BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

SIERRA CLUB and PRAIRIE RIVERS NETWORK,	)	
Petitioners,	)	
v.	)	**PCB 22-69**
	)	**APPEAL FROM IEPA**
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and WILLIAMSON ENERGY LLC,	)	**DECISION GRANTING NPDES PERMIT**
Respondents.	)	

NOTICE OF FILING

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Pollution Control Board PETITIONERS' MOTION FOR SUMMARY JUDGEMENT, MEMORANDUM IN SUPPORT OF PETITIONERS' MOTION FOR SUMMARY JUDGEMENT, and a CERTIFICATE OF SERVICE, a copies of which are herewith served upon you.

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September 19, 2022

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PETITIONERS' MOTION FOR SUMMARY JUDGEMENT

Sierra Club and Prairie Rivers Network (collectively, Petitioners) move for summary judgment pursuant to 35 Ill. Adm. Code 101.516 (b) on their Petition for Administrative Review, which was accepted by the Board on February 6, 2014. Petitioners are entitled to summary judgment because undisputed facts show that the Illinois Environmental Protection Agency ("IEPA") violated the Illinois Environmental Protection Act and regulations through its April 15, 2022 issuance of NPDES permit IL0077666 to Williamson Energy LLC, a company that is one of the Foresight Energy Companies.

The Permit allows piping up 7.2 million gallons per day (5000 gallons per minute) from the Williamson/Foresight Pond Creek Mine for 12.5 miles to the Big Muddy River to Outflow 011. IEPA has also approved discharges (Outfalls 1-8) to tributaries of Pond Creek which flows into the Big Muddy River downstream of the location of Outfall 011.

In support of their motion, Petitioners state:

1. The public notice and draft permit (R2801-2841) was noticed on August July 12, 2019. Local government bodies and numerous groups and many individuals opposed the permit and requested a public hearing. (R.2842 – 3298) Petitioners filed their initial comments and request for a public hearing on August 12, 2019. (R. 3102)
2. IEPA held a hearing on the permit on December 18, 2019, with the period for written public comments extending until January 17, 2020. (R. 39). Petitioners and many members of Petitioners appeared at the hearing and objected to the draft permit. Evidence and comments relating to the receiving waters, the draft permit and the history of the permit applicant's history with regard to the Environmental Protection Act were presented In their post-hearing written comments, Petitioners again objected to numerous aspects of the draft permit and filed expert comments and numerous documents and scientific studies.
3. In their comments Petitioners raised numerous issues including that:
    a. the draft permit was unworkable and did not provide for proper monitoring, particularly in light of the long history violations of the Illinois Environmental Protection Act by the Permittee,
    b. the draft permit did not properly protect the Big Muddy River, Pond Creek or the tributaries to Pond Creek receiving the discharge and, thus, violated 35 Ill. Adm. Code 302.105(a) and (c), 35 Ill. Adm. Code 309.141(d), 35 Ill. Adm. 309.143, and 35 Ill. Adm. Code 309.143.
    c. Alternatives to allowing the new pollution were not adequately considered and the potential negative effects of the pollution was not properly weighed under 35 Ill. Adm. Code 302.105(c).

4. The Final Permit, issued April 15, 2022, addressed some of the flaws identified by Petitioners and others in the draft permit but failed to address numerous flaws properly and raised some new problems.
5. Pursuant to 415 ILCS 5/40(e)(1) and 35 Ill. Adm. Code Section 105, the Sierra Club and Prairie Rivers Network petitioned for review of the April 15, 2022 IEPA decision on May 10, 2022.
6. A Memorandum is filed in support of this motion showing that the Permit should be remanded to the Agency with instructions to the Agency.

WHEREFORE, the Board should vacate the Permit and remand the matter to the IEPA with instructions that the Agency should:

- Finish developing the monitoring scheme with calibration of the critical conductivity/chloride system for Outfall 011 to the Big Muddy and a detailed explanation as to how it will be implemented.
- Explain in detail what the effluent limits are for Outfall 011 for sulfate, nickel, copper and iron based on chronic toxicity, and make clear that chronic water quality standards must be met at the edge of the mixing zone.
- Develop a monitoring system that, in addition to self-monitoring, requires the Permittee to pay for disinterested scientific monitoring of compliance with at least chloride, sulfate, nickel, copper, and iron levels at the edge of the mixing zone.
- Clarify and correct the vague and unintelligible portions of the Special Condition 16.
- Ensure protection of the Existing Uses of the Big Muddy River, Pond Creek, the tributaries of Pond Creek that will receive discharges from Outfalls 01 to 08, and any

creeks that may lose flow as a result of the loss or ground water as required by 35 Ill. Adm. 302.105(a) and (c).

- Consider carefully the alternatives to the proposed discharges and the potential social and economic effects of the proposed discharges as required by 35 Ill. Adm. Code 302.105(c)(2)(B)(iii) and (iv).

Respectfully Submitted,

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MEMORANDUM IN SUPPORT OF PETITIONERS' MOTION FOR SUMMARY JUDGEMENT

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The Illinois Environmental Protection Agency ("IEPA") on April 15, 2022, granted a National Pollutant Discharge Elimination System ("NPDES") permit (IL 0077666, the "Permit") to Williamson Energy LLC ("Williamson/Foresight" or the "Permittee"), one of the Foresight Energy companies (formerly Murry Energy) that have recently emerged from bankruptcy. IEPA granted the permit based in part on the claim that the Pond Creek Mine, operated by Williamson/Foresight, would promote employment and economic development in Franklin and Williamson Counties. Given the environmental, economic, and safety record of Williamson/Foresight, the proposition that the coal mine will promote positive social or economic development in Franklin County or elsewhere in the long run is at best dubious.

It is clear, however, that:

- The Permit will allow the discharge from the Pond Creek Mine (a.k.a. the "Mach Mine") into the Big Muddy River and tributaries of Pond Creek, a tributary of the Big Muddy, of numerous pollutants in large volumes at concentrations known to impair aquatic life;
- The Permit does not ensure protection of water quality standards as required by 35 Ill. Adm. Code 309.141 because, perhaps in a rush to issue the permit, IEPA has issued a permit leaving numerous complex monitoring provisions to be worked out by the Permittee and field tested in the future;
- The Permit is ambiguous and lacking detail in numerous important respects with some provisions that will be impossible to follow or enforce;
- IEPA inadequately considered proper application of one of the 2004 Amendments to 415 ILCS 5/39(a) given the dismal history of Williamson/Foresight with regard to past permit violations and other violations of the Illinois Environmental Protection Act (which continued even after the public permit hearing) in establishing monitoring conditions to

be developed and implemented by an operation that would not or could not comply with the comparatively simple conditions of its prior permit;

- IEPA did not properly consider the requirement under 35 Ill Adm. Code 302.105 (a) and (c) to protect existing uses from chronic toxicity and the additive toxic effects of the myriad of pollutants allowed by the Permit, but instead relied on a few numeric standards, known to be unprotective;
- IEPA did not consider the cumulative effects of the discharge together with other pollution (including discharges from the Sugar Camp and Viking mines also owned by Foresight);
- IEPA practically ignored the science showing that increased discharges of chloride and sulfate would exacerbate the toxic effects of mercury and the harmful effects of excessive phosphorus in the Big Muddy even if Williamson/Foresight did not itself add mercury or phosphorus to the river;
- While claiming to have eliminated mixing zones for Pond Creek, in setting limits for Outfalls 01-8 to tributaries to Pond Creek, IEPA ignored the *chronic* water quality standards of 35 Ill. Am. Code 302.208(e) in setting limits for those Outfalls;
- IEPA did not seriously consider the potential effect of the loss of 3 million gallons per day or more of groundwater being pumped out of the mine upon the existing uses of creeks in the region of the mine;
- In applying 35 Ill. Am. Code 302.105(c)(2)(B)(iii), IEPA considered alternatives to the Big Muddy discharge in a superficial and contradictory manner; and
- In determining whether the Permit benefitted economic development, IEPA gave full credit to the Permittee's employment and tax estimates but entirely ignored potential

adverse local economic effects of the mine, including bioaccumulation of toxic pollutants from the mine wastes in fish eaten by subsistence and recreational fishers and their families, and the fact that the coal being mined will fuel climate change.

