

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
Petition of Emerald Polymer) AS 19-002
Additives, LLC for an Adjusted) (Adjusted Standard)
Standard from 35 Ill. Adm. Code.)
304.122(b))

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board ILLINOIS EPA'S RESPONSE TO THE BOARD'S QUESTIONS, a copy of which is herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

BY: /s/Christine Zeivel
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Dated: March 18, 2020

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IN THE MATTER OF:)
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ILLINOIS EPA’S RESPONSE TO THE BOARD’S QUESTIONS

NOW COMES the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (“Illinois EPA” or “IEPA” or “Agency”), by and through its counsel, and hereby submits its response to the Illinois Pollution Control Board’s (“Board”) questions posed to the Illinois EPA during hearing on January 15, 2020, and states as follows:

RESPONSE TO BOARD QUESTIONS

Question No. 1: On page 11 of IEPA’s recommendation, the Agency notes that Emerald has formed a team to identify and evaluate potential modification of processes and product formulations to recover MBT and other organic nitrogen compounds. Based on the information in the record, could you please comment on whether Illinois EPA believes that process improvements at the Henry plant would have a significant impact on Emerald’s ability to comply with the ammonia-nitrogen effluent standards without implementing additional end-of-pipe solutions.

Response to Question No. 1:

The Illinois EPA believes that process improvements can have a significant impact on Petitioner’s ability to comply with the ammonia-nitrogen effluent standards. However, Petitioner has not shown that it has taken any sustained movement towards evaluating or implementing successful process modifications. Petitioner’s Answers to the Board’s Questions (“Petitioner’s Answers”) provide that Petitioner did not do any work on its ammonia problem for the almost four years prior to the filing of the subject petition,¹ not to

¹ When the Agency attempted to credit Petitioner with ammonia reductions following process improvements made in September 2018, Petitioner rebutted such credit for process improvements as the reason for reductions, instead pointing to decreases in production. Tr. January 23, 2020 at 52-53.

mention the previous thirteen (13) years of inaction lamented by the dissenting opinion in AS 13-2. While Illinois EPA believes it may be possible, if appropriate reductions can be made, for compliance with the standard to be achieved either without additional treatment or with very little additional treatment, the petition and the record in this proceeding show a clear lack of progress or commitment in that regard. To date, Petitioner remarkably cannot even quantify the presence of ammonia, TKN and MBT in its own individual process waste streams. *See* Process Plan timetable in Petitioner's Answers, Appendix A.

More importantly, while the results of any attempted process analyses or improvements are uncertain, the record supports immediate ways to reduce ammonia discharges and technically feasible treatment options that could achieve compliance immediately with the standards upon installation. Illinois EPA objects to relying on Petitioner's position that the Board and the State of Illinois should continue to wait *ad infinitum* for some undetermined future process improvements instead of installing best available treatment.

Question No. 2: On page 14, IEPA states that the Board should give little or no weight to stale and outdated information in the record. In this regard, please comment whether the updated information submitted by Emerald – I think that's in Petitioner's Exhibit 12 – addresses IEPA's concerns regarding stale information.

Response to Question No. 2:

Illinois EPA's recommendation objected to Petitioner's failure to properly incorporate the records from its previous adjusted standard proceedings (AS 02-5 and AS 13-2) pursuant to Section 101.306, which requires a party seeking incorporation to file the material to be incorporated with the Board and demonstrate that the material is credible and relevant to the proceeding. While the Board granted Petitioner's unopposed motion to

incorporate the records, the Agency remains uncertain as to what specific materials Petitioner desires to incorporate or which materials from the current proceeding Petitioner believes replaces or updates outdated or stale information. Without Petitioner notifying the Board and Illinois EPA of what evidence it believes is still relevant or not relevant to the current proceeding, by filing such material with the Board in accordance with Sections 101.306 and 101.302(h), the Agency's objection remains. In light of Petitioner's failure to file the relevant material evidence, Illinois EPA requests that the Board afford the incorporated records the appropriate weight pursuant to Section 101.306(b).

