

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 ELECTRONIC FILING

TO: Persons Identified on the Attached Certificate of Service

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board this **Notice of Electronic Filing** and the attached **Emerald's Post-Hearing Brief in Support of Petition**, copies of which are attached herewith and served upon you.

Respectfully submitted,

Emerald Polymer Additives LLC

Date: March 11, 2020

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inside a ZID because the organisms used to evaluate toxicity cannot remain in the ZID. The segment of the Illinois River into which the Henry Plant discharges is not impaired for either ammonia or dissolved oxygen (“DO”). Just as important, virtually all of the treatment alternatives to reduce ammonia will increase the salt loading to the Illinois River or have other negative environmental side-effects. The cure is worse than the disease. The Board has found twice that the Henry Plant discharge posed no environmental threat and all the more recent evidence supports the same conclusion.

Another requirement asks whether granting the AS is consistent with federal law. There is no federal counterpart to the Illinois effluent criterion for ammonia for the Illinois River, 35 Ill. Adm. Code 304.122(b). The Agency agrees. The Board has found twice that an AS is consistent with federal law, and there is no new evidence that would change that conclusion.

A third requirement asks whether there are substantially different factors relating to the petitioner that the Board did not consider in adopting the general regulation. When adopting Section 304.122(b) in 1973, the Board stated its belief that industrial facilities could achieve the ammonia limits by applying the same technology as municipal sewage plants, i.e., single-stage nitrification. The Board did not consider differentiating factors for *any* industrial facility, much less the presence of a unique nitrification inhibitor, mercaptobenzothiazole (“MBT”). The Board has twice before found the presence of MBT at the Henry Plant to be a substantially different factor that it did not consider and that factor is still present today.

The fourth requirement asks whether the substantially different factor justifies an AS. This requires the Board to consider a variety of factors, including whether it is technically feasible or economically reasonable for the petitioner to meet the general regulation. Emerald, and its predecessor, have acknowledged that there are some end-of-pipe alternatives that can

achieve compliance with Section 304.122(b). All of them would come at significantly greater cost than other dischargers incur for ammonia control. Emerald presented the testimony of Houston Flippin, an expert witness who is a licensed professional engineer and who has evaluated and designed hundreds of wastewater treatment facilities. His testimony demonstrates that none of the technically feasible alternatives are economically reasonable and that nearly all of them would have negative environmental side-effects. In response, the Agency ignored the side-effects, demonstrating a rather curious disregard for the environment. As to real alternatives, the Agency offered none. It only offered poorly evaluated concepts without any supporting evidence as to whether they were technically feasible or economically reasonable. Mr. Flippin quickly identified that most of the concepts were not technically feasible. One even created a catastrophic risk of failure. The Agency presented no evidence that any of its concepts were less costly than the alternatives evaluated by Mr. Flippin. The evidence overwhelmingly demonstrates that no alternative for the Henry Plant to meet the ammonia limits is both technically feasible and economically reasonable.

For these reasons, the Board should grant Emerald a third consecutive AS from the ammonia effluent limits in Section 304.122(b).

Following this Executive Summary, Emerald has provided a Table of Contents to assist the Board in locating the detailed discussion of the evidence and applicable law for each particular issue in this Post-Hearing Brief. Emerald has also provided suggestions as to the appropriate conditions to put on the AS in Section III, including an expiration date.

TABLE OF CONTENTS

	Page No.
Executive Summary	1
I. Statement of Facts	5
A. The Previous Adjusted Standards Granted by the Board	5
B. Emerald Has Complied with the Conditions of AS 13-2	6
C. The Illinois River Above and Near the Henry Plant	7
D. History and Operation of the Henry Plant	9
E. Efforts to Reduce MBT, TKN and Other Parameters in Wastewater	13
F. Emerald and Mexichem Contribution to the Local Community	17
G. The Henry Plant Wastewater Treatment Facility	17
H. The Multi-Port Diffuser, the ZID, the Mixing Zone and Environmental Tests	20
II. Argument	22
A. The Statutory Requirements for Granting an AS	22
B. The Requested AS Will Not Harm the Environment or Human Health	23
C. The Requested AS Is Consistent with Federal Law	25
D. Factors Relating to Emerald Are Substantially Different Than Those Considered by the Board in Adopting Section 304.122(b)	26
E. The Substantially Different Factors Justify Granting an AS	28
1. The Standard for Economic Reasonableness	28
2. None of the Alternatives Considered by Emerald Are Both Technically Feasible and Economically Reasonable	31
F. Emerald Applies the Best Degree of Treatment	48
III. Appropriate Conditions for the AS	50
A. Emerald's Proposed Conditions Are Justified	50
B. The Agency's Additional Proposed Conditions Are Not Justified	56
Conclusion	71

I. Statement of Facts

A. The Previous Adjusted Standards Granted by the Board.

The Board has twice granted an AS from the ammonia¹ effluent criterion in Section 304.122(b) for Emerald's chemical manufacturing facility in Henry, Illinois ("Henry Plant"). *See In the Matter of: Petition of Noveon, Inc. for an Adjusted Standard from 35 Ill. Adm. Code 304.122*, AS-2002-005 (Nov. 4, 2004) ("AS 02-5") and *In the Matter of: Petition of Emerald Performance Materials LLC for an Adjusted Standard from 35 Ill. Adm. Code 304.122*, AS-2013-002 (April 16, 2015 and December 1, 2016) ("AS 13-2"). The AS issued in AS 13-2 expires on April 16, 2020, and Emerald requested renewed relief in this proceeding.

In AS 02-5, the Board granted Noveon an AS with conditions. The Board concluded that the quality and composition of the wastewater produced in the Henry Plant was substantially different than wastewaters of other industries and publicly-owned treatment works ("POTWs") because of the presence of nitrification inhibitors, principally MBT. The Board found that it had not considered the manufacturing processes at the Henry Plant or the effects of MBT on nitrification when it promulgated Section 304.122(b). The Board also found that the Henry Plant's discharge of ammonia did not have an adverse environmental impact on the Illinois River and that no treatment alternative was both economically reasonable and technically feasible. AS 02-05, Order of the Board, 17-18 (Nov. 4, 2004). The Board also found that Noveon's wastewater facility provided the best degree of treatment and accordingly qualified for a mixing zone and ZID under 35 Ill. Adm. Code 302.102. *Id.*, 19-20. The Board placed conditions on the AS, including the installation and operation of a high-rate, multi-port diffuser proposed by Noveon and that the ammonia discharge not exceed a concentration of 155 mg/L. *Id.*, 22-23.

¹ Section 304.122(b) sets a limit for "total ammonia nitrogen as N." Except for quotations of legal language or proposed AS conditions, Emerald has generally used the shorthand "ammonia" throughout this brief.

In AS 13-2, the Board granted a new AS to Emerald based on similar findings as to the statutory requirements. The Board imposed a number of conditions including limiting the Henry Plant discharge to a daily maximum concentration of 140 mg/L (load = 1,633 lbs/day) and 30-day average concentration of 110 mg/L (load = 841 lbs/day); continued use of the multi-port diffuser; and a number of other conditions. *See* AS 13-2, Opinion and Order of the Board, 68-70 (April 16, 2015). The Board modified the AS consistent with the Appellate Court's opinion in *Emerald Performance Materials, LLC v. The Illinois Pollution Control Board*, 2016 IL App (3d) 150526. *See* AS 13-2, Opinion and Order of the Board (Dec. 1, 2016).

B. Emerald Has Complied with the Conditions of AS 13-2.

Emerald has complied with each condition imposed in AS 13-2. Emerald's monthly discharge monitoring reports ("DMRs") demonstrate that it has not violated the numeric concentration and load limits imposed by Condition 1 of AS 13-2. PHX 1, ¶¶ 7-8 (Written Testimony of Galen Hathcock); PHX 2, 13 and 14.² Emerald's DMR data shows that for calendar years 2015 through 2019, the Henry Plant has reported daily maximum ammonia concentrations for each month ranging from 16.0 to 130.0 mg/L (compared to 140 mg/L limit). *See* PHX 14, numbered pps. 1-3. The daily maximum loads for each month in the same years ranged from 75.9 to 553.4 lbs/day (compared to 1,633 lbs/day limit). *Id.* The monthly average concentration and loads reported for 2015-2019 ranged from 2 to 102 mg/L (compared to 110 mg/L limit) and 11 to 430 lbs/day (compared to 841 lbs/day limit), respectively. *Id.*

² When citing to testimony and exhibits from AS 19-2, we will omit the reference to the case number. Petitioner's Hearing Exhibits and Agency's Hearing Exhibits will be cited as "PHX" and "AHX," respectively. Transcripts of testimony will be cited as "HT [date], [page #:line #]." The Board ordered the incorporation of the records, exhibits and testimony from AS 02-5 and AS 13-2 in this proceeding. *See In the Matter of Petition of Emerald Polymer Additives, LLC for an Adjusted Standard from 35 Ill. Adm. Code 304.122(b)*, AS 2019-002, Order of the Board, 2 (May 30, 2019) (hereafter "AS 19-2"). When citing to records from AS 02-5 or AS 13-2, we will cite them with the appropriate AS number followed by the description of the record in that proceeding.

Emerald continues to utilize the high-rate, multi-port diffuser and has maintained the other equipment and process modifications required by Conditions 2(a) and (b) of AS 13-2. PHX 1, ¶ 9. In accordance with Conditions 2(c) and (d) of AS 13-2, Emerald has a continuous process improvement team focused on identifying and evaluating potential modifications to production processes to reduce MBT in the wastewater stream. The results of that team's efforts have built on a long list of process improvements adopted prior to 2013 and have been described in letter reports to the Agency pursuant to the conditions in AS 02-5 and AS 13-2 and in this proceeding. PHX 1, ¶¶ 10-14; *see also* Section I.E., below.

Emerald evaluated three specific treatment alternatives as required by AS 13-2 Condition 2(e) and reported the results to the Agency in April 2018. PHX 1, ¶ 16; PHX 11. Emerald and its consultant did not find any of those alternatives to be both technically feasible and economically reasonable. *Id.* The Agency provided no response to that report until this proceeding. HT 2/3/20, 17:9 to 18:2 (Liska). Emerald also complied with AS 13-2 Conditions 2(f), (g) and (h). PHX 1, ¶¶ 11 and 17-21; PHX 4.

C. The Illinois River Above and Near the Henry Plant.

The Henry Plant discharges through Outfall 001 and the high rate multi-port diffuser to the Illinois River pursuant to NPDES Permit No. IL0001392. *See* Petition, Ex. 3 (April 3, 2019). The Illinois River is formed at the junction of the Kankakee and Des Plaines Rivers, near Joliet, and runs 273 miles (primarily west and south) to the Mississippi River, near Grafton, which is a few miles upstream from St. Louis. A United States Geological Survey ("USGS") topographic map showing the location of the Henry Plant and the Illinois River is in evidence. AS 02-5, PHX 18. The Henry Plant is located to the west of the river between river miles 198 and 199,

Attachment A, 2,³ and sits on a bluff above the river. AS 02-5, HT 2/17/04, 11:24 to 12:5 (David Giffin). The USGS has operated a gauging station on the Illinois River near Henry at river mile 195.7 since October 1981 (USGS Gage 05558300). The river has a drainage area of approximately 13,544 square miles at Henry and an annual mean flow of 16,200 cubic feet per second (“cfs”) for water year 2018 and 15,550 cfs for water years 1982-2018. For water year 2018, the annual 7-day minimum flow was 3,176 cfs. *See* https://nwis.waterdata.usgs.gov/nwis/wys_rpt?dv ts ids=48987&wys_water_yr=2018&site_no=05558300&agency_cd=USGS&adr_water_years=2006%2C2007%2C2008%2C2009%2C2010%2C2011%2C2012%2C2013%2C2014%2C2015%2C2016%2C2017%2C2018&referred_module = (last visited 3/9/20). At Henry, the river is approximately 875 feet wide with an average depth of 11 feet and an approximate maximum depth of 18 feet. The Henry Plant discharges into segment D-09 of the Illinois River. Attachment A, 2.

Segment D-09 has not been given an integrity rating or been identified as biologically significant by the Illinois Department of Natural Resources. *Id.* As of 2014, this segment was listed as impaired on Illinois’ Section 303(d) list for human consumption of fish due to mercury and PCBs. *Id.*⁴ The latest information from the Agency indicates that Segment D-09 has been assessed as fully supporting aquatic life and primary contact recreation uses. The impairment designation for fish consumption caused by mercury and PCBs has not changed. *See* Illinois Integrated Water Quality Report and Section 303(d) List, 2018, DRAFT 11/14/18, Appendix A-

³ Attachment A is the Public Notice/Fact Sheet Issued By: Illinois Environmental Protection Agency, June 29, 2016 in connection with the issuance of NPDES Permit No. IL00001392 to Emerald for the Henry Plant. As a public record of the Agency, the Board can take judicial notice of the Public Notice/Fact Sheet. 35 Ill. Adm. Code 101.630(a)(1); Graham’s Handbook of Illinois Evidence § 201.3 (2020 Ed.). Likewise, the records of the USGS, the United States Environmental Protection Agency, other government agencies and municipalities, and the Agency’s Illinois Integrated Water Quality Report and Section 303(d) List that are available on the websites cited herein are all public records of which the Board may take judicial notice.

⁴ Mr. Liska confirmed that the impairment status of a stream is usually reflected in the Public Notice/Fact Sheet that accompanies a draft permit. HT 2/3/20, 285:16-23.

2, p. 22 and Appendix B-2, pdf page 19 of 42 (IEPA Bureau of Water) (available at <https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx> last visited 3/9/20).⁵ Thus, Segment D-09 is not listed as impaired for ammonia or DO. Moreover, none of the other segments of the Illinois River are listed as impaired for ammonia or DO either. *Id.*, Appendix A-2, pp. 22-23.

D. History and Operation of the Henry Plant.

The Henry Plant is located at 1550 County Road 1450 in Henry, Illinois between Illinois Route 29 (to the west) and the Illinois River (to the east) in northwestern Marshall County. The facility has two manufacturing units: a specialty chemicals unit and a polyvinyl chloride (“PVC”) resins unit. PHX 1, ¶ 22. The plant site was selected because of its unique proximity to the Illinois River, the Rock Island railroad system, the state highway system, electrical power resources, natural gas resources and water resources, as well as the positive work ethic of the local rural population. AS 02-5, PHX 6, 2 (Written Testimony of Giffin).

The facility was owned by a single company from its initial construction in 1958 until 1993. *Id.* The PVC resin production plant was eventually bought by Mexichem Specialty Resins, Inc. (“Mexichem”), which still operates the plant today, apparently as an affiliate of Vestolit or Orbia. PHX 1, ¶ 22; HT 1/14/20, 62:8-18 (Hathcock). Emerald or its corporate parent, Emerald Performance Materials, LLC, has owned and operated the specialty chemicals portion of the plant since 2006. PHX 1, ¶ 22.

Mexichem produces PVC resins. These resins are sold to a variety of customers including those in the construction, household furnishings, consumer goods, electrical, packaging and transportation industries. PHX 1, ¶ 22. The PVC resins produced by Mexichem have

⁵ The November 14, 2018 draft of the Integrated Water Quality Report appears to be the latest information available. The Agency issued a notice of a public comment period in May 2019 for revisions to the draft for 33 stream segments. None of those is in the Illinois River, and the website has no indication of subsequent action.

myriad applications, including the wear layer (top layer) of resilient floors, the support base (bottom layer) of resilient floors, and protective coating of cans used for food processing and vinyl wallpaper. AS 02-5, PHX 6, 4.

Emerald produces two broad families of products: accelerators and anti-oxidants. PHX 1, ¶ 22. The accelerators are used in tires and other rubber goods to shorten the curing time resulting in greater efficiency and lower tire costs. *Id.*, ¶ 24; AS02-5, PHX 6, 3. The antioxidants are used to inhibit the oxidation process in materials such as rubber, jet fuel, greases, oils and polypropylene. AS 02-5, Petition, 9. Anti-oxidants generally extend product life. Without antioxidants, rubber bands would develop holes and break quickly as they expand and contract. This concept applies to tires as they support a vehicle and roll down the road; tires could not function safely without antioxidants. AS02-5, PHX 6, 3.

The vast majority of Emerald's production has historically been accelerators. Almost all accelerator production at the Henry Plant utilizes MBT as the key intermediate. MBT-based accelerators have been used in the rubber industry for well over 50 years and are the most common type of accelerator. These accelerators are relatively inexpensive and very efficient and are essential to the production of tires and industrial rubber products. Given the low cost and high value that MBT-based accelerators provide, they are unlikely to be replaced in the foreseeable future. PHX 1, ¶ 24.

Emerald is the sole remaining manufacturer of MBT in the United States. AS 13-2, Petition, 14, n.3. The Henry Plant is also the sole U.S. producer of the following accelerator chemicals: Cure-Rite 18[®], OBTS, and MBDS. PHX 1, ¶ 25. Along with MBT, these accelerators are used as a critical component in the production of rubber, which is a national strategic product. In the production of accelerators there are several key raw materials: sulfur,

aniline, carbon disulfide and amines. The manufacture of accelerators is a multi-step process including the manufacture of an intermediate. This intermediate is then reacted with an amine and other raw materials to form an accelerator product. The product is then isolated through filtration and drying. *Id.*, ¶ 26.

There are various types of antioxidants manufactured by Emerald at the Henry Plant which utilize either diphenylamine or phenols as a starting material. The processes consist of batch and continuous reactors, filtration operations and solidification. *Id.*, ¶ 27.

Emerald continues to produce most of the same products that were produced by Noveon. There are a few exceptions. Emerald no longer produces X70 and GELTOL and does not produce any of the health care or personal care products that Noveon started to produce. PHX 1, ¶ 28. Emerald currently produces four finished products reliant on MBT (OBTS, MBDS, NaMBT a/k/a 50% MBT and BBTS) and one intermediate product reliant on MBT (34% Crude). HT 1/14/20, 33:10-23 (Hathcock); Emerald's Written Answers to Board Questions (hereafter "Emerald's Written Answers"), Response to Question 5, p. 7 (Mar. 6, 2020). Those products usually represent about 70% of plant production in pounds but in 2019 they were about 50% due to market conditions. HT 1/14/20, 34:9-21 (Hathcock). In particular, production of BBTS declined significantly from record levels in 2018 to very low levels in late 2019 with no production planned for January 2020. *Id.* 39:4-18, 40:23 to 41:4. Those processes, as well as the production of Stalite, Vanlube, X15, 3114 and Cure-Rite 18[®], also contribute Total Kjeldahl Nitrogen ("TKN") and small amounts of ammonia to the wastewater treatment plant. Emerald's Written Answers, Response to Question 5, p. 7.

MBT is the essential building block of rubber accelerators. MBT is a well-recognized inhibitor of biological nitrification, even at trace levels of 3 ppm. AS 02-5, PHX 9 (e.g.,

Hockenbury, et.al., Inhibition of Nitrification – Effects of Selected Organic Compounds, p. 770, Table II). Those characteristics that make it useful as a rubber accelerator are exactly what impair its treatability: MBT is poorly degradable. This makes MBT ideal for rubber making, but it cannot be reduced sufficiently prior to secondary treatment to achieve full biological nitrification in the bioreactors. AS 02-5, PHX 7, 15-16 (Expert Written Testimony of Flippin); HT 1/14/20, 131:17 to 132:6 and 145:24 to 146:3 (Flippin).

Ammonia is not a major raw material in any of the processes at either Mexichem or the Henry Plant. As an ingredient in the Henry Plant production processes, ammonia is only used in minor amounts in one low volume product. Mexichem uses ammonia as an ingredient to produce an emulsifier for use in one of the PVC processes and ammonia is found in the treatment system influent from the PVC tank and at sample locations solely attributable to Mexichem. PHX 1 ¶ 29; Emerald's Written Answers, Response to Question 6, pp. 7-8 and EP003732-EP003735. Still, the source of ammonia in the effluent is not primarily related to the level of ammonia in the treatment system influent. PHX 1, ¶ 29; PHX 9 ¶¶ 53-55 (Written Testimony of Houston Flippin); AS 02-5, HT 2/17/04, 27 (Giffin). As was previously determined, the amines (which contain nitrogen atoms) in the treatment system influent are converted to ammonia in the wastewater treatment process and, because nitrification does not occur as the result of inhibition, the ammonia is subsequently discharged from the wastewater treatment plant. PHX 9, ¶¶ 54-55 (Flippin discussing the role of TKN in ammonia formation in the Henry Plant wastewater).

Today, both Mexichem and Emerald continue to operate facilities at the Henry Plant in basically the same manner as described in AS 02-5 and AS 13-2. The facility has a utility operation that serves both companies. The utilities include a boiler and a complex wastewater

treatment system. Mexichem owns and operates the boiler while Emerald owns and operates the water treatment and waste treatment systems. AS 02-5, PHX 6, 2-3; PHX 1, ¶ 23.

E. Efforts to Reduce MBT, TKN and Other Parameters in Wastewater.

Emerald and its predecessors have a long history of making process changes to reduce levels of MBT, TKN and potential inhibitors or ammonia precursors in the wastewater. Noveon identified processes for removing morpholine from the OBTS and Cure-Rite 18[®] processes but gave up the efforts due to safety, quality control and other implementation challenges. AS 02-5, PHX 6, 6-7 (Written Testimony of Giffin). Noveon also considered a process for removing t-butylamine (“tBA”) from the BBTS process, but the materials of construction necessary due to high temperatures and salt concentrations were impractical. *Id.*, 7. Noveon also considered an acidification pretreatment process for removing morpholine, MBT, tBA and other byproducts from the OBTS, MBDS, BBTS and Cure-Rite 18[®] processes. That effort was given up due to safety, environmental and other concerns, including the generation of carbon disulfide, which auto-ignites at 200° F and the high level of salts in the form of total dissolved solids (“TDS”) that would be added to the wastewater. *Id.*, 8. In 1996, Noveon spent over \$742,000 to install a new BHS filter to improve the dewatering of the BBTS and Cure-Rite 18[®] streams. This improved process efficiency by 47 lbs/charge and reduced BBTS entering into the wastewater by 100,000 pounds in 1997. *Id.*, 9. In 2000 and 2001, Noveon further optimized the BHS filter media and improved the performance of the BBTS fines scrubber, leading to further reductions of 66,000 and 123,000 pounds of BBTS to the wastewater. *Id.*, 9-10. In 2003, Noveon optimized the tBA recovery system reducing losses to wastewater by 185,000 pounds. These latter two efforts received Governor’s Awards for pollution prevention. *Id.*, 10.

Noveon returned to the acidification concept in 1997 and experimented with acidification pretreatment of the polymer chemicals (“PC”) stream with ferric chloride. While the

pretreatment reduced chemical oxygen demand (“COD”) by 25% and MBT by about 50%, those reductions did not lead to any evidence of nitrification in the secondary treatment bioreactors.

Id., 11. In 2000, Noveon performed a full scale aeration study using air stripping in one of the bioreactors. Aeration of the primary clarifier stream did not reduce ammonia below 110 mg/L and also caused difficulty in control of pH due to the need to add caustic. Aeration of the PC stream only achieved some reductions in TKN and tBA but did not remove morpholine. And, the experiments suffered from the same inability to control pH and other variables. *Id.*, 11-12.

After AS 02-5, the Henry Plant continued to search for and implement pretreatment and source reduction. In 2007, Emerald replaced the BBTS scrubber with a dust collector reducing losses of BBTS to wastewater. PHX 4 (letter report to Agency Dec. 24, 2007). During project development, Emerald estimated that this replacement would reduce BBTS in the wastewater stream by 75 to 87 lbs per batch, which would translate to 8-10 lbs per batch reduction in effluent ammonia. AS 13-2, Response to Hearing Officer Order, 4 (April 12, 2013). Emerald also investigated a sintered BHS filter media that might reduce loss of BBTS to wastewater, but the trial filters continued to blind and require frequent changes. Emerald investigated improvements to the acetonitrile column efficiency but the resulting capital project was rejected. *Id.*, 5. Emerald also evaluated Anammox (an anaerobic ammonia oxidation process) but found that MBT and other inhibitors would render the process unstable. *Id.*

In 2008, Emerald conducted training to optimize treatment plant operation, initiated a study of use of carbon dioxide for pH buffering and conducted fed batch reactor testing to quantify bio-inhibitors in the system. PHX 4 (letter report to Agency May 20, 2010). In 2009, Emerald made improvements to the tBA column that it believed lowered the loss of amines, however, no data quantified the reductions. It also began using carbon dioxide to reduce slug

feeding of caustic and to improve overall stability; however, those changes did not reduce ammonia. PHX 4 (letter report to Agency Dec. 22, 2009); AS 13-2, Response to Hearing Officer Order, 5. In 2011 and 2012, Emerald made instrumentation upgrades for the acetonitrile recovery column associated with the 3114 process to better control absolute pressure and improve recovery efficiency. PHX 4 (letter report to Agency Dec. 20, 2011). The 3114 process did not run enough during 2012 and 2013 to provide data to measure the effects of these changes. PHX 4 (letter report to Agency Dec. 30, 2013); AS 13-2, Response to Hearing Officer Order, 7. In 2013 and 2014, Emerald tried to reduce tBA loss from a product manufactured in Building 725. PHX 4 (letter reports to Agency Dec. 30, 2013 and Dec. 30, 2014).

Between September 2018 and February 2019, Emerald made changes that decreased the loss of BBTS into the treatment system by almost 80%. HT 1/14/20, 51:5-9 (Hathcock); PHX 16 (page titled Henry Plant BBTS Effluent Improvement). Those changes included upgrades to computer hardware and software that facilitated improved process control, increasing the reaction temperature leading to drier and larger particles which enhanced BHS filtration efficiency and improvements to the BHS filter cleaning and process itself. Emerald's Written Answers, Response to Question 1, p. 4; HT 2/4/20, 83:3-17 (Hathcock). In the fall of 2019, Emerald focused on the BBTS and OBTS processes and achieved additional reductions in MBT lost from the BBTS process. Additional changes to the BBTS process included installation of a new oxidation-reduction probe to improve the bleach addition endpoint, addition of an acid wash step to the BHS filtering process reducing the amount of MBT dissolved in wastewater and an increase in the quantity of acid charged to attempt to reduce unreacted MBT. To date, efforts to improve losses from OBTS production have not been successful. Emerald's Written Answers, Response to Question 1, p. 4; *see also* HT 1/14/20, 46:3-23 (Hathcock). Each process must be

separately evaluated and tested to achieve source reductions. *Id.*, 45:18-23. Because BBTS and OBTS have greater source reduction potential, changes to the 50% MBT and MBDS processes have not been made yet. *Id.*, 47:13 to 48:7.

While the reductions associated with some of these changes were not quantified, TKN and ammonia data for the PC tank, which receives most of Emerald's streams, show cumulative improvements. Average TKN for the PC tank decreased from 494 lbs/day in 2002 to 287 lbs/day in 2011 to 227 lbs/day for March-August 2019. Average ammonia for the PC tank decreased from 62 lbs/day in 2002 to 8 lbs/day in 2011 to 2 lbs/day for March-August 2019. AS 13-2, Emerald's Motion to File Instantly, ¶ 7 and Appendix A, p. 3, Table 1 (June 20, 2014) (Flippin Letter Report July 8, 2013) (averages for 2002 and 2011); PHX 12, 4 (Flippin Expert Report 10/11/19) (average for March-August 2019). Despite these improvements, the loss of MBT and other nitrification inhibitors cannot be reduced to zero prior to the secondary treatment step where nitrification should occur. HT 1/14/20, 49:17-22; 68:17-23 (Hathcock); HT 2/4/20, 103:6-17 (Wrobel). The cumulative improvements so far are insufficient to assure compliance with the Section 304.122(b) limits. HT 1/14/20, 101:1-8 (Hathcock). Whether they will ever be able to reduce MBT to levels below the nitrification threshold with reasonable maximum production is also unclear. *Id.*, 110:5 to 111:2; *see e.g.* PHX 13 (ammonia effluent for 11/3/19 to 11/13/19 exceeding 6 mg/L).

Despite these repeated efforts at source reduction, ammonia in the Henry Plant discharge remained above the 3 mg/L criterion set in Section 304.122(b) until the significant downturn in MBT-related production during 2019. Even then, the monthly averages for October and November 2019 exceeded 3mg/L. *See* PHX 14, numbered pps. 1-3. The extremely low ammonia effluent results in late 2019 cannot be explained by source reduction alone. They

likely also reflect the significantly lower MBT-related production. The ammonia effluent results in the last four months of 2019 are not representative of reasonable maximum operations. HT 1/14/20, 48:8 to 49:16 (Hathcock).