I. FACTUAL BACKGROUND AND THE PROCEEDINGS BEFORE THE IEPA

The Permit allows piping up 7.2 million gallons per day (5000 gallons per minute) from the Pond Creek Mine for 12.5 miles to the Big Muddy River. This unusual proposal was planned because the water being piped is too contaminated by chloride, sulfate and other pollutants to discharge into Pond Creek or other creeks near the mine into which Williamson/Foresight has been discharging wastewater. (R. 4, 13, 3303, 3584-5, 3590)[1]

IEPA has approved this scheme. Absolutely critical to making the scheme appear defensible is the requirement for "continuous" chloride monitoring above and below the discharge. This monitoring of chloride is to be achieved indirectly through monitoring of conductivity which, once "calibrated" to show chloride levels, is to be used to determine how much wastewater, highly contaminated with chloride, Williamson/Foresight will discharge into the Big Muddy. The conductivity/chloride monitoring is also being used to detect violations of the 500 mg/L "not [to] be exceeded" outside of the mixing zone chloride water quality standard of 35 Ill. Adm. Code 302. 208(g). (R. 2, 3, 27, 28, 37, 38, 41, 48, 52, 53, 61, 65, 66, 68, 69, 71, 75, 78, 80, 81, 82,83,86, 93, 98, 104, 110)[2]

IEPA has also approved discharges to tributaries of Pond Creek (Outfalls 1-8) which, because of their low flow, can provide no dilution. The limits for these discharges were

[1] Foresight Energy LP and the mining operations it runs, including the Pond Creek, and the Sugar Camp and Viking Mines, located 10 miles north of Pond Creek Mine, are discussed by SEC filings at R3639-40. See also, R. 3662 and http://www.foresight.com/operations/#mines.
[2] A U.S. EPA explanation of conductivity appears at R. 4816.

determined by the *acute* water quality standards of 35 Ill. Adm. Code 208(c) (R. 5,6, 7, 8, 9, 10, 11, 12, 211-220).[3] Pond Creek itself has a low flow of zero cubic feet per second ("cfs") and is known to be impaired by numerous pollutants. (R. 71, 106, 8241). Thus, like its tributaries, Pond Creek is not suitable for mixing under 35 Ill. Adm. Code 102(b)(8) and (9).

Further, discharges to Pond Creek add to the cumulative impact of the Pond Creek Mine discharges into the Big Muddy because Pond Creek discharges into the river below the pipeline Outfall 011. (R. 2810)

A. The Initial Notice and Permit and Initial Comments

The public notice and draft permit (R. 2801-2841) were noticed on July 12, 2019. Local government bodies (Carbondale Park Dist. R. 3237, Carbondale City Council R. 3240), the Southern Illinoisan (R. 3275), numerous groups and many individuals opposed the draft permit and requested a public hearing. (R. 2842 – 3298) These comments stressed the importance of the Big Muddy for recreation, as a source of food for disadvantaged persons and recreationists, the biological value of the river, and the potential for negative economic and social impact of the Williamson/Foresight proposal. (R. 2856, 2883, 2905-2914, 2915, 2915, 2943, 3001, 3008, 3014, 3032, 3048, 3066, 3233, 3250). Petitioners filed their initial comments and request for a public hearing on August 12, 2019. (R. 3102)

[3] "Acute Toxicity," toxicity that will kill aquatic life in a matter of minutes, and "Chronic Toxicity," toxicity that will kill or eliminate the reproductive capacity of aquatic life over days, are defined in 35 Ill. Adm. Code 302.100. Acute and chronic toxicity are defined by U.S. EPA through the CMC – criteria maximum criteria and the CCC – criteria continuous concentration. Under the federal regulations, the CCC, consisting of a 4-day average, is not to be exceeded more than once every three years on the average. 40 CFR 131.36 (General Notes).

B. Summary of the Written and Oral Comments and Other Data in the Record

IEPA held a hearing on the draft permit on December 18, 2019, with the period for written public comments extending until January 17, 2020. (R. 39). Williamson/Foresight provided comments in support of the draft permit. (R. 3302—06)

The comments opposing the draft permit were varied and voluminous. In an effort to summarize the comments opposing the draft permit and focus on the portions of the record relevant to the issues that Petitioners have chosen to raise in this appeal, the comments and evidence in the record will be divided here into three categories: 1) comments relating to how the Permittee will or will not comply with the Permit, 2) comments relating to how the discharges to be allowed will affect existing uses of the Big Muddy River and other waters, and 3) comments relating to alternatives to allowing the discharge to the Big Muddy and the potential negative economic and social effects of granting the Permit.

1. Evidence and Comments Relating to Permit Compliance

Monitoring - Correlation of chloride and conductivity

At the hearing, one of the lawyers for Petitioners objected that the public was being asked to comment on a permit when the agency had not collected the necessary data relating to the permit. (R. 2735) Under questioning, IEPA freely admitted that the critical question of determining chloride levels from conductivity readings had not yet been worked out. (R. 2736-37) In their post-hearing written comments, Petitioners again objected to IEPA proceeding without the public being able to see how the chloride monitoring was to occur and to the lack of clarity in the draft permit. Petitioners spelled out what should be in the permit to provide some reasonable hope that the chloride standard would not be violated. (R. 4367-9). This problem was

also stressed by Dr. JoAnn Burkholder, of North Carolina State University and Director of the NCSU Center for Applied Aquatic Ecology, in her comments on the draft permit. (R. 4418)

Petitioners further objected that the downstream monitoring was to occur in the Big Muddy well below the proposed mixing zone. (R. 3321, 4368). By not monitoring at the edge of the mixing zone, IEPA was basically giving the Permittee an "unwarranted gift" of additional public waters that can be polluted by the mine effluent.

Commenters presented the long list of Williamson/Foresight violations

Petitioners and others pointed out that Williamson/Foresight had committed a long list of permit violations and asked that IEPA invoke the 2004 Amendment of 415 ILCS 5/39(a) which states that "In granting permits, the Agency may impose reasonable conditions specifically related to the applicant's past compliance history with this Act as necessary to correct, detect, or prevent noncompliance."[4] (R. 3284 3320, 3373, 3489, 3608, 3649, 4369). Petitioners specifically commented and requested:

> While self-monitoring is norm in NPDES permit, it would be irresponsible to rely on self-monitoring in this case, given the mine's history of reporting issues and especially with the complex monitoring scheme proposed in this permit. Were this permit to be granted, a third-party should be used to monitor the chloride in the Big Muddy, such as the United State Geological Survey and independent monitoring should be required at the discharge points to the Big Muddy and Pond Creek. (R. 4369)

[4] Commenters also entered data into the record regarding Foresight companies' bankruptcies and the poor long-term prospects for coal. (R. 3362, 3537, 3697, 3700, 3702) Since 2020, the price of coal has risen substantially. If this continues, the danger of Foresight/Williamson being unable to fulfill its permit conditions as a result of financial weakness is reduced but, also, makes more economically reasonable treatment alternatives that Williamson/Foresight deemed too expensive when they considered the alternatives in 2016. See Antidegradation Assessment. (R. 8310).

It should also be noted in this context that, due to the importance of the natural resources at risk, the Illinois Department of Natural Resources urged that there be "strict compliance" with the permit. (R. 94-5)

2. Effect of the Discharges on the Big Muddy and other Waters

Effects of total conductivity, chronic chloride toxicity and cumulative impacts of pollution by multiple sources

Extensive comments supported by scientific studies were presented by Petitioners and others objecting that it was not sufficient for IEPA to focus on meeting the 500 mg/L chloride standard to protect the Big Muddy and other waters. This evidence showed first that chloride pollution should not be considered in isolation; it must be considered together with the cumulative effects of other dissolved substances which contribute to conductivity. (R. 3288, 4354-8)

Petitioners presented extensive work by the U.S. EPA on the negative effects of total conductivity and abundant scientific evidence showing that total conductivity itself is a parameter that may affect existing uses as documented in the Draft Field Based Methods for Developing Aquatic Life Criteria (U.S. EPA 2016) (R. 4795-5010). Petitioners objected that neither the applicant nor IEPA have apparently given any thought as to how increased total conductivity might affect aquatic life existing uses in Pond Creek or the Big Muddy River. (R. 4356) The available evidence indicates that harm to existing uses will occur.