Furthermore, to the extent Petitioner seeks to incorporate previous Board findings, Illinois EPA objects based upon law of the case principles, which apply to AS 02-5 and AS 13-2. Generally, the law of the case doctrine provides that "a rule established as controlling in a particular case will continue to be the law of the case in as long as the facts remain the same." *People v. Patterson*, 154 Ill.2d 414, 468 (Ill. 1992); *Elmhurst Memorial Healthcare and Elmhurst Memorial Hospital v. Chevron U.S.A. Inc. and Texaco Inc.*, PCB 09-66, slip op. at 27 (July 7, 2011); *Bradley v. Howard Hembrough Volkswagen, Inc.*, 89 Ill. App. 3d 121, 124 (4th Dist. 1980) (holding court is bound by views of law in its previous opinion in a case, unless the facts presented require a different interpretation). A finding of a final judgment is required to sustain application of the doctrine. *Patterson*, 154 Ill. 2d 414 at 469. Here, the Board's orders in AS 02-5 and AS 13-2 were final decisions, and the rules established as controlling in those particular cases continue to be the law of those cases and those cases alone. The record in the instant case establishes a number of changes to the facts as they relate to Petitioner's effluent. Thus, bootstrapping previous findings by the Board onto this proceeding given the new facts in this matter would be improper.

Finally, to the extent Petitioner's Exhibit 12 provides more current analyses of certain treatment alternatives, the scope of the analysis is limited and does not address a myriad of historical facts, including feasibility and cost information for a number of treatment alternatives previously evaluated.

Question No. 3: On page 16 regarding the evaluation of GAC treatment alternative, IEPA states that Emerald failed to complete an economic reasonableness analysis.

(a) Please explain what IEPA considers as a complete economic reasonableness analysis.

Response to Question No. 3(a):

As outlined and cited in Illinois EPA's Response Opposing Petitioner's Motion to Exclude Relevant Evidence filed on December 30, 2019, Illinois precedent establishes a number of factors to be considered in the overall assessment of economic reasonableness. While Petitioner relies solely on cost per pound of ammonia removed for its economic analysis of technically feasible treatments, the Third District Appellate Court has found that "a great amount of information other than the costs of treatment must be known."

Cent. Illinois Light Co. v. Pollution Control Bd., 159 Ill. App. 3d 389, 395 (3d Dist. 1987).

A complete economic reasonableness analysis can include any number of factors that put the costs of a particular technology into perspective, including capital, operating and maintenance costs in relation to environmental harm of the discharge and benefits gained from treatment, any non-speculative tangible benefits to the petitioner, and the affordability or economic impact on the petitioner. Regarding affordability, USEPA's Interim Economic Guidance for Water Quality Standards provides a financial impact analysis for complying with water quality standards. The analysis considers the structure, size and financial health of the parent entity and is divided into four categories: impact on profits as the primary measure, and liquidity, solvency and leverage as secondary measures. P. 3-3

Illinois EPA points the Board to its Response Opposing Petitioner's Motion to Exclude Relevant Evidence for a thorough analysis of the Agency's position on a complete economic reasonableness analysis.

- (b) Also, comment on whether Emerald has provided necessary economic information to perform a complete economic analysis. If not, list the specific costs information that the Agency needs from Emerald to perform the analysis.

Response to Question No. 3(b):

Illinois EPA's recommendation points out how Petitioner's economic reasonableness analysis of granulated activated carbon (GAC) excludes any information about its revenues, profits and operating costs. Following compelled discovery productions and hearing testimony, the Board likely has sufficient information to conclude that several technically feasible treatment alternatives are also economically reasonable.² For example, and specific to one factor provided in Response to Question No. 3(a), the record establishes that any liability which may ultimately be incurred with respect to this case will not have a material effect on the combined financial position or operations of Petitioner. (IEPA Ex. 11A Note L, IEPA Ex. 11B Note J, IEPA Ex. 11C Note J). Nevertheless, the burden of proof for establishing economic reasonableness falls on Petitioner and Petitioner has failed to meet its burden to establish that the most affordable technically feasible options based on fair market values are economically unreasonable.

Question No. 4: On page 18, IEPA notes AkzoNobel Surface Chemistry, LLC utilizes spray irrigation of treated process wastewater, sanitary wastewater and stormwater through their NPDES permit.

² Specific to a GAC alternative, Illinois EPA believes that further study of the treatment's application at multiple points in the treatment process could impact Petitioner's evaluation of this alternative.

- (a) Please clarify if AzkoNobel owns the land on which they're applying ammonium-nitrogen wastewater from their treatment plant.

Response to Question No. 4(a):

AkzoNobel does own the land that they utilize for spray irrigation, but ownership of land is not required for a spray irrigation permit.

- (b) Is the Agency aware of any other spray irrigation permits in the state that allow for industrial wastewater to be applied to farmland? If so, please provide relevant examples of such permits.

Response to Question No. 4(b):

There are numerous spray irrigation permits in Illinois that authorize industrial wastewater to be applied to farmland, including permits held by the following facilities: Van Drunen Farms, Roma Shell Pizza Works, Senneca Foods Corp., Kostelac Grease Services, Compost Supply Inc., Kolb Leena Cheese Co., Pearl Valley Farms, Kraft Foods, Waste Management of IL, Stepan Co., Riverland Biofuels, Archer Daniels Midland, Mendota Agriproducts, and Dean Foods.