F. Emerald and Mexichem Contribution to the Local Community.

Both Emerald and Mexichem play a major role in supporting the local economy through payment of wages, purchase of materials locally and the payment of real estate taxes. On an annual basis, wages and benefits of approximately \$7.3 million are paid by Emerald to its 66 employees. Most of those employees live within a 30-45 minute drive of the plant.

Approximately 30 of Emerald's employees are members of the Teamsters union. HT 1/14/20, 28:5-15 (Hathcock). Emerald pays approximately \$158,000 per year in local real estate taxes and also spends about \$2.5 million with local contractors on maintenance and improvements. Mexichem has approximately 70 individuals employed at the Henry Plant. PHX 1, ¶¶ 42-43.

The City of Henry's population in 2017 and 2019 has been approximately 2,300. *See* <http://www.city-data.com/city/Henry-Illinois.html> and <https://illinois.hometownlocator.com/il/marshall/henry.cfm> (both last visited 3/9/20). The Emerald and Mexichem payrolls provide substantial support to the City and local businesses within Marshall County and the surrounding area.

G. The Henry Plant Wastewater Treatment Facility.

The wastewater treatment system treats the wastewater from both Mexichem's and Emerald's Henry Plant processes and also multiple non-process water influents. PHX 1, ¶ 30. During 2016 through 2018, the system treated approximately 500,000 gallons per day ("gpd") of combined effluent from Mexichem's and Emerald's operations. PHX 1 ¶ 23. Plant management also continually evaluates ways to further reduce flow. HT 1/14/20, 28:21 to 29:7 (Hathcock).

The wastewater treatment system at the Henry Plant is a multi-process system that treats both process wastewater and non-process discharges including potential contact storm water and non-contact cooling water. A block flow diagram of the treatment system was admitted into evidence. *Id.*, 21:2 to 22:1; PHX 7. The Henry wastewater treatment system has historically provided greater than 95% reduction of biological oxygen demand (“BOD”) while the highest daily maximum ammonia value in any month has ranged from 16 to 130 mg/L and the 30-day average ammonia value has ranged from 2 to 102 mg/L for 2015 through 2019. PHX 14, numbered pps. 1-3. This broad range reflects normal variability in plant operations as well as fluctuations in production levels and product mix. Average daily maximum concentrations for those years have ranged from 39.17 to 79.69 mg/L. *Id.*, first page (not numbered).

Wastewater from Emerald’s production discharges to either the PC or the C-18 equalization tanks. PHX 1, ¶ 31. Mexichem’s wastestreams flow in one of two directions: either to the PVC Lift Station then to the PVC equalization tank or to the Diversion Tank and pretreatment before the PVC tank. Emerald's Written Answers, Response to Question 6, pp. 7-8; AHX 4. Waste activated sludge and solids from the Mexichem pretreatment that are not captured by the filter press discharge to the PVC tank. The PVC tank may also receive recycle streams from various treatment processes such as the overflow from the filter press feed tank, backwash from the traveling bridge sand filters and returning pond water. PHX 1, ¶ 31. Wastewaters from these equalization tanks are mixed, pH is adjusted, coagulant and flocculent are added, and then the water is sent to the primary clarifier where suspended solids are separated. The solids are dewatered and landfilled as a non-hazardous special waste. *Id.*

After primary clarification, the wastewater is sent to activated sludge treatment. *Id.*, ¶ 32. The bioreactors are tanks that range in size from about 360,000 to 1.4 million gallons and contain

biomass to degrade the organic matter in the wastewater. *Id.*; HT 1/14/20, 27:20-24 (Hathcock).

The addition of air into the bioreactors ensures that the biomass has sufficient oxygen to complete the degradation of organic materials and also ensures through agitation that the biomass comes into adequate contact with the organic matter contained in the wastewater. PHX 1, ¶ 32. The plant currently uses one bioreactor and is conducting design engineering to make the others available again to provide redundant capacity. *Id.*; HT 1/14/20, 30:21 to 31:24.

Repairing the largest bioreactor is likely a four to six month process that cannot be accomplished during an annual outage. HT 1/14/20, 32:7-19. The additional bioreactors are not expected to provide additional nitrification capacity. *Id.* Even with just the single large bioreactor operating, Emerald can achieve the desired residence time for BOD removal. Operating more tanks would just treat the same mass of solids in more tanks without improving effluent quality. HT 1/14/20, 230:4 to 231:161 (Flippin).

After the bioreactors, the wastewater flows into the secondary clarifier where more coagulant and flocculant are added. The solids removed during secondary clarification are primarily biomass and are returned to the bioreactors. PHX 1, ¶ 33. The wastewater from the secondary clarifier is then sent to traveling bridge sand filters for additional solids removal before flowing into a concrete sump leading to the outfall. Backwash from the sand filters is recycled into the PVC tank. *Id.*, ¶ 34; PHX 7.

Non-process wastewater, including non-contact cooling water, potential contact storm water, water from the boilerhouse demineralizer and water treatment works, is discharged to two holding ponds. Water from the ponds is then pumped into the primary treatment system. *Id.*, ¶ 35; PHX 7.

The City of Henry operates a municipal POTW adjacent to the Henry Plant. The POTW consists of an aerated lagoon followed by a sedimentation basin and effluent disinfection.

PHX 1, ¶ 36. The POTW discharge combines with the treated Henry Plant effluent and is discharged together through the multi-port diffuser into the Illinois River. Compliance sampling of each effluent occurs before they are combined. *Id.*

H. The Multi-Port Diffuser, the ZID, the Mixing Zone and Environmental Tests.

The effluent from the Henry Plant was originally discharged through an 18-inch, single-port submerged diffuser into the main channel of the Illinois River. AS 02-5, PHX 16, 4 (Expert Written Testimony of Michael Corn). A high-rate multi-port diffuser was installed in October of 2005 to replace the original single-port diffuser and has been in use since installation. AS 13-2, Petition Ex. 4, p. 1-9 (Diffuser Performance Evaluation prepared by AquAeTer, December 2005); PHX 1, ¶ 9. The wastewater treatment plant discharge has been determined to completely mix within an approved ZID and mixing zone. AquAeTer calculated that the minimum dispersion required to meet the acute ammonia standard at the edge of the ZID is 19.2:1, AS 13-2, Response to Hearing Officer Order, 12-13, including Table A (Apr. 12, 2013), and to meet the chronic ammonia standard at the edge of the mixing zone is 121.2:1. *Id.*; AS 13-2, Response to Hearing Officer Order, 4 (Oct. 8, 2013). AquAeTer also conducted a dye dispersion study combined with water quality measurements and predictive modeling. That work showed that the multi-port diffuser achieves the acute ammonia water quality standards for mussels within 20 feet of the diffuser, where the dispersion is 39.7:1, and that the effluent is fully mixed top to bottom about 92 feet downstream, where the dispersion is 47.9:1 (roughly 2.1% effluent). AS 13-2, Petition Ex. 4, pp. 3-4, 3-7 and 3-14. AquAeTer also showed that the multi-port diffuser achieves the chronic ammonia standard between 92 and 553 feet downstream from the diffuser

where the dispersion is between 47.9:1 and 151.5:1, respectively. *Id.* The diffuser is accomplishing the mixing for which it was designed. HT 1/15/20, 81:11-19 (Twait).

In-stream ammonia monitoring of the Illinois River that was conducted from 2007 through 2015 demonstrates that the ammonia water quality standards are routinely met at the edge of the approved mixing zone. During nine years of testing, the laboratory could not detect ammonia in 27 samples, including the last seven quarters ending in November 2015. Ammonia was detected in only six samples, and the result exceeded 1.0 mg/L only once (September 2012). *See* PHX 4 (annual reports to the Agency including test results). The in-stream sampling showed that the levels of ammonia at the edge of Emerald's mixing zone were basically at background. HT 1/15/20, 74:15 to 75:4 (Twait). In 2016, the Agency eliminated this testing requirement from Emerald's NPDES permit.

Emerald conducted WET toxicity testing and submitted the results to the Agency in 2011, 2012, 2017, and 2019. Pursuant to the applicable NPDES permit conditions, an acute LC₅₀ greater than 2.1% effluent combined with an ammonia concentration less than the AS13-2 limit, constitutes compliance and does not require further investigation. *See* Petition Ex. 3, p. 7, Special Condition 14(4.); HT 1/14/20, 324:3-14 (Koch). This threshold value is based on the dispersion of 47.9:1 at the edge of the ZID achieved by Emerald's multi-port diffuser.⁶ HT 1/14/20, 322:21 to 323:7. Each test result estimated LC₅₀ values for the test organisms (*pimephales promelas*, fathead minnow, and *ceriodaphnia dubia*, water flea) at an effluent dilution ranging from 2.6% to 31.86%, except for a January 2012 test with an indeterminate less than 6.25% result for the fathead minnow. *See Id.*, 325:16 to 326:23; PHX 8. Emerald

⁶ The WET tests are performed on Emerald's effluent alone. The dispersion modeling estimating the amount of mixing was based on the combined flow of Emerald's effluent mixed with the Henry POTW. The LC₅₀ values for the combined flow that actually reaches the Illinois River should correspondingly be higher. AS 13-2, Response to Hearing Officer Order, 5 (Oct. 8, 2013).

addressed that single result by providing the Board with an additional test result showing LC₅₀ values of 16.49% and 16.79% for the water flea and fathead minnow, respectively. *See* AS 13-2, Emerald's Motion to File Instantly, ¶¶ 6 and 8 and Appendix B thereto (June 20, 2014). All subsequent tests have had estimated LC₅₀ values greater than 2.1%. HT 1/14/20, 321:22 to 322:1 (Koch). Thus, no further investigation was required and no violations were noted. *Id.*, 320:10-22 and 322:15-20; HT 1/15/20, 88:12-19 (Twait). These results show that the effluent is not toxic at the edge of the ZID. HT 1/14/20, 325:6-15 (Koch); HT 2/3/20, 283:5-13 (Liska).

II. Argument

A. The Statutory Requirements for Granting an AS.

Emerald seeks a renewed AS from the total ammonia nitrogen as N effluent limit in 35 Ill. Adm. Code 304.122(b), which states as follows:

Section 304.122 Total Ammonia Nitrogen (as N: STORET number 00610)

- b) Sources discharging to any of the above waters and whose untreated waste load cannot be computed on a population equivalent basis comparable to that used for municipal waste treatment plants and whose total ammonia nitrogen as N discharge exceeds 45.4 kg/day (100 pounds per day) shall not discharge an effluent of more than 3.0 mg/L of total ammonia nitrogen as N.

Section 304.122(b) is the current version of Rule 406(b) of the Board's Water Pollution Regulations adopted in 1973. *In the Matter of: Water Quality Standard Revisions*, R72-4, Opinion of the Board, 1 (Nov. 8, 1973). Neither Rule 406(b), as originally adopted, nor Section 302.144(b), as applicable today, specifies a specific level of justification for issuance of an AS. Thus, under Section 28.1(c) of the Act, the Board may grant an AS if the Board determines from the facts presented that:

- (1) Factors relating to the petitioner are substantially different from the factors relied upon by the Board in adopting the general regulation;
- (2) The existence of those factors justifies an adjusted standard;

- (3) The requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
- (4) The adjusted standard is consistent with federal law.

415 ILCS 5/28.1(c)(1)-(4). The Board has previously found twice that the Henry Plant has proven each of these factors is met. The evidence presented to the Board in this proceeding again shows that each factor is met and justifies the renewal of the AS. The following sections address each of these statutory factors, albeit in a different order.

B. The Requested AS Will Not Harm the Environment or Human Health.

The statute requires that the Board find that granting the AS will not result in environmental or health effects substantially and significantly more adverse than the effects considered in adopting the general regulation. 415 ILCS 5/28.1(c)(3). In this case, Emerald has proven that granting the AS will not result in *any* adverse health or environmental impact.

The Board's rationale at the time Section 304.122 was adopted was premised upon the belief that larger municipal POTW discharges were contributing to low DO levels (sags) in the Illinois River. *See* Section II.D., below. The study underlying that belief was later refuted when it was discovered that the DO sags were primarily caused by sediment oxygen demand. *Id.*; *see also* AS 13-2, Opinion and Order of the Board, 40-41. Moreover, the effluent limit in Section 304.122 is not generally needed to protect the environment or achieve water quality standards. That limit does not apply to the Rock or Embarras or Kaskaskia rivers or most other rivers in Illinois. HT 1/15/20, 83:4-21 (Twait). If not for the effluent limit, Emerald would receive a water quality based effluent limit for ammonia, which would take into account the multi-port diffuser. *Id.* 80:5 to 81:15; HT 2/3/20, 128:7 to 129:2 (Liska).⁷ Today, the Illinois River is not

⁷ It is worth noting that Messrs. Twait and Liska both attempted to change their deposition testimony on this point. Their quibbling over a best degree of treatment determination is also immaterial given that the Board has made that finding, *see* Section II.F., below, and the Agency is bound by that finding.

listed as impaired for DO (or ammonia), *see* Section I.C., above, and the Henry Plant discharge has no measurable effect on DO (or ammonia) in the Illinois River. Given that Emerald's discharge over the last 15 years has not caused DO sags to reappear, it would seem impossible for the Board to conclude that granting the AS would result in more significant harm than what it considered in adopting Section 304.122(b).

Emerald has not left the Board to reach that conclusion based solely on a negative inference. Positive evidence affirms that Emerald's discharge does not harm the environment. The ammonia monitoring of the Illinois River from 2007 through 2015 detected ammonia in only 6 of 33 samples. There were no detections for the last seven quarters ending in November 2015. *See* PHX 4 (annual reports to the Agency including test results). At Emerald's downstream mixing zone boundary, ammonia in the Illinois River is at background levels. HT 1/15/20, 74:15 to 75:4 (Twait). The WET toxicity testing tells a similar story. *See* Section I.H., above. None of the results indicated a violation of Emerald's permit or the Act. HT 1/15/20, 88:12-19 (Twait); HT 1/14/20, 320:10-22 and 322:15-20 (Koch). Because the trigger level for additional toxicity testing is based on the dilution at the ZID, the WET test results demonstrate that Emerald's effluent meets both the chronic and acute ammonia water quality standards at the edge of the ZID (even though the chronic standard applies at the edge of the mixing zone). HT 1/14/20, 325:6-15 (Koch); HT 2/3/20, 283:5-13 (Liska).

What is more, nearly all of the end-of-pipe ammonia treatment alternatives create negative side-effects for the environment. HT 1/14/20, 222:10 to 223:15 (Flippin); HT 2/4/20, 122:11 to 123:2 (Wrobel). All of them would increase salt in Emerald's discharge, which is more persistent in the environment and can add to toxicity. HT 1/14/20, 223:16-224:12 (Flippin); HT 2/4/20, 50:2-9 (Flippin). Even the Agency's witnesses agreed that conductivity

(either as sulfate or chloride) was already a contributor to the toxicity of Emerald's effluent. *Id.*, 317:8-17 (Koch). Some of the treatment alternatives also create the risk of chlorinated organic byproducts, which are also persistent in the environment, and cannot be removed by dechlorination. PHX 12, 8; HT 1/14/20 149:3-7 and 247:16-22 (Flippin).

The Board previously concluded that Emerald's AS would not cause negative environmental or health impacts. *See* AS 13-2, Opinion and Order of the Board, 61-62. In overruling a Board condition, the Appellate Court agreed. *Emerald Performance Materials, LLC*, 2016 IL App 150526, ¶ 31 ("Emerald has and continues to meet the clean water standards. There was no evidence that the discharge was having any effect on the mollusks or other aquatic life in the river or was any more harmful to the environment than the discharge allowed in the general standard.") All the new evidence subsequent to AS 13-2 confirms that no adverse environmental impact, including harm to aquatic life, has resulted or will result from granting the requested AS. Accordingly, the Board should find that granting the proposed AS will not harm human health or the environment.

C. The Requested AS Is Consistent with Federal Law.

Section 304.122(b) was not promulgated to implement, in whole or in part, the requirements of the Clean Water Act (33 U.S.C. 1251 et seq.), the Safe Drinking Water Act (42 U.S.C. 300(f) et seq.), the Comprehensive Environmental Response, the Compensation and Liability Act (42 U.S.C. 9601 et seq.), the Clean Air Act (42 U.S.C. 7401 et seq.), or the State programs concerning RCRA, UIC, or NPDES. *See* Section II.D., below (explaining history of 304.122(a) and (b)). Thus, the proposed AS will be consistent with federal law. The requested relief applies only to ammonia discharges from the Henry Plant. There are no applicable federal effluent standards for ammonia from an organic chemical plant, such as the Henry Plant. AS 13-2, Opinion and Order of the Board, 63; 40 CFR Part 414, Subparts D, G and H (setting BOD,

TSS and pH limits for OCPSF facilities with Mexichem and Emerald SIC codes, but not ammonia limits). The Agency agrees that the proposed AS will be consistent with federal law. Recommendation of the IEPA to Deny Petitioner's Request for an Adjusted Standard, 24 (July 19, 2019) (hereafter, "Agency Recommendation").

The granting of this adjusted standard also will not impair any beneficial use of the receiving stream in that the generally applicable state water quality standards for ammonia (which were established at a level to protect aquatic life) have been and are being met with an appropriately calculated ZID and mixing zone so as to be fully supportive of all beneficial uses. See Section I.H, above. Nothing has changed since 2015 that would justify the Board in changing its conclusion that the proposed AS is consistent with federal law. See AS 13-2, Opinion and Order of the Board, 63. Accordingly, the Board should find that granting the AS would be consistent with federal law.

D. Factors Relating to Emerald Are Substantially Different Than Those Considered by the Board in Adopting Section 304.122(b).

This requirement is essentially a historical inquiry into what factors the Board considered when adopting Section 304.122(b). To understand what those factors were, one must delve further back into the Board's adoption of Section 304.122(a). That section, then Rule 406 of the Board's Water Pollution rules, was adopted because the Board was convinced that oxygen demand associated with ammonia from treatment of domestic wastes by POTWs, in addition to BOD, negatively impacted DO in the Illinois River. *In the Matter of: Effluent Criteria*, Consolidated R70-8, R 71-14, R71-20, Opinion of the Board, 3-406 (Jan. 6, 1972). The Board was particularly concerned about the effect of "larger sources feeding the Illinois River," most notably the Metropolitan Sanitary District. *Id.* After examining the evidence on technology for treatment of ammonia, the Board concluded "that nitrification can be satisfactorily accomplished

for a reasonable price by a second stage of biological treatment.” *Id.* The treatment technology described by the Board is the secondary treatment stage long-used at the Henry Plant and what has often been referred to in this hearing as single-stage nitrification. Rule 406 became effective for POTWs on December 31, 1977. *Id.*, 3-425.

Nearly a decade later, a study by the Illinois State Water Survey showed that for 7-day, 10-year low flow conditions at 30° C only 13.4% of the oxygen demand in the LaGrange Pool (the reach of the Illinois River from Peoria to LaGrange lock and dam near Beardstown) was attributable to ammonia. The remaining oxygen demand was due to sediments (30.1%) and carbonaceous BOD (56.5%). AS 13-2, Emerald’s Response to Hearing Officer Order, 1 and Attachment 1, p. 105. Thus, while Section 304.122 remains, the scientific basis for assigning environmental harm to ammonia discharges over 3 mg/L has been undermined.

Section 304.122(b), originally Rule 406(b), was adopted 21 months later and became effective December 31, 1974. It required industrial dischargers of more than 100 lbs/day of ammonia to the Illinois River, the Chicago River System and the Calumet River System to meet an ammonia effluent standard of 3 mg/L. *In the Matter of: Water Quality Standard Revisions*, R72-4, Opinion of the Board, 1 (Nov. 8, 1973). The Board did not consider the circumstances of any particular industrial discharger in adopting Rule 406(b). In a single paragraph, it concluded “that present technology [apparently referring to the single-stage nitrification described in adopting Rule 406] is capable of meeting this limit . . .” *Id.* The Board also expressed its belief that removal of ammonia from industrial wastewater “is rather easily applied” when “compared with removal from domestic wastes.” *Id.*

In these two rulemakings, the Board clearly did not consider the factors related to any specific industrial discharger in adopting Section 304.122 (b). It certainly did not consider the

unique challenges of the Henry Plant in achieving nitrification given the presence of MBT in its wastewater.

At hearing, the Agency argued that tests showing the absence of MBT after the secondary clarifier made the Henry Plant just like everyone else. HT 1/14/20, 262:7-11 (Agency opening statement). For starters, this argument overstates the data. In fact, from 2016 through 2019, there have been about 200 detections of MBT following the secondary clarifier and 46 of those exceeded 3 mg/L. The vast majority of the detections over 3 mg/L occurred during 2018 when BBTS was produced at record levels. Emerald's Written Answers, Response to Question 8, EP003674-EP003726; *see also* HT 1/15/20, 95:2-9 (Twait). Beyond that, not a single witness supported the argument. What distinguishes Emerald's Henry Plant from other dischargers is that MBT is present at sufficient quantities in the *PC tank* and the *primary clarifier* so that single-stage nitrification cannot occur in the bioreactors. HT 1/14/20, 85:17 to 86:11 (Hathcock); HT 2/4/20, 55:20 to 57:22 (Flippin); PHX 15 (chart showing MBT concentrations at the PC tank and primary clarifier regularly in excess of 50 mg/L). Even Mr. Liska agreed that was what made the Henry Plant different. HT 2/3/20, 97:17 to 98:16 (Liska). The Henry Plant is apparently the only facility in Illinois with MBT in its wastewater. *Id.*, 55:16-19. To ignore that distinction is to ignore what the Board did not consider in adopting Section 304.122(b).

In sum, the factors relied upon by the Board in adopting Section 304.122(b) were substantially different than those applicable to the Henry Plant. The Board has previously made this finding, *see* AS 13-2, Opinion and Order of the Board, 40-41, and there is no new evidence to reach a different finding today.

E. The Substantially Different Factors Justify Granting an AS.

1. The Standard for Economic Reasonableness.

The question of whether a substantially different factor justifies the grant of an AS calls on the Board to consider factors specified by the General Assembly. Section 27 provides that “the Board shall take into account the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution.” 415 ILCS 27(a). While the record has addressed each of these factors, most of the hearing was devoted to technical feasibility and economic reasonableness. The economic reasonableness factor is in essence a cost/benefit test that “has involved measuring the cost of implementing pollution control technology against the benefit to the public in reducing pollution.” *EPA v. Pollution Control Board*, 308 Ill. App. 3d 741, 751 (2d Dist. 1999). *See also Central Illinois Light Co. v. Pollution Control Board*, 159 Ill. App. 3d 389, 394-95 (1987) (affirming Board’s rejection of attempt to judge economic reasonableness solely in relation to petitioner’s own finances and operations).

The Board has likewise understood the test to involve a weighing of the costs of controls against the benefits of compliance. *In the Matter of: Proposed Site Specific Water Pollution Rules and Regulations applicable to Citizens Utilities Company of Illinois Discharge to Lily Cache Creek*, R81-19, Opinion and Order of the Board, 4 (July 3, 1990). The test does not raise a question as to whether a particular company can afford additional treatment. “The determination of economic reasonableness will be based on the costs of compliance with respect to the environmental impact and *not on petitioner’s ability to afford compliance.*” *In the Matter of: Proposed Site-Specific Rule Change for Reilly Chemical Corp., Granite City Facility: 35 Ill. Adm. Code 307.1102*, R88-9, Opinion and Order of the Board, 6 (Oct. 18, 1989) (hereafter,

Reilly Chemical) (emphasis supplied). Thus, the company's confidential financial information was irrelevant to evaluating economic reasonableness and the Agency agreed. *Id.*, 6 and 8.

This focus on costs and benefits of treatment alternatives is also consistent with the most widely-applied guidance for assessing treatment alternatives. “In the economic impacts analysis, primary consideration should be given to quantifying the cost of control and not the economic situation of the individual source.” *New Source Review Workshop Manual*, DRAFT, p. B.31 (USEPA October 1990) (hereafter “*NSR Manual*”) (available at <https://www.epa.gov/nsr/nsr-workshop-manual-draft-october-1990> , last visited 3/9/20).⁸ Thus, “economic parameters that provide an indication of the affordability of a control alternative relative to the source” are not a consideration in evaluating alternatives. *Id.* USEPA also does not consider affordability to an individual company in setting best available treatment technology economically available (“BAT”) under the Clean Water Act. HT 1/14/20, 149:21 to 150:22 (Flippin).

In this case, three sets of facts are most important to evaluate economic reasonableness: (1) what are the estimated costs of ammonia treatment alternatives and how much ammonia reduction will be achieved for those estimated costs; (2) what are the benefits to the environment from the projected reductions in ammonia; and (3) what negative side-effects would occur to the environment from implementing any of the treatment alternatives.

The first factor is a common and traditional manner of evaluating the cost-effectiveness of treatment alternatives with which the Board is familiar. *Reilly Chemical*, 6-7 (assessing wastewater treatment alternatives based on the cost per gram of mercury removed); *In the Matter of: Petition of the City of Havana for a Site-Specific Rulemaking*, R88-25, Opinion and Order of

⁸ The *NSR Manual*, even though labeled a draft and nearly 30 years old, remains the authoritative statement by USEPA on the proper conduct of a best available control technology or BACT evaluation under the Clean Air Act. See *In the Matter of: Major Stationary Sources Construction and Modification (New Source Review Rules): Amendments to 35 Ill. Adm. Code 203, R 98-10*, Opinion and Order of the Board, 7 and n. 4 (March 5, 1998).

the Board, 108-286 (Feb. 22, 1990) (estimated costs expressed as a monthly user charge in sewer overflow case). USEPA uses the same approach. *NSR Manual*, p. B.31 (“Cost effectiveness, is the dollars per ton of pollutant emissions reduced.”). Emerald presented evidence on this factor from its expert witness, Houston Flippin, as discussed in the following section. The Agency presented no competent evidence on the cost of any treatment alternative.

As to environmental benefits from achieving further ammonia reductions, the evidence strongly suggests there are none. Emerald's installation and continued operation of the multi-port diffuser has mitigated any environmental harm from the ammonia in its discharge.

Ammonia in the Illinois River is at background outside Emerald's mixing zone, and the ammonia is not toxic outside the approved ZID, which only extends about 92 feet from the multi-port diffuser. *See* Sections I.H. and II.B., above.

As to negative environmental side-effects from pursuing additional ammonia reduction, Mr. Flippin also provided testimony on that score, as discussed in Sections II.B., above, and II.E.2., below. The Agency provided no response. Indeed, Mr. Koch agreed that chlorides were already contributing to the toxicity of Emerald's effluent. HT 1/14/20, 317:8-17 (Koch).

With this introduction of the proper scope of the economic reasonableness test, we proceed to discuss the evidence as to the treatment alternatives in detail.

2. None of the Alternatives Considered by Emerald Are Both Technically Feasible and Economically Reasonable.

As described in Section II.D, above, the Henry Plant is distinguished from other dischargers due to the presence of MBT in sufficient quantities at the PC tank and the primary clarifier so that single-stage nitrification cannot occur in the plant's bioreactors. HT 2/3/20, 97:17 to 98:16 (Liska); HT 2/4/20, 55:20 to 57:22 (Flippin); PHX 15 (chart showing MBT concentrations regularly over 50 mg/L). This fact has been confirmed by evaluations of the

Henry Plant wastewater process as recently as September 2018, through Emerald's investigation of potential process changes to reduce MBT in the Henry Plant wastewater. HT 1/14/20, 49:17-22; 68:17-23 (Hathcock). A detailed description of Emerald's efforts with respect to in-process reduction of MBT, TKN and other parameters is included, in Section I.E., above. Although in-process reductions are the most promising way forward of controlling ammonia in the Henry Plant wastewater, HT 2/4/20, 88:3-12 (Hathcock) and 120:13 to 121:3 and 122:1-7 (Wrobel); *see also*, Emerald's Written Answers, Response to Question 4 (Process Improvement Project Plan), there is not enough data to correlate source reduction efforts with effluent ammonia concentrations at this time. Emerald's efforts to study potential process changes are ongoing.

Beyond Emerald's past and present source reduction efforts, Emerald's expert witness, Houston Flippin, re-evaluated and investigated eight different end-of-pipe treatment alternatives. His conclusions are reported in his April 13, 2018 Technical Memorandum, PHX 11, and his October 11, 2019 Expert Report, PHX 12. Consistent with prior evaluations, his studies indicate that some of the alternatives are not technically feasible. Across the board, each of the eight alternatives fails to meet the standard for economic reasonableness when taking into consideration not only the estimated capital and operating costs, but also the minimal benefit to the environment and the negative side-effects associated with increased salt loading to the Illinois River. In addition to these reports, Mr. Flippin pre-filed with the Board – and provided at the hearing – extensive expert testimony regarding his conclusions. He also addressed treatment ideas presented by the Agency. Below, we address the evidence for each alternative as well as the Agency's poorly conceived ideas.