In his comment provided by Petitioners, Dr. Matthew Baker of the University of Maryland stated:

> Recent work has suggested that conductivity related to both chlorides and sulfates can produce both acute and chronic toxicity as well as reduced metabolism and lowered abundance of sensitive taxa (Clements and Kotalik 2016, Voss and Bernhard 2017). The fact that the stream is already impaired does not relieve the mining company or IEPA from establishing effluent limits protective of water

> quality standards, including those meant to protect aquatic life. There is little to no consideration of the addition of more chlorides, sulfates, or other pollutants to these streams or effects on other taxa (e.g., Wang et al. 2007, Timpano et al. 2010, Bier et al. 2012). What consideration that exists is implicitly focused entirely on concentrations and not also on the impact of loads.
>
> Second, cumulative or synergistic effects are likely to occur in a stream where additional stressors and harmful pollutants are present (Omerod et al. 2010). I have observed this myself in mining impacted streams, where conditional analysis showed that impacts of habitat degradation or thermal stress were enhanced by the presence of mining effluent (Baker 2014). Other studies have taken such impacts and interaction into account when investigating the effects of mining discharges (e.g., Gerritsen et al. 2010, Merriam et al. 2011, Cook et al. 2015). Cumulative effects have lately been the focus of study where multiple NPDES permits contribute to downstream impairment (Lindberg et al. 2011, Merriam et al. 2015, Nippgen et al. 2017, McManus et al 2020). IEPA has not taken these cumulative or synergistic effects into account at all in the proposed permit. (R. 4377-8)

Indeed, even considering chloride in isolation, recent scientific work has shown that the 500 mg/L chloride standard is simply not protective of mussels and other species that are (or could be) present in the Big Muddy watershed. (R. 4580, 4603, 4688, 4702) In fact, the U.S. EPA chronic standard for chloride is 230 mg/L (R. 3288) and that number is not to be exceeded as a four-day average more than once every three years on the average, 40 CFR 131.36 (General Notes), while under the Permit chloride levels of 500 mg/L would be allowed at the edge of the mixing zone (or 10 feet downstream) at all times. Particularly given that the Foresight operation at Sugar Camp will also be allowed to discharge chloride and other pollutants, and the Pond Creek Mine, in addition to the pipeline discharge, will also be dumping chloride and other pollutants into Pond Creek that will enter the Big Muddy, the total effect on the Big Muddy River will be massive. (R 3023, R. 4255-56)[5]

[5] In particular, Petitioners pointed out that allowing contaminants to reach the Big Muddy from the Sugar Camp Mine and from Outfall 011 and from Pond Creek, which discharges into the Big Muddy after receiving high levels of pollutants from the Pond Creek Mine has the potential to raise chloride levels in the whole river from the background Rend Lake 31 mg/L level found by

Chloride, phosphorus and cyanobacteria

Petitioners and others presented evidence of three ways in which the discharges into the Big Muddy and to the tributaries of Pond Creek, which discharges into the Big Muddy below Outfall 011, would harm the Big Muddy by compounding the effect of the phosphorus pollution that is in the Big Muddy from other sources. No one denies that nutrient pollution is entering the Big Muddy at high levels from agriculture and other sources and that segments of the Big Muddy downstream of the 011 Outfall discharge have been listed as impaired by phosphorus. (R. 2999, 4353). Adding high levels of chloride to the mix makes the situation worse. First, because the effects of excessive nutrients and increased salinization of waters have an additive effect to adversely affect aquatic life. As stated in a study placed into the record by Petitioners:

> Our study has found that the combined effects of the two stressors- across the range of values examined- are entirely additive for all of the taxa we examined including phytoplankton, periphyton, macroalgae, snails, and zooplankton. While the impacts of anthropogenic additions of nutrients and salt are not synergistic, their combined effects on aquatic ecosystems are still of tremendous concern since they both contribute to major changes including phytoplankton and periphyton blooms (via bottom-up and top-down mechanisms, respectively). Equally important are the impacts of salinization alone, including causing a major decline in numerous taxa including zooplankton, snails, and macroalgae. One would reasonably predict that such declines would have further cascading effects on consumers that rely on the salt-sensitive prey and on species that rely on the expansive *Nitella* meadows (and perhaps other salt-sensitive macrophyte species) in freshwater lakes for habitats. Overall, the combined effects of salinization and eutrophication might fast-forward the process of lakes becoming hypertrophic, and this could potentially result in devastating algal blooms and poor water quality. Lovisa Lind and others, Ecosphere, *Salty Fertile Lakes: how salinization and eutrophication alter the structure of aquatic communities*. R 3175, at 3190

Further, Petitioners offered scientific evidence that the high chloride discharges of the discharges from the Pond Creek Mine to the Big Muddy and tributaries of Pond Creek would

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IEPA(R. 65) to a level well over the federal chronic standard, (230 mg/L) even if it is assumed that there are no chloride inputs below Rend Lake other than the Williamson/Foresight Sugar Camp and Pond Creek Mines. (R. 4355-56)

exacerbate the existing problems caused by low dissolved oxygen and high phosphorus in the Big Muddy by promoting release of phosphorus from sediments and by favoring cyanobacteria, which can produce microcystin and many other toxins. (R. 4353) As explained by Dr. Burkholder:

> Harmful toxigenic cyanobacteria will have a competitive advantage over other algae in the environmental conditions created by the Pond Creek Mine's alkaline effluent, including high specific conductance, high chloride, and enhanced phosphorus (P) release from the sediments. Cyanobacteria also generally have high tolerance for limited light and toxic heavy metals relative to other algae. … Pertinent to benthic cyanobacteria, high concentrations of sulfate and chloride have been shown to enhance phosphorus release from the sediments (Caraco et al. 1993, Zak et al. 2006, Jin et al.2013). Most toxigenic cyanobacteria are "phosphorus loving" (Burkholder 2009 and references therein) – that is, they have high P optima and would be expected to be stimulated by the enhanced sediment P release. The hypoxic conditions that are contributing to the degradation of this stream segment (IEPA 2016) would further enhance sediment P release (Carlton and Wetzel 1988, Stumm and Morgan 1995). (R. 4415)

Chloride, Sulfate and mercury

Petitioners and others also presented scientific studies and comments regarding how increasing chloride and sulfate levels would exacerbate the already excessive levels of mercury in the system by liberating mercury now buried in sediments as toxic forms. (R. 3322, 3377, 3491, 4356) As stated by Dr. Burkholder:

> The high chloride and sulfate concentrations added to the water column of the substantial mixing zones would significantly increase mercury release from the sediments and, in turn, increase the potential for mercury contamination and toxicity to fish and other beneficial aquatic life. These effects would occur because there are strong chemical interactions between the overlying water and the sediments (Wetzel 2001). Mercury contamination is already contributing to the degradation of this stream segment (IEPA 2016). …
>
> The threshold value for major mercury release from the sediments may be substantially lower: In other work (Farrell et al. 1990), the fraction of total mercury-II (Hg+2) bound in the form of chlorocomplexes increased as the chloride concentration of the water increased; and the total toxic activity of the mercury chloro-complexes increased as a near-linear function of the total chloride concentration–but there was no significant increase in the mole fraction until the

> total chloride concentration was 10-3 M (35 mg chloride/L). The data again suggested a threshold for mercury release, at 35 mg chloride/L; this concentration corresponded to the chloride level at which significant decreases, related to mercury toxicity, were observed in growth of the test organisms. The permit level of chloride under consideration by IEPA, 500 mg chloride/L (outside mixing zones) would be more than 10-fold higher than that estimated threshold. (R. 4413-14)[6]

Dr. Burkholder's comment also refuted the claim made by IEPA in the permit notice that the chloride and sulfate would pass harmlessly over the (supposedly "oxygen-rich") uppermost sediment so that toxic methylmercury would not form from the mercury already on the bottom. Dr. Burkholder further commented that the toxic pollutants in the effluent discharge will cause higher respiration, stress, and death of aquatic life in the mixing zone, as well as chronic stress, higher respiration, and death of some biota in downstream waters. The elevated respiration, as well as the death of aquatic life and their decomposition, would contribute to impairment from hypoxic/anoxic conditions. The exacerbated low-oxygen conditions will, in turn, enhance formation of toxic methylmercury from the sediments. (R. 4417)

Pond Creek

Numerous comments made clear that Pond Creek and tributaries of Pond Creek could not legally be subjected to a mixing zone under 35 Ill. Ad. Code 302.102 as was proposed in the draft permit because these waters are already impaired and have too low a flow (or zero flow) to allow a mixing zone. (R. 3322, 3376, 3491, 4343, 4366)

[6] Essentially the same point – that increased chloride would release metals from sediments – was made in an earlier comment to the Illinois Dept. of Natural Resources. IDNR responded that impacts on surface water were to be addressed by IEPA and conveyed the comment to IEPA (R. 3578), but IEPA appears to have ignored the point.