Question No. 5: On pages 21 and 22, IEPA states that capital costs – cost estimates for treatment alternatives considered by Emerald are comparable – are lower than capital costs expended by POTWs. IEPA provides several examples of capital costs of the upgrades at Illinois POTWs to treat ammonia-nitrogen.

- (a) Please comment on Emerald's response that at a conceptual level comparing alternatives solely based on estimated capital costs makes no sense.

Response to Question No. 5(a):

Illinois EPA agrees that operation and maintenance costs should also be evaluated to determine which alternatives are reasonable. Illinois EPA provided such total costs for POTW projects in State's Exhibit 1.

- (b) Also, comment on Emerald's contention that the examples of POTW upgrades were not solely intended for ammonia removal, but were implemented to accommodate higher flows, greater BOD and TSS removal.

Response to Question No. 5(b):

Emerald's Petition for Adjusted Standard relied on price per pound comparisons to municipal POTWs as a basis for analyzing economic reasonableness. By providing capital costs of projects at Illinois POTWs as well as a list of what was done in each project, Illinois EPA intended to highlight that most of the capital costs in each project were to treat parameters other than ammonia, and since the Petitioner would only be adding treatment for ammonia, its capital cost could be significantly less than the listed cost for each POTW upgrade. This example precisely illustrates why utilizing a cost per pound analysis when compared to POTW projects is improper.³

Question No. 6: On page 23, IEPA notes that it continues to be concerned about the Whole Effluent Toxicity, or WET, test within the petitioner's effluent specifically referring to substances such as MBT that inhibit nitrification. Please comment on whether there will be any benefit to requiring Emerald to perform toxicity studies on individual components of its effluent rather than the WET test for the whole effluent or the combined effluent coming out of the treatment plant. If such studies indicate that chemicals like MBT is toxic to aquatic life, comment on whether procedures of 35 Ill. Adm. Code 302 Subpart F could be used to derive permit limits.

Response to Question No. 6:

Illinois EPA is concerned, as it was in AS 13-2, about the whole effluent toxicity within Petitioner's toxic effluent. Besides the toxicity from ammonia, there are other substances that are likely toxic to aquatic life – such as the TDS levels now known to be in Petitioner's effluent from Mr. Flippin's testimony about field application. (Tr. February 4, 2020 at 13, 63). However, the Agency now knows that there is no MBT in Petitioner's effluent and therefore believes that WET testing is appropriate for this discharge. The individual

³ See further analysis of the cost per pound fallacy in Illinois EPA's Closing Brief at pp. 23 and 24.

regulation of chemicals does not account for the interactions of those chemicals with each other.

Question No. 7: On pages 23 and 24, IEPA notes that Emerald's effluent toxicity LC50 test results of 3.87% is not found in any other Illinois facility. To give an idea to the Board regarding the magnitude of the LC50 values, please provide examples of WET test results of other NH3-N or ammonium-nitrogen dischargers in the State.

Response to Question No. 7:

In its review, Illinois EPA identified approximately 15 "major" industrial dischargers in the State of Illinois whose effluent includes ammonia. Below is a summary of the biomonitoring results available for these facilities, since not all are required to perform LC50 bioassays:

- **Tyson Fresh Meats, Inc. (NPDES No. IL0003913)**
 - **2011: Definitive Ceriodaphnia, LC50 = 66% effluent**
 - **2012: Definitive Ceriodaphnia, LC50 = 89.1% effluent**
 - **2015: Definitive Ceriodaphnia, LC50 = 93.7% effluent**
 - **2016: Definitive Ceriodaphnia, LC50 = No effect.**
- **ConocoPhillips – Wood River Refinery (NPDES Permit No IL0000205)**
 - **1988: Ceriodaphnia LC50 = 56.8%; Fathead Minnow LC50 = 58.5%**
 - **1997: Ceriodaphnia = 20% in 100% effluent; Fathead Minnow = no effect**
 - **2008: Ceriodaphnia LC50 = no effect; Fathead Minnow = 50% in 100% effluent**
- **Equistar Chemical – Morris (NPDES Permit No. IL0002917)**
 - **1996: Ceriodaphnia = no effect; Fathead Minnow LC50 = 89.09%**
 - **1998 – present: No effects**
- **Flint Hills Resources (NPDES No. IL0001643)**
 - **1996: Daphnia Magna LC50 = 51.8%**