Tertiary Nitrification

Mr. Flippin evaluated the addition of rotating biological contractors (“RBCs”) downstream of the secondary clarifier in order to achieve tertiary nitrification. PHX 12, 8. He selected this method of tertiary nitrification because it is a proven technology that has been on the market for a long time. HT 2/4/20, 32:4-12 (Flippin). As part of the RBCs process, heterotrophic bacteria (BOD removing bacteria) and nitrifying bacteria would grow on the fixed film media offered in each RBC as it rotates through wastewater. PHX 9, ¶ 67; PHX 12, 8. The bacteria on the RBC media should then be able to nitrify ammonia, if, that is, the level of MBT can be kept low enough following the secondary clarifier. PHX 9, ¶ 67.

Based on an updated conceptual level design and cost estimate, Mr. Flippin concluded that tertiary nitrification, through use of the RBCs, represents the second lowest unit cost for ammonia removal based on annual operations and maintenance costs. PHX 9, ¶ 65. Regardless, this alternative remains economically unreasonable. On a present worth basis, the unit costs associated with tertiary nitrification at the Henry Plant are more than 8-fold the median unit costs reported by the National Association of Clean Water Agencies (“NACWA”) for ammonia treatment at other facilities. *Id.* As requested by the Board Mr. Flippin refined the cost estimate for the RBCs alternative, but it did not materially impact the cost estimate. Emerald’s Written Answers, Flippin Technical Memorandum, 4 and Table 4 (Mar. 5, 2020) (10-year present worth cost of >\$16/lb ammonia removed compared to >\$14/lb ammonia removed in PHX 12, 11 Table 3). Moreover, the RBCs process requires that sodium hydroxide be added to satisfy the alkalinity demand, thereby increasing the eventual salt load to the Illinois River. PHX 12, 8; HT 2/4/20, 50:2-14 (Flippin). This negative environmental side effect, coupled with the fact that the existing ammonia levels in the Henry Plant’s effluent have no impact on water toxicity outside of

Emerald's ZID, *see* Section II.B., above, further supports the conclusion that tertiary nitrification is not an economically reasonable alternative.

The Agency offered several tertiary nitrification ideas. Each of them lacked sufficient evidence. The Algaewheel® technology was essentially presented as hearsay. The Agency witness knew no more about it than what was printed on the internet pages printed by a legal intern. HT 1/15/20, 32:19 to 33:24 (Twait). As Mr. Flippin explained, the technology operates in much the same way as the RBCs, but uses algae instead of bacteria in order to nitrify ammonia. PHX 9, ¶ 67. As compared to bacteria, the use of algae as a nitrifier is a newer technology, which means it is less proven and likely more costly because the technology is still patent-protected. *Id.* Even the Agency's own witness admitted that the Agency did not evaluate whether the Algaewheel® would be effective in reducing ammonia or estimate any costs associated with implementing the technology at the Henry Plant. Therefore, he had no basis to conclude that it is economically reasonable. HT 1/15/20, 35:20 to 36:9 (Twait). Based on Mr. Flippin's testimony, the Agency's witness admitted the Algaewheel® "may not be one alternative that needs to be looked at." *Id.*, 38:4-21.

Another Agency witness testified about three other tertiary nitrification concepts. Mr. Liska is not a licensed professional engineer and has never designed or constructed a wastewater treatment process. HT 2/3/20, 14:7-13 (Liska). He also may not understand how nitrification works. He testified that as part of the nitrification process ammonia "change[s] to nitrogen and bubble[s] out" as gas. HT 1/15/20, 149:19-20 (Liska). That is incorrect. As Mr. Flippin explained in rebuttal, nitrification does not produce nitrogen gas. Only an additional anaerobic treatment step called denitrification yields nitrogen gas. HT 2/4/20, 7:1-12 (Flippin).

Experience and qualifications aside, Mr. Liska testified that Emerald could simply bring its three existing bioreactors back online in order to achieve tertiary nitrification, thereby avoiding costs by using existing equipment. HT 1/15/20, 152:8 to 153:2 (Liska). However, this testimony over-simplifies the wastewater treatment process and fails to take into account several additional costs, including the media needed to achieve nitrification, as well as the cost to pump effluent from the secondary clarifier and the cost to install the same alkalinity addition system needed for the RBCs alternative. HT 2/4/20, 23:22-24 and 24:2-6 (Flippin). Additionally, unlike the RBCs (which do not need to be heated), using the existing bioreactors would likely require installation of a steam addition. *Id.*, 24:7-14. Each of these expenses was completely overlooked by the Agency.

Next, Mr. Liska suggested that the Henry Plant could achieve tertiary nitrification by installing “baffles” in three of its existing bioreactors. HT 1/15/20, 153:3-8 (Liska). A “baffle” typically takes the form of a partial wall and is intended to redirect the flow of wastewater, thereby allowing water to flow between either side. HT 2/4/20, 25:1-6 (Flippin). Thus, while a baffle may be used to accomplish denitrification on one side of a tank and nitrification on the other side, baffles will not achieve tertiary nitrification because any inhibitors present on side A would also inhibit nitrification on side B. *Id.*, 26:13-23.

Mr. Liska’s last idea was his most complex and poorly conceived: the baffles converted to watertight wall. This idea, apparently conceived over a lunch and with no consideration of its inherent dangers, is not technically feasible. Mr. Liska has never done this kind of engineering. HT 2/3/20, 116:5-7 (Liska). He could not explain what his wall would be made of, *id.*, 113:9-13, how it would be installed, *id.*, 114:7-9, and (after desperately trying to evade the question) admitted that he had no idea what would happen if the water level on one side of his wall became

significantly different than on the other, *id.*, 120:20 to 122:14. He was not even sure if his wall would be entirely watertight, speculating that he might put a gate in the wall, *id.*, 116:22 to 117:20, although apparently forgetting that would allow the nitrification inhibitors to flow from one side to the other.

Mr. Flippin thoroughly refuted the technical feasibility of this idea. The watertight wall poses several technical problems that a licensed professional engineer would immediately recognize as needing consideration. HT 2/4/20, 27:5 to 30:3 (Flippin). For example, the bioreactors at the Henry Plant were not built to support an interior wall. *Id.*, 27:11-12. As a result, “any movement in the baffle wall would...put movement on the floor and movement on the exterior wall, which would then lend the tank, in the worst case, to a collapse.” *Id.*, 27:21 to 28:1. Similarly, a significant difference in water level on either side of the wall could cause the tank to collapse. *Id.*, 28:22 to 29:1. Thus, a watertight wall in Emerald’s three existing bioreactors is not an option unless Emerald is “willing to take on extreme risk of failure” of the structural integrity of the tanks. *Id.*, 35:4-10. The idea is so crazy that, even after asking his colleagues, Mr. Flippin had never heard of a circular tank being retrofitted with a watertight wall. *Id.*, 30:4-17. Of course, the Agency also presented no evidence from which the Board could conclude that the watertight wall idea is economically reasonable. HT 2/3/20, 123:9-13 (Liska).

Throughout each of these ideas is the additional problem of lost treatment capacity associated with repurposing Emerald’s three existing bioreactors. HT 2/4/20, 34:2-8 (Flippin). Emerald plans to take its north bioreactor out of service for repairs in the near future, thereby requiring the use of Emerald’s three remaining bioreactors in order to continue operations. *Id.*, 34:4-7. If the bioreactors are otherwise being used for tertiary nitrification, additional tankage

must be built in order to allow the north bioreactor to be taken out of service for repair and inspection. *Id.*, 34:22 to 35:3. The Agency failed to consider these costs, too.

Alkaline Stripping

Mr. Flippin also prepared an updated design and cost estimate for alkaline stripping. Importantly, alkaline stripping is inadequate to comply with the regulatory effluent limits. PHX 12, 7. This alternative is economically unreasonable: a summary of treatment alternatives performance and costs are shown in Table 2 of Mr. Flippin's 2019 report and presented as unit costs in Table 3 of that report. PHX 09, ¶ 64; PHX 12, 11. The data demonstrates that Emerald would have to commit to spending \$7.3 million in capital costs and \$16 per pound of ammonia removed over the next 10 years, making alkaline stripping more expensive (and less efficient in terms of how much ammonia reduction is achieved for the estimated cost) than other alternatives studied. As requested by the Board, Mr. Flippin refined his cost estimate for this alternative and found the refined 10-year present worth cost to be \$17/lb ammonia removed and the 20-year present worth cost to be \$12/lb ammonia removed. Emerald's Written Answers, Flippin Technical Memorandum, 5, Table 4. This confirms his previous opinions. Alkaline stripping also requires extensive chemical addition which will appreciably increase the effluent salt load to the Illinois River. PHX 12, 12. The Agency did not provide any testimony to rebut Mr. Flippin's conclusions. Nor has the Agency claimed that alkaline stripping is either technically feasible on its own or economically reasonable.

Ion Exchange

Ion exchange treatment concentrates the ammonia in one stream (the final effluent) into a smaller stream requiring off-site disposal. PHX 12, 9. This alternative has unresolved issues associated with where the spent regenerant (ammonium chloride at approximately 4,500 gpd of

0.90 percent by weight nitrogen) can be disposed. *Id.* Also, like each of the treatment alternatives studied, implementation of the ion exchange alternative at the Henry Plant would increase the toxicity of Emerald's effluent due to the addition of salts. HT 2/4/20, 50:2-14 (Flippin). When further refining the costs for this alternative at the Board's request, the resin supplier advised Mr. Flippin that the spent regenerant volumes were significantly underestimated. Emerald's Written Answer, Flippin Technical Memorandum, 4. Thus, ion exchange now is judged to be more costly than tertiary nitrification or alkaline stripping, which makes it economically unreasonable. Looking again at the three factors for economic reasonableness under 415 ILCS 27(a), the high unit cost, minimal benefit to the environment and negative environmental side effects associated with ion exchange make clear that it is not a viable option for the Henry Plant. Furthermore, the Agency did not offer any testimony to rebut Mr. Flippin's conclusion that ion exchange is not economically reasonable.

Granular Activated Carbon

Mr. Flippin also evaluated the use of granular activated carbon ("GAC") treatment on the PC and C-18 wastewater to remove MBT before the primary clarifier to allow nitrification to occur in the bioreactor. PHX 9, ¶ 18. This alternative was evaluated at a bench scale. *Id.*, ¶ 19. In bench scale testing, Mr. Flippin found that GAC would sufficiently reduce MBT concentrations to allow the microorganisms in the plant wastewater system to achieve adequate nitrification. PHX 11, Flippin Technical Memorandum, 12-13 (Apr. 13, 2018). Mr. Flippin also found that the estimated cost associated with GAC treatment is twenty-times higher than the costs incurred by municipal wastewater treatment facilities in Illinois and eleven-times higher than the average cost of municipal facilities nationwide. *Id.*, 15. Because of these findings, Mr. Flippin concluded that GAC treatment is not economically reasonable. *Id.*

The Agency boldly claimed that it often saw GAC used at the end of a treatment process. HT 2/3/20, 50:6-15 (Liska). But, when pressed to identify one such wastewater treatment plant, the Agency could only identify groundwater remediation systems. *Id.*, 51:1-24. Groundwater remediation is completely different than treating a plant's wastewater because the groundwater is relatively clean, except for the contaminant being targeted. In comparison, a plant wastewater has many other components that will use up the absorptive capacity of GAC because it is not selective for MBT. Such a comparison is moot. HT 2/4/20, 42:23 to 43:15 (Flippin).

In a clumsy attempt to counter Mr. Flippin's analysis, the Agency's witness testified that application of the GAC treatment to other points in the Henry Plant system should have been studied because that might affect performance. He offered that GAC treatment should be studied at the primary clarifier, the flocculation tank and the secondary clarifier. HT 1/15/2020, 170:2-17 (Liska). This was a curious suggestion since those locations have more flow than the PC and C-18 tanks and the witness had previously stated under oath that Mr. Flippin might have applied GAC treatment at points with too much flow. HT 2/3/20, 46:4-10 (Liska).

In response, Mr. Flippin explained that he intentionally evaluated GAC treatment at the PC and C-18 tanks because they represent the highest concentration of MBT and lowest concentration of competing COD in the wastewater treatment process. HT 2/4/20, 40:1-12 (Flippin). These two tanks are upstream of the primary clarifier, at a point in the wastewater treatment process before Mexichem's wastestreams are comingled with Emerald's wastestreams. *See* PHX 7. The carbon in GAC is not selective in removing MBT; in fact, MBT has a low affinity for carbon, meaning that GAC treatment will remove less than 0.03 pounds of pollutant per pound of carbon. HT 2/4/20, 39:11-21 (Flippin). There is no utility in evaluating GAC treatment downstream of the PC and C-18 tanks at the primary clarifier because soluble COD

from Mexichem's wastestream, which by then is comingled with Emerald's wastestream, will compete with MBT to react with carbon. *Id.*, 40:13 to 41:5.

Evaluating GAC treatment at the flocculation step is "self-defeating" because the wastewater in the flocculation chamber is not yet settled. *Id.*, 41:12 to 42:2. The Agency's suggestion to evaluate GAC at the secondary clarifier betrayed a complete misunderstanding of the purpose of GAC treatment. The purpose is to use GAC to remove MBT to allow single-stage nitrification to occur in the bioreactors *before* the secondary clarifier. *Id.*, 42:3-11. The evidence supports that Mr. Flippin carefully and thoroughly evaluated GAC treatment at the most economical point in the Henry Plant wastewater treatment process. *Id.*, 42:19-22. Mr. Flippin's cost estimates, and his finding that GAC treatment is economically unreasonable, are consistent with the most efficient use of GAC treatment in the Henry Plant system.

Breakpoint Chlorination

Mr. Flippin concluded that breakpoint chlorination can discharge an effluent in compliance with the effluent ammonia regulatory limits. PHX 12, 8. Breakpoint chlorination is accomplished by using chlorine to oxidize ammonia to nitrogen gas. *Id.* Because the process is non-selective in its oxidation and would consume some residual BOD and COD, Mr. Flippin estimated that the required dose of chlorine would be 12 pounds per pound of ammonia oxidized, and the alkalinity requirement would be 14 pounds applied per pound of ammonia oxidized. *Id.* He proposed to install breakpoint chlorination downstream of the existing tertiary sand filter in order to minimize the required chlorine demand. *Id.* However, the chemical addition involved in this treatment would increase salt load in Emerald's effluent by more than 70 percent. PHX 12, 8; *see also* HT 2/4/20, 50:2-14 (Flippin).

An additional problem associated with breakpoint chlorination is that it could form chlorination byproducts in the form of chlorinated organics. PHX 12, 8. While dechlorination is routinely practiced by POTWs, that treatment only removes chlorine. It does not remove chlorinated organics. HT 1/14/20, 149:3-7 (Flippin). Due to these extreme negative environmental side-effects and the relative cost compared to NACWA ammonia removal costs and other treatment alternatives studied, Mr. Flippin concluded that breakpoint chlorination is not economically reasonable. PHX 12, 11 Tables 2 and 3. The Agency provided no testimony to refute these conclusions.

River Water Dilution

Mr. Flippin evaluated river water dilution as a treatment alternative in accordance with AS13-2, Condition 2.e. In this alternative, water would be extracted from the Illinois River and pumped uphill to dilute the primary clarifier effluent so that MBT concentrations are reduced enough to allow nitrification to occur. PHX 9, ¶ 18. Fed batch reactor tests were performed on five combinations of biomass and test waters to investigate the viability of this alternative. *Id.*, ¶ 21. The results of these tests demonstrate that diluting the pretreated clarifier wastewater with water extracted and pumped from the Illinois River requires a dilution percentage in excess of 90% for uninhibited nitrification to occur. *Id.*, ¶ 22. The sustainability of the performance of this treatment alternative is unlikely due to inherent variability of the influent MBT concentration in Emerald's PC/C-18 wastewaters and the difficulty in maintaining target temperatures in the biological treatment systems while heating a large river water flow (approximately 7 million gallons per day, or "MGD"). *Id.* This alternative is also economically unreasonable because the estimated cost is 40 times higher than the costs reported by the POTWs serving Decatur, Bloomington, and Normal, Illinois in 2015 and it is twenty-one-times higher

than the median cost reported by NACWA. *Id.*, ¶ 32. The Agency's witness agreed with Mr. Flippin's analysis of the necessary temperature adjustment, how much dilution would be needed and his estimate of the costs associated with this alternative. HT 2/3/20, 59:10-16 (Liska).

One Agency witness suggested that Emerald should have evaluated applying river water dilution only during seasons when heating the river water would not be necessary. HT 1/15/20, 84:12-22 (Twait). But, the witness had not evaluated the cost of this approach and could not explain why Emerald should adopt one of the most costly alternatives as a part-time solution. *Id.*, 86:1-9. The answer seems rather obvious. Combining two treatment alternatives would only increase costs precisely because it means building two systems and incurring two sets of costs. HT 1/14/20, 133:9 to 134:2 (Flippin) and 87:4-18 (Hathcock). Negative environmental side-effects associated with river water dilution include the emission of 38,000 metric tons of CO₂e greenhouse gases, 35 tons of nitrogen oxides and 30 tons of carbon monoxide per year as a result of the necessary heating equipment. PHX 11, Apr. 17, 2018 Letter to the Agency, EP003516-EP003517. According to Mr. Flippin, this alternative would also increase the heat load to the Illinois River 10-fold, which would adversely impact localized water quality. PHX 9, ¶ 35.

Ozonation

The ozonation process oxidizes ammonia to nitrate, similar to biological nitrification. PHX 12, 6. In his evaluation of this alternative, Mr. Flippin proposed to install treatment downstream of the Henry Plant's existing sand filter in order to minimize the oxidant demand associated with effluent TSS. *Id.* Importantly, ozonation is unable to achieve ammonia removal beyond 55 percent and is therefore unable to meet the limits of Section 304.122(b). *Id.*, 6, 11 Table 2. Moreover, on a present worth basis, ozonation has the highest cost per pound of ammonia removed of all of the alternatives studied. *Id.*, 11 Table 3. The Agency did not offer

any testimony regarding ozonation and did not address this treatment alternative in its Recommendation. For the reasons explained by Mr. Flippin this alternative is not technically feasible or economically reasonable.

Land Application/Spray Irrigation

Mr. Flippin evaluated land applying Emerald's effluent to Bermuda grass, soybeans or corn over 80 acres owned by Emerald. PHX 12, 9-10. The Agency's witness suggested land application should be studied over "hundreds or thousands of acres." HT 1/15/20, 177:2-3 (Liska). But, he had done no technical evaluation of the feasibility of this concept even though the information was available. HT 2/3/20, 83:8 to 84:19 (Liska). He even seemed to lack familiarity with basic principles applicable to spray irrigation. *Id.*, 89:6 to 90:16. While he boasted of hundreds of permits issued,⁹ he could only name one for an organic chemical plant, like Emerald, and in the end, the Agency could not locate a spray irrigation permit for that plant. *Id.*, 78:5-17. In contrast Mr. Flippin conducted a thorough evaluation of spray irrigation and found it fell short of achieving compliance while being among the most expensive alternatives.

The initial step in evaluating land application was to characterize the Henry Plant's effluent in order to select an appropriate crop. HT 2/4/20, 7:18 to 8:1 (Flippin). Mr. Flippin calculated that the electrical conductivity ("EC") of the Henry Plant wastewater is approximately 15.5 millisiemens/centimeters (mS/cm). *Id.*, 8:20-22. Each crop has a threshold concentration known as its "electrical conductivity threshold," above which the yield on the crop starts deteriorating. *Id.*, 8:12-19. Mr. Flippin evaluated land application on Bermuda grass, a type of salt-tolerant hay, as well as soybeans and corn, which are the most popular crops grown in the area surrounding the Henry Plant. *Id.*, 9:21-24. In order to determine the technical feasibility of

⁹ The boast was curious given that no Illinois regulations expressly allow the spray irrigation of industrial effluent. See 35 Ill. Adm. Code 372.110 (regulations for land application of "tertiary treated domestic wastewater"); HT 2/3/20, 61:8-16 (Liska).

spray irrigating each crop, he looked to the crop's individual EC threshold to determine the decrease in yield if the wastewater was applied to the crop undiluted. *Id.*, 12:16 to 13:10.

For soybeans and corn, the decrease in yield would be greater than 100% if the wastewater was applied undiluted over 80 acres. *Id.* In other words, neither crop could grow as a result of land application. “[I]f you were to land apply the undiluted effluent on corn and soybeans, it would never grow. It would be barren ground. You would be looking out on acres and acres of just barren ground.” *Id.*, 13:5-10. For Bermuda grass, the decrease in yield would be 55% if undiluted wastewater was applied over 80 acres. *Id.*, 13:13-15.

Next, Mr. Flippin considered the gallons of river water per gallon effluent needed in order to successfully irrigate each of the three crops over 80 acres. Mr. Flippin testified that for soybeans 2.4 gallons of river water are required per gallon of effluent, whereas for corn 14 gallons of river water are required per gallon of effluent. *Id.*, 16:1-7. Critically, once the wastewater has been diluted with that much river water there is very, very little agronomic benefit left. *Id.*, 16:12-22. Additional fertilizer would need to be added in order to make up for the lack of nitrogen provided by the diluted wastewater. *Id.*

For Bermuda grass, Mr. Flippin found dilution by 1.4 gallons of river water per gallon effluent would be needed for optimal spray irrigation, *id.*, 16:8-11, but then the 80 acres could only accommodate 22% of Emerald's effluent. PHX 12, 10. However, in order to use all of the Henry Plant's diluted wastewater Emerald would need to spray irrigate 270 acres total of Bermuda grass. HT 2/4/20, 16:23 to 17:2 (Flippin). If the wastewater was undiluted, Emerald would need to spray irrigate 600 acres of Bermuda grass in order to use all of its wastewater. *Id.*, 17:3-6. There are several problems with land applying 600 acres of land. First, half of the nitrogen for the Bermuda grass to have its full yield would need to come from additional

fertilizer. *Id.*, 17:6-12. Second, there is currently no market for 600 acres of Bermuda grass, particularly given the fact that Illinois is not a major cattle farming state and this type of crop is less profitable. *Id.*, 17:13-17, 18:2-6. Also, building an extensive land application system of 600 acres is an expensive undertaking, taking into consideration the pipes, pumps and irrigation pivots needed to land apply over nearly a square mile of land. *Id.*, 18:1-9.

Thus, the evidence demonstrates that spray irrigating soybeans and corn is both technically infeasible and economically unreasonable. While Mr. Flippin predicted relatively better results with Bermuda grass, this treatment alternative still fails to meet regulatory limits. PHX 12, 11 Table 2. It is also economically unreasonable. Land application has the second highest unit costs of the alternatives studied in 2019, *id.* Table 3, presents minimal benefit to the environment from the reduction in ammonia, and, whether diluted or undiluted, is associated with negative side-effects of applying wastewater with such a high EC over Illinois farmland.

Separate Nitrification of PVC Tank

Mr. Flippin evaluated separate treatment of the PVC tank wastewater in his 2004 Report, which was filed in AS 02-5. HT 2/4/20, 21:5-6 (Flippin); AS02-5, PHX 7, 26 and PHX 11, Figure 5. At that time, Mr. Flippin concluded that, by itself, this alternative would not achieve compliance with applicable limits. *Id.*, 21:7-9. He also found that separate nitrification of the PVC tank was not economically reasonable. *Id.*, 21:10-13. Based on the evidence, the Board granted Emerald relief in AS02-5 and did not require further evaluation of this alternative.

The Agency's witness brought up separate nitrification of the PVC tank in this proceeding, as if it had not already been studied. HT 1/15/20, 150:3-15 (Liska). The Agency's lack of preparation is underscored by its counsel and its witness's reference to separate nitrification of the PVC tank wastewaters as "tertiary nitrification." *Id.* Mr. Flippin set the

record straight that directly treating the PVC tank wastewater is not tertiary nitrification, but instead would require Emerald to build an entirely separate treatment train and incur associated expenses. HT 2/4/20, 20:7-9, 21:16-21 (Flippin) and 96:6 to 98:17 (Wrobel explaining the significant added costs of providing duplicate treatment). Moreover, the comingling of Emerald's wastewater with Mexichem's wastewater is actually advantageous in reducing ammonia in the Henry Plant effluent. Mexichem's wastewater provides a consistent base flow roughly four times that of Emerald's. *Id.*, 20:15-24 (Flippin). Without the base flow provided by Mexichem's wastewater, the MBT concentration in Emerald's streams would be four times higher than it is now when combined. *Id.* See also, HT 2/4/20, 99:2-19 (Wrobel).

Other Alternatives Previously Evaluated by Emerald

The Henry Plant has a long history of evaluating treatment alternatives in order to reduce ammonia in the effluent. Mr. Flippin's findings with respect to the following alternatives are discussed in detail in AS 02-5 and AS 13-2, and incorporated herein by reference. See e.g., AS 13-2 Opinion and Order of the Board, 24-32.

Mr. Flippin tested and reported on several treatment alternatives in AS 02-5. These treatment alternatives included:

1. Alkaline air stripping at different points in the wastewater treatment system (e.g., PC tank, PVC tank and secondary clarifier);
2. Struvite precipitation from the combined wastewater influent;
3. Effluent breakpoint chlorination;
4. Single-stage biological nitrification of non-PC wastewater combined with separate biological treatment of the PC tank discharge;
5. Biological nitrification of combined influent wastewater; and
6. Ion exchange treatment of final effluent.

AS02-5, PHX 7, 24-27 and PHX 11. Mr. Flippin also testified regarding his subsequent evaluation of ozonation and tertiary nitrification as additional potential compliance alternatives. AS02-5, PHX 7, 19-20 and PHX 11. Each of the above alternatives was rejected as not technically feasible, not economically reasonable or both. Finding that Emerald had satisfied this factor, the Board granted Emerald's petition for an adjusted standard on November 4, 2004. *See* AS02-5 Opinion and Order of the Board 9-13 and 17-18.

Prior to filing its petition for renewal of the adjusted standard in 2012, Emerald retained Mr. Flippin to review the conclusions presented in AS 02-5 and determine what, if any, changes had occurred since 2004. He reconsidered the compliance alternatives examined in 2004, and also explored the following:

1. CASTion Ammonia Recovery Process (ARP);
2. Ostara Pearl;
3. Liqui-Cel Membrane;
4. Anammox; and
5. Anodic Oxidation.

AS13-2, Emerald's Motion to File Instantly, ¶ 7 and Appendix A, p. 9 (Flippin Letter Report July 8, 2013). Again, all of the alternatives examined by Mr. Flippin were rejected as not technically feasible, not economically reasonable or both. After reviewing the evidence, the Board renewed Emerald's AS. *See* AS13-2, Opinion and Order of the Board, 24-32 and 68-70.

Conclusion

Emerald has provided a comprehensive and thoughtful analysis of eight treatment alternatives. In contrast, the Agency has offered only poorly conceived ideas with no analysis of costs and often no regard for basic safety or engineering. Emerald rebutted each idea nonetheless, and the only qualified expert who testified, Mr. Flippin, found no other alternatives

were worthy of study. PHX 9, ¶66. Not one of the real alternatives is economically reasonable within the meaning of 415 ILCS 27(a), particularly when evaluating not only how much ammonia reduction will be achieved for the estimated cost, but also the fact that all of the alternatives studied have negative environmental side-effects. HT 2/4/20, 50:2-14 (Flippin). That is particularly true given the lack of evidence that the ammonia poses any harm to the environment. *See* Sections I.H. and II.B., above.

F. Emerald Applies the Best Degree of Treatment.

Best degree of treatment of wastewater is to be “consistent with technological feasibility, economic reasonableness and sound engineering judgment.” 35 Ill. Adm. Code § 304.102(a). Best degree of treatment also requires consideration of process changes, improved housekeeping and waste component reuse as well as whether individual waste streams should be segregated or combined. *Id.*

While not determinative of best degree of treatment, it is significant that Emerald's wastewater treatment facility is designed and operated in a manner compatible with 35 Il. Adm. Code 370.920, 35 Il. Adm. Code 370.1210 and the Ten State Standards to grow ammonia-degrading bacteria in order to nitrify ammonia. AS 02-5, PHX 7, 9 (Expert Written Testimony of Flippin). Those regulations and standards are intended to achieve complete nitrification of ammonia in municipal wastewater treatment plants with a significant margin of error. *Id.* The Board assumed this form of treatment would meet Section 304.122(b) for industrial facilities, too. *In the Matter of: Water Quality Standard Revisions*, R 72-4, Opinion of the Board, 1. These standards are used by regulators to critique wastewater treatment facility designs to ensure they are adequate to support complete nitrification. AS 02-5, PHX 7, 9. There are no similar standards for achieving nitrification in industrial wastewater because of the variability of those wastewaters. *Id.* In fact, by employing filters to treat the secondary clarifier effluent, the Henry

Plant exceeds the treatment standards identified by USEPA as Best Available Technology Economically Available for the Organic Chemical, Plastics, and Synthetic Fibers industrial category. *Id.*, 8; HT 1/14/20, 252:23 to 253:6 (Flippin); HT 2/4/20, 52:5-24 (Flippin).