Stream flow in creeks in the region

Petitioners further raised the obvious point that with 3 million gallons of groundwater flowing into the mine each day, stream flows in the region of the mine might be affected. (R. 4357-59) A stream cannot maintain existing uses if it does not have any water.

3. Consideration of Alternatives and Negative Social and Economic Effects.

Alternatives

Petitioners and others complained of the superficial consideration of alternatives to using dilution to try to solve the salty groundwater problem and that the blanket statements by the Permittee that it thought an alternative was too expensive was not a sufficient basis to reject an alternative. (R 3019, 3107, 3220, 3698, 4364) Further, Petitioners offered examples of treatment methods being used to treat coal mine wastewater in West Virginia and Poland. (R. 4364, 5519, 5539)

Negative social and economic effects

As mentioned above, many comments noted the immense value of the Big Muddy River to the community and asked that IEPA consider negative impacts from the mine on the Big Muddy along with the alleged employment and tax revenue benefits of operating the mine. There were also comments regarding the documented social and economic damage done by the long-wall mine and of the damage to neighboring properties and the health of people living in the area. (R. 2730, 3871, 4285, 4363, 5422) The fact that this whole project was designed to produce coal, the burning of which would fuel disastrous climate change, was also the subject of comment. (R. 4362)

C. The Final Permit and Responsiveness Summary

IEPA and Williamson/Foresight did some work following the close of the comment period. Changes were made to the Permit (R. 2-3) and a Responsiveness Summary was issued (R. 36-113). However, many issues pointed out in the comments were not addressed and the utility of many of the changes is at best unclear. The elements of the Permit and the Responsiveness Summary relating to the issues raise by Petitioners' appeal are discussed below.[7]

Monitoring and Permit Limits for Outfall 011 to the Big Muddy

Surprisingly, two and a half years after the hearing, it appears that the details of how chloride levels in the Big Muddy River are going to be determined with a continuous conductivity monitor, calibration of that monitor and other critical details regarding permit compliance still have not been established. Special Condition 15 of the Permit states that, not the Agency, but "The permittee shall determine the effluent limitation for chloride and/or the maximum effluent flow rate allowable to maintain water quality in the receiving stream," that "The permittee shall install a conductivity monitor upstream of the discharge to determine a chloride concentration (cus) correlated to the conductivity value," and that "The calibration curves should be approved by the agency before discharge, after six months of operation and yearly thereafter." (R. 37) The Responsiveness Summary also indicates that the calibration curves and other details regarding how Williamson/Foresight will monitor background flows and chloride concentrations and adjust effluent discharges were still undeveloped at least as of the

[7] Among the changes made to the Permit were to reduce the maximum chloride concentration of the discharge from to 5000 mg/L. (R. 38) Petitioners naturally do not object to this change but do object to the fact that it is not apparent how this limit can be met given that the wastewater may have a chloride concentration of 12,000 mg/L (R. 8378) and it is not apparent how Williamson/Foresight can consistently meet the effluent limit without grabbing some clean water from somewhere and using it to dilute its effluent.

date of the permit issuance. (R. 37, 48, 65, 66, 75, 82, 98, 104) No explanation is offered as to why this calibration and other work could not have been done in time to allow public comment on the draft permit or at least before the Permit was issued.

The limits on sulfate, iron, nickel, and copper are even more mysterious. Page 10 of the Permit regulating Outflow 011 directs one to Special Condition 15 for the limits as to those pollutants (R. 13) but copper and nickel are not mentioned in Special Condition 15. The Permit fails to provide a specific effluent limit for any of these pollutants or even to provide a specific formula for determining how much sulfate, nickel, iron or copper may be discharged. It appears that Williamson/Foresight is supposed to work out what is required using the water quality standards of 35 Ill. Adm. Code Part 302 and act accordingly. See R. 27

Special Condition 16 discusses a "continuous conductivity monitor (correlated to chloride)" that shall be installed within 10 feet *downstream* of the edge of the mixing zone. (R. 28). No explanation is offered as to why mixing is allowed outside the mixing zone.

Special Condition 16 then goes on to state that:

> If the measured concentration of chloride, at the downstream monitoring location, exceeds 700 mg/I (this equals 40% over the water quality standard) more than 20 percent of the time in any month, the discharge from Outfall 011 shall cease until the water quality standard can be met within the mixing zone. (R. 28)

Neither the Permit nor the Responsiveness Summary discuss what it means that the discharge shall cease until the water quality standard "can be met" inside the mixing zone. Further, nothing in the Permit or Responsiveness Summary refutes the implication that the Permittee can go on causing substantial violations of the standards (40% above) until it has frequently (more than 20% of the time) caused such violations 10 feet below the mixing zone.

Special Condition 16 provides as to Sulfate, Iron, Copper and Zinc that:

> d. If the water quality standard[8], based on a hardness of 91 mg/L as $CaCO_3$, for Sulfate and Iron (dissolved) exceeds the numbers below at the downstream monitoring location in more than 3 of the samples taken within the month, the discharge from Outfall 011 shall cease until the water quality standards can be met within the mixing zone.
> i. Sulfate= 700 mg/I (this is 40% over the WQS)
> ii. Iron (dissolved) = 1.4 mg/I (this is 40% over the WQS)
>
> e. If the water quality standard [s.i.c.], based on a hardness of 91 mg/L as $CaCO_3$, for Copper (dissolved) and Nickel (dissolved) exceeds the numbers below at the downstream monitoring location, by 20 percent in more than 3 of the samples taken within the month, the discharge from Outfall 011 shall cease until the water quality standards can be met within the mixing zone.
> i. Copper (dissolved)= 0.0126 mg/I (this is 20% over the WQS)
> ii. Nickel (dissolved)= 0.0055 mg/I (this is 20% over the WQS) (R. 28)

Again, the Permit and the Responsiveness Summary do not discuss how the Permittee is to show that the standards for sulfate, nickel, copper and iron "can be met." Given that IEPA thinks that has already been shown it believes that the standards "can be met" by issuing the Permit, it appears the Permittee could make this "can be met" showing quite easily without actually protecting the river. In other words, nothing in the Permit or the Responsiveness Summary would prevent the Permittee showing that the standard "can be met" if it shows that the hardness was not 91 mg/L, that flow conditions were unusual, that it has hired a new person to operate the pumps who can do better than that person's predecessor, or just rests its case on "can be met" based on the fact that IEPA already concluded that the standards could be met when it issued the Permit.

<u>Discharges to tributaries of Pond Creek</u>

[8] It appears that there must be a drafting error here and that IEPA meant to write that if the measured concentration of sulfate, copper, nickel and iron are above the water quality standard 10 feet below the mixing zone that the discharge from Outfall 011 should stop until it is proven that the water quality standard "can be met."

Having required the Permittee, after the public hearing, to do testing of the effluent with sufficient sensitivity to detect the levels of pollutants that might cause a violation of Illinois acute standards for arsenic, cadmium, copper, iron, lead, manganese, mercury, nickel, phenols, silver, zinc and selenium, IEPA added new limits to Outfalls 1-4 and 6-8 for mercury, nickel, copper, iron and zinc. Except for mercury, which is set at the human health fish consumption standard, all of the limits for discharges of toxins to tributaries to Pond Creek are set at the standard to protect against *acute* toxicity. (R. 5, 6, 7, 8, 10, 11, 12, 211-20)[9]

IEPA did eliminate a direct discharge to Pond Creek and required Reverse Osmosis (RO) treatment of 1 million gallons per day to restore Pond Creek - with the RO reject water to be added to the Outfall 011 discharge to the Big Muddy. (R. 37, 106) It is not apparent in the Record whether IEPA did a new reasonable potential analysis to reflect the fact that this reject water was being added to the Outfall 011 discharge or if it continued to rely on the analysis that was done on the potential discharge before the addition of the RO reject water. (R. 8363)

Williamson/Foresight's Past History of Violations and Monitoring

IEPA made no effort in the Responsiveness Summary to sugarcoat the fact that Williamson/Foresight has a long history of many serious violations and even continued to violate its existing permit well after the December 2019 public hearing on the new permit. (R. 49-50, 54, 58-9)[10] IEPA states that it added Special Condition 16 to address this problem. (R. 52)

[9] It appears that IEPA assumed that only those pollutants might be in the discharge. It does not appear that IEPA considered ***chronic*** toxicity as to Outfalls 1-8 as to any pollutant except mercury. Moreover, IEPA did not consider the high potential for additive and synergistic effects of the various toxic metals and other harmful substances known to be in the effluent as explained in Dr. Baker's and Dr. Burkholder's comments.

