019) and Ex. 1314 at MWG13-15_118388-397 (4th quarter 2019 through 4th quarter 2021).

- For Will County wells MW-11 and MW-12, Ex. 1328 at MWG13-15_116152-155 (November 2015 through November 2021).

- For Will County wells MW-13 through MW-15, Ex. 1332 at MWG13-15_125651 (May

[1] Citizens Grps.' Post-Hr'g Br., PCB 13-15, at Appendix A (July 20, 2018).
[2] Bd. Interim Op. and Order, PCB 13-15 (June 20, 2019).

2021 through November 2021).

Joliet 29 – Section 12(a) penalties. The Board found MWG liable for Section 12(a) violations caused by the coal plant's (1) exceedances of Part 620 groundwater quality standards for sulfate and total dissolved solids ("TDS") and (2) exceedances of the 90th percentile of background levels for sulfate. The record will show that since at least December 6, 2010, the first date for which groundwater monitoring results are available, groundwater at Joliet 29 has consistently exceeded the 90th percentile background concentration of sulfate in one or more wells while also routinely exceeding the Part 620 standards for sulfate and/or TDS. The number of days between December 6, 2010 and the most recent reported result (November 15, 2021) is 3,997 days, thus resulting in a $40,010,000 statutory maximum penalty ($50,000 for the first day of violations + (3996 x $10,000)).

Powerton – Section 12(a) penalties. The Board found MWG liable for Section 12(a) violations caused by the coal plant's exceedances of Part 620 groundwater quality standards and exceedances of the 90th percentile background levels for sulfate and boron. The record will show that since at least December 6, 2010, one or more wells on every quarterly groundwater monitoring event exceeded the 90th percentile of background for sulfate or boron, while also routinely exceeding Part 620 standards for arsenic, boron, sulfate, and TDS. The number of days between December 6, 2010 and November 29, 2021 is 4,011 days, thus resulting in a $40,150,000 maximum penalty ($50,000 for the first day of violations + (4,010 x $10,000)).

Powerton – Part 12(d) penalties. The Board found MWG liable for violations of Section 12(d) for a period of two to three months. Using two months (60 days) as a conservative assumption, the maximum penalty would be $640,000 ($50,000 for the first day of violations + (59 x $10,000)).

Waukegan – Section 12(a) penalties. The Board found MWG liable for Section 12(a) violations caused by the coal plant's exceedances of Part 620 groundwater quality standards for various pollutants and exceedances of the 90th percentile of background levels for boron and sulfate. The record will show that since at least October 25, 2010, through the most recent sampling data from November 5, 2021 (4,029 days), every quarterly groundwater quality sample at a combination of wells has exceeded the Part 620 standards for boron, sulfate or TDS and/or the 90th percentile of background concentrations of boron or sulfate, thus resulting in a $40,330,000 statutory maximum penalty ($50,000 for the first day of violations + (4,028 x $10,000).

Will County – Section 12(a) penalties. The Board found MWG liable for Section 12(a) violations caused by the coal plant's exceedances of Part 620 groundwater quality standards and exceedances of the 90th percentile of background levels for sulfate and boron. The record will show that since at least December 13, 2010, through the last available sample result on November 23, 2021 (3,998 days), every quarterly groundwater quality sample at a combination of wells exceeded the 90th percentile of background for sulfate and/or boron, while also routinely exceeding the Part 620 standards for antimony, arsenic, boron, sulfate, or TDS. The maximum penalty is therefore $40,020,000 ($50,000 for the first day of violations + (3,997 x $10,000)).

Section 21(a) Violations. The Board found MWG liable for violations of Section 21(a)'s prohibition on open dumping at all four plants. The Board found that MWG was aware of the presence of coal ash buried at the four stations before it began operations in 1999, and that 2005 borings at the sites confirmed the presence of coal ash. The Board found that MWG has not taken any action to remove the coal ash buried at the sites. Based on the knowledge of coal ash buried at the site in 1999 and 2005 and lack of any removal activities at any of the four coal plants, the civil penalty calculations assume that the violations began on January 1, 2006 and continue to January 18, 2024. Thus, the total number of days in violation is 6,591 and the total maximum penalty is $65,950,000 for each power plant ($50,000 for the first day of violations + 6,590 x $10,000).

The following table summarizes the forgoing penalty calculations, which sum to $424,950,000.

Plant	Violation	start date	end date	days in violation	statutory maximum penalty
Joliet 29	Section 12(a)	12/6/2010	11/15/2021	3997	$ 40,010,000
Joliet 29	Section 21(a)	1/1/2006	1/18/2024	6591	$ 65,950,000
Powerton	Section 12(a)	12/6/2010	11/29/2021	4011	$ 40,150,000
Powerton	Section 12(d)			60	$ 640,000
Powerton	Section 21(a)	1/1/2006	1/18/2024	6591	$ 65,950,000
Waukegan	Section 12(a)	10/25/2010	11/5/2021	4029	$ 40,330,000
Waukegan	Section 21(a)	1/1/2006	1/18/2024	6591	$ 65,950,000
Will County	Section 12(a)	12/13/2010	11/23/2021	3998	$ 40,020,000
Will County	Section 21(a)	1/1/2006	1/18/2024	6591	$ 65,950,000
Total					**$ 424,950,000**

CERTIFICATE OF SERVICE

The undersigned, Gregory E. Wannier, an attorney, certifies that I have served electronically upon the Clerk and by email upon the individuals named on the attached Service List a true and correct copy of the **COMPLAINANTS' POST-HEARING REMEDY BRIEF** before 4:30 p.m. Central Time on January 18, 2024, to the email addresses of the parties on the attached Service List. The entire filing package, including attachments, is 97 pages.

Respectfully submitted,

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Dated: January 18, 2024