The Henry Plant wastewater does not, however, achieve nitrification. The lack of nitrification is not caused by a lack of equipment or inadequate design, but to a variety of technical challenges, the foremost of which is that the bacteria necessary for nitrification will not grow because they are inhibited by certain compounds (principally MBT). AS02-5, PHX 7, 9 and 15; HT 1/14/20, 131:17 to 132:6 (Flippin).

In addition, Emerald has considered various process changes and waste reduction measures and implemented a number of them. Cumulatively, those changes have reduced TKN in Emerald's PC tank from 494 to 227 lbs/day between 2002 and 2019. Over the same time, ammonia in the PC tank has decreased from 62 to 2 lbs/day. *See* Section I.E., above. Emerald also made multiple improvements to the BBTS process in late 2018/early 2019 and in the fall of 2019 that further reduced losses of BBTS and MBT to the wastewater system. *See Id.*

Also, Emerald has considered separate treatment for the PVC and PC/C-18 streams. That alternative would not have achieved compliance with Section 304.122(b), HT 2/4/20, 21:1-9 (Flippin), and was previously found economically unreasonable by the Board. In addition, separate treatment of the PVC stream would actually be a "bad idea" because it would increase the concentration of MBT in Emerald's hypothetically separate wastewater, making nitrification even more difficult, and increase the variability of the wastewater to which the biomass in secondary treatment is exposed. HT 2/4/20, 20:10-24 (Flippin) and 98:18 to 99:19 (Wrobel). Mr. Flippin also stated that the Henry Plant wastewater treatment system is designed and operated in accordance with sound engineering judgment. *Id.*, 54:10 to 55:10 (Flippin).

In 2015, the Board found that Emerald had “achieved reductions of ammonia in its effluent through a combination of strategies” and yet that “no investigated alternative beyond those already implemented at the facility is both technologically feasible and economically reasonable.” AS 13-2, Opinion and Order of the Board, 56. Based on those findings and the imposition of conditions related to the multi-port diffuser, the replacement of the BBTS wet scrubber and the acetonitrile recovery column upgrades, the Board found for a second time that Emerald was applying the best degree of treatment at the Henry Plant. *Id.* The evidence presented in this hearing again shows that no treatment alternative is both technologically feasible and economically reasonable. The evidence further shows that Emerald and its predecessors have repeatedly pursued process improvements and waste reduction. But, it is unrealistic to ever expect that the loss of MBT into the treatment system can be reduced to zero. No one can credibly believe that. HT 2/4/20, 103:6-17 (Wrobel). The evidence overwhelmingly demonstrates that Emerald still applies the best degree of treatment.

III. Appropriate Conditions for the AS.

A. Emerald’s Proposed Conditions Are Justified.

Emerald proposes the following conditions for the AS. Including an expiration condition, these conditions reflect a number of changes from those submitted in Emerald's Pre-Hearing Statement of Proposed Amendment to Adjusted Standard (Dec. 30, 2019).

1. Pursuant to Section 28.1 of the Environmental Protection Act (415 ILCS 5/28.1 (2012)), the Board grants Emerald Polymer Additives, LLC (Emerald) an adjusted standard from 35 Ill. Adm. Code 304.122(b). Under this adjusted standard, the total ammonia nitrogen as N effluent standard at 35 Ill. Adm. Code 304.122(b) does not apply to the discharge of effluent into the Illinois River from the Emerald facility at 1550 County Road 1450 N. in Henry, Marshall County. Instead, when Emerald's total ammonia nitrogen as N discharge exceeds 100 lbs/day, Emerald’s effluent for total ammonia nitrogen as N must comply with a daily maximum of 140 milligrams per liter (mg/L) and 1,225 pounds per day (lbs/day), as well as a 30-day average of 110 mg/L and 631 lbs/day.

2. The adjusted standard granted in paragraph 1 of this order is subject to the following conditions:
 - a. Emerald must continue to maintain the high-rate, multi-port diffuser for the discharge into the Illinois River to achieve an effluent dispersion necessary to meet the applicable total ammonia nitrogen as N water quality standards at the edge of the mixing zone and zone of initial dilution (ZID).
 - b. Emerald must maintain the following air pollution control equipment as additional ammonia reduction measures: the fluid bed dust collector, the acetonitrile recovery column instrumentation upgrades, any replacements-in-kind of the above control equipment, or any alternative replacement control equipment that does not increase total ammonia nitrogen as N in Emerald's wastewater discharge.
 - c. Emerald must investigate new production methods and technologies that generate less ammonia and nitrification inhibitors in Emerald's discharge. The nitrification inhibitors such as MBT are the chief cause of inhibiting nitrification in the treatment system which allows for ammonia to discharge.
 - d. Emerald must investigate the technical feasibility and economic reasonableness of new treatment technologies to reduce ammonia discharges, including evaluation of implementation of those new treatment technologies based on current plant conditions.
 - e. Emerald must conduct monitoring of total ammonia nitrogen as N in the Illinois River to demonstrate compliance with the General Use ammonia water quality standards in accordance with 35 Ill. Adm. Code 302.212. The river water samples for this monitoring shall be collected within 10 feet from the edge of the approved mixing zone, i.e., within 310 feet downstream of the multi-port diffuser. The monitoring shall be performed twice per year; once during the Early Life Stage Present period (March through October) and once during the Early Life Stage Absent period (November through February).
 - f. Emerald must prepare and submit to the Agency annual reports summarizing its activities to comply with paragraphs 2(c) through 2(e).
 - g. Emerald shall implement the Process Improvement Project Plan dated February 2020 that was submitted to the Board and submit reports to the Agency in accordance with the schedule included in the Plan.
3. This adjusted standard begins on April 16, 2020 to prevent any gap between the expiration of AS 13-2 and the beginning of AS 19-2. It shall expire on April 16, 2025, except that, if Emerald, or its successor in interest, petitions the Pollution

Control Board for a new or revised adjusted standard no less than six months prior to the expiration date, then this adjusted standard shall continue in full force and effect until three years after the Pollution Control Board issues an order ruling on the petition for a new or revised adjusted standard.

This proposed language for the renewed AS reflects certain changes from the conditions adopted by the Board in December 2016. Throughout the proposed language, Emerald has used the phrase “total ammonia nitrogen as N” because that is the formal language of Section 304.122(b). The other changes are described and supported below.

Numeric Limits – Condition 1

Emerald proposes four changes to Condition 1. First, the name of the recipient of the adjusted standard should be changed to reflect the transfer of the facility from Emerald Performance Materials, LLC to its subsidiary, Emerald. *See* Petition, 2. The change is also consistent with the issuance of NPDES Permit No. IL0001392 to Emerald on September 28, 2016. *See* Petition, Exhibit 3. Second, Emerald proposes to insert a clause clarifying that the alternate numeric limits apply when Emerald's discharge exceeds 100 lbs/day. Under Section 304.122(b), no limits apply when a discharge is less than or equal to 100 lbs/day, so this change is consistent with the regulation. Third, Emerald proposes to reduce the load limits adopted in AS 13-2 by 25% based on its review of the DMR data for the previous six years¹⁰ in relation to the current limits. *See* PHX 1, ¶ 51; PHX 14, numbered p. 3. This would reduce the daily maximum load limit from 1,633 to 1,225 lbs/day and the 30-day average load limit from 841 to 631 lbs/day. Fourth, Emerald proposes to delete the final sentence of AS 13-2, Condition 1, which established an expiration date, and addresses that issue in a new Condition 3.

Operational Conditions and Reporting – Conditions 2.a., 2.b., 2.c., 2.d. and 2.f.

¹⁰ The Agency initially said Emerald did not review the DMR data to propose this change, HT 1/15/20, 184:13-21 (Liska), but then later admitted that testimony was a mistake. HT 2/3/20, 217:7-16.

Emerald's proposed Conditions 2.a., 2.c. and 2.f. are unchanged from AS 13-2. These provide for the continued operation of the multi-port diffuser, continued investigation of new production methods and annual reporting to the Agency.

Emerald proposes non-substantive changes to Condition 2.b. to better describe the equipment to be maintained and to expressly allow for routine replacements of that equipment that do not increase ammonia in Emerald's wastewater. The fluid bed dust collector replaced the BBTS wet scrubber over a decade ago. *See* PHX 4 (letter to the Agency Dec. 24, 2007, Item 6). Reference to the BBTS wet scrubber is unnecessary since it was the equipment *replaced* rather than the equipment to be maintained and is potentially confusing. In addition, both the fluid bed dust collector and the acetonitrile recovery column may need to be replaced-in-kind or upgraded to address routine wear and tear or to comply with air pollution control regulations. Without this proposed change in Condition 2.b., such routine changes might be thought to require a technical modification to this AS. Emerald does not believe that was the intent of the Board in adopting Condition 2.b. or that requiring such a technical modification accomplishes any environmental goal. It would merely add a procedural requirement. Thus, Emerald proposes to modify Condition 2.b. to make clear that such routine changes do not require a modification of the AS so long as the changes do not increase ammonia.

Emerald proposes non-substantive changes to Condition 2.d. to better describe the nature of the investigation to be performed by Emerald with regard to any new treatment technologies that might be identified.

Water Quality Standard Monitoring -- Condition 2.e.

Emerald proposes a new Condition 2.e. that requires monitoring of the Illinois River to demonstrate compliance with the General Use ammonia water quality standards. Emerald

performed monitoring of this nature from 2007-2015 pursuant to a condition in its then-effective NPDES permit. That monitoring showed the water quality standards were met. *See* Sections I.H. and II.B, above. While this monitoring is complicated and involves some safety risks due to the need for individuals to take a boat into the Illinois River to collect the samples, Emerald is prepared to undertake the monitoring if the Board deems it appropriate. The proposed condition specifies the location for the monitoring as a distance between 300 and 310 feet from the multi-port diffuser based on a mixing zone study performed by AquAeTer. *See* AS 13-2 Petition Ex. 4, page vi (“All water quality standards are met at less than 300 feet from the diffuser under the maximum ammonia discharge limit.”). Emerald proposes that the sampling be performed twice each year: once during each of the two seasonal periods for the General Use ammonia water quality standard. HT 1/15/20, 73:13 to 74:5 (Twait). The language of Condition 2.e. of AS 13-2 is no longer necessary because the evaluations of those specific control technologies were completed by Emerald or its consultants. *See* PHX 11.

Process Improvement Project Plan – Condition 2.g.

Emerald provided the Board a Process Improvement Project Plan (“Project Plan”) describing its continuing source reduction efforts. Emerald has already begun implementing the Project Plan. While the Project Plan formally ends with a final report in January 2024, Emerald does not suggest that no further source reduction effort should occur. We only suggest that, after four years, it will be time to reassess the progress of the plant and consider whether a new plan or some other action is necessary and appropriate. Consistent with its core values, it intends to complete the Project Plan and attempt to ultimately meet the Section 304.122(b) effluent standard regardless of whether the Board makes it a condition of a new AS. HT 2/4/20, 70:15-23

(Hathcock) and 124:16 to 125:10 (Wrobel). Nonetheless, we support the inclusion of a condition regarding the Project Plan and have proposed Condition 2.g. for that purpose.

Effective Date and Expiration – Condition 3

As to the effective date, it should be made retroactive to April 16, 2020 if the Board is unable to act on or before that date. Emerald filed the petition in this matter on April 3, 2019, more than a year prior to the expiration of AS13-2. Emerald diligently pursued the petition, including reviewing over 12,000 pages produced by the Agency in discovery, submitting expert reports on time, conducting or defending 11 depositions and pre-filing all of its testimony and exhibits. The Agency chose not to file expert reports and did not pre-file any testimony. Emerald even managed to deal with at least two undisclosed bits of testimony by the Agency that apparently were only first thought of over lunch in Lacon during the first two days of hearings. HT 2/3/20, 111:17-21, 130:11 to 132:6 and 232:2-22 (Liska). Given Emerald's diligent efforts to allow the Board adequate time to issue a final ruling before the expiration of AS13-2, Emerald should not be left with a gap in coverage. If the Board is unable to issue a final opinion at its April 2 or April 16 meetings, a final granted AS should be made retroactive to April 16, 2020 to avoid such a gap. The Board has adopted retroactive adjusted standards before and should do so on Emerald's petition as well. *See In the Matter of: Proposed Extension of Adj. Std. Applicable to Illinois-American Water Co.'s Alton Public Water Supply Facility Discharge to the Mississippi River under 35 Ill. Adm. Code 304.124 and 304.106*, AS 07-2, Opinion and Order of the Board, 23-24 (Oct. 18, 2007) (hereafter, “*Illinois-American Water Co.*”); *In the Matter of: Petition of Central Can Company for an Adjusted Standard from 35 Ill. Adm. Code Part 218*, AS 94-18, Opinion and Order of the Board, 5-6 (Aug. 6, 1998) (adopting AS retroactively by over 7 years where petitioner had been diligent).

As to expiration, Emerald suggests that the Board make it a separate condition rather than a sentence at the end of Condition 1. Emerald further suggests that the expiration should not be a specific date. The expiration should be connected to any subsequent petition to renew or modify the AS, which is similar to NPDES permit expirations. A standard condition in Illinois NPDES permits is that the permit continues “in full force and effect” after the expiration if the permittee applies for renewal at least 180 days before expiration. *See e.g.* Petition Ex. 3 (Henry Plant NPDES permit), Standard Condition (2). The Board should also consider an expiration condition that provides an adequate period for Emerald to adjust to having no regulatory relief if a subsequent petition is denied. For example, in another case, the Board granted an AS from effluent limits for total suspended solids, iron and offensive discharges with an expiration set at three years following any of three triggering events. *Illinois-American Water Co.*, AS 07-2, Op. and Order of the Board, 23-24 (Oct. 18, 2007).

Following the example of *Illinois-American Water Co.*, Emerald proposes and supports Condition 3, above, to address the effective date and expiration of the AS.

B. The Agency’s Additional Proposed Conditions Are Not Justified.

The Agency suggested 20 different conditions. Agency Recommendation, 25-29. Four of those recommendations are substantially similar to conditions proposed by Emerald (Agency 3.k., 3.l., 3.o. and 3.p. are equivalent to Emerald 2.a., 2.b., 2.e., and 2.f.). As to those, Emerald only suggests that the Board adopt the language proposed by Emerald, above. The Agency’s recommendation 2 is an expiration provision, which Emerald addressed in the previous section. The rest of the Agency’s suggestions are not supported by the evidence or by the law, as detailed below, and should not be adopted.

Numeric Limits –Recommendation 1

The basis for the Agency's alternate numeric ammonia limits is either unclear or unprincipled. Messrs. Twait and Liska certified that the Agency's proposed limits (maximum and average; concentration and load) were based on nine months of Emerald's DMR data from September 2018 to May 2019. Agency Recommendation, 25-26 and attached Affidavits of Liska and Twait. Mr. Twait at least stuck to his position. HT 1/15/20, 51:6 to 52:3 (Twait). Mr. Liska was not designated as the Agency's witness on this topic, and even failed to disclose during his deposition that he would testify on it. HT 2/3/20, 180:7 to 181:11 (Liska). When he did testify, he was all over the place on what data he reviewed to determine the load limits. When asked leading questions by his own counsel, he dutifully affirmed that he looked at information since April 2014. HT 1/15/20, 182:24 to 183:3. When left to speak more freely, he said that the proposed load limits were based on the very highest DMR data from 2014 to 2019, *id.*, 182:9-15 and 183:18-24 (Liska), or that he looked at the last five years of data. *Id.*, 184:1-7. But, when confronted with April 2014 load data that was higher than the Agency's proposed average load limit, he could not explain what data he considered. HT 2/3/20, 206:22 to 208:9 (probably started in the middle of 2014 or just at 2015). The testimony is hopelessly confused.

As to the Agency's proposed concentration limits, Mr. Twait ultimately said they were based on just the nine months of data – five of which were during 2019 and he admitted might not be appropriate to use. HT 1/15/20, 53:15-24 (Twait). He also conceded that he did not take production levels into account in selecting the data he relied upon even though the Agency does not set load limits to limit a plant's production. *Id.*, 52:4-11 and 53:11-13; *see also* HT 2/3/20, 209:3-6 (Liska, permit limits not intended to limit production). The Agency attempted to explain using only nine months of data by referring to Emerald process changes, but those changes were not completed until February 2019 (by which time Emerald's production was declining) and did

not document MBT reductions. HT 2/3/20, 196:4-14 (Liska). Mr. Liska tried to justify relying on the 2019 data, but his explanation was confusing, at best, and seemed to rest on his idea that effluent concentration is not impacted by production volume. HT 2/3/20, 188:2 to 189:9. As Mr. Flippin explained, that idea is wrong because it fails to consider the PVC tank flow. Higher Emerald production means more batches run and adding into the PVC tank base flow, which results in higher concentrations of MBT and TKN in the combined flow, which should lead to higher effluent ammonia. HT 2/4/20 55:11 to 57:22 (Flippin). Without higher concentration limits, production could be limited. *Id.*, 57:18-22.

As to the proposed load limits, Mr. Twait relied on the same nine months of DMR data (of which he thought five might not be appropriate to use), but admitted that the proposed monthly average limit was not to be found in those nine months of data. HT 1/15/20, 60:7-22 (Twait). Four months (even nine months) is an extraordinarily short period for setting load limits. *See* NPDES Permit Writer's Manual, p. 5-30 (USEPA Sept. 2010, available at <https://www.epa.gov/npdes/npdes-permit-writers-manual> last visited 3/9/20) (load limits, a/k/a mass-based, derived from flow should consider 3 to 5 years of data). The Agency apparently thought Mr. Liska could ride to the rescue. He relied on more than nine months, but, as noted above, it is hard to know what he relied upon. Also, his testimony on load limits was based on his misunderstanding¹¹ that Emerald was at full production in 2018, HT 1/15/20, 182:9-19 (Liska), which he later had to admit had no factual basis. HT 2/3/20, 186:4-12 (Liska); *see also* Emerald's Written Answers, Response to Question 5, EP003670 to EP003673 (showing that even 2018 total production was significantly less than in 2000-2007).

¹¹ Mr. Liska also testified (after coaching by his counsel) that a statement in the Agency Recommendation that Emerald had made changes to the MBDS process was a "typo" that should have been BBTS. HT 2/3/20, 191:16 to 193:21. Maybe MBTS or BBDS would be a typo for BBTS— but not MBDS. That Agency counsel and Mr. Liska would not simply admit that they made a mistake rather than describing it as a typo undermines their credibility.

He also admitted that his certification of the Agency's Recommendation was in error by not referring to his 10% adjustment to the data for the proposed average load limit. HT 2/3/20, 212:4-17 (Liska). When asked to explain why the 10% adjustment was not made for the proposed maximum load, he gave a confusing answer that seemed to rely upon an assumption that the load data would reflect the facility's maximum flow. *Id.*, 213:2-15. Certainly, load is impacted by flow. But, the day with the highest load may not reflect the maximum design or highest actual flow. When asked to justify the 10% adjustment, he said it was based “on our experience calculating these numbers,” *id.*, 213:16-21, but then admitted they have no such experience because they usually just apply a standard formula. *Id.*, 213:22 to 214:6.

That formula is simple. The Agency usually sets maximum load limits as follows: multiply the maximum concentration (in mg/L) times the maximum flow (in MGD) times a conversion factor of 8.34. HT 1/15/20, 57:1-20 (Twait). The usual method of setting an average load limit is to multiply the average concentration (in mg/L) times the average flow (in MGD) times the conversion factor. *Id.*, 61:12-18 (Twait). That is the approach that the Agency used to set the load limits in the 2016 permit for an oil refinery that has effluent described as being toxic for ammonia, chloride and sulfates. HT 2/3/20, 202:14 to 205:6 (Liska); PHX 19, NPDES Permit pps 2 and 7. At first, the Agency said the ammonia load limits for another oil refinery were based on actual discharge loads over several years, HT 2/3/20, 196:20 to 197:12 (Liska), but that was wrong. The ammonia load limits for that refinery were also based on the standard formula. *See* Attachment B, p. 2 (permit obtained from the Agency’s website shows the limits were computed as follows: (1) maximum concentration of 6 mg/L x maximum flow of 5.04 MGD x 8.34 = limit of 252 lbs/day; (2) average concentration of 3 mg/L x average flow of 4.32 MGD x 8.34 = limit of 108 lbs/day). The Agency’s only explanation for its unique approach to

Emerald's load limits was that it made an assumption about production, HT 2/3/20, 209:7-22 (Liska); an assumption that has no factual basis and was not made for other sources.

The Agency's proposed maximum and average concentration limits are unprincipled because they are based on too short a period of data and a flawed understanding of the impact of production on effluent ammonia concentrations. The basis for the Agency's proposed maximum and average load limits is confusing, at best, and unprincipled. The Agency provided no explanation for why Emerald's load limits should not be calculated by the standard formula that the Agency applied to other sources of ammonia. Thus, the evidence does not support the Agency's proposed numeric limits.

Source Analyses and Operations –Recommendations 3.a., 3.d., 3.e. and 3.f.

These conditions ask Emerald to provide various data on ammonia and MBT to the Agency and to evaluate ammonia and water reductions from Mexichem and Emerald. As to the request for data on ammonia and MBT levels from Mexichem or in the PVC, PC or C-18 tanks, the historic data has already been provided to the Agency. *See* PHX 21 (PVC and PC tank ammonia and TKN and flow); Emerald's Written Answers, Response to Question 6 (documents with total nitrogen, ammonia, nitrate/nitrite and TKN data for Mexichem and Emerald sources). Even though the Agency had the data in PHX 21 several months before the hearing, they had not reviewed it. HT 1/15/20, 63:13 to 64:3 (Twait saying that Mr. Liska might have reviewed it); HT 2/3/20, 151:23 to 152:8 and 153:16-21 (Liska had not reviewed it). Moreover, there is no evidence that the Agency has the expertise or the manpower to analyze this data and make process improvement decisions based on it. HT 1/15/20, 48:20 to 49:2 (Twait). The Agency thought it might be helpful with sizing of equipment, HT 2/3/20, 155:10-17 (Liska), but then admitted that Mr. Flippin already analyzed sizing in his alternative analysis. *Id.*, 155:18-21 and

156:19 to 157:4. At this point, these recommendations no longer provide any benefit. To the extent more data needs to be collected, it should be done pursuant to Emerald's Project Plan.

The Agency seemed to abandon their recommendations 3.e. and 3.f. to evaluate ammonia and water reductions at Mexichem and Emerald, respectively. The indices for the hearing transcripts do not indicate any substantive questions regarding those conditions to Messrs. Twait or Liska except for cross-examination that established Mr. Liska had indicated at his deposition that he would testify about those recommendations. HT 2/3/20, 180:21. Also, water reductions would most likely have an adverse effect on ammonia concentrations. HT 1/14/20, 29:8-16 (Hathcock). These recommendations have no relation to achieving the ammonia effluent limits and should be rejected. *Emerald Performance Materials, LLC*, 2016 IL App 150526, ¶ 37 (conditions "must be connected in some fashion" to ammonia reduction).

Financial Information –Recommendations 3.b. and 3.i.

These conditions would require Emerald to annually provide the Agency with a balance sheet, shareholder report, asset and liability breakdown, expense breakdown, projected operations and maintenance expenses and actual capital improvement costs for the bioreactors. Apparently, the Agency's only justification for these conditions was to provide information to the Board to make a determination on economic reasonableness. HT 1/15/20, 25:22 to 27:3 (Twait). Later, Mr. Twait admitted that no one at the Agency had reviewed the financial information that Emerald submitted over objections in this proceeding and that the information could be provided in a subsequent Board proceeding, if and when such a proceeding is initiated. *Id.*, 64:4 to 66:1. He also admitted that past capital improvement expenditures might not be relevant at all. *Id.*, 70:13 to 71:3. The Agency has so poorly supported these conditions that the only logical conclusion is that the Agency wants to act as Emerald's financial manager or simply

wants to make compliance with the AS onerous. Those are no basis for a condition. *Emerald Performance Materials, LLC*, 2016 IL App 150526, ¶ 37 (conditions “must be connected in some fashion” to ammonia reduction).

Beyond the lack of any legitimate justification, these conditions are based on the Agency’s incorrect position that a company’s financial information is related to the economic reasonableness determination. It is not. The Appellate Court has held otherwise, and the Board has specifically rejected consideration of such information. *See* Section II.E.1., above. The Board should reject these conditions.

Bioreactors –Recommendations 3.c. and 3.h.

These conditions would impose certain requirements related to the three bioreactors currently not operating with the ultimate requirement to impose a tertiary nitrification solution employing those bioreactors. As to the Agency’s request for the necessary treatment capacity, that has already been provided. HT 2/3/20, 156:13 to 157:4 (Liska). At hearing, the Agency’s witness said Recommendation 3.c. asked for an “evaluation” of tertiary nitrification – not implementation of it. *Id.*, 164:17-21. Of course, the recommendation does not request an evaluation; it would command implementation.

As to implementing tertiary nitrification in this manner, there is no evidence in the record from which the Board could conclude that this approach is economically reasonable. The Agency did not provide any cost estimates for this approach, so the Board has no basis to compare the cost of that approach to Mr. Flippin's tertiary nitrification alternative. HT 2/3/20, 103:16 to 105:12 (Liska). The recommendation makes it sound as if the only cost is for some additional piping. That is ridiculously misleading. It is not just a matter of pipes. As Mr. Flippin testified, this approach would require stocking the bioreactor tanks with expensive

media, would require pumping the effluent, would require alkalinity addition and steam addition during the winter. HT 2/4/20, 23:17 to 24:14 (Flippin). The Agency had not even considered whether some form of filtration would be needed after the three bioreactors. HT 2/3/20, 103:4-15 (Liska). This idea would also not solve the need for redundant capacity, and the idea of renting redundant capacity for 1.4 million gallons, HT 2/3/20, 106:20 to 107:4 (Liska), is frankly ridiculous. HT 2/4/20, 34:8-21 (Flippin) (would need 70 frac tanks and have to manage flow across them). This is yet another example of how poorly the Agency thought through its ideas.

If the Agency intends these conditions to compel Mr. Liska's watertight wall, that is positively dangerous. Those bioreactor tanks were not designed for the stress of an interior wall. They have steel bottoms, which means a wall would have to be welded in place, and any movement in the wall or any difference in the water levels on either side of the wall could result in a total tank collapse. HT 2/4/20, 27:10 to 29:15 (Flippin). The only expert on wastewater system design who testified could not find one example of interior walls being retrofitted to a circular tank. *Id.*, 30:4-17 (Flippin). Mr. Liska, who has never done this kind of engineering, HT 2/3/20, 116:5-7 (Liska), could not explain what the wall would be made of, *id.*, 113-9-13, how it would be installed, *id.*, 114-7-9, and (after desperately trying to evade the question) admitted that he had no idea what would happen if the water level on one side of his wall became significantly different than on the other, *id.*, 120:20 to 122:15. It should not be a surprise how poorly the Agency thought through this idea given that it emerged during a lunch in the midst of hearings and no licensed professional or structural engineer considered it. HT 2/3/20, 14:3-10 and 232:2-22 (Liska). But, that lack of preparation is precisely why it provides no support for the Agency's proposed conditions and does not deserve further consideration.

As to the Agency's demand for a condition about the status of repairing the three bioreactors, there is no reason for that as Emerald's plans relate to providing redundant capacity, which will not impact effluent ammonia concentrations. HT 1/14/20, 115:3-16 (Hathcock); 230:1 to 231:16 (Flippin). *Emerald Performance Materials, LLC*, 2016 IL App 150526, ¶ 37 (conditions "must be connected in some fashion" to ammonia reduction).

Beyond these deficiencies, this recommendation reflects an inappropriate attempt to impose "command and control" solutions. In a democratic society, regulatory bodies are certainly an appropriate forum to consider and balance environmental harms against costs of compliance and to reflect the balance deemed appropriate in concrete standards that are to be met. But, regulatory bodies are less adept at actually specifying the technical approach to meeting the standard, once established. Figuring out the technical approach involves scientific inquiries and engineering adaptations of technically possible solutions to a particular application – all the while trying to maintain the safety and profitability of an enterprise. In the not very long run, if there is no profit, then there is no enterprise to regulate.