[10] Actually, the full account of Williamson/Foresight recent violations is still worse but there seems to be no point in belaboring the point unless Williamson/Foresight or IEPA have the temerity to contest the issue.

Petitioners' proposal for independent third-party monitoring is not discussed by IEPA.

Effects on the Big Muddy

The Responsiveness Summary makes clear that IEPA's approach to ensuring that existing uses in the Big Muddy River are protected is largely limited to requiring that numeric water quality standards be met at the edge of the mixing zone (or maybe 10 feet below the edge of the mixing zone). IEPA states repeatedly throughout the Responsiveness Summary that compliance with numeric water quality standards will protect aquatic life and human health. (R. 49, 64, 79, 81, 82, 84, 85, 91-2, 93, 96, 103, 106, 107)

Further, IEPA made its thinking clear on a number of specific matters:

Impacts of increased conductivity, chronic chloride toxicity and cumulative effects

IEPA's response to the expert testimony regarding total conductivity, chronic chloride toxicity and cumulative impacts of multiple new pollution sources to the Big Muddy makes clear that IEPA was entirely focused on meeting water quality standards. In response to comments raising the threat of cumulative impacts of toxins, IEPA answered:

> Since the discharger is required to comply with all applicable WQS prior to discharge or after mixing in the mixing zone and ZID, the designated uses will be fully protected. (R. 57, 82, 87, 92)

While not mentioning the studies cited by Petitioners or the testimony of Dr. Baker or Dr. Burkholder regarding total conductivity and cumulative impacts, IEPA stated:

> Comment: Should there be a total dissolved solids or conductivity limit?
>
> Response: No, because there are no WQS for total dissolved solids or conductivity. The IPCB removed the total dissolved solids WQS and replaced it with a sulfate WQS. In this case, conductivity will be monitored in the effluent, upstream, and downstream for Outfall 011 to ensure that the chloride WQS is met. (R. 87)

Impacts of Chloride on toxic algal blooms

Regarding the extensive comments of Dr. Burkholder and others explaining how increased chloride paired with phosphorus available from other sources[11] would give harmful cyanobacteria (blue-green algae) a competitive advantage over less harmful algae because cyanobacteria can thrive better than other algae in elevated chloride/salinity conditions, IEPA wrote:

> The claim that there will be an increase in cyanobacteria is based on the assumption that there will be an increase in phosphorus. There will be no increase in phosphorus because the mine discharge doesn't contain phosphorus. Thus, there will not be an increase in cyanobacteria. (R. 105)[12]

IEPA also missed Dr. Burkholder's writing that high concentrations of chloride and sulfate have been shown to enhance release of phosphorus, already present, from the sediments.

Chloride and Hg

Regarding published studies showing that increased chloride and sulfate will in turn increase levels of toxic forms of mercury moving from hypoxic/anoxic sediments into the water column, the Responsiveness Summary states, without citing supporting evidence, that hypoxia/anoxia affects only "deep" sediments so that the high chloride will not interact with hypoxic/anoxic conditions; and that as the chloride is diluted downstream, it will reduce any risk of mercury release. (R. 72) The Responsiveness Summary does not address Dr. Burkholder's

[11] Segment N-99 of the Big Muddy River below the Pond Creek Mine discharge has been listed as impaired by phosphorus. https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Documents/Appendix_B-2_Streams_FINAL_2019_04_23.pdf

[12] IEPA's confidence that there cannot be phosphorus in the Pond Creek Mine discharge does not appear to be supported by anything in the record. Petitioners have not located any study in the record in which potential phosphorus levels in Outfall 011 were studied or reported and there is some data in the record indicating high phosphorus levels in some measurements of an unidentified water source that IEPA thought relevant enough to include in the administrative record. See e.g. R. 1296, 1297, 1298, 1299, 2506, 2507, 2511. While phosphorus may not be found routinely in stormwater effluent from coal mines, the discharge going into the Big Muddy may in large part consist of groundwater from upland agricultural areas. It is known that such groundwater can contain much phosphorus. https://pubs.usgs.gov/fs/2012/3004/

discussion, based on peer-reviewed science publications, of why the abundant chloride can be expected to reach and affect sediments. IEPA offers no data to support its conclusion that hypoxic conditions affect "only deep sediments" in the Big Muddy River. IEPA also does not discuss how this conclusion might be reconciled with IEPA's 303(d) lists which identify low oxygen conditions (hypoxia, anoxia) in the water column as a cause of impairment of segments downstream from the mine. (R. 4353, and 2018 303(d) list Segments N-12, N-16 and N-99)

IEPA dismissed any potential for the mine effluent to contribute to impairment to the Big Muddy from low dissolved oxygen because the mine effluent does not have "sufficient deoxygenating chemicals" and ignored Dr. Burkholder's discussion of how mortality caused by acute toxic zones allowed by IEPA within the river would create deoygenating chemicals. (R. 70) Later in the Responsiveness Summary, IEPA states that the mercury fish consumption advisory for the Big Muddy is still in place. (R. 92-3)

Pond Creek impairments

Regarding Pond Creek, the IEPA states that it "has removed the proposed mixing zone in Pond Creek from the NPDES permit." (R. 71) No explanation is given as to why the limits for discharges to zero low-flow tributaries that flow into zero low-flow Pond Creek are set at the water quality standards to protect only against acute toxicity when these discharges may also violate chronic standards.

Drawdown of streams (creeks)

Regarding the danger of the existing uses of streams being affected by the drawdown of millions of gallons of groundwater, IEPA states:

> Generally, water recharges into the ground in upland areas and discharges to surface water in lowland areas. Water recharging to the depth of the mine would be coming from upland further away, not from local creeks. (R. 105)

What IEPA means by "local" and whether more distant creeks might be affected is not explained.

Alternatives and economic impacts

IEPA uncritically accepted the Williamson/Foresight estimates of employment and tax revenue that will result from the permit (R. 90) although it is unclear from the record how those estimates were calculated and ignored evidence regarding harms.

Alternatives

IEPA's response with regard to alternatives states that, in addition to the 2016 Antidegradation analysis, IEPA is relying on supplemental information, unavailable for the public hearing, provided by Williamson/Foresight on December 17, 2019 (R. 87). IEPA does not discuss the studies of successfully utilized alternative technologies offered by Petitioners in their January 2020 comments.

Accepting the Permittee's positions, the Responsiveness Summary rejects each alternative generally without considering combining alternatives. Reverse Osmosis ("RO") is rejected because it is allegedly not feasible for 3.5 MGD of wastewater although it apparently works fine for 1.0 MGD of wastewater as RO of 1.0 MGD is required by IEPA to clean up Pond Creek. (R. 88) IEPA states that RO technology creates a hazardous waste stream that creates disposal problems, but apparently not so hazardous that IEPA is concerned about piping the waste from the 1.0 MGD RO into the Big Muddy.

Deep well injection is rejected because it is allegedly unreliable for large flows, (R. 88-9) but the quantities of the flows of concentrated RO reject water, either of the 1.0 MGD RO that is to occur or of the 3.5 MGD for which RO was rejected, are not given. Evaporation and

crystallization are similarly rejected without discussing the volume of wastewater that might be expected after RO or another process is used to concentrate the waste.

Negative impacts on social and economic development

IEPA states that it has done enough to consider the net development to be generated by the permit with the Permittee indicating the jobs and federal and state revenue that will be generated, summarizing the 1964 to 2018 fish data for the Big Muddy watershed and studying mussels. (R. 90)

It does not appear that negative effects of the mining on neighbors of the mine or the earth's climate were considered by the agency.