- 2014: Daphnia Magna LC50 = 2.0%; Fathead Minnow LC50 = 2.9%
- 2015 – present: no effect⁴
- ExxonMobil – Joliet Refinery (NPDES No. IL0002861)
 - 2002: Ceriodaphnia LC50 = 35.36%; Fathead Minnow LC50 = 63.73%
 - 2010: Ceriodaphnia LC50 = 51.3%; Fathead Minnow = no effect
- Argonne National Laboratory (NPDES Permit No. IL00034592)
 - 2008: Ceriodaphnia = no effect; Fathead Minnow LC50 = 25%
 - 2009: Ceriodaphnia = no effect; Fathead Minnow LC50 = 35%
 - 2010-2015: no effect
- Citgo Lemont Refinery (NPDES Permit No. IL0001589)
 - 2016: Ceriodaphnia LC50 = 97.1%; Fathead Minnow LC50 = 91.6%
 - 2018: Ceriodaphnia LC50 = 86.3%; Fathead Minnow LC50 = 97.7%
- SABIC Innovative Plastics – Ottawa (NPDES No. IL0001929)
 - 2000: Ceriodaphnia LC50 = 94.4% effluent; Fathead Minnow = no effect
 - 2017: Ceriodaphnia LC50 = 89.1% effluent; Fathead Minnow = no effect

Of particular note are ExxonMobil – Joliet Refinery and Citgo Lemont Refinery, two facilities discussed at hearing for having achieved compliance with the ammonia effluent limit for the Illinois River in Section 304.122(b) after being previously covered under an adjusted standard. Additionally, Equistar Chemical – Morris was also discussed since it land applies its wastewater.

Question No. 8: On page 24, IEPA states that a mixing zone is improper because petitioner is not providing the best degree of treatment. Please comment on whether Henry plant's ammonia-

⁴ The facility conducted a Toxicity Identification Evaluation ("TIE") in 2014 and thereafter implemented process changes which resulted in no further toxicity to either test organism.

nitrogen discharge would have any adverse impact on aquatic life if Emerald did not have a zone of initial dilution or a mixing zone.

Question No. 8 Response:

As shown by Petitioner's WET test results, Petitioner's discharge is toxic to aquatic life without a zone of initial dilution or a mixing zone. Such mechanisms only provide regulatory relief for toxic discharges such as Petitioner's.

Question No. 9: In response to IEPA's concern regarding viability of and costs associated with the treatment alternatives, Emerald has submitted an expert report with updated information. That's Petitioner's Exhibit 12. Among the five alternatives evaluated by Emerald, please comment on whether IEPA has a preference to which alternatives are technically feasible and economically reasonable for possible inclusion in the adjusted standard.

Response to Question No. 9:

Of the five alternatives evaluated in Mr. Flippin's report, Illinois EPA prefers tertiary nitrification as a technically feasible and economically reasonable treatment. Additionally, the Agency believes that granulated activated carbon (GAC), sodium peroxidase and hydrogen peroxide treatments provide feasible and reasonable alternatives.

Question No. 10: Based on Emerald's response, please comment on whether IEPA wishes to revise or modify any of its recommendations on pages 25-29 of the recommendation filed on 7/19/19.

Response to Question No. 10:

Illinois EPA's revised recommendation is provided in Illinois EPA's Closing Brief in Support of Denying Petitioner's Request for an Adjusted Standard filed on March 11, 2020.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

Respondent.

BY: /s/Christine Zeivel
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BY: /s/Rex L. Gradeless
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Dated: March 18, 2020

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THIS FILING IS SUBMITTED ELECTRONICALLY

CERTIFICATE OF SERVICE

I, the undersigned, on affirmation certify the following:

That I have served the attached **NOTICE OF FILING** and **ILLINOIS EPA'S RESPONSE TO THE BOARD'S QUESTIONS** by e-mail upon Thomas W. Dimond at the e-mail address of Thomas.Dimond@icemiller.com, upon Kelsey Weyhing at the e-mail address of Kelsey.Weyhing@icemiller.com, upon Don Brown at the e-mail address of Don.Brown@illinois.gov, and upon Carol Webb at the e-mail address of Carol.Webb@illinois.gov.

That I have served the attached **NOTICE OF FILING** and **ILLINOIS EPA'S RESPONSE TO THE BOARD'S QUESTIONS** upon any other persons, if any, listed on the Service List, by placing a true copy in an envelope duly address bearing proper first-class postage in the United States mail at Springfield, Illinois on March 18, 2020.

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

That the number of pages in the e-mail transmission is thirteen (13).

That the e-mail transmission took place before 4:30 p.m. on March 18, 2020.

/s/ Christine Zeivel
Christine Zeivel

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