Moreover, a condition imposing a particular solution has no ability to adapt to changing circumstances. Why should tertiary nitrification using the additional bioreactors or spray irrigation be imposed if Emerald's Project Plan can achieve compliance (or at least significant reductions) at far less cost? Why should tertiary nitrification using the bioreactors or spray irrigation be imposed if those alternatives are more costly than tertiary nitrification via RBCs or alkaline stripping? The legislature required the Board to have members with "verifiable technical, academic, or actual experience in the field of pollution control or environmental law and regulation." 415 ILCS 5/5(a). But, every person and every regulatory body has limits to its experience and expertise. Even Albert Einstein found the income tax hard to understand! *See*

<https://www.irs.gov/newsroom/tax-quotes> (last visited 2/20/20). These considerations caution against imposing a specific technical solution in a command and control manner. The wiser course is to specify a standard considered necessary to protect the environment and leave it to the source to figure out how to meet the standard, including by retention of experts and engineers if need be. Agency Recommendations 3.c. and 3.h. should be rejected.

Spray Irrigation –Recommendation 3.g.

Recommendation 3.g. asks for a spray irrigation study proposal to be approved by the Agency, the study itself analyzing a variety of information and then submission of an application for a state operating permit if spray irrigation is found feasible. All of the specific information requested by the Agency has already been submitted. PHX 12, 9-10, HT 1/14/20, 151:2 to 153:1 (Flippin); HT 2/3/20, 167:3 to 169:3 (Liska). And, even though the Agency demanded this information from Emerald, it apparently did not request the same information from others. HT 2/3/20, 173:2-14 (Liska). Thus, the Agency's real need for this information is doubtful.

Spray irrigation has been more than sufficiently studied. It is not a technically feasible alternative (it can only provide partial compliance) and is not an economically feasible alternative. *See* Section II.E.2, above. And, in the speculative way in which the Agency would apply it over "hundreds or thousands of acres," HT 1/15/20, 177:2-3 (Liska), far from mitigating the impact of the salt content of Emerald's effluent, the salt content would leave you with barren ground. HT 2/4/20, 12:3 to 13:10. Moreover, of the alternatives investigated, it is the next to most expensive option per pound of ammonia removed. PHX 12, 11, Table 3.

Beyond the lack of evidence supporting the technical feasibility or economic reasonableness of spray irrigation, this recommendation suffers from the same inappropriate

“command and control” approach by the Agency. For the reasons stated in the previous section, that approach is unwise and should be rejected.

Annual Investigations – Recommendations 3.j., 3.m. and 3.n.

The first sentences of recommendation 3.j. and m. are essentially equivalent to Emerald’s proposed condition 2.c. The second sentence of 3.j. is covered by any condition related to Emerald’s Project Plan. The language of Emerald’s proposed conditions 2.c. and 2.g. address those sentences proposed by the Agency.

The final sentence of 3.j. would require Emerald to submit information on capital costs to the Agency. This suggestion is unnecessary and inappropriate for the same reason as the other Agency recommendations related to financial and capital cost data.

The second sentence of 3.m. would require Emerald to substitute new production methods, where practicable, if they would reduce ammonia in the discharge. There are several problems with this sentence. First, the ability to draw cause and effect conclusions between changes in production methods and effluent ammonia concentrations is difficult, at best. MBT introduced into the wastewater treatment system on a given production day appears to take 20 days on average to be entirely cleared from the system because of recycle and backwash streams. This can be impacted by the amount of flow in the system, which can be impacted both by production flows and storm water flows. Also, product mix does not remain constant for every production day, which can impact MBT concentrations. Further, most of the effluent ammonia is formed in the treatment process; it is not simply passed from production through the system. All of these factors (and probably others) make cause and effect conclusions difficult.

Second, the language of the sentence also focuses entirely on decreasing effluent ammonia. If a production method increases employee safety risks or lowers product yield or

quality or increases process complexity and expense, those matters (and perhaps others) do not seem to weigh in the balance. That is inconsistent with the technical feasibility and economic reasonableness standards that the Board must consider under Sections 28.1 of the Act.

Moreover, while some production changes are easily implemented, major changes typically go through years of research and development study, followed by engineering, permitting and construction of new equipment. The Agency's proposed sentence draws no such distinctions.

Third, this sentence is incredibly vague, in part because it is aimed at future facts that are presently unknown, so that it should not be an enforceable condition. While a Board order is different from a court injunction, conditions on an AS bear some similarity to terms of a mandatory injunction. An injunction should be "definite, clear and precise in its terms" *Streif v. Bovinette*, 88 Ill. App. 3d 1079, 1084 (5th Dist. 1980). "The act enjoined or directions given must be delineated with the particularity requisite to command obedience, enable enforcement, and allow an understanding of exactly what is forbidden." *Id.*, 1085; *see also Oehler v Levy*, 139 Ill. App. 294, 299-300 (1st Dist. 1907) (finding injunction against nuisance was too vague). The Board should reject the second sentence of 3.m. because it is too vague.

Except for the reference to the Algaewheel®, the first sentence of recommendation 3.n. is similar to Emerald's proposed condition 2.d. As to the Algaewheel®, the Agency's "evidence" was essentially hearsay from the internet. HT 1/15/20, 32:19 to 33:24 (Twait). Mr. Twait admitted that he did not know of any applications of that technology to a chemical plant effluent or an effluent with nitrification inhibitors, *id.*, 34:20 to 35:8, had not evaluated its effectiveness or cost for the Henry Plant, *id.*, 35:20 to 36:9, and, based on Mr. Flippin's testimony, thought this "may not be one alternative that needs to be looked at." *Id.*, 38:20-21. That is hardly a ringing endorsement for further investigation. Mr. Flippin was more concrete. This technology would

be more expensive than the RBCs alternative that is a more mature process that he had already evaluated. HT 1/14/20, 155:17 to 156:8 and 214:9-23 (Flippin). There is no need for further evaluation of the Algaewheel®.

The second sentence of recommendation 3.n. is essentially identical to the second sentence of recommendation 3.m. and suffers all the same defects. It should not be included in the conditions for the reasons explained above.

Petitions for Modification – Recommendation 3.q.

This recommendation is identical to AS 13-2, Condition 2.g. It says the Agency may petition the Board to modify the AS based on information contained in Emerald's annual reports. The Board has previously modified adjusted standards for new information, but usually for minor issues of timing or scope. *See In the Matter of: Adjusted Standard of Tommy House Tire Co., Inc. from 35 Ill. Adm. Code 848.202(b)(1) and (b)(5), AS 95-1, Order of the Board, 1 (May 15, 1997) (extending termination date); In the Matter of: Petition of Keystone Steel and Wire Co. for Adjusted Standard from Hazardous Waste From Specific Sources, 35 Ill. Adm. Code 721.132, AS 93-7, Supp. Opinion and Order of the Board, 2 (Dec. 14, 1994) (adding newly discovered site to AS).* A wholesale reconsideration of a granted adjusted standard seems beyond the Board's procedure rules. *See 35 Ill. Adm. Code 101.904(b).* In any event, if the Board can accept such motions, it does not seem necessary to make it a condition. Given that the Henry Plant discharge poses no adverse threat to the environment, *see* Sections I.H and II.B, above, omitting this condition does not negatively impact the environment, and it is unnecessary.

Incorporation Clause - Recommendation 3.r.

This recommendation is identical to AS 13-2, Condition 2(h). The Agency's reason for wanting this condition is confusing. On one day, the Agency witness said this recommendation

would hold Emerald to the conditions in its permit, HT 1/15/20, 210:13-15 (Liska), and that conditions in the next permit “can also be held with the adjusted standard.” *Id.*, 211:7-9.

Another day, the witness claimed that future permit conditions would not be incorporated into the AS, they would just be information gathering for the Board for a possible subsequent AS petition. HT 2/3/20, 147:14-23 (Liska). The Agency also asserted that its permit conditions were the reason that the Board now has information on the amount of MBT after the secondary clarifier. HT 1/15/20, 208:14-22 (Liska). That is not true. Emerald began regularly collecting MBT data after the secondary clarifier in 2014 – almost two years before that permit condition became effective. Emerald Written Answers, Response to Question 8, p. 8.

If the Agency's justification is confusing, the effect of this recommendation is not. Essentially, it incorporates into the AS statutory, regulatory and permit requirements that already are applicable to Emerald, whether those requirements relate to the subject of the AS or not. For example, it incorporates permit conditions regarding temperature, BOD, TSS, storm water and other matters that are unrelated to the subject of this AS, i.e., the plant's ammonia discharge. All of those requirements are already applicable to Emerald pursuant to law or NPDES Permit No. IL0001392. The legislature authorized the Board to impose conditions on the grant of an AS “as may be necessary to accomplish the purposes of the Act.” 415 ILCS 5/28.1(a). How a condition that incorporates already applicable requirements – the vast majority of which are unrelated to the subject of an AS – accomplishes anything is hard to understand. Mr. Twait understood that simple fact, HT 1/15/20, 77:18 to 78:8 (Twait), and even Mr. Liska admitted that the permit conditions are enforceable on their own. HT 2/3/20, 146:19-24 (Liska). Moreover, the Board has issued many adjusted standards without a similar term. *See In the Matter of: Petition of the City of Collinsville for an Adjusted Standard from 35 Ill. Adm. Code 620.410 for Certain*

Constituents, AS 15-03, Opinion and Order of the Board, 27-29 (Feb. 4, 2016); *In the Matter of: Petition of Exelon Generation Co. for an Adjusted Standard from 35 Ill. Adm. Code 302.208*, AS 03-1, Order of the Board, 9 (June 19, 2003).

Beyond being duplicative, this condition suffers two insurmountable problems. The Agency suggested that this recommendation would allow later-adopted permit conditions to be incorporated into an AS. HT 1/15/20, 210:21 to 211:9 (Liska). The most obvious problem with this theory is that the power to impose conditions on the grant of an AS is a power *of the Board – not the Agency*. 415 ILCS 28.1(a) (“In granting such adjusted standards, the Board may impose such conditions . . .”). Like any administrative body, the Agency is a creature of statute and only has the powers granted to it by the legislature. *Bio-Medical Laboratories, Inc. v. Trainor*, 68 Ill. 2d 540, 551 (1977). The Illinois Supreme Court has taken care to keep the Board and the Agency within their respective statutory roles as delineated by the Act. *Landfill, Inc. v. Pollution Control Board*, 74 Ill. 2d 541, 557 (1978) (authority to issue permits resides in the Agency and Board's authority to hear permit appeals is limited to permit denials). The Agency's theory would essentially allow it unfettered power to impose conditions without any guidance or review by the Board. That is an attempt to usurp the Board's authority.

The second obvious problem with this theory is that it would allow the imposition of a condition after-the-fact without notice to Emerald or any opportunity for it to be heard on the subject of the adjusted standard condition as required by the Act. The Agency's example was based on a permit condition imposed in *October 2016*, which it seemingly believes should be incorporated after-the-fact into the Board's order entered in *April 2015*. HT 1/15/20, 207:8 to 208:3 (Liska referring to special condition 15 in Emerald's permit issued in October 2016, *see* Petition Ex. 3). Adjusted standards are adjudicatory determinations by the Board. *Sierra Club v.*

Illinois Pollution Control Bd., 2011 IL 110882, ¶ 13 (2011). And, such quasi-judicial decisions are to be made after a public hearing if one is requested within 21 days following publication of the required notice. 415 ILCS 5/28.1(d)(2). The ability to seek review of permit condition is no substitute for the hearing required on the AS. In a permit appeal, the Board's review is limited to the permit administrative record before the Agency. *See* 35 Ill. Adm. Code 105.212. Moreover, it would be grossly inefficient to re-argue the appropriate conditions for this AS in a later permit application and proceeding.

Recommendation 3.r. is contrary to the allocation of authority under the Act, violates the hearing requirements of the Act and is duplicative and unnecessary. It should be rejected.

CONCLUSION

The evidence shows that the proposed AS would not have environmental or health effects substantially and significantly more adverse than considered by the Board in adopting Section 304.122(b). Indeed, the evidence proves even more than that. It shows that the ammonia in the Henry Plant discharge has not negatively impacted the environment of the Illinois River or human health. The evidence is uncontroverted that granting the proposed AS would be consistent with federal law. There also is no question that the Board did not consider the circumstances of the Henry Plant in adopting Section 304.122(b). In light of those unique circumstances, Emerald and the previous owners of the Henry Plant have explored a large number of alternatives in order to attempt to comply with the ammonia effluent limit. These efforts have included evaluation of process changes, source reduction and end-of-pipe treatment alternatives. Those efforts continue today, although the effect of process changes to reduce the nitrification inhibitors in the wastewater cannot be predicted with sufficient certainty to demonstrate compliance with Section 304.122(b). The testimony and exhibits presented to the

Board demonstrate that no end-of-pipe treatment alternative is both economically reasonable and technically feasible. The Agency presented no evidence of a treatment alternative meeting these standards. Moreover, many of the Agency's ideas would actually be worse for the environment by increasing greenhouse gases or the already high salinity of the Henry Plant discharge. One would risk catastrophic tank failure. Because the relief requested by Emerald meets all the requirements of the Act, the AS from 35 Ill. Adm. Code 304.122(b), with the conditions proposed by Emerald herein, should be granted pursuant to Section 28.1 of the Act and consistent with the Board's orders in AS 02-5 and AS 13-2.

Respectfully submitted,

Emerald Polymer Additives LLC.

March 11, 2020

By: /s/ Thomas W. Dimond

One of Its Attorneys

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CERTIFICATE OF SERVICE

I, the undersigned, certify that on March 11, 2020, I have served the attached **Notice of Electronic Filing and Emerald's Post-Hearing Brief in Support of Petition** upon the following persons by electronic mail:

Rex L. Gradeless
Christine Zeivel
Division of Legal Counsel
Illinois Environmental Protection Agency
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/s/ Thomas W. Dimond

ATTACHMENT A

Electronic Filing: Received, Clerk's Office 03/11/2020

NPDES Permit No. IL0001392
Notice No. MEL:15042901.docx

Public Notice Beginning Date: **June 29, 2016**

Public Notice Ending Date: **August 1, 2016**

National Pollutant Discharge Elimination System (NPDES)
Permit Program

Draft Reissued NPDES Permit to Discharge into Waters of the State

Public Notice/Fact Sheet Issued By:

Illinois Environmental Protection Agency
Bureau of Water,
Division of Water Pollution Control
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-0610

Name and Address of Discharger:

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537

Name and Address of Facility:

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
(Marshall County)

The Illinois Environmental Protection Agency (IEPA) has made a tentative determination to issue a NPDES permit to discharge into the waters of the state and has prepared a draft permit and associated fact sheet for the above named discharger. The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice/Fact Sheet. The last day comments will be received will be on the Public Notice period ending date unless a commentor demonstrating the need for additional time requests an extension to this comment period and the request is granted by the IEPA. Interested persons are invited to submit written comments on the draft permit to the IEPA at the above address. Commentors shall provide his or her name and address and the nature of the issues proposed to be raised and the evidence proposed to be presented with regards to those issues. Commentors may include a request for public hearing. Persons submitting comments and/or requests for public hearing shall also send a copy of such comments or requests to the permit applicant. The NPDES permit and notice number(s) must appear on each comment page.

The application, engineer's review notes including load limit calculations, Public Notice/Fact Sheet, draft permit, comments received, and other documents are available for inspection and may be copied at the IEPA between 9:30 a.m. and 3:30 p.m. Monday through Friday when scheduled by the interested person.

If written comments or requests indicate a significant degree of public interest in the draft permit, the permitting authority may, at its discretion, hold a public hearing. Public notice will be given 45 days before any public hearing. Response to comments will be provided when the final permit is issued. For further information, please call Mark E. Liska at 217/782-0610.

The applicant is engaged in the manufacture of rubber and chemical additives (SIC 2869) and receives waste from another manufacturer, Mexichem Specialty Resins, Inc. (SIC 2821). Waste water is generated from facilities processes, cooling tower blowdown, potable water, process water production, stormwater, demineralizer units and boiler blowdown.

Plant operation results in an average discharge of 0.917 MGD of process waste water, cooling tower blowdown, sanitary waste, process water production and stormwater from demineralizer units and boiler blowdown from outfall A01, 0.03 MGD of stormwater, non-contact cooling water, lime softening and demineralizer waste from outfall B01, 0.917 MGD of combined discharges from outfalls A01 and B01 from outfall 001 and intermittent discharge of stormwater from outfalls 002 through 006.

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Public Notice/Fact Sheet -- Page 2 -- NPDES Permit No. IL0001392

Application is made for existing discharge(s) which are located in Marshall County, Illinois. The following information identifies the discharge point, receiving stream and stream classifications:

Outfall	Receiving Stream	Latitude		Longitude		Stream Classification	Biological Stream Characterization
001	Illinois River	41° 7' 50"	North	89° 20' 4"	West	General Use	Not Rated
002	Illinois River	41° 8' 0"	North	89° 20' 5"	West	General Use	Not Rated
003	Illinois River	41° 8' 10"	North	89° 20' 5"	West	General Use	Not Rated
004	Illinois River	41° 8' 15"	North	89° 20' 10"	West	General Use	Not Rated
005	Illinois River	41° 8' 15"	North	89° 20' 10"	West	General Use	Not Rated
006	Illinois River	41° 8' 20"	North	89° 20' 15"	West	General Use	Not Rated

To assist you further in identifying the location of the discharge please see the attached map.

The stream segment D-09 receiving the discharge from outfall(s) 001-006 is on the 2014 303 (d) list of impaired waters, and is not a biologically significant stream. The receiving water has not been given an integrity rating or been listed as biologically significant in the 2008 Illinois Department of Natural Resources publication *Integrating Multiple Taxa in a Biological Stream Rating System*. The impaired designated uses and pollutants causing impairment are tabulated below:

The following parameters have been identified as the pollutants causing impairment:

Pollutants	Potential Contributors
Fish Consumption	Mercury, PCBs

The discharge(s) from the facility shall be monitored and limited at all times as follows:

Outfall: A01

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		REGULATION	CONCENTRATION LIMITS mg/l		REGULATION
	30 DAY AVERAGE	DAILY MAXIMUM		30 DAY AVERAGE	DAILY MAXIMUM	
Flow						35 IAC 309.146
pH					6.0-9.0	35 IAC 304.125
BOD ₅	153	467	35 IAC 304.120(b)	20	40	35 IAC 304.120(b)
Total Suspended Solids	191	584	35 IAC 304.120(b)	25	50	35 IAC 304.120(b)
Fecal Coliform				400 per 100 mL		35 IAC 304.121
Temperature				Monitor Only		35 IAC 309.146
Chromium (Total)	6.5	13	35 IAC 304.124	1	2	35 IAC 304.124
Copper		2.56	40 CFR 122.44(l)		0.215	40 CFR 122.44(l)
Cyanide	0.76	2.34	35 IAC 304.124	0.1	0.2	35 IAC 304.124
Lead	2.0	4.3	40 CFR 122.44(l)	0.2	0.4	35 IAC 304.124
Nickel	7.6	23.4	35 IAC 304.124	1	2	35 IAC 304.124

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Public Notice/Fact Sheet -- Page 3 -- NPDES Permit No. IL0001392

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		REGULATION	CONCENTRATION LIMITS mg/l		REGULATION
	30 DAY AVERAGE	DAILY MAXIMUM		30 DAY AVERAGE	DAILY MAXIMUM	
Continue Outfall: A01						
Zinc	6.5	13	40 CFR 414	1	2	35 IAC 304.124
Acenaphthene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Acrylonitrile	0.618	1.558	40 CFR 414.91	0.096	0.242	40 CFR 414.91
Benzene	0.238	0.876	40 CFR 414.91	0.037	0.136	40 CFR 414.91
Carbon Tetrachloride	0.116	0.245	40 CFR 414.91	0.018	0.038	40 CFR 414.91
Chlorobenzene	0.097	0.180	40 CFR 414.91	0.015	0.028	40 CFR 414.91
1,2,4-Trichlorobenzene	0.438	0.901	40 CFR 414.91	0.068	0.140	40 CFR 414.91
Hexachlorobenzene	0.097	0.180	40 CFR 414.91	0.015	0.028	40 CFR 414.91
1,2-Dichloroethane	0.438	1.359	40 CFR 414.91	0.068	0.211	40 CFR 414.91
1,1,1-Trichloroethane	0.135	0.348	40 CFR 414.91	0.021	0.054	40 CFR 414.91
Hexachloroethane	0.135	0.348	40 CFR 414.91	0.021	0.054	40 CFR 414.91
1,1-Dichloroethane	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
1,1,2-Trichloroethane	0.135	0.348	40 CFR 414.91	0.021	0.054	40 CFR 414.91
Chloroethane	0.670	1.726	40 CFR 414.91	0.104	0.268	40 CFR 414.91
Chloroform	0.135	0.296	40 CFR 414.91	0.021	0.046	40 CFR 414.91
2-Chlorophenol	0.200	0.631	40 CFR 414.91	0.031	0.098	40 CFR 414.91
1,2-Dichlorobenzene	0.496	1.049	40 CFR 414.91	0.077	0.163	40 CFR 414.91
1,3-Dichlorobenzene	0.200	0.283	40 CFR 414.91	0.031	0.044	40 CFR 414.91
1,4-Dichlorobenzene	0.097	0.180	40 CFR 414.91	0.015	0.028	40 CFR 414.91
1,1-Dichloroethylene	0.103	0.161	40 CFR 414.91	0.016	0.025	40 CFR 414.91
1,2-Trans Dichloroethylene	0.135	0.348	40 CFR 414.91	0.021	0.054	40 CFR 414.91
2,4-Dichlorophenol	0.251	0.721	40 CFR 414.91	0.039	0.112	40 CFR 414.91
1,2-Dichloropropane	0.985	1.481	40 CFR 414.91	0.153	0.230	40 CFR 414.91
1,3-Dichloropropylene	0.187	0.283	40 CFR 414.91	0.029	0.044	40 CFR 414.91
2,4-Dimethylphenol	0.116	0.232	40 CFR 414.91	0.018	0.036	40 CFR 414.91
2,4-Dinitrotoluene	0.728	1.835	40 CFR 414.91	0.113	0.285	40 CFR 414.91
2,6-Dinitrotoluene	1.642	4.127	40 CFR 414.91	0.255	0.641	40 CFR 414.91
Ethylbenzene	0.206	0.695	40 CFR 414.91	0.032	0.108	40 CFR 414.91
Fluoranthene	0.161	0.438	40 CFR 414.91	0.025	0.068	40 CFR 414.91
Methylene Chloride	0.258	0.573	40 CFR 414.91	0.040	0.089	40 CFR 414.91
Methyl Chloride	0.554	1.223	40 CFR 414.91	0.086	0.190	40 CFR 414.91
Hexachlorobutadiene	0.129	0.315	40 CFR 414.91	0.020	0.049	40 CFR 414.91
Naphthalene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Nitrobenzene	0.174	0.438	40 CFR 414.91	0.027	0.068	40 CFR 414.91
2-Nitrophenol	0.264	0.444	40 CFR 414.91	0.041	0.069	40 CFR 414.91
4-Nitrophenol	0.464	0.798	40 CFR 414.91	0.072	0.124	40 CFR 414.91
2,4-Dinitrophenol	0.457	0.792	40 CFR 414.91	0.071	0.123	40 CFR 414.91

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Public Notice/Fact Sheet -- Page 4 -- NPDES Permit No. IL0001392

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		REGULATION	CONCENTRATION LIMITS mg/l		REGULATION
	30 DAY AVERAGE	DAILY MAXIMUM		30 DAY AVERAGE	DAILY MAXIMUM	
Continue Outfall: A01						
4,6-Dinitro-o-Cresol	0.502	1.783	40 CFR 414.91	0.078	0.277	40 CFR 414.91
Phenol	0.097	0.167	40 CFR 414.91	0.015	0.026	40 CFR 414.91
Bis(2-ethylhexyl)phthalate	0.663	1.796	40 CFR 414.91	0.103	0.279	40 CFR 414.91
Di-n-butyl phthalate	0.174	0.367	40 CFR 414.91	0.027	0.057	40 CFR 414.91
Diethyl phthalate	0.522	1.307	40 CFR 414.91	0.081	0.203	40 CFR 414.91
Dimethyl phthalate	0.122	0.303	40 CFR 414.91	0.019	0.047	40 CFR 414.91
Benzo(a)anthracene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Benzo(a)pyrene	0.148	0.393	40 CFR 414.91	0.023	0.061	40 CFR 414.91
3,4-Benzofluoranthene	0.148	0.393	40 CFR 414.91	0.023	0.061	40 CFR 414.91
Benzo(k)fluoranthene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Chrysene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Acenaphthylene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Anthracene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Fluorene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Phenanthrene	0.142	0.380	40 CFR 414.91	0.022	0.059	40 CFR 414.91
Pyrene	0.161	0.431	40 CFR 414.91	0.025	0.067	40 CFR 414.91
Tetrachloroethylene	0.142	0.361	40 CFR 414.91	0.022	0.056	40 CFR 414.91
Toluene	0.167	0.515	40 CFR 414.91	0.026	0.080	40 CFR 414.91
Trichloroethylene	0.135	0.348	40 CFR 414.91	0.021	0.054	40 CFR 414.91
Vinyl Chloride	0.670	1.726	40 CFR 414.91	0.104	0.268	40 CFR 414.91
Outfall: B01						
Flow (MGD)						35 IAC 309.146
pH					Monitor Only	35 IAC 309.146
BOD ₅					Monitor Only	35 IAC 309.146
Total Suspended Solids					Monitor Only	35 IAC 309.146
Total Iron					Monitor Only	35 IAC 309.146
COD					Monitor Only	35 IAC 309.146
Outfall: 001						
Ammonia (as N)	841	1633	IPCB AS 13-2	110	140	IPCB AS 13-2
Ammonia (as N) after Expiration of AS 13-2	23	70	35 IAC 304.122(b)	3	6	35 IAC 304.122(b)
Total Nitrogen					Monitor Only	35 IAC 309.146

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Public Notice/Fact Sheet -- Page 5 -- NPDES Permit No. IL0001392

Load Limit Calculations:

- A. Load limit calculations for the following pollutant parameters for outfall A01 were based on an average flow of 0.917 MGD and a maximum flow of 1.40 MGD and using the formula of average or maximum flow (MGD) X concentration limit (mg/l) X 8.34 = the average or maximum load limit (lbs/day): BOD₅, total suspended solids, cyanide, nickel, and ammonia (as N) after the expiration of AS 13-2.
- B. Load limit calculations for the following pollutant parameters for outfall A01 were based on an average flow and a maximum flow of 0.772 MGD and using the formula of average or maximum flow (MGD) X concentration limit (mg/l) X 8.34 = the average or maximum load limit (lbs/day): chromium (total), zinc and all organics regulated under 40 CFR 414 Subpart I.
- C. Load limits for ammonia (as N) prior to April 16, 2020 for outfall 001 were defined in IPCB AS 13-2.

Load limits for copper for outfall A01 remained the same as in the previous permit because they were more stringent than the load limits calculated utilizing current State or Federal guidelines. Pursuant to 40 CFR 122.44(l) a permit limit cannot be less restrictive than existing limits. Flows from sanitary wastes, cooling water, boiler blowdown and water treatment waste water from outfall A01 were discounted as dilutional and were not utilized in calculating Federal guideline based load limits. The average flow was adjusted from 0.917 to 0.772 MGD before being utilized to calculate Federal load limits. The load limits appearing in the permit will be the more stringent of the State and Federal Guidelines.

The following explain the conditions of the proposed permit:

The facility is regulated by the Organic Chemical, Plastics and Synthetic Fibers Point Source Category 40 CFR 414 and as such requires monitoring and limitation of all regulated pollutants. Provisions of the regulation allow a 1/year sample frequency for all pollutants not expected to be present in the discharge.

Limitations utilized in the permit are effluent criteria. Water quality criteria was not utilized because a determination was made that no reasonable potential exist to exceed the water quality criteria.