D. This Appeal

Pursuant to 415 ILCS 5/40(e)(1) and 35 Ill. Adm. Code Section 105, the Sierra Club and Prairie Rivers Network petitioned for review of the April 15, 2022 IEPA decision on May 10, 2022.

II. LEGAL STANDARD

Petitioners bear the burden of proving that IEPA's issuance of the Permits violates the Environmental Protection Act or Illinois Pollution Control Board regulations. However, it is not the burden of Petitioners to prove that violations of water quality standards will necessarily result from the permitted discharge but only that the IEPA violated rules designed to protect against such violations. *Ill. EPA v. Ill. Pollution Control Bd.*, 386 Ill. App. 3d 375, 383 (3d Dist. 2008). In particular here, Petitioners meet their burden if they show that IEPA failed to "ensure" that water quality standards would be met.

As stated in the Board rules, "The Agency shall apply and *ensure* compliance with all of the following, whenever applicable: …

(d) Any more stringent limitation, including those:

1) necessary to meet water quality standards, …

2) necessary to meet any other federal law[13] or regulation, or

3) required to implement any applicable water quality standards, …

35 Ill. Adm. Code 309.141 (emphasis added).

The burden on the Agency to ensure protection of standards cannot be met through unsubstantiated guesswork or wishful thinking. To "ensure" means "to make certain." Corey H. by *Shirley P. v. Board of Education*, 995 F. Supp. 900, 913 (N.D. Ill. 1998) See also, https://dictionary.cambridge.org/dictionary/english/ensure (ensure = "to make something certain to happen"), www.merriam-webster.com/dictionary/ensure (ensure = "to make sure, certain or safe")

The burden on Petitioners, then, is only to show that IEPA has failed to make certain that all of the applicable water quality standards are met.

Further, where, as here, elements of IEPA's actions are unsupported by substantial evidence, petitioners meet their burden by demonstrating the record lacks such evidence to support IEPA's decision. *See Des Plaines River Watershed Alliance v. IEPA*, PCB 04-88 at 11 (April 19, 2007), aff'd sub nom. *IEPA v. IPCB*, 896 N.E.2d 479 (Ill. App. Ct. 3d. 2007), (citing *IEPA v. PCB*, 115 Ill. 2d 65, 70; 503 N.E.2d 343, 345 (1986) ("The Board reviews the entirety of the record to determine (1) if the record supports the IEPA's decision, and (2) that the procedures used by the IEPA are consistent with the Act and Board regulations. The Board does not affirm the IEPA's decision on the permit unless the record supports the decision.").

[13] State and federal law require IEPA to include effluent limits in permits where necessary to prevent violations of water quality standards, including narrative standards. 35 Ill. Adm. Code §§ 304.105, 309.143(a), and 309.141(d) (1) and 40 CFR 122.44(d).

Summary judgement is appropriate in a permit appeal or other matter, when there is no genuine issue of material fact and the record before the Board demonstrates a clear right to judgment as a matter of law. 35 Ill. Adm. Code 101.516(b), *Outboard Marine Corp. v. Liberty Mut. Ins. Co*., 154 Ill. 2d 90 (1992); *Clayton Chemical Acquisition L.L.C. v. IEPA*, PCB 98-113 at 2 (March 1, 2001).

III. ARGUMENT - THE PERMIT VIOLATES THE APPLICABLE REGULATIONS IN NUMEROUS RESPECTS

The Permit should be remanded to IEPA for reconsideration due to numerous gaps and errors, and for failure to follow applicable regulations.

A. The Permit Fails to Ensure Compliance with Water Quality Standards in Violation of 35 Ill. Adm. Code 309.141 Because it is Incomplete, Unclear and Unprotective.

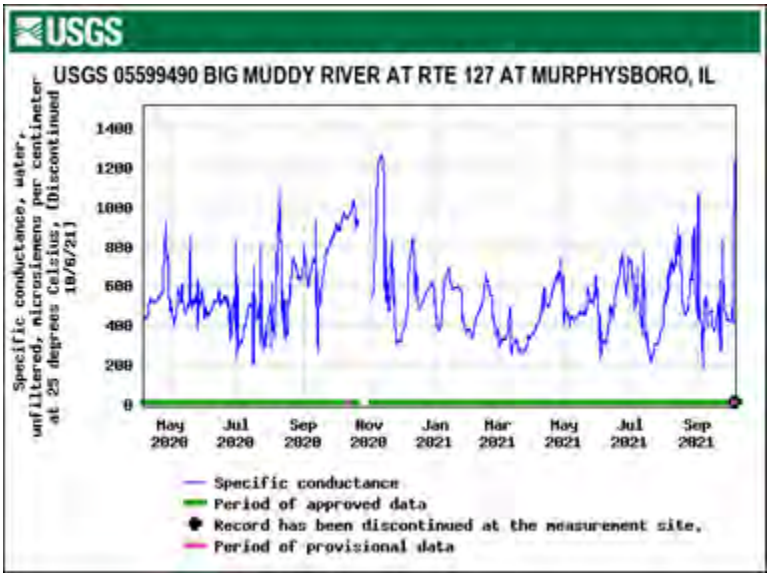
1. The Permit cannot legally be issued as a work in progress that allows critical portions of the Permit to escape review by the public and the Board.

The most obvious problem with the Permit is that IEPA and Williamson/Foresight have not completed their homework. The "linchpin" of the scheme is the continuous chloride conductivity monitoring that is to occur above and below the discharge to the Big Muddy, and the effluent adjustments that are to be implemented using this monitoring. It is uncertain that this scheme can be practicably developed—but it ***is*** certain that it still has not been developed and made public.

It is not surprising that Williamson/Foresight and IEPA are not eager to show their work regarding this problem. The Permit appears to contemplate that a Williamson/Foresight employee will sit in a little building next to the river and control the flow of the discharge from the mine on a continuous basis based on the continuous conductivity measurements. (R. 3306) Naturally, the Williamson/Foresight employee with this task will have an incentive to get rid of as much wastewater as possible to avoid backing up the system. Just what data will the employee

have at his/her disposal, and how is he/she to work with it? The answers to these questions are yet unresolved and have certainly not been made publicly available.

We do know that the problem of instantaneously deriving chloride levels from conductivity levels will not be easy. Conductivity can vary quite substantially over a few days or hours as is illustrated by United States Geological Survey data (see chart below) collected in the Big Muddy River during the last eighteen months for which such data was available.[14]



Moreover, there is no reason to believe that the level of chloride within a given amount of the total dissolved solids measured through measuring conductivity is constant. It would seem that chloride should be a much higher percentage of the TDS after rock salt has been applied to roads in the area. Discharges from Foresight's upstream Sugar Camp and Viking mines might also affect the proper calibration and cause it to vary unpredictably.

Of course, Petitioners do not know how conductivity varies over the course of a given period of time, or how chloride levels as indicated by conductivity measurement may vary over

[14] This data is available at https://nwis.waterdata.usgs.gov/il/nwis/uv?cb_00095=on&format=gif_default&site_no=05599490&period=&begin_date=2020-04-06&end_date=2021-10-06

the course of the year or day. The key point, though, is that there is nothing in the record which shows that Williamson/Foresight or IEPA has made a proper study of this issue. Certainly, IEPA and Williamson/Foresight did not "do their homework" and allow the public to see it during the comment period so as to allow proper public participation. Williamson/Foresight and IEPA did not even do their homework in time to include necessary details in the final agency permit. Both the public and the Board are being asked to buy a pig in a poke.

The Board rules require that a completed permit be shown to the public, not a work in progress, 35 Ill. Adm. Code 309.109, and issuance of a "final" permit with essential parts missing frustrates the entire review process.

The CWA requires that "[p]ublic participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States." 33 U.S.C. § 1251(e). Here, by allowing development of the key permit condition after the close of the normal permit development process, IEPA has denied the public its full right to public participation in the development of permit standards and effluent limitations.[15]

[15] Permitting schemes that do not allow for public review of key elements of NPDES permits violate the CWA. *Waterkeeper Alliance v. U.S. EPA*, 399 F.3d 486 at 503-504 (2d. Cir. 2005). Permits that rely on elements that are not part of the permit "deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because [such a permit] effectively shields the . . . management plans from public scrutiny and comment." *Id*. at 503. The public has a right to assist in the 'development, revision, and enforcement of ... [an] *effluent limitation.*' " *Id*. quoting 33 U.S.C. § 1251(e) (emphasis in the original). Such a permit also "impermissibly compromises the public's ability to bring citizen-suits, a 'proven enforcement tool' that 'Congress intended [to be used...] to both spur and supplement government enforcement actions.'" *Id*. (quoting Clean Water Act Amendments of 1985, Senate Environment and Public Works Comm., S.Rep. No.50, 99th Cong., 1st Sess. 28 (1985)).