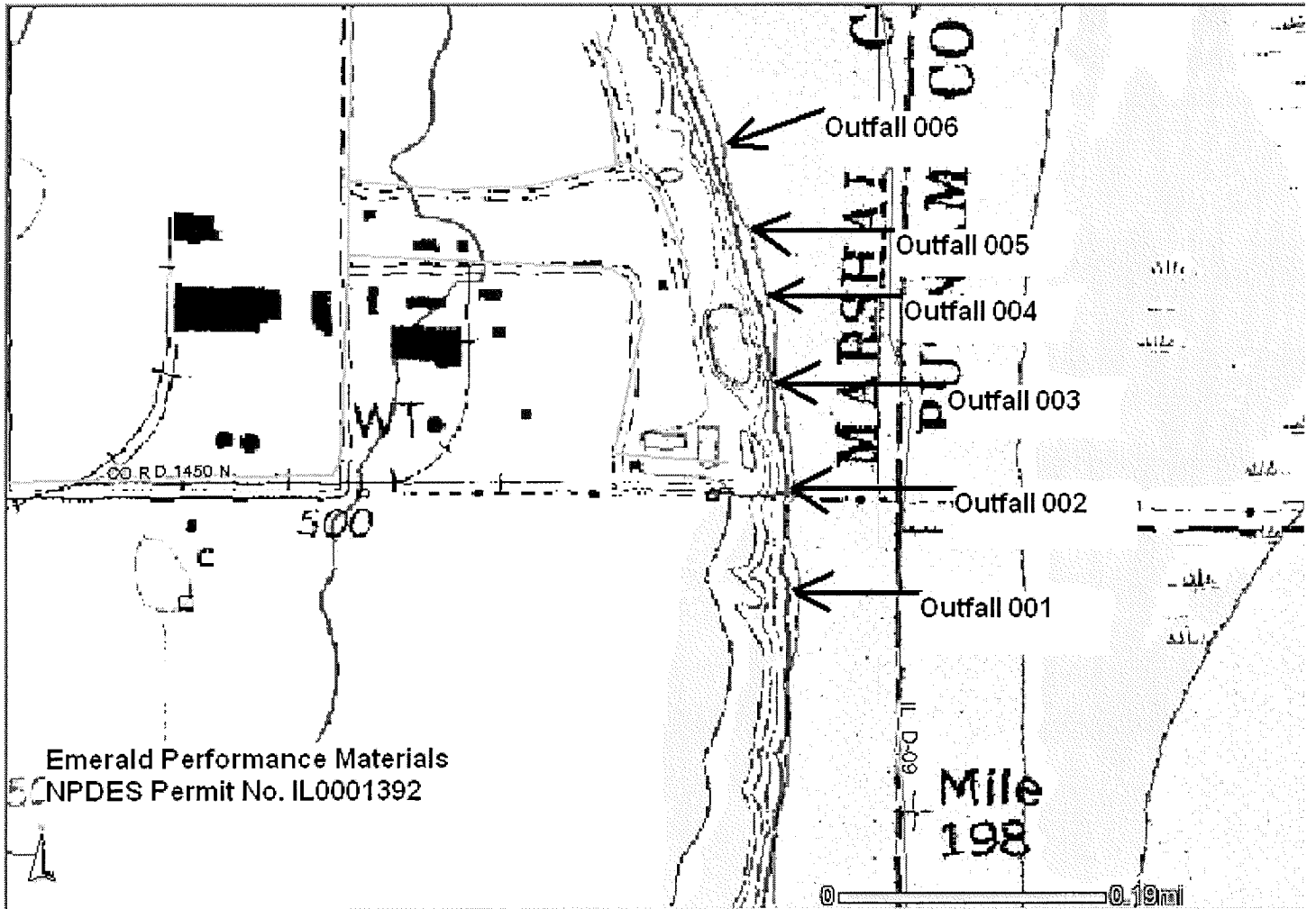
The Illinois Pollution Control Board granted an Adjusted Standard (AS 13-2) for ammonia on April 16, 2015. These alternate limits apply until the expiration of AS 13-2.

Stormwater discharges will be required to be controlled by preparing a Storm Water Pollution Prevention Plan and implementing it.

The permittee operates a biological reactor system which converts amines in the wastewater to ammonia. This ammonia is then reacted to form nitrogen. The presence of mercaptobenzothiazole (MBT) in the wastewater inhibits this nitrification process. Special Condition 16 will require that the permittee perform a thorough investigation of this issue and will require annual reports summarizing the activities the permittee has taken to address this issue.

Less than 5% of the water withdrawn from the intake structure is used as cooling water; the rest is used as process water. Because the intake structure does not meet the 25% cooling water threshold required, it is not subject to 316(b) regulations.

The applicant is engaged in the manufacture of rubber chemicals and plastic additives and receives waste water generated from Mexichem Specialty Resins, Inc. which manufactures polyvinyl chloride and compounds (SIC-Emerald Performance Materials 2869 and Mexichem Specialty Resins, Inc. 2821). Waste water is generated from both facilities processes, cooling tower blowdown, process water, potable water production and stormwater and the Mexichem demineralizer units and boiler blowdown.



Electronic Filing: Received, Clerk's Office 03/11/2020

Public Notice of Draft Permit

Public Notice Number MEL:15042901.docx is hereby given by Illinois EPA, Division of Water Pollution Control, Permit Section, 1021 North Grand Avenue East, Post Office Box 19276, Springfield, Illinois 62794-9276 (herein Agency) that a draft National Pollutant Discharge Elimination System (NPDES) Permit Number IL0001392 has been prepared under 40 CFR 124.6(d) for Emerald Performance Materials, 1550 County Road 1450 N, Henry, Illinois 61537 for discharge into Illinois River from the Emerald Performance Materials, 1550 County Road 1450 N, Henry, Illinois (Marshall County). The applicant is engaged in the manufacture of rubber chemicals and plastic additives and receives waste water generated from Mexichem Specialty Resins, Inc. which manufactures polyvinyl chloride and compounds (SIC-Emerald Performance Materials 2869 and Mexichem Specialty Resins, Inc. (2821). Waste water is generated from both facilities processes, cooling tower blowdown, process water, potable water production and stormwater and the Mexichem demineralizer units and boiler blowdown.

Plant operation results in an average discharge of 0.917 MGD of process waste water, cooling tower blowdown, sanitary waste, potable water production and stormwater from both facilities and Mexichem's demineralizer units and boiler blowdown from outfall A01, 0.03 MGD of stormwater, non-contact cooling water, lime softening and demineralizer waste from outfall B01, 0.917 MGD of combined discharges from outfalls A01 and B01 from outfall 001 and intermittent discharge of stormwater from outfalls 002 through 006.

The application, draft permit and other documents are available for inspection and may be copied at the Agency between 9:30 A.M. and 3:30 P.M. Monday through Friday. A Fact Sheet containing more detailed information is available at no charge. For further information, call the Public Notice Clerk at 217/782-0610.

Interested persons are invited to submit written comments on the draft permit to the Agency at the above address. The NPDES Permit and Joint Public Notice numbers must appear on each comment page. All comments received by the Agency not later than 30 days from the date of this publication shall be considered in making the final decision regarding permit issuance.

Any interested person may submit written request for a public hearing on the draft permit, stating their name and address, the nature of the issues proposed to be raised and the evidence proposed to be presented with regards to these issues in the hearing. Such requests must be received by the Agency not later than 45 days from the date of this publication.

If written comments and/or requests indicate a significant degree of public interest in the draft permit, the permitting authority may, at its discretion, hold a public hearing. Public notice will be given 45 days before any public hearing.

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NPDES Permit No. IL0001392

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date:

Issue Date:
Effective Date:

Name and Address of Permittee:

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537

Facility Name and Address:

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
(Marshall County)

Discharge Number and Name:

Receiving Waters:

A01	Process Waste, Cooling Tower Blowdown, Sanitary Waste, Process Water Production Waste, Boiler Blowdown, Demineralizer Waste and Stormwater	Illinois River
B01	Stormwater, Non-contact Cooling Water, Lime Softening and Demineralizer Waste	Illinois River
001	Combined Discharges from Outfall A01 and B01	Illinois River
002 - 006	Stormwater	Illinois River

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of Ill. Adm. Code, Subtitle C and/or Subtitle D, Chapter 1, and the Clean Water Act (CWA), the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.

Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

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NPDES Permit No. IL0001392

Effluent Limitations and Monitoring

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): A01* - Process Discharges – 0.772 MGD DAF
 Cooling Tower Blowdown, Sanitary Waste, Boiler Blowdown, Demineralizer Waste
 and Stormwater - 0.145 MGD DAF
 Total Discharge = 0.917 MGD DAF, 1.40 MGD DMF

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
Flow (MGD)	See Special Condition 1				Daily	Continuous
pH	See Special Condition 2				Daily	Grab
BOD ₅	153	467	20	40	5/Week	Composite
Total Suspended Solids	191	584	25	50	5/Week	Composite
Fecal Coliform	See Special Condition 10				1/Month	Grab
Temperature	See Special Condition 3				Daily	Continuous
Chromium (Total)	6.5	13	1	2	1/Year	Composite
Copper		2.56		0.215	1/Year	Composite
Cyanide	0.76	2.34	0.1	0.2	1/Year	Grab
Lead	2.0	4.3	0.2	0.4	1/Year	Composite
Nickel	7.6	23.4	1	2	1/Year	Composite
Zinc	6.5	13	1	2	1/Year	Composite
Acenaphthene	0.142	0.380	0.022	0.059	1/Year	Grab
Acrylonitrile	0.618	1.558	0.096	0.242	1/Year	Grab
Benzene	0.238	0.876	0.037	0.136	1/Year	Grab
Carbon Tetrachloride	0.116	0.245	0.018	0.038	1/Year	Grab
Chlorobenzene	0.097	0.180	0.015	0.028	1/Year	Grab
1,2,4-Trichlorobenzene	0.438	0.901	0.068	0.140	1/Year	Grab
Hexachlorobenzene	0.097	0.180	0.015	0.028	1/Year	Grab
1,2-Dichloroethane	0.438	1.359	0.068	0.211	1/Year	Grab
1,1,1-Trichloroethane	0.135	0.348	0.021	0.054	1/Year	Grab
Hexachloroethane	0.135	0.348	0.021	0.054	1/Year	Grab
1,1-Dichloroethane	0.142	0.380	0.022	0.059	1/Year	Grab
1,1,2-Trichloroethane	0.135	0.348	0.021	0.054	1/Year	Grab
Chloroethane	0.670	1.726	0.104	0.268	1/Year	Grab

NPDES Permit No. IL0001392						
Effluent Limitations and Monitoring						
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
Continue Outfall(s): A01* Total Discharge = 0.917 MGD DAF, 1.40 MGD DMF						
PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
Chloroform	0.135	0.296	0.021	0.046	1/Quarter	Grab
2-Chlorophenol	0.200	0.631	0.031	0.098	1/Year	Grab
1,2-Dichlorobenzene	0.496	1.049	0.077	0.163	1/Year	Grab
1,3-Dichlorobenzene	0.200	0.283	0.031	0.044	1/Year	Grab
1,4-Dichlorobenzene	0.097	0.180	0.015	0.028	1/Year	Grab
1,1-Dichloroethylene	0.103	0.161	0.016	0.025	1/Year	Grab
1,2-Trans Dichloroethylene	0.135	0.348	0.021	0.054	1/Year	Grab
2,4-Dichlorophenol	0.251	0.721	0.039	0.112	1/Year	Grab
1,2-Dichloropropane	0.985	1.481	0.153	0.230	1/Year	Grab
1,3-Dichloropropylene	0.187	0.283	0.029	0.044	1/Year	Grab
2,4-Dimethylphenol	0.116	0.232	0.018	0.036	1/Year	Grab
2,4-Dinitrotoluene	0.728	1.835	0.113	0.285	1/Year	Grab
2,6-Dinitrotoluene	1.642	4.127	0.255	0.641	1/Year	Grab
Ethylbenzene	0.206	0.695	0.032	0.108	1/Year	Grab
Fluoranthene	0.161	0.438	0.025	0.068	1/Year	Grab
Methylene Chloride	0.258	0.573	0.040	0.089	1/Month	Grab
Methyl Chloride	0.554	1.223	0.086	0.190	1/Year	Grab
Hexachlorobutadiene	0.129	0.315	0.020	0.049	1/Year	Grab
Naphthalene	0.142	0.380	0.022	0.059	1/Year	Grab
Nitrobenzene	0.174	0.438	0.027	0.068	1/Year	Grab
2-Nitrophenol	0.264	0.444	0.041	0.069	1/Year	Grab
4-Nitrophenol	0.464	0.798	0.072	0.124	1/Year	Grab
2,4-Dinitrophenol	0.457	0.792	0.071	0.123	1/Year	Grab
4,6-Dinitro-o-Cresol	0.502	1.783	0.078	0.277	1/Year	Grab

NPDES Permit No. IL0001392

Effluent Limitations and Monitoring

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Continue Outfall(s): A01* Total Discharge = 0.917 MGD DAF, 1.40 MGD DMF

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
Phenol	0.097	0.167	0.015	0.026	1/Year	Grab
Bis(2-ethylhexyl)phthalate	0.663	1.796	0.103	0.279	1/Year	Grab
Di-n-butyl phthalate	0.174	0.367	0.027	0.057	1/Year	Grab
Diethyl phthalate	0.522	1.307	0.081	0.203	1/Year	Grab
Dimethyl phthalate	0.122	0.303	0.019	0.047	1/Year	Grab
Benzo(a)anthracene	0.142	0.380	0.022	0.059	1/Year	Grab
Benzo(a)pyrene	0.148	0.393	0.023	0.061	1/Year	Grab
3,4-Benzofluoranthene	0.148	0.393	0.023	0.061	1/Year	Grab
Benzo(k)fluoranthene	0.142	0.380	0.022	0.059	1/Year	Grab
Chrysene	0.142	0.380	0.022	0.059	1/Year	Grab
Acenaphthylene	0.142	0.380	0.022	0.059	1/Year	Grab
Anthracene	0.142	0.380	0.022	0.059	1/Year	Grab
Fluorene	0.142	0.380	0.022	0.059	1/Year	Grab
Phenanthrene	0.142	0.380	0.022	0.059	1/Year	Grab
Pyrene	0.161	0.431	0.025	0.067	1/Year	Grab
Tetrachloroethylene	0.142	0.361	0.022	0.056	1/Year	Grab
Toluene	0.167	0.515	0.026	0.080	1/Year	Grab
Trichloroethylene	0.135	0.348	0.021	0.054	1/Year	Grab
Vinyl Chloride	0.670	1.726	0.104	0.268	1/Year	Grab
*See Special Conditions 4, 9 and 14.						

NPDES Permit No. IL0001392							
Effluent Limitations and Monitoring							
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:							
PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE	
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM			
Outfall: B01* Stormwater, Non-contact Cooling Water, Lime Softening and Demineralizer Waste DAF = 0.03 MGD							
Flow (MGD)	See Special Condition 1				Continuous	Estimate	
pH	See Special Condition 2				Monitor Only	1/Month	Grab
BOD ₅					Monitor Only	1/Month	Grab
Total Suspended Solids					Monitor Only	1/Month	Grab
Total Iron					Monitor Only	1/Month	Grab
COD					Monitor Only	1/Month	Grab
*See Special Condition 5.							
Outfall: 001* - Combined Outfall of A01 and B01 – Total Discharge = 0.917 MGD DAF, 1.40 MGD DMF							
Flow (MGD)	See Special Condition 1				Daily	Calculate	
Ammonia (as N)**	841	1633	110	140	Daily	Composite	
Ammonia (as N)** after Expiration of AS 13-2	23	70	3	6	Daily	Composite	
Total Nitrogen					Monitor Only	1/Week	Composite
*See Special Condition 6. **See Special Condition 16.							
Outfalls: 002 through 006* - Stormwater Runoff – Intermittent Discharge							
*See Special Condition 18 for Stormwater Pollution Prevention Plant (SWPPP).							

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Page 6

NPDES Permit No. IL0001392

Special Conditions

SPECIAL CONDITION 1. Flow shall be reported in units of Million Gallons per Day (MGD) as a monthly average and daily maximum value.

SPECIAL CONDITION 2. The pH shall be in the range 6.0 to 9.0. The monthly minimum and monthly maximum values shall be reported on the DMR form.

SPECIAL CONDITION 3. This facility meets the allowed mixing criteria for thermal discharges pursuant to 35 IAC 302.102. No reasonable potential exists for the discharge to exceed thermal water quality standards. This determination is based on a design average flow of 0.782 MGD and a maximum effluent temperature 94°F. The permittee shall monitor the flow and temperature of the discharge prior to entry into the receiving water body. Monitoring results shall be reported on the monthly Discharge Monitoring Report. This permit may be modified to include formal temperature limitations should the results of the monitoring show that there is a reasonable potential to exceed a thermal water quality standard. Modification of this permit shall follow public notice and opportunity for comment.

SPECIAL CONDITION 4. For the purpose of this permit, the discharge from outfall A01 is limited to process waste water, cooling tower blowdown, sanitary waste, process water production waste and stormwater from both facilities and the Mexichem Specialty Resins' demineralizer waste and boiler blowdown and will serve as an alternate route for waters discharged normally from outfall B01, the discharge shall be free from other wastewater discharges. Sampling for the monitoring requirements for the discharge shall be taken prior to mixing with the discharge from outfall B01.

SPECIAL CONDITION 5. For the purpose of this permit, the discharge from outfall B01 is limited to stormwater, non-contact cooling water, lime softening and demineralizer waste, free from other waste water discharges. Sampling for the monitoring requirements for the discharge shall be taken prior to mixing with the discharge from outfall A01.

SPECIAL CONDITION 6. For the purpose of this permit, the discharge from outfall 001 is limited to the discharges from outfalls A01 and B01, free from other waste water dischargers. Sampling for the monitoring requirements for the discharge shall be taken at a point representative of the discharge and prior to entry into the receiving stream or mixture with the City of Henry POTW's effluent.

SPECIAL CONDITION 7. If an applicable effluent standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 8. The Permittee shall record monitoring results on Discharge Monitoring Report (DMR) Forms using one such form for each outfall each month.

In the event that an outfall does not discharge during a monthly reporting period, the DMR Form shall be submitted with no discharge indicated.

The Permittee will be required to submit electronic DMRs (NetDMRs) instead of mailing paper DMRs to the IEPA beginning December 21, 2016. More information, including registration information for the NetDMR program, can be obtained on the IEPA website, <http://www.epa.state.il.us/water/net-dmr/index.html>.

The completed Discharge Monitoring Report forms shall be submitted to IEPA no later than the 25th day of the following month, unless otherwise specified by the permitting authority.

Permittees not using NetDMRs during the interim period before December 21, 2016 shall mail Discharge Monitoring Reports with an original signature to the IEPA at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attention: Compliance Assurance Section, Mail Code # 19
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

SPECIAL CONDITION 9. Quarterly sampling for outfall A01 shall be performed in March, June, September and December with analytical results submitted in April, July, October and January. Yearly sampling for outfall A01 shall be performed in March with sample results submitted in April.

SPECIAL CONDITION 10. The daily maximum fecal coliform count shall not exceed 400 per 100 ml.

NPDES Permit No. IL0001392

Special Conditions

SPECIAL CONDITION 11. The provisions contained in 40 CFR 122.41 (m) and (n) are applicable to this permit.

SPECIAL CONDITION 12. The use or operation of this facility shall be by or under the supervision of a Certified Class K operator.

SPECIAL CONDITION 13. If an applicable water quality standard or limitation is developed under 35 Ill. Adm. Code 302.210 and that water quality standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit and found in the effluent at a level of concern, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition after Public Notice and opportunity for hearing.

SPECIAL CONDITION 14. The Permittee shall conduct annual biomonitoring using Outfall 001 effluent.

Biomonitoring

1. Acute Toxicity - Standard definitive acute toxicity tests shall be run on at least two trophic levels of aquatic species (fish, invertebrate) representative of the aquatic community of the receiving stream. Testing must be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (Fifth Ed.) EPA/821-R-02-012. Unless substitute tests are pre-approved; the following tests are required:
 - a. Fish - 96 hour static LC₅₀ Bioassay using fathead minnows (*Pimephales promelas*).
 - b. Invertebrate 48-hour static LC₅₀ Bioassay using *Ceriodaphnia*.
2. Test Requirements - The above test shall be conducted annually using 24-hour composite samples unless otherwise authorized by the IEPA. Effluent samples must be analyzed for ammonia given that this parameter may be associated with acute toxicity. The dilution series to be utilized shall consist of the following: 12.5%, 6.25%, 3.125%, 1.565%, and 0.78% effluent.
3. Reporting - Results shall be reported according to EPA/821-R-02-012, Section 12, Report Preparation, and shall be submitted to IEPA, Bureau of Water, Compliance Assurance Section within one week of receipt from the laboratory. Results from ammonia analysis, as well as any other parameter believed to contribute to effluent toxicity, must be included in the bioassay report.
4. Toxicity – Should a bioassay indicate an acute LC50 of less than 2.1% effluent and the effluent is found to contain non-toxic amounts of ammonia in accordance with Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, EPA/600/R-92/080 Tables 3.2 and 3.3, the IEPA may require, upon notification, six (6) additional rounds of monthly testing on the affected organism(s) to be initiated within 30 days of the toxic bioassay. Results shall be submitted to IEPA within one (1) week of becoming available to the Permittee.
5. Toxicity Identification and Reduction Evaluation - Should any of the additional bioassays indicate an acute LC50 of less than 2.1% effluent and the effluent is found to contain non-toxic amounts of ammonia in accordance with the tables listed above, the Permittee must provide notice to the IEPA within seven (7) days of the results becoming available to the Permittee and begin the toxicity identification evaluation process in accordance with Methods for Aquatic Toxicity Identification Evaluations, EPA/600/6-91/003. The IEPA may also require, upon notification, that the Permittee prepare a plan for toxicity reduction evaluation to be developed in accordance with Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833B-99/002, which shall include an evaluation to determine which chemicals have a potential for being discharged in the plant wastewater, a monitoring program to determine their presence or absence and to identify other compounds which are not being removed by treatment, and other measures as appropriate. The Permittee shall submit to the IEPA its plan for toxicity reduction evaluation within ninety (90) days following notification by the IEPA. The Permittee shall implement the plan within ninety (90) days or other such date as contained in a notification letter received from the IEPA.

The IEPA may modify this Permit during its term to incorporate additional requirements or limitations based on the results of the biomonitoring. In addition, after review of the monitoring results, the IEPA may modify this Permit to include numerical limitations for specific toxic pollutants. Modifications under this condition shall follow public notice and opportunity for hearing.

NPDES Permit No. IL0001392

Special Conditions

SPECIAL CONDITION 15.

Investigation of New Treatment Technologies to Prevent Nitrification Inhibition and Allow Ammonia Reduction

The permittee shall investigate new treatment technologies and evaluate implementation of new and existing treatment technology based on current plant conditions. The investigation shall include, but not be limited to preventing nitrification inhibition from mercaptobenzothiazole (MBT). The investigation should include but not be limited to the following:

- A. The permittee shall sample for MBT as follows:
 1. The permittee shall sample for MBT on a weekly basis at the secondary clarifier.
 2. The permittee shall sample for MBT at a point between the PC Tank and the Primary Clarifier at a minimum of once per month.
 3. The Agency may request modification to this section if there is a change in operations or treatment.
- B. The investigation and evaluation of new and existing treatment technology should include, but not be limited to the following:
 1. The permittee shall evaluate the effectiveness of the treatment equipment that is already installed and investigate the optimization of these units. The permittee shall also investigate the mode of operation of the aeration basins and consider the optimization of these basins with respect to nitrification.

The effectiveness of the treatment equipment and its optimization are defined as to determine if this treatment alternative effectively removes inhibitors, including MBT, which would then allow for biological treatment, taking into account technical feasibility and economic reasonableness.
 2. The permittee shall evaluate new and modified treatment methods, including but not limited to granulated activated carbon addition and dilution, at points which are optimized for the best degree of treatment.

The effectiveness of the treatment equipment and its optimization are defined as to determine if this treatment alternative effectively removes inhibitors, including MBT, which would then allow for biological treatment, taking into account technical feasibility and economic reasonableness.
- C. The permittee shall prepare and submit to the Agency annual reports summarizing its activities to comply with this Special Condition as well as paragraphs 2(c) through 2(e) pursuant to AS 13-2.

SPECIAL CONDITION 16. The provisions of the Adjusted Standard, AS 13-2, are incorporated in this permit by reference. The Illinois Pollution Control Board granted an Adjusted Standard (AS 13-2) for ammonia on April 16, 2015. These alternate limits apply until the expiration of AS 13-2. When this relief for ammonia expires, the permittee shall be subject to ammonia standards pursuant to 35 Ill. Adm. Code 304.122(b).

SPECIAL CONDITION 17. The effluent, alone or in combination with other sources, shall not cause a violation of any applicable water quality standard outlined in 35 Ill. Adm. Code 302.

SPECIAL CONDITION 18.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

- A. A storm water pollution prevention plan shall be maintained by the permittee for the storm water associated with industrial activity at this facility. The plan shall identify potential sources of pollution which may be expected to affect the quality of storm water discharges associated with the industrial activity at the facility. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. The permittee shall modify the plan if substantive changes are made or occur affecting compliance with this condition.
 1. Waters not classified as impaired pursuant to Section 303(d) of the Clean Water Act.

Unless otherwise specified by federal regulation, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event.
 2. Waters classified as impaired pursuant to Section 303(d) of the Clean Water Act

NPDES Permit No. IL0001392

Special Conditions

For any site which discharges directly to an impaired water identified in the Agency's 303(d) listing, and if any parameter in the subject discharge has been identified as the cause of impairment, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event. If required by federal regulations, the storm water pollution prevention plan shall adhere to a more restrictive design criteria.

- B. The operator or owner of the facility shall make a copy of the plan available to the Agency at any reasonable time upon request.
- Facilities which discharge to a municipal separate storm sewer system shall also make a copy available to the operator of the municipal system at any reasonable time upon request.
- C. The permittee may be notified by the Agency at any time that the plan does not meet the requirements of this condition. After such notification, the permittee shall make changes to the plan and shall submit a written certification that the requested changes have been made. Unless otherwise provided, the permittee shall have 30 days after such notification to make the changes.
- D. The discharger shall amend the plan whenever there is a change in construction, operation, or maintenance which may affect the discharge of significant quantities of pollutants to the waters of the State or if a facility inspection required by paragraph H of this condition indicates that an amendment is needed. The plan should also be amended if the discharger is in violation of any conditions of this permit, or has not achieved the general objective of controlling pollutants in storm water discharges. Amendments to the plan shall be made within 30 days of any proposed construction or operational changes at the facility, and shall be provided to the Agency for review upon request.
- E. The plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from storm water outfalls at the facility. The plan shall include, at a minimum, the following items:
1. A topographic map extending one-quarter mile beyond the property boundaries of the facility, showing: the facility, surface water bodies, wells (including injection wells), seepage pits, infiltration ponds, and the discharge points where the facility's storm water discharges to a municipal storm drain system or other water body. The requirements of this paragraph may be included on the site map if appropriate. Any map or portion of map may be withheld for security reasons.
 2. A site map showing:
 - i. The storm water conveyance and discharge structures;
 - ii. An outline of the storm water drainage areas for each storm water discharge point;
 - iii. Paved areas and buildings;
 - iv. Areas used for outdoor manufacturing, storage, or disposal of significant materials, including activities that generate significant quantities of dust or particulates.
 - v. Location of existing storm water structural control measures (dikes, coverings, detention facilities, etc.);
 - vi. Surface water locations and/or municipal storm drain locations
 - vii. Areas of existing and potential soil erosion;
 - viii. Vehicle service areas;
 - ix. Material loading, unloading, and access areas.
 - x. Areas under items iv and ix above may be withheld from the site for security reasons.
 3. A narrative description of the following:
 - i. The nature of the industrial activities conducted at the site, including a description of significant materials that are treated, stored or disposed of in a manner to allow exposure to storm water;
 - ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials with storm water discharges;
 - iii. Existing structural and non-structural control measures to reduce pollutants in storm water discharges;
 - iv. Industrial storm water discharge treatment facilities;

NPDES Permit No. IL0001392

Special Conditions

- v. Methods of onsite storage and disposal of significant materials.
 4. A list of the types of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities. Also provide a list of any pollutant that is listed as impaired in the most recent 303(d) report.
 5. An estimate of the size of the facility in acres or square feet, and the percent of the facility that has impervious areas such as pavement or buildings.
 6. A summary of existing sampling data describing pollutants in storm water discharges.
- F. The plan shall describe the storm water management controls which will be implemented by the facility. The appropriate controls shall reflect identified existing and potential sources of pollutants at the facility. The description of the storm water management controls shall include:
1. Storm Water Pollution Prevention Personnel - Identification by job titles of the individuals who are responsible for developing, implementing, and revising the plan.
 2. Preventive Maintenance - Procedures for inspection and maintenance of storm water conveyance system devices such as oil/water separators, catch basins, etc., and inspection and testing of plant equipment and systems that could fail and result in discharges of pollutants to storm water.
 3. Good Housekeeping - Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm water conveyance system.
 4. Spill Prevention and Response - Identification of areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, spill clean up equipment and procedures should be identified, as appropriate. Internal notification procedures for spills of significant materials should be established.
 5. Storm Water Management Practices - Storm water management practices are practices other than those which control the source of pollutants. They include measures such as installing oil and grit separators, diverting storm water into retention basins, etc. Based on assessment of the potential of various sources to contribute pollutants, measures to remove pollutants from storm water discharge shall be implemented. In developing the plan, the following management practices shall be considered:
 - i. Containment - Storage within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff. To the maximum extent practicable storm water discharged from any area where material handling equipment or activities, raw material, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water should not enter vegetated areas or surface waters or infiltrate into the soil unless adequate treatment is provided.
 - ii. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods to minimize oil contaminated storm water discharges.
 - iii. Debris & Sediment Control - Screens, booms, sediment ponds or other methods to reduce debris and sediment in storm water discharges.
 - iv. Waste Chemical Disposal - Waste chemicals such as antifreeze, degreasers and used oils shall be recycled or disposed of in an approved manner and in a way which prevents them from entering storm water discharges.
 - v. Storm Water Diversion - Storm water diversion away from materials manufacturing, storage and other areas of potential storm water contamination. Minimize the quantity of storm water entering areas where material handling equipment or activities, raw material, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water using green infrastructure techniques where practicable in the areas outside the exposure area, and otherwise divert storm water away from exposure area.
 - vi. Covered Storage or Manufacturing Areas - Covered fueling operations, materials manufacturing and storage areas to prevent contact with storm water.