2. The Permit suffers from serious drafting problems.

Special Condition No. 16 subparts d and e contain serious proofreading mistakes that must be corrected on remand.[16] Less easy to fix is IEPA's entire approach to limits on discharges to the Big Muddy. As to sulfate, chloride, nickel, copper and iron (dissolved), page 10 of the Permit (R.13) directs the Permittee and the public to Special Condition 15. But Special Condition 15 of the Permit does not set forth effluent limits for those pollutants.[17] It provides some monitoring conditions, many of which may be eliminated in two and a half years (R. 28), and limits the flow conditions during which the Permittee can discharge. Otherwise, Special Condition 15 tells Williamson/Foresight to work out what to discharge under the Illinois water quality standards, the key language being "discharges not meeting the water quality standards of 35 Ill. Adm. Code 302 may only be discharged at such times that sufficient flow exists in the receiving stream to ensure that water quality standards in the receiving stream beyond the area of

[16] "If the water quality standard, based on a hardness of 91 mg/L … exceeds …40% and 20% over the WQS." Clearly, the water quality standard cannot exceed the water quality standard by 40%, 20% or any other amount. Petitioners believe IEPA meant to write that if the measured concentration of the named pollutants exceed the water quality standard by the stated amounts that the discharge should be stopped pending the showing that standards "can be met."

[17] For this reason, there are two schools of thought among Petitioners as to what IEPA meant to place as limits. One school maintains that Special Condition 15 does contain the limits on chloride, sulfate, nickel, iron and copper but that IEPA only stated these limits by way of reference to the water quality standards of 35 Ill. Adm. Code 302. According, to this school, the Permittee is actually required to meet the water quality standards at the edge of the mixing zone and the Special Condition 16 provisions regarding when the discharge should stop are intended to act as a backup. The other school of thought maintains that page 10 of the Permit (R. 13) also contains proofreading errors and that it was intended by IEPA to refer to Special Condition 16 for the limits for chloride, sulfate, nickel, iron, and copper. This school of thought has in its favor that Special Condition 16, unlike SC 15, does actually provide enforceable numeric limits (if the monitoring is somehow conducted properly) but has the downside that IEPA would then explicitly be allowing serious violations of water quality standards for long periods outside of the mixing zone.

allow mixing will not be exceeded". (R. 27)[18] Except perhaps with regard to chloride, it is impossible to discern how the public will determine if there has been a violation without filing a Freedom of Information Act request and conducting a scientific investigation.

The law is clear that IEPA cannot set effluent limits simply by telling the permittee not to violate water quality standards. *Natural Resources Defense Council v. United States Environmental Protection Agency*, 808 F.3d 556, 562 (2d Cir. 2015), *Prairie Rivers Network v. Ill. Pollution Control Bd*., 2016 IL App (1st) 150971, P27. Here again, IEPA is turning the limits over to the Permittee. There is some direction to the Permittee but whether those directions are followed will as a practical matter be a little secret between the Permittee and IEPA, if IEPA decides to closely monitor what is happening.

Special Condition 16 might be thought to fill in some of the gaps in Special Condition 15, but the ambiguities and uncertainties in Special Condition 16 are many. It appears that Williamson/Foresight is being permitted to continue discharging into the Big Muddy as long as chloride levels are above 140% of the *acute* water quality standard for chloride no more than 20% of the time 10 feet *below* the mixing zone. This, of course, assumes that the calibrations are rigorously made as claimed in the future, the monitoring is actually done, and there is anyone to notice the extreme violations of the acute standard outside the mixing zone. This situation is similar as to sulfate, chloride, iron, copper and nickel.

Moreover, what does it mean that the Permittee can start discharging again after it has shown water quality standards "can be met." Presumably, IEPA believes that the 500 mg/L

[18] One might hope that under Special Condition 15 the Permittee must prevent violations of the chronic standards as well as the acute standards of 35 Ill. Adm. Code 302.102, but, given what the agency did with discharges to Pond Creek, this is uncertain. In any case, the Permit does not make this clear.

standard "can be met" within the mixing zone. Finding that the standard has been violated would not necessarily change that. Certainly, it does not appear that there is anything in the Permit that would preclude the Permittee from making the showing by reaffirming what IEPA already believes and explaining that the substantial and extended violations 10 feet below the mixing zone were due to operator error or bad luck. In any case, Special Condition 16, like the rest of the Permit, relies almost entirely on collection of data and self-monitoring by Williamson/Foresight.

3. The Permitee's long history of violations requires the establishment of a condition mandating the Permittee pay for monitoring by a disinterested third party.

IEPA addresses the horrendous history of Williamson/Foresight permit non-compliance, including numerous reporting violations, by requiring the fox to file an additional report on how many chickens it has taken through use of a downstream continuous conductivity monitor that the fox is to operate. To say that this requirement "ensures' protection of the Big Muddy or water quality standards as to this discharger mocks common sense.

415 ILCS 5/39(a) states *inter alia* that "In granting permits, the Agency may impose reasonable conditions specifically related to the applicant's past compliance history with this Act as necessary to correct, detect, or prevent noncompliance" In this situation—where a company plans to make hundreds of millions of dollars while saving itself some money by discharging toxic wastewater into a river on which many persons are dependent—the Act plainly requires that there be monitoring in addition to self-reporting.[19]

[19] According to the Williamson/Foresight antidegradation statement, the company plans to take about 7 million tons per year from the mine. (R. 8311) As of 9/8/22, the price of Illinois basin coal is over $196/ton. https://www.eia.gov/coal/markets/https://www.eia.gov/coal/markets/. It is safe to say that the cost of paying the USGS to put a super-gage or two on the Big Muddy River is unlikely to render unprofitable the Permittee's mines discharging to the Big Muddy, unless, of course, the gages discover pollution that the Permittee would not have reported.

Moreover, there is no reason why taxpayers should be required to pay for this additional monitoring. The Permit should clearly include a provision requiring the Permittee to pay the United States Geological Survey, the Illinois State Water Survey or some other disinterested party to conduct continuous monitoring at the edge of the mixing zone and below the Pond Creek discharge for every parameter that might be affected by the operation of the Pond Creek coal mine including at least chloride, copper, dissolved oxygen, iron, nickel and sulfate.

In summary, with regard to the basic drafting and operational portions of the Permit, a remand to IEPA is needed with directions for the Agency to:

- Finish developing the monitoring scheme with calibration of the critical conductivity/chloride system for Outfall 011 to the Big Muddy and a detailed explanation with specific permit requirements as to how it will be implemented;[20]
- Explain in detail what the effluent limits are for Outfall 011 for sulfate, nickel, copper and iron based on chronic toxicity, and make clear that chronic water quality standards must be met at the edge of the mixing zone;
- Develop a monitoring system that, in addition to self-monitoring, requires the Permittee to pay for disinterested scientific monitoring of compliance with at least chloride, sulfate, nickel, copper, and iron levels at the edge of the mixing zone; and
- Clarify and correct the vague and unintelligible portions of the Special Condition 16.

B. The Permit Fails to Ensure Protection of Existing Uses as Required by 35 Ill. Adm. 302.105(a) and (c).

[20] This might not even delay the discharge long as Williamson/Foresight is not supposed to discharge until the conductivity/chloride calibration has been completed and approved, assuming, of course, Williamson/Foresight intends to comply with permit requirements.

Adhering to the faith that the solution to pollution is dilution, the entire scheme adopted by the Permittee and approved by IEPA is keyed to meeting Illinois' relatively few applicable numeric water quality standards. As explained in the discussion of the Permit terms and Responsiveness Summary in Sections I.B and C above, the mantra of IEPA is that the Illinois numeric water quality standards, particularly the 500 mg/L chloride standard, can be counted on to protect existing uses of the Big Muddy and other affected water bodies from the many toxic and otherwise harmful pollutants in the mine wastes.