NPDES Permit No. IL0001392

Special Conditions

- vii. Storm Water Reduction - Install vegetation on roofs of buildings within adjacent to the exposure area to detain and evapotranspire runoff where precipitation falling on the roof is not exposed to contaminants, to minimize storm water runoff; capture storm water in devices that minimize the amount of storm water runoff and use this water as appropriate based on quality.
 6. Sediment and Erosion Prevention - The plan shall identify areas which due to topography, activities, or other factors, have a high potential for significant soil erosion. The plan shall describe measures to limit erosion.
 7. Employee Training - Employee training programs shall inform personnel at all levels of responsibility of the components and goals of the storm water pollution control plan. Training should address topics such as spill response, good housekeeping and material management practices. The plan shall identify periodic dates for such training.
 8. Inspection Procedures - Qualified plant personnel shall be identified to inspect designated equipment and plant areas. A tracking or follow-up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded.
- G. Non-Storm Water Discharge - The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharge. The certification shall include a description of any test for the presence of non-storm water discharges, the methods used, the dates of the testing, and any onsite drainage points that were observed during the testing. Any facility that is unable to provide this certification must describe the procedure of any test conducted for the presence of non-storm water discharges, the test results, potential sources of non-storm water discharges to the storm sewer, and why adequate tests for such storm sewers were not feasible.
- H. Quarterly Visual Observation of Discharges - The requirements and procedures of quarterly visual observations are applicable to all outfalls covered by this condition.
1. You must perform and document a quarterly visual observation of a storm water discharge associated with industrial activity from each outfall. The visual observation must be made during daylight hours. If no storm event resulted in runoff during daylight hours from the facility during a monitoring quarter, you are excused from the visual observations requirement for that quarter, provided you document in your records that no runoff occurred. You must sign and certify the document.
 2. Your visual observation must be made on samples collected as soon as practical, but not to exceed 1 hour or when the runoff or snow melt begins discharging from your facility. All samples must be collected from a storm event discharge that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from the previously measureable (greater than 0.1 inch rainfall) storm event. The observation must document: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. If visual observations indicate any unnatural color, odor, turbidity, floatable material, oil sheen or other indicators of storm water pollution, the permittee shall obtain a sample and monitor for the parameter or the list of pollutants in Part E.4.
 3. You must maintain your visual observation reports onsite with the SWPPP. The report must include the observation date and time, inspection personnel, nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
 4. You may exercise a waiver of the visual observation requirement at a facility that is inactive or unstaffed, as long as there are no industrial materials or activities exposed to storm water. If you exercise this waiver, you must maintain a certification with your SWPPP stating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to storm water.
 5. Representative Outfalls - If your facility has two or more outfalls that you believe discharge substantially identical effluents, based on similarities of the industrial activities, significant materials, size of drainage areas, and storm water management practices occurring within the drainage areas of the outfalls, you may conduct visual observations of the discharge at just one of the outfalls and report that the results also apply to the substantially identical outfall(s).
 6. The visual observation documentation shall be made available to the Agency and general public upon written request.
- I. The permittee shall conduct an annual facility inspection to verify that all elements of the plan, including the site map, potential pollutant sources, and structural and non-structural controls to reduce pollutants in industrial storm water discharges are accurate. Observations that require a response and the appropriate response to the observation shall be retained as part of the plan. Records documenting significant observations made during the site inspection shall be submitted to the Agency in accordance with the reporting requirements of this permit.

Electronic Filing: Received, Clerk's Office 03/11/2020

Page 12

NPDES Permit No. IL0001392

Special Conditions

- J. This plan should briefly describe the appropriate elements of other program requirements, including Spill Prevention Control and Countermeasures (SPCC) plans required under Section 311 of the CWA and the regulations promulgated thereunder, and Best Management Programs under 40 CFR 125.100.
- K. The plan is considered a report that shall be available to the public at any reasonable time upon request.
- L. The plan shall include the signature and title of the person responsible for preparation of the plan and include the date of initial preparation and each amendment thereto.
- M. Facilities which discharge storm water associated with industrial activity to municipal separate storm sewers may also be subject to additional requirement imposed by the operator of the municipal system

Construction Authorization

Authorization is hereby granted to construct treatment works and related equipment that may be required by the Storm Water Pollution Prevention Plan developed pursuant to this permit.

This Authorization is issued subject to the following condition(s).

- N. If any statement or representation is found to be incorrect, this authorization may be revoked and the permittee there upon waives all rights thereunder.
- O. The issuance of this authorization (a) does not release the permittee from any liability for damage to persons or property caused by or resulting from the installation, maintenance or operation of the proposed facilities; (b) does not take into consideration the structural stability of any units or part of this project; and (c) does not release the permittee from compliance with other applicable statutes of the State of Illinois, or other applicable local law, regulations or ordinances.
- P. Plans and specifications of all treatment equipment being included as part of the stormwater management practice shall be included in the SWPPP.
- Q. Construction activities which result from treatment equipment installation, including clearing, grading and excavation activities which result in the disturbance of one acre or more of land area, are not covered by this authorization. The permittee shall contact the IEPA regarding the required permit(s).

REPORTING

- R. The facility shall submit an electronic copy of the annual inspection report to the Illinois Environmental Protection Agency. The report shall include results of the annual facility inspection which is required by Part I of this condition. The report shall also include documentation of any event (spill, treatment unit malfunction, etc.) which would require an inspection, results of the inspection, and any subsequent corrective maintenance activity. The report shall be completed and signed by the authorized facility employee(s) who conducted the inspection(s). The annual inspection report is considered a public document that shall be available at any reasonable time upon request.
- S. The annual report shall be due August 1.
- T. If the facility performs inspections more frequently than required by this permit, the results shall be included as additional information in the annual report.
- U. The permittee shall retain the annual inspection report on file at least 3 years. This period may be extended by request of the Illinois Environmental Protection Agency at any time.

Annual inspection reports shall be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section
Annual Inspection Report
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

- V. The permittee shall notify any regulated small municipal separate storm sewer owner (MS4 Community) that they maintain coverage under an individual NPDES permit. The permittee shall submit any SWPPP or any annual inspection to the MS4 community upon request by the MS4 community.

ATTACHMENT B



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

MAJOR

217/782-0610

May 8, 2015

ExxonMobil Oil Corporation
Post Office Box 874
Joliet, Illinois 60434

EPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

JUL 27 2015

Re: ExxonMobil Oil Corporation
NPDES Permit No. IL0002861
Final Permit

REVIEWER RDH

Gentlemen:

Attached is the final NPDES Permit for your discharge. The Permit as issued covers discharge limitations, monitoring, and reporting requirements. Failure to meet any portion of the Permit could result in civil and/or criminal penalties. The Illinois Environmental Protection Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge. The following changes have been made since the public notice of this permit:

1. Sample type for phenols and cyanide at outfall 001 has been changed to a grab sample.
2. WET testing required in Special Condition 13 is now also listed on page 4 of the permit.
3. Special Condition 3 has been modified to note that temperature samples shall be taken prior to mixing with the receiving stream.
4. In Special Condition 17.G, the word "discharge" has been removed from the end of the first sentence.
5. In Special Condition 17.H.2 and 17.I, corrective actions noted in observations and inspections shall take place within one week of confirmation unless otherwise specified by the Agency.
6. Special Condition 2 has been modified to explain the temperature limits for the combined outfall.


The Agency has begun a program allowing the submittal of electronic Discharge Monitoring Reports (NetDMRs) instead of paper Discharge Monitoring Reports (DMRs). If you are interested in NetDMRs, more information can be found on the Agency website, <http://www.epa.state.il.us/water/net-dmr/index.html>. If your facility is not registered in the NetDMR program, a supply of preprinted paper DMR Forms for your facility will be sent to you prior to the initiation of DMR reporting under the reissued permit. Additional information and instructions will accompany the preprinted DMRs upon their arrival.

The attached Permit is effective as of the date indicated on the first page of the Permit. Until the effective date of any re-issued Permit, the limitations and conditions of the previously-issued Permit remain in full effect. You have the right to appeal any condition of the Permit to the Illinois Pollution Control Board within a 35 day period following the issuance date.

Page 2

Should you have questions concerning the Permit, please contact Mark E. Liska at 217/782-0610.

Sincerely,


Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

SAK:MEL:14102301.docx

Attachment: Final Permit

cc: Records
Compliance Assurance Section
Des Plaines Region
USEPA
CMAP

MAJOR

NPDES Permit IL0002861

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

P.O. Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date: April 30, 2020

Issue Date: May 8, 2015

Effective Date: May 8, 2015

Name and Address of Permittee:

ExxonMobil Oil Corporation
Post Office Box 874
Joliet, Illinois 60434

Facility Name and Address:

ExxonMobil Oil Corporation
25915 S.E. Frontage Road
Channahon, Illinois 60410
(Will County)

Discharge Number and Name:

- 001 -- Treated Process, Sanitary and Storm Water
- 002 -- Non-Contact Cooling Water, Boiler Blowdown, Zeolite Water Softening Regeneration Streams (Brine, Slow and Fast Rinses), Condensate, Potable Water, Fire Water, and Overflow of Excess River/well Water from Utility Makeup Water Systems
- 003 -- Storm Water Runoff and Hydrostatic Test Water from Tankage Area and Coke Storage Area, Well Test Water, and Emergency Once-Through Cooling Water
- A01 -- Purge Treatment Unit Wastewater - Wet Gas Scrubber Wastewater
- A03 -- Hydrostatic Test Water
- 004 -- Storm Water Runoff from Wharf Area
- 005 -- Storm Water Runoff from Wharf Area
- 006 -- Storm Water Runoff from Northeast Secondary Drainage Area
- 007 -- Storm Water Runoff from East Secondary Drainage Area
- 008 -- Storm Water Runoff from Interceptor Basin Overflow
- 009 -- Storm Water Runoff from North Secondary Drainage Area
- 010 -- Storm Water Runoff from Northeast Secondary Drainage Area

Receiving Waters

- Des Plaines River
- Des Plaines River
- Des Plaines River
- Internal Outfall
- Internal Outfall
- Des Plaines River
- Des Plaines River
- Jackson Creek tributary to Des Plaines River
- Jackson Creek tributary to Des Plaines River
- Des Plaines River
- Des Plaines River
- Des Plaines River

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of Ill. Adm. Code, Subtitle C and/or Subtitle D, Chapter 1, and the Clean Water Act (CWA), the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.



Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

NPDES Permit IL0002861

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS. lbs/day		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVG.	DAILY MAX.	30 DAY AVG.	DAILY MAX.		
Flow (MGD)	See Special Condition 20				Daily	Continuous
pH	See Special Condition 1				1/Week	Grab
BOD ₅	584	1,435	20	40	2/Month	24 hr Composite
Total Suspended Solids	730	1,793	25	50	2/Week	24 hr Composite
COD***	14,164	27,295			2/Month	24 hr Composite
Oils, Fats and Grease	438	1,076	15	30	1/Week	24 hr Composite*
Phenols	8.2	27	0.3	0.6	1/Month	Grab
Chromium (Total)	9.7**	28**	1.0	2.0	2/Month	24 hr Composite
Chromium (Hexavalent)	0.78**	1.8**	0.1	0.2	2/Month	24 hr Composite
Sulfide	11	24			1/Month	24 hr Composite
NH ₃ -N	108	252	3.0	6.0	2/Week	24 hr Composite
Cyanide	2.9	7.2	0.1	0.2	1/Month	Grab
Fluoride	438	1,076	15	30	1/Month	24 hr Composite

*See Special Condition 4.

**See Special Conditions 10, and 28.

***See Special Conditions 10.

****See Special Conditions 7, 13, and 19.

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): 001**** - Treated Process, Sanitary, and Storm Water (DAF = 4.32 MGD, DMF = 5.04 MGD)

NPDES Permit IL0002861

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVG.	DAILY MAX.	30 DAY AVG.	DAILY MAX.		

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): 002* - Non-Contact Cooling Water and Boiler Blowdown (Discharge = 10.476 MGD)

Flow (MGD)	See Special Condition 20			Daily	Continuous
pH	See Special Condition 1			1/Week	Grab
TOC	See Special Condition 5		'5' Net	1/Month	24 hr Composite

* See Special Condition 8.

Outfall: 003** Storm Water Runoff (Intermittent Discharge)
Hydrostatic Test Water from Tankage Area and Coke Storage Area (Intermittent Discharge)
Well Test Water (Intermittent Discharge)

				If Discharge Occurs	
Flow (MGD)	See Special Condition 20			Daily	Continuous
pH*	See Special Condition 1			2/Month*	Grab
Oil & Grease*			15	2/Month*	Grab
TOC*			110	2/Month*	Grab

*The discharge must be sampled daily in the subsequent 48 hours of discharge after the West Storm Basin receives flow from the coke sedimentation basin. See Special Conditions 21 and 22.

**See Special Conditions 19, 21, 22, and 23.

NPDES Permit IL0002861

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVG.	DAILY MAX.	30 DAY AVG.	DAILY MAX.		

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall: A03*** - Hydrostatic Test Water through Outfall 003 (Intermittent Discharge)

Flow (MGD)	See Special Condition 20				1/Event*	Estimate
pH	See Special Condition 1				1/Event*	Grab
Total Suspended Solids			15	30	1/Event*	Grab
Oil & Grease			15	30	1/Event*	Grab
Iron (Total)			2	4	1/Event*	Grab
Benzene			--	0.05	1/Event*	Grab
Total BETX**			--	0.75	1/Event*	Grab
Phenols			0.3	0.6	1/Event*	Grab

*Monitor each event prior to discharging to Outfall 003. An event is defined as the hydrostatic test water discharge associated from a tank, piping, or pipeline integrity testing activity.

**See Special Condition 24.

***See Special Conditions 25, 26 and 27.

Combined Outfalls 001, 002, and 003

WET	See Special Condition 13				1/Year	
Temperature	See Special Conditions 2, 3 and 6				Daily	Continuous
Total Dissolved Solids		385,000			2/Month*	24 hr Composite
Total Residual Chlorine	See Special Conditions 18 and 31			0.05	1/Event	Grab
Phosphorus (Total)				Monitor Only	1/Month	24 hr Composite
Nitrogen (Total)				Monitor Only	1/Month	24 hr Composite
Mercury**				Monitor Only	1/Month	Grab
Sulfate				Monitor Only	1/Month	24 hr Composite
Chloride				Monitor Only	1/Month	24 hr Composite

* Sampling shall take place only during the months of November through April. No sampling is required during the remaining months.

**Mercury must be monitored using USEPA method 1631E using the heated digestion option in Section 11.1.1.2. Prior to analysis for mercury, digest the sample using the option in 1631E of heating samples at 50°C for 6 hours in a bromine chloride (BrCl) solution in closed vessels.

NPDES Permit IL0002861

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVG.	DAILY MAX.	30 DAY AVG.	DAILY MAX.		

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall: A01 - Purge Treatment Unit Wastewater - contains Wet Gas Scrubber Wastewater

Temperature	90° F*	Daily	Continuous
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* Temperature on internal outfall A01 from the purge treatment unit shall be monitored, reported, and limited to 90° F only when the combined outfall 001, 002, and 003 daily average temperature exceeds 90° F.

Outfalls: 004* and 005* - Storm Water Runoff from Wharf Area (Intermittent Discharge)
008* - Storm Water Runoff from Interceptor Basin Overflow - (Intermittent Discharge)

		If Discharge Occurs	
Flow (MGD)	See Special Condition 20	Daily	Estimate
pH	See Special Condition 1	2/Month	Grab
Oil & Grease	15	2/Month	Grab
TOC	110	2/Month	Grab

*See Special Conditions 9 and 19 for BAT/BCT rules.

Outfalls: 006** - Storm Water Runoff from Northeast Secondary Drainage Area (Intermittent Discharge)

007** - Storm Water Runoff from East Secondary Drainage Area (Intermittent Discharge)

009** - Storm Water Runoff from North Secondary Drainage Area (Intermittent Discharge)

010** - Storm Water Runoff from Northeast Secondary Drainage Area (Intermittent Discharge)

**See Special Conditions 9 and 17 for SWPPP.

NPDES Permit IL0002861

Special Conditions

SPECIAL CONDITION 1. The pH shall be in the range 6.0 to 9.0 standard units and shall be reported as a daily minimum and a daily maximum.

SPECIAL CONDITION 2. The receiving waters are designated as Secondary Contact and Indigenous Aquatic Life Waters by 35 Ill. Adm. Code 302.408. These waters shall meet the following standard:

Temperatures shall not exceed 93°F (34°C) more than 5% of the time, or 100°F (37.8°C) at any time at the edge of the allowed mixing which is defined by 35 Ill. Adm. Code 302.102.

A thermal model was submitted in 2003 to demonstrate that the discharge would meet the Secondary Contact and Indigenous Aquatic Life standards and a thermal model was submitted in 2014 to demonstrate that the discharge would meet the General Use standards downstream of the I-55 bridge. The thermal models demonstrated that there is no reasonable potential to exceed the water quality standards with allowed mixing in the receiving stream. The maximum effluent temperature at the time of the study was 123°F. The monthly average flow ranged from 2.81 MGD to 12.78 MGD since the outfall has a stormwater component. If the refinery is modified in a way that would change the basis upon which the thermal models in 2003 and 2014 were calculated so that the studies would no longer represent the discharge, the permittee must submit a new thermal model to the Agency with their modification application.

The permittee shall monitor the effluent on a continuous basis and report the monthly maximum temperature on the DMR form.

SPECIAL CONDITION 3. Temperature shall be measured at a point downstream of where outfalls 001, 002 and 003 are combined but prior to mixing with the receiving stream and reported as a daily maximum.

SPECIAL CONDITION 4. The composites for oil, fats, and greases shall consist of sample aliquots of approximately equal volume, a minimum of 100 milliliters, collected at regular time intervals over a 24-hour period (3 aliquots total). A single sample formed by combining all the aliquots, and the solvent rinse of the container, would then be analyzed. The results of the single analysis is then reported for oil, fats, and grease.

SPECIAL CONDITION 5. Permittee shall monitor influent and effluent TOC. Net TOC discharged shall not exceed 5 mg/l. Negative net TOC values shall be reported as zero.

SPECIAL CONDITION 6. Samples taken in compliance with the effluent monitoring requirements for outfall 001, 002 and 003 shall be taken at a point representative of discharge but prior to mixing with each of the other streams.

SPECIAL CONDITION 7. For the purpose of this permit, the discharge from outfall 001 is limited solely to treated process, utility, service, hydrostatic test, well water, sanitary, and storm water free from any other wastewater.

SPECIAL CONDITION 8. For the purpose of this permit, the discharge from outfall 002 is limited to non-contact cooling water, softener regeneration stream, boiler blowdown, condensate, potable water, fire water, and overflow of excess river/well water from utility makeup water system, free from process and other wastewater discharges. In the event that the permittee shall require the use of water treatment additives other than those generic categories or chemical groupings previously approved by this Agency for use with softener regeneration stream, boiler blowdown, or non-contact cooling water that would be discharged to outfall 002, the permittee must notify this Agency in writing in accordance with the Standard Conditions -- Attachment H, number (8).

SPECIAL CONDITION 9. For the purpose of this permit, the discharge from outfalls 004, 005, 006, 007, 008, 009, and 010 are limited to storm water, including construction activities, groundwater seepage, condensate, well water, and fire water, free from process and other wastewater discharges.

SPECIAL CONDITION 10. The discharge credit, if necessary, for contaminated storm water from non-process and process area storm water runoff, as applied to discharge 001, shall be as follows:

Additional storm water credit for the following parameters shall be based on the quantity of storm flow taken through process treatment.

Pounds Per 1000 gallons of storm water flow*

Parameter	Average	Maximum
COD	1.5	3.0
Chromium (Total)**	.0018	.005
Chromium (Hexavalent)**	.00023	.00052

NPDES Permit IL0002861

Special Conditions

Dry Weather Flow: The average flow from the wastewater treatment facility for the last three consecutive zero precipitation days. Previously collected storm water which is sent to process treatment during this period shall not be included in this computation.

*Storm Water Flows: The storm water runoff treated in the wastewater treatment facility is that portion of flow greater than the dry weather flow. Measurement of previously collected contaminated storm water from tank dikes may also be used in computing storm water credit.

In computing monthly average permit limits to include storm water credit, the mass credit calculated above shall be averaged along with process mass limits over the 30 day period. Explanatory calculations and flow data shall be submitted together with Discharge Monitoring Reports.

**The permittee shall not exceed the following load limits (lbs/day) from outfall 001 at any time:

Parameter	Average	Maximum
Chromium (Total)	32.94	80.56
Chromium (Hexavalent)	3.29	8.06

SPECIAL CONDITION 11. The Permittee shall record monitoring results on Discharge Monitoring Report (DMR) Forms using one such form for each outfall each month.

In the event that an outfall does not discharge during a monthly reporting period, the DMR Form shall be submitted with no discharge indicated.

The Permittee may choose to submit electronic DMRs (NetDMRs) instead of mailing paper DMRs to the IEPA. More information, including registration information for the NetDMR program, can be obtained on the IEPA website, <http://www.epa.state.il.us/water/net-dmr/index.html>.

The completed Discharge Monitoring Report forms shall be submitted to IEPA no later than the 15th day (or following business day) of the following month, unless otherwise specified by the permitting authority.

Permittees not using NetDMRs shall mail Discharge Monitoring Reports with an original signature to the IEPA at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Attention: Compliance Assurance Section, Mail Code # 19

SPECIAL CONDITION 12. If an applicable effluent standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit, after public notice and opportunity for hearing, in accordance with the more stringent standard or prohibition. In addition to newly promulgated effluent standards or limitations, if new information is received by this Agency that was not available at the time of permit issuance and would have justified the application of different permit conditions at the time of issuance, the Agency shall revise or modify the permit, after public notice and opportunity for hearing, to address the new information.

SPECIAL CONDITION 13. The Permittee shall conduct biomonitoring using effluent collected at a point downstream of where Outfalls 001, 002, and 003 are combined but prior to entry into the receiving water.

Biomonitoring

1. Acute Toxicity - Standard definitive acute toxicity tests shall be run on at least two trophic levels of aquatic species (fish, invertebrate) representative of the aquatic community of the receiving stream. Testing must be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (Fifth Ed.) EPA/821-R-02-012. Unless substitute tests are pre-approved; the following tests are required:
 - a. Fish - 96 hour static LC₅₀ Bioassay using fathead minnows (*Pimephales promelas*).
 - b. Invertebrate 48-hour static LC₅₀ Bioassay using *Ceriodaphnia*.

NPDES Permit IL0002861

Special Conditions

2. Test Requirements - The above test shall be conducted annually using 24-hour composite samples unless otherwise authorized by the IEPA. Effluent samples must be analyzed for ammonia, chloride, and TDS, given that these parameters may be associated with acute toxicity.
3. Reporting - Results shall be reported according to EPA/821-R-02-012, Section 12, Report Preparation, and shall be submitted to IEPA, Bureau of Water, Compliance Assurance Section within one week of receipt from the laboratory. Results from ammonia, chloride, TDS analyses, as well as any other parameter believed to contribute to effluent toxicity, must be included in the bioassay report.
4. Toxicity - Should a bioassay result in acute toxicity to $\geq 50\%$ of test organisms and the effluent is found to contain non-toxic amounts of ammonia, chloride, and TDS, the IEPA may require, upon notification, six (6) additional rounds of monthly testing on the affected organism(s) to be initiated within 30 days of the toxic bioassay. Results shall be submitted to IEPA within one (1) week of becoming available to the Permittee.
5. Toxicity Identification and Reduction Evaluation - Should any of the additional bioassays result in toxicity to $\geq 50\%$ of organisms and the effluent is found to contain non-toxic amounts of ammonia, chloride, and TDS, the Permittee must contact the IEPA within one (1) day of the results becoming available to the Permittee and begin the toxicity identification evaluation process in accordance with Methods for Aquatic Toxicity Identification Evaluations, EPA/600/6-91/003. The IEPA may also require, upon notification, that the Permittee prepare a plan for toxicity reduction evaluation to be developed in accordance with Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833B-99/002, which shall include an evaluation to determine which chemicals have a potential for being discharged in the plant wastewater, a monitoring program to determine their presence or absence and to identify other compounds which are not being removed by treatment, and other measures as appropriate. The Permittee shall submit to the IEPA its plan for toxicity reduction evaluation within ninety (90) days following notification by the IEPA. The Permittee shall implement the plan within ninety (90) days or other such date as contained in a notification letter received from the IEPA.

The IEPA may modify this Permit during its term to incorporate additional requirements or limitations based on the results of the biomonitoring. In addition, after review of the monitoring results, the IEPA may modify this Permit to include numerical limitations for specific toxic pollutants. Modifications under this condition shall follow public notice and opportunity for hearing.

SPECIAL CONDITION 14. The Bypass and Upset provisions in 40 CFR 122.41(m) and 40 CFR 122.41(n) are applicable to this permit.

SPECIAL CONDITION 15. The use and operation of the wastewater treatment facilities shall be under the supervision of a certified Class K operator.

SPECIAL CONDITION 16. For the duration of this permit, the permittee shall submit to the Agency an annual summary report of the quantities of sludge produced by the wastewater treatment facility and disposed of, in units of dry tons or gallons (average total percent solids) by different disposal methods including but not limited to application on farmland, application on reclamation land, landfilling, public distribution, dedicated land disposal, sod farms, storage lagoons or any other specified disposal method. Said reports shall be submitted to the Agency by January 31 of each year.

The annual report for sludge shall be reported on the form titled "Sludge Management Reports" to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

SPECIAL CONDITION 17.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

- A. A storm water pollution prevention plan shall be maintained by the permittee for the storm water associated with industrial activity at this facility discharge from outfalls 006, 007, 009, and 010. The plan shall identify potential sources of pollution which may be expected to affect the quality of storm water discharges associated with the industrial activity at the facility. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges

NPDES Permit IL0002861

Special Conditions

associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. The permittee shall modify the plan if substantive changes are made or occur affecting compliance with this condition.

1. Waters not classified as impaired pursuant to Section 303(d) of the Clean Water Act.

Unless otherwise specified by federal regulation, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 10-year 24-hour rainfall event.

2. Waters classified as impaired pursuant to Section 303(d) of the Clean Water Act

For any site which discharges directly to an impaired water identified in the Agency's 303(d) listing, and if any parameter in the subject discharge has been identified as the cause of impairment, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 10-year 24-hour rainfall event. If required by federal regulations, the storm water pollution prevention plan shall adhere to a more restrictive design criteria.

- B. The operator or owner of the facility shall make a copy of the plan available to the Agency at any reasonable time upon request.

Facilities which discharge to a municipal separate storm sewer system shall also make a copy available to the operator of the municipal system at any reasonable time upon request.

- C. The permittee may be notified by the Agency at any time that the plan does not meet the requirements of this condition. After such notification, the permittee shall make changes to the plan and shall submit a written certification that the requested changes have been made. Unless otherwise provided, the permittee shall have 30 days after such notification to make the changes.

- D. The discharger shall amend the plan whenever there is a change in construction, operation, or maintenance which may affect the discharge of significant quantities of pollutants to the waters of the State or if a facility inspection required by paragraph H of this condition indicates that an amendment is needed. The plan should also be amended if the discharger is in violation of any conditions of this permit, or has not achieved the general objective of controlling pollutants in storm water discharges. Amendments to the plan shall be made within 30 days of any proposed construction or operational changes at the facility, and shall be provided to the Agency for review upon request.