Had IEPA looked into the subject, it would have found that the Illinois chloride standard is far from protective as was shown by much evidence in the record.[21] As explained above, simply meeting the 500 mg/L chloride standard is not protective because science developed in the past decade demonstrates that total dissolved solids (or total conductivity) is also critical; the cumulative, interactive effects of the numerous pollutants in the mine wastes also must be considered; and, even considering chloride in isolation, the 500 mg/L limit just does not cut it—it is grossly inadequate to protect the designated use of the Big Muddy for aquatic life.

As a matter of law, the position that IEPA only had to consider the numeric water quality standards is untenable. Indeed, the Board in enacting certain Illinois regulations makes clear that adherence to the numeric standards is only one step. 35 Ill. Adm. Code 302.105(a) states "Uses actually attained in a surface water body or water body segment on or after November 28, 1975, whether or not they are included in the water quality standards, must be maintained and protected."

In 35 Ill. Adm. Code 302.105(c)(2)(B), the law states that the IEPA must:

Assure the following:

[21] A recent presentation that illustrates this science can be viewed at https://www.youtube.com/watch?v=mm9Evv21VSA

(i) The applicable numeric or narrative water quality standards standard will not be exceeded as a result of the proposed activity,
(ii) All existing uses will be fully protected,
(iii) All technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity, and
(iv) The activity that results in an increased pollutant will benefit the community at large.

In short, IEPA permits must protect existing uses and all narrative standards in addition to ensuring that permits meet numeric standards.[22]

The public comments, the Permit and the Responsiveness Summary discussed above show that IEPA failed to ensure that existing uses of the Big Muddy will be protected from a number of serious threats. IEPA apparently did not consider the peer-reviewed science indicating that there will be major impacts to the Big Muddy from total conductivity, as well as cumulative impacts. One does not assure protection of existing uses by ignoring risks to them that have been attested by numerous experts.

Regarding the combined effects of the Pond Creek Mine discharges and phosphorus in the sediment and continuing to come from a variety of sources, IEPA entirely missed the point. Even if the Pond Creek Mine discharges contain no phosphorus, they will enhance existing phosphorus movement from the sediments to the water column in an already-phosphorus-impaired river, and favor development of a particularly harmful form of algal growth (cyanobacteria or blue-green algae) that is capable of creating toxins.

[22] Other Illinois standards relevant to the Pond Creek Mine permit that should not be applied automatically in the context of considering limits are those for Nickel and Selenium, which are apparently well above the Federal standard. Compare, Nickel and Selenium data at R. 8363 and federal criteria of 40 CFR 131.36. Illinois does not even have a standard for arsenic for protection of fish consumption and arsenic levels have been detected above the Federal human health fish consumption criteria (R. 8363). It is known that many people are eating fish caught in the Big Muddy River. (R. 2905, 3023, 304, 3232, 3322, 3392, 3668, 3753, 3759, 5141)

IEPA simply tried to wish away the potential effects of high levels of chloride and sulfate in the effluent on mercury levels in a river already known to be impaired by mercury. IEPA failed to consider Dr. Burkholder's (2020) comments on this important issue. (R. 72). Those comments, based on peer-reviewed science, explained that methylmercury formation will be enhanced by the high sulfate and chloride of the mining effluent under conditions of hypoxia/anoxia in the bottom water and sediments of the Big Muddy River. Portions of the Big Muddy below the Pond Creek Mine are known to be impaired by low-oxygen conditions according to the state's 303(d) list. Yet, IEPA simply repeated verbatim its previous, unsupported claim that the discharged effluent will not interact with low-oxygen conditions in the receiving river—not in the mixing zone and not downstream from it. IEPA provided no data to support its expectation that there is no hypoxic water in the area and anoxic sediments are only "deep down." *If either claim was true, the river would not be impaired by low-oxygen (hypoxic/anoxic) conditions.* IEPA also relied on wishful thinking to conclude that because the (very high) chloride concentration discharged will decrease as the effluent moves downstream, there should be little if any risk of mercury release from sediments in downstream areas. Petitioners presented science showing that enhanced mercury release could be expected at chloride levels as low as 31 mg/L while Williamson/Foresight discharges will raise chloride levels far above that level. (R. 455-56, 4414)

Further, it is unclear that IEPA considered the effect of allowing Williamson/Foresight to clean up the mess in Pond Creek by piping RO reject water to the Big Muddy.

As to Pond Creek, it does not appear that IEPA ensured compliance with even the numeric standards that it claims to use as its Bible. The Permit allows Williamson/Foresight to discharge up to the acute concentration for cadmium, copper, nickel, and zinc (R. 211-20)

although there are chronic standards provided for these pollutants in 35 Ill. Adm. Code 302.208 and there is no dilution available in either the unnamed tributaries or Pond Creek.

Regarding the effect on existing uses on streams of the drawdown of 3 MGD, IEPA apparently did nothing except to explain that the creeks in the immediate vicinity would probably not be affected because the groundwater is being drained out of more distant unknown and unsung creeks or groundwater. (R. 105)

Accordingly, the Permit should be remanded to IEPA for it to seriously consider the cumulative effects of the blunderbuss of pollutants that may be discharged by this Permit (and other pollution) on the existing uses of the Big Muddy River, Pond Creek and other waters of the region.

C. The Agency's Consideration of the 35 Ill. Adm. Code 302.105(c)(2)(B)(iii) and (iv) Factors was Inadequate

IEPA did not seriously consider alternatives for addressing chloride discharges. It is unclear what economic analysis IEPA performed in rejecting alternatives other than to reject those alternatives that the Permittee or its consultants thought were too expensive. The consultants relied in large part on an IPCB opinion on the costs of alternatives (R. 8328), but that opinion is forty years old.

IEPA follows the Permittee's consultants in rejecting reverse osmosis for the 3.5 MGD of groundwater entering the mine (R.88) It is notable that Agency allows for RO reject water—claimed to be too hazardous to be stored or treated easily (R. 88)—to be dumped into the Big Muddy. (R. 2, 27, 37) The costs of using RO to treat the total of the wastewater in addition to the 1.0 MGD to be treated is never assessed.

Petitioners' suggestions were ignored. The costs of none of the potential alternative options were truly evaluated. The only alternative for which an estimate is provided is for is

crystallization (R. 8330). Even there, IEPA provided no information as to how the $0.25/gallon estimate was calculated. Further, the option of applying RO to the whole waste stream and then disposing of the estimated 25% of the waste stream that would remain (R. 8328) through one of the other means of wastewater treatment mentioned in the antidegradation analysis is not considered by IEPA. One alternative, Supervac, is explicitly rejected solely because it would have to be used in conjunction with another technology. (R. 8331). Similarly, using constructed wetlands is considered and rejected because the amount of land used "is enormous and would begin to crowd out other land uses," (R. 8337) and because "it is not expected that constructed wetland can treat the volume of stormwater expected at this facility," without providing details regarding the acreage that would be required or the other land uses that would begin to be crowded out or considering whether constructed wetlands might address *part* of the problem.[23]

An agency cannot reject an alternative because it does not take care of a problem by itself, if it can be combined with additional approaches to the problem that might solve it. *Simmons v. U. S. Army Corps of Engineers*, 120 F.3d 664, 669 (7th Cir. 1997) Here, that principle at least required considering a combination of alternatives to dumping all the wastes into the Big Muddy River.

Finally, while IEPA considered the benefits to the community at large from employment and tax revenue, it plainly did not consider potential damage to neighbors, subsistence or recreational fishers, or the climate. Those factors should be given at least some consideration on remand.

[23] Of course, no consideration is given in the antidegradation analysis by Williamson/Foresight or IEPA to the enormous amount of farmland taken out of production or damaged by the Pond Creek Mine itself.

CONCLUSION

The NPDES permit (No IL0077666) issued to Williamson Energy LLC on April 15, 2022 is not sufficiently protective of the environment and is not in accord with law. The Board should direct that the Agency reconsider the permit in order to establish conditions and limits necessary to ensure protection of Illinois water quality standards, including protection of existing uses in the Big Muddy River, and in order to bring the Permit into compliance with the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq., and Illinois law.

Respectfully Submitted,

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September 19, 2022

CERTIFICATE OF SERVICE

The undersigned herby certifies that a copy of the foregoing was electronically filed through the Clerk's Office COOL system and sent via email on this 19th day of September, 2022 to the following:

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