- E. The plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from storm water outfalls at the facility. The plan shall include, at a minimum, the following items:

1. A topographic map extending one-quarter mile beyond the property boundaries of the facility, showing: the facility, surface water bodies, wells (including injection wells), seepage pits, infiltration ponds, and the discharge points where the facility's storm water discharges to a municipal storm drain system or other water body. The requirements of this paragraph may be included on the site map if appropriate. Any map or portion of map may be withheld for security reasons.

2. A site map showing:

- i. The storm water conveyance and discharge structures;
- ii. An outline of the storm water drainage areas for each storm water discharge point;
- iii. Paved areas and buildings;
- iv. Areas used for outdoor manufacturing, storage, or disposal of significant materials, including activities that generate significant quantities of dust or particulates.
- v. Location of existing storm water structural control measures (dikes, coverings, detention facilities, etc.);
- vi. Surface water locations and/or municipal storm drain locations
- vii. Areas of existing and potential soil erosion;
- viii. Vehicle service areas;
- ix. Material loading, unloading, and access areas.
- x. Areas under items iv and ix above may be withheld from the site for security reasons.

3. A narrative description of the following:

NPDES Permit IL0002861

Special Conditions

- i. The nature of the industrial activities conducted at the site, including a description of significant materials that are treated, stored or disposed of in a manner to allow exposure to storm water;
 - ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials with storm water discharges;
 - iii. Existing structural and non-structural control measures to reduce pollutants in storm water discharges;
 - iv. Industrial storm water discharge treatment facilities;
 - v. Methods of onsite storage and disposal of significant materials.
4. A list of the types of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities. Also provide a list of any pollutant that is listed as impaired in the most recent 303(d) report.
5. An estimate of the size of the facility in acres or square feet, and the percent of the facility that has impervious areas such as pavement or buildings.
6. A summary of existing sampling data describing pollutants in storm water discharges.
- F. The plan shall describe the storm water management controls which will be implemented by the facility. The appropriate controls shall reflect identified existing and potential sources of pollutants at the facility. The description of the storm water management controls shall include:
1. Storm Water Pollution Prevention Personnel - Identification by job titles of the individuals who are responsible for developing, implementing, and revising the plan.
 2. Preventive Maintenance - Procedures for inspection and maintenance of storm water conveyance system devices such as oil/water separators, catch basins, etc., and inspection and testing of plant equipment and systems that could fail and result in discharges of pollutants to storm water.
 3. Good Housekeeping - Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm water conveyance system.
 4. Spill Prevention and Response - Identification of areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, spill clean up equipment and procedures should be identified, as appropriate. Internal notification procedures for spills of significant materials should be established.
 5. Storm Water Management Practices - Storm water management practices are practices other than those which control the source of pollutants. They include measures such as installing oil and grit separators, diverting storm water into retention basins, etc. Based on assessment of the potential of various sources to contribute pollutants, measures to remove pollutants from storm water discharge shall be implemented. In developing the plan, the following management practices shall be considered:
 - i. Containment - Storage within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff. To the maximum extent practicable storm water discharged from any area where material handling equipment or activities, raw material, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water should not enter vegetated areas or surface waters or infiltrate into the soil unless adequate treatment is provided.
 - ii. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods to minimize oil contaminated storm water discharges.
 - iii. Debris & Sediment Control - Screens, booms, sediment ponds or other methods to reduce debris and sediment in storm water discharges.
 - iv. Waste Chemical Disposal - Waste chemicals such as antifreeze, degreasers and used oils shall be recycled or disposed of in an approved manner and in a way which prevents them from entering storm water discharges.
 - v. Storm Water Diversion - Storm water diversion away from materials manufacturing, storage and other areas of potential storm water contamination. Minimize the quantity of storm water entering areas where material handling equipment of activities, raw material, intermediate products, final products, waste materials, by-products, or industrial machinery are

NPDES Permit IL0002861

Special Conditions

exposed to storm water using green infrastructure techniques where practicable in the areas outside the exposure area, and otherwise divert storm water away from exposure area.

- vi. Covered Storage or Manufacturing Areas - Covered fueling operations, materials manufacturing and storage areas to prevent contact with storm water.
6. Sediment and Erosion Prevention - The plan shall identify areas which due to topography, activities, or other factors, have a high potential for significant soil erosion. The plan shall describe measures to limit erosion.
7. Employee Training - Employee training programs shall inform personnel at all levels of responsibility of the components and goals of the storm water pollution control plan. Training should address topics such as spill response, good housekeeping and material management practices. The plan shall identify periodic dates for such training.
8. Inspection Procedures - Qualified plant personnel shall be identified to inspect designated equipment and plant areas. A tracking or follow-up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded.
- G. Non-Storm Water Discharge - The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water. The certification shall include a description of any test for the presence of non-storm water discharges, the methods used, the dates of the testing, and any onsite drainage points that were observed during the testing. Any facility that is unable to provide this certification must describe the procedure of any test conducted for the presence of non-storm water discharges, the test results, potential sources of non-storm water discharges to the storm sewer, and why adequate tests for such storm sewers were not feasible.
- H. Quarterly Visual Observation of Discharges - The requirements and procedures of quarterly visual observations are applicable to all outfalls covered by this condition.
 1. You must perform and document a quarterly visual observation of a storm water discharge associated with industrial activity from each outfall. The visual observation must be made during daylight hours. If no storm event resulted in runoff during daylight hours from the facility during a monitoring quarter, you are excused from the visual observations requirement for that quarter, provided you document in your records that no runoff occurred. You must sign and certify the document.
 2. Your visual observation must be made on samples collected as soon as practical after a discharge begins. The sampler will record the time of sampling and when the rainfall event began. When monitoring for a discharge from snow melt, the sampler will record when the air temperature exceeded freezing. All samples must be collected from a storm event discharge that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from the previously measureable (greater than 0.1 inch rainfall) storm event. The observation must document: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. If visual observations indicate any unnatural color, odor, turbidity, floatable material, oil sheen or other indicators of storm water pollution, the permittee shall obtain a sample and monitor for the parameter or the list of pollutants in Part E.4. The permittee shall take corrective action to address the pollutant(s) within one week of confirmation of a pollutant discharge unless otherwise specified by the Agency.
 3. You must maintain your visual observation reports onsite with the SWPPP. The report must include the observation date and time, inspection personnel, nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
 4. You may exercise a waiver of the visual observation requirement at a facility that is inactive or unstaffed, as long as there are no industrial materials or activities exposed to storm water. If you exercise this waiver, you must maintain a certification with your SWPPP stating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to storm water.
 5. Representative Outfalls - If your facility has two or more outfalls that you believe discharge substantially identical effluents, based on similarities of the industrial activities, significant materials, size of drainage areas, and storm water management practices occurring within the drainage areas of the outfalls, you may conduct visual observations of the discharge at just one of the outfalls and report that the results also apply to the substantially identical outfall(s).
 6. The visual observation documentation shall be made available to the Agency and general public upon written request.
- I. The permittee shall conduct an annual facility inspection to verify that all elements of the plan, including the site map, potential pollutant sources, and structural and non-structural controls to reduce pollutants in industrial storm water discharges are accurate. Observations that require a response shall be corrected by the permittee within 1 week unless otherwise specified by the Agency. The appropriate response to the observation shall be retained as part of the plan. Records documenting significant observations

NPDES Permit IL0002861

Special Conditions

made during the site inspection shall be submitted to the Agency in accordance with the reporting requirements of this permit.

- J. This plan should briefly describe the appropriate elements of other program requirements, including Spill Prevention Control and Countermeasures (SPCC) plans required under Section 311 of the CWA and the regulations promulgated thereunder, and Best Management Programs under 40 CFR 125.100.
- K. The plan is considered a report that shall be available to the public at any reasonable time upon request.
- L. The plan shall include the signature and title of the person responsible for preparation of the plan and include the date of initial preparation and each amendment thereto.
- M. Facilities which discharge storm water associated with industrial activity to municipal separate storm sewers may also be subject to additional requirement imposed by the operator of the municipal system

Construction Authorization

Authorization is hereby granted to construct treatment works and related equipment that may be required by the Storm Water Pollution Prevention Plan developed pursuant to this permit.

This Authorization is issued subject to the following condition(s).

- N. If any statement or representation is found to be incorrect, this authorization may be revoked and the permittee there upon waives all rights thereunder.
- O. The issuance of this authorization (a) does not release the permittee from any liability for damage to persons or property caused by or resulting from the installation, maintenance or operation of the proposed facilities; (b) does not take into consideration the structural stability of any units or part of this project; and (c) does not release the permittee from compliance with other applicable statutes of the State of Illinois, or other applicable local law, regulations or ordinances.
- P. Plans and specifications of all treatment equipment being included as part of the stormwater management practice shall be included in the SWPPP.
- Q. Construction activities which result from treatment equipment installation, including clearing, grading and excavation activities which result in the disturbance of one acre or more of land area, are not covered by this authorization. The permittee shall contact the IEPA regarding the required permit(s).

REPORTING

- R. The facility shall submit an electronic copy of the annual inspection report to the Illinois Environmental Protection Agency. The report shall include results of the annual facility inspection which is required by Part I of this condition. The report shall also include documentation of any event (spill, treatment unit malfunction, etc.) which would require an inspection, results of the inspection, and any subsequent corrective maintenance activity. The report shall be completed and signed by the authorized facility employee(s) who conducted the inspection(s). The annual inspection report is considered a public document that shall be available at any reasonable time upon request.
- S. The annual report shall be due August 1.
- T. If the facility performs inspections more frequently than required by this permit, the results shall be included as additional information in the annual report.
- U. The permittee shall retain the annual inspection report on file at least 3 years. This period may be extended by request of the Illinois Environmental Protection Agency at any time.

Annual inspection reports shall be submitted to the following email and office addresses: epa.npdes.inspection@illinois.gov

Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section
Annual Inspection Report
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

- V. The permittee shall notify any regulated small municipal separate storm sewer owner (MS4 Community) that they maintain coverage

NPDES Permit IL0002861

Special Conditions

under an individual NPDES permit. The permittee shall submit any SWPPP or any annual inspection to the MS4 community upon request by the MS4 community.

SPECIAL CONDITION 18.

ZEBRA MUSSEL CONTROL PROGRAM FOR OUTFALL 002

The following control program is authorized by this permit, in accordance with the conditions and limitations below.

A. Chlorination/Dechlorination

1. Chlorine or chlorine compounds may be applied on an intermittent or continuous basis.
2. The discharge of Outfall 002 shall be dechlorinated.
3. The discharge limit of the combined flows as monitored under A.6 of this Special Condition shall not exceed 0.05 mg/l total residual chlorine as a daily maximum.
4. Dechlorination chemical(s) shall be applied at a rate sufficient to provide complete dechlorination; excess application should be avoided to the extent practicable. The dechlorination system shall be interlocked or otherwise controlled to operate whenever chlorination is occurring.
5. For continuous chlorination programs, or intermittent chlorination more frequent than once per week, shall be monitored on a weekly basis for total residual chlorine. For intermittent chlorination once per week or less frequently, each chlorine application shall be monitored. Monitoring shall be by a grab sample at the time of maximum chlorine application.
6. Monitoring for total residual chlorine shall be done at a point downstream where outfalls 001, 002 and 003 are combined but prior to entry into the receiving waters.

- B. All samples for total residual chlorine shall be analyzed by an applicable method contained in 40 CFR 136, equivalent in accuracy to low-level amperometric titration. Any analytical variability of the method used shall be considered when determining the accuracy and precision of the results obtained.

SPECIAL CONDITION 19. The Agency has determined that the effluent limitations in this permit constitute BAT/BCT for storm water which is treated in the existing treatment facilities (Outfalls 001, 003, 004, 005 and 008) for purposes of this permit reissuance, and no pollution prevention plan will be required for such storm water. In addition to the chemical specific monitoring required elsewhere in this permit, the permittee shall conduct an annual inspection of the facility site to identify areas contributing to a storm water discharge associated with industrial activity, and determine whether any facility modifications have occurred which result in previously-treated storm water discharges no longer receiving treatment. If any such discharges are identified the permittee shall request a modification of this permit within 30 days after the inspection. Records of the annual inspection shall be retained by the permittee for the term of this permit and be made available to the Agency on request.

SPECIAL CONDITION 20. Flow shall be reported from outfalls 001, 002, and 003 as a monthly average and daily maximum. Flows shall be reported from outfalls A03, 004, 005, and 008 as a monthly average. All flows shall be reported in million gallons per day on the DMR form.

When continuous flow measurement is required, the measurements will be collected at the sample point location or at an equivalent representative flow location. During periods of maintenance of flow monitoring equipment and/or periods of malfunctioning flow monitoring equipment, a combination of upstream flow meters and/or engineering estimates may be used to calculate an estimate of flow representative of the discharge at effected outfalls. If the use of calculated (estimated) flows is necessary, the Permittee shall indicate on the monthly DMR dates for which calculated (estimated) flows were used.

NPDES Permit IL0002861

Special Conditions

SPECIAL CONDITION 21. Runoff from the coke storage area may overflow into outfall 003 when its flow exceeds the design capacity of the coke storage area containment system in the event of a failure or malfunction of the sump pump system. Intentional diversion of some or all of the coke storage area runoff to outfall 003 is allowed only when needed during heavy rains to prevent overflow of oily wastewater at the wastewater treatment plant, provided that no permit discharge limits are exceeded at outfall 003.

SPECIAL CONDITION 22. The Permittee shall indicate on the monthly DMR's the date(s) in which the of coke storage area runoff flowed to outfall 003. The permit may be modified as a result of these analyses to include more frequent sampling for the required parameters, and include sampling requirements for additional parameters along with the appropriate sampling frequencies. Modifications under this Special Condition shall follow public notice and opportunity for hearing.

SPECIAL CONDITION 23. For the purpose of this permit, outfall 003 is limited to stormwater associated with refinery operations and construction activities, utility water, fire water (main flushing, hydrant testing, relief valves, and emergency once-through cooling water), service (river) water, condensate, groundwater seepage, well water, and hydrostatic test water, free from other wastewater discharges.

SPECIAL CONDITION 24. For the purpose of this permit, total BETX is defined as the arithmetic sum of Benzene, Ethylbenzene, Toluene, and Xylene(s). Xylenes shall include ortho-, meta-, and para-xylenes. Xylene shall be analyzed using EPA method 602 or 624, or any other method with prior approval by IEPA. When calculating the arithmetic sum with a mix of data points above and below the Method Detection Level (MDL), the data points below the MDL shall be treated as zero.

SPECIAL CONDITION 25. The Permittee shall notify the IEPA Des Plaines Regional Office at (847-294-4000) at least 24 hours prior to commencing any discharge of hydrostatic test water from tanks that formerly contained petroleum products to Outfall 003 (see Attachment H). This notification shall include:

- A. Total volume of water to be discharged and estimated average discharge flow rate for the event. The permittee shall calculate the flow for each discharge event by dividing the total discharge volume by the number of days over which the discharge is expected to occur. This flow shall be reported as the daily maximum flow.
- B. The piping, pipeline or tank(s) from which water to be discharged originates.
- C. Most recent product(s) stored in the piping, pipeline or tank(s).
- D. Analytical results of wastewater for outfall A03 parameters prior to discharge. The monitoring location shall be established for each discharge event and be located where representative samples of the piping, pipeline or tank (s) contents can be obtained prior to discharge. For parameters for which both monthly average and daily maximum limits are specified, the permittee may take multiple samples of the discharge event to demonstrate compliance with the monthly average limit.

Upon notification, discharge from outfall A03 may commence if wastewater analysis meets effluent limits. If wastewater analysis does not meet permitted effluent limits, the water shall be routed to outfall 001 or treatment will be required before discharge to outfall 003. Construction of permanent treatment facilities which may be necessary to meet the requirements of this permit may not be started until a construction permit is issued by the Agency. This does not include the use of temporary portable treatment facilities.

This analysis shall be included on discharge monitoring reports.

SPECIAL CONDITION 26. Prior to performing any hydrostatic testing subject to Special Condition 25, the permittee shall empty the piping, pipeline, or tank(s) of any product and clean the piping, pipeline, or tank(s).

SPECIAL CONDITION 27. The monitoring/reporting requirements and limitations for the Benzene and total BETX parameters are applicable when the discharges result from hydrostatic testing of piping, pipeline, or tank(s) that had contained products that contain the BETX parameters and are subject to Special Condition 25.

SPECIAL CONDITION 28. On any day when monitoring is required, if the analysis for Total Chromium indicates levels less than the discharge limitations for Hexavalent Chromium, then the analysis for Hexavalent Chromium will not be required (compliance with the discharge limitations for Hexavalent Chromium will be demonstrated for that monitoring event by the results for Total Chromium). If, during any monitoring event, the results for Total Chromium indicate levels greater than the discharge limitations for Hexavalent Chromium, then the analysis for Hexavalent Chromium shall be required using the same sample which was analyzed for Total Chromium. If it is not possible to perform the analysis for Hexavalent Chromium using the same sample which was analyzed for Total Chromium, then another sample shall be immediately collected and analyzed for both Total and Hexavalent Chromium.

SPECIAL CONDITION 29. The Permittee shall monitor and report concentrations (in mg/l) of the following listed parameters twice per year in the months of January and July at the combined outfall. The sample shall be a 24-hour effluent composite except as otherwise specifically provided below and the results shall be submitted on the monthly DMR's to IEPA. The parameters to be sampled are:

NPDES Permit IL0002861

Special Conditions

<u>STORET CODE</u>	<u>PARAMETER</u>	<u>Minimum detection limit</u>
01002	Arsenic	0.001 mg/l
01007	Barium	0.5 mg/l
01027	Cadmium	0.003 mg/l
01042	Copper	0.005 mg/l
00718	Cyanide (grab) (weak acid dissociable)	5.0 ug/l
00720	Cyanide (grab not to exceed 24 hours) (total)	5.0 ug/l
01045	Iron (total)	0.5 mg/l
01046	Iron (Dissolved)	0.5 mg/l
01051	Lead	0.05 mg/l
01055	Manganese	0.5 mg/l
01067	Nickel	0.005 mg/l
01147	Selenium	0.075 mg/l
01077	Silver (total)	0.003 mg/l
01087	Vanadium	0.008 mg/l
01092	Zinc	0.50 mg/l>

Unless otherwise indicated, concentrations refer to the total amount of the constituent present in all phases, whether solid, suspended or dissolved, elemental or combined, including all oxidation states.

SPECIAL CONDITION 30. Total Residual Chlorine shall be monitored, reported, and limited to 0.05 mg/l whenever well test water is discharged through outfall 003 and when chlorine is used in the well testing activity. Monitoring should be performed a minimum of one time per well test event. An event is defined as the well test water discharge associated from a well water testing activity.

SPECIAL CONDITION 31. Appropriate use of diversions designed as part of the wastewater treatment system to manage flows in the primary section of the wastewater treatment plant do not constitute a bypass provided that the water is routed through the biological treatment plant, treated, and discharged in accordance with permit discharge limitations.

SPECIAL CONDITION 32. Cooling Water Intake Structure. Based on available information, the Agency has determined that the operation of the cooling water intake structure meets the equivalent of Best Technology Available (BTA) in accordance with the Best Professional Judgment provisions of 40 CFR 125.3 and 40 CFR 125.90(b), based on information available at the time of permit reissuance.

However, the Permittee shall comply with the requirements of the Cooling Water Intake Structure Existing Facilities Rule as found at 40 CFR 122 and 125. Any application materials and submissions required for compliance with the Existing Facilities Rule, shall be submitted to the Agency no later than 4 years from the effective date of this permit.

If for any reason, the Cooling Water Intake Structure Existing Facilities Rule is stayed or remanded by the courts, the Permittee shall comply with the requirements below. The information required below is necessary to further evaluate cooling water intake structure operations based on the most up to date information.

A. The permittee shall submit the following information/studies within 4 years of the effective date of the permit:

1. Source Water Physical Data to include:

- a. A narrative description and scaled drawings showing the physical configuration of all source water bodies used by the facility including aerial dimensions, depths, salinity and temperature regimes;
- b. Identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the intake's area of influence and the results of such studies; and
- c. Location maps.

2. Source Waterbody Flow Information

The permittee shall provide the annual mean flow of the waterbody, any supporting documentation and engineering calculations to support the analysis of whether the design intake flow is greater than five percent of the mean annual flow of the river or stream

Attachment H

Standard Conditions

Definitions

Act means the Illinois Environmental Protection Act, 415 ILCS 5 as Amended.

Agency means the Illinois Environmental Protection Agency.

Board means the Illinois Pollution Control Board.

Clean Water Act (formerly referred to as the Federal Water Pollution Control Act) means Pub. L 92-500, as amended. 33 U.S.C. 1251 et seq.

NPDES (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act.

USEPA means the United States Environmental Protection Agency.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum Daily Discharge Limitation (daily maximum) means the highest allowable daily discharge.

Average Monthly Discharge Limitation (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Discharge Limitation (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Aliquot means a sample of specified volume used to make up a total composite sample.

Grab Sample means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

24-Hour Composite Sample means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

8-Hour Composite Sample means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

Flow Proportional Composite Sample means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

- (1) **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.
- (2) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.
- (3) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- (4) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- (5) **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up, or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.
- (6) **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause by the Agency pursuant to 40 CFR 122.62 and 40 CFR 122.63. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- (7) **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.
- (8) **Duty to provide information.** The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency upon request, copies of records required to be kept by this permit.

- (9) **Inspection and entry.** The permittee shall allow an authorized representative of the Agency or USEPA (including an authorized contractor acting as a representative of the Agency or USEPA), upon the presentation of credentials and other documents as may be required by law, to:
- Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.
- (10) **Monitoring and records.**
- Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. Records related to the permittee's sewage sludge use and disposal activities shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503). This period may be extended by request of the Agency or USEPA at any time.
 - Records of monitoring information shall include:
 - The date, exact place, and time of sampling or measurements;
 - The individual(s) who performed the sampling or measurements;
 - The date(s) analyses were performed;
 - The individual(s) who performed the analyses;
 - The analytical techniques or methods used; and
 - The results of such analyses.
 - Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.
- (11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.
- Application.** All permit applications shall be signed as follows:
 - For a corporation: by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation;
 - For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
 - For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
 - Reports.** All reports required by permits, or other information requested by the Agency shall be signed by a person described in paragraph (a) or by a duly authorized

representative of that person. A person is a duly authorized representative only if:

- The authorization is made in writing by a person described in paragraph (a); and
 - The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility; and
 - The written authorization is submitted to the Agency.
- (c) **Changes of Authorization.** If an authorization under (b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of (b) must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.
- (d) **Certification.** Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(12) **Reporting requirements.**

- Planned changes.** The permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required when:
 - The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source pursuant to 40 CFR 122.29 (b); or
 - The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements pursuant to 40 CFR 122.42 (a)(1).
 - The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- Anticipated noncompliance.** The permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- Transfers.** This permit is not transferable to any person except after notice to the Agency.
- Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- Monitoring reports.** Monitoring results shall be reported at the intervals specified elsewhere in this permit.

- (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR).
- (2) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
- (3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Agency in the permit.
- (f) **Twenty-four hour reporting.** The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24-hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported within 24-hours:
- (1) Any unanticipated bypass which exceeds any effluent limitation in the permit.
- (2) Any upset which exceeds any effluent limitation in the permit.
- (3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Agency in the permit or any pollutant which may endanger health or the environment.
The Agency may waive the written report on a case-by-case basis if the oral report has been received within 24-hours.
- (g) **Other noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs (12) (d), (e), or (f), at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (12) (f).
- (h) **Other information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Agency, it shall promptly submit such facts or information.
- (13) **Bypass.**
- (a) Definitions.
- (1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
- (2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- (b) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (13)(c) and (13)(d).
- (c) Notice.
- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph (12)(f) (24-hour notice).
- (d) Prohibition of bypass.
- (1) Bypass is prohibited, and the Agency may take enforcement action against a permittee for bypass, unless:
- (i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- (iii) The permittee submitted notices as required under paragraph (13)(c).
- (2) The Agency may approve an anticipated bypass, after considering its adverse effects, if the Agency determines that it will meet the three conditions listed above in paragraph (13)(d)(1).
- (14) **Upset.**
- (a) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- (b) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (14)(c) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- (c) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
- (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated; and
- (3) The permittee submitted notice of the upset as required in paragraph (12)(f)(2) (24-hour notice).
- (4) The permittee complied with any remedial measures required under paragraph (4).
- (d) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

- (15) **Transfer of permits.** Permits may be transferred by modification or automatic transfer as described below:
- (a) Transfers by modification. Except as provided in paragraph (b), a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued pursuant to 40 CFR 122.62 (b) (2), or a minor modification made pursuant to 40 CFR 122.63 (d), to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act.
- (b) Automatic transfers. As an alternative to transfers under paragraph (a), any NPDES permit may be automatically transferred to a new permittee if:
- (1) The current permittee notifies the Agency at least 30 days in advance of the proposed transfer date;
 - (2) The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage and liability between the existing and new permittees; and
 - (3) The Agency does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement.
- (16) All manufacturing, commercial, mining, and silvicultural dischargers must notify the Agency as soon as they know or have reason to believe:
- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant identified under Section 307 of the Clean Water Act which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
- (1) One hundred micrograms per liter (100 ug/l);
 - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6 dinitrophenol; and one milligram per liter (1 mg/l) for antimony.
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the NPDES permit application; or
 - (4) The level established by the Agency in this permit.
- (b) That they have begun or expect to begin to use or manufacture, as an intermediate or final product or byproduct any toxic pollutant which was not reported in the NPDES permit application.
- (17) All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Agency of the following:
- (a) Any new introduction of pollutants into that POTW from an indirect discharge which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and
 - (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 - (c) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
- (18) If the permit is issued to a publicly owned or publicly regulated treatment works, the permittee shall require any industrial user of such treatment works to comply with federal requirements concerning:
- (a) User charges pursuant to Section 204 (b) of the Clean Water Act, and applicable regulations appearing in 40 CFR 35;
 - (b) Toxic pollutant effluent standards and pretreatment standards pursuant to Section 307 of the Clean Water Act; and
 - (c) Inspection, monitoring and entry pursuant to Section 308 of the Clean Water Act.
- (19) If an applicable standard or limitation is promulgated under Section 301(b)(2)(C) and (D), 304(b)(2), or 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit, or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked, and reissued to conform to that effluent standard or limitation.
- (20) Any authorization to construct issued to the permittee pursuant to 35 Ill. Adm. Code 309.154 is hereby incorporated by reference as a condition of this permit.
- (21) The permittee shall not make any false statement, representation or certification in any application, record, report, plan or other document submitted to the Agency or the USEPA, or required to be maintained under this permit.
- (22) The Clean Water Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$25,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Additional penalties for violating these sections of the Clean Water Act are identified in 40 CFR 122.41 (a)(2) and (3).
- (23) The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both.
- (24) The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (25) Collected screening, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into waters of the State. The proper authorization for such disposal shall be obtained from the Agency and is incorporated as part hereof by reference.
- (26) In case of conflict between these standard conditions and any other condition(s) included in this permit, the other condition(s) shall govern.
- (27) The permittee shall comply with, in addition to the requirements of the permit, all applicable provisions of 35 Ill. Adm. Code, Subtitle C, Subtitle D, Subtitle E, and all applicable orders of the Board or any court with jurisdiction.
- (28) The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit is held invalid, the remaining provisions of this permit shall continue in full force and effect.



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829

BRUCE RAUNER, GOVERNOR

LISA BONNETT, DIRECTOR

217/782-0610

May 8, 2015

U. S. Environmental Protection Agency
Attention: SWN - 16J Kevin Pierard, Chief
NPDES Programs Branch
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: ExxonMobil Oil Corporation
NPDES Permit No. IL0002861
Final Permit and Recommendations

Dear Mr. Pierard:

We received your No Objection Letter dated April 29, 2015 and have the following response regarding your recommendations:

1. The IEPA is currently reviewing its procedures regarding water treatment additives and how approved additives are identified in the public notice. We will review your comments and make appropriate revisions to our process.
2. Special Condition 2 was revised to require submittal of a new thermal model, if changes occur at the facility which would result in the thermal models conducted in 2003 and 2014 no longer being representative of discharge conditions.
3. The permittee did submit a study in 2014 showing compliance with the Primary Contact Standards at the I-55 bridge. The IEPA will continue to work with the permittee on this issue if new standards are adopted by the Illinois Pollution Control Board, and approved by USEPA.
4. The IEPA will review its practices concerning the inclusion of the Standard Conditions of Attachment H in the electronic public notice posted on the Agency's website.

Thank you for commenting on this permit. If you have any future questions regarding this permit, please contact Mark E. Liska at 217/782-0610.

Sincerely,

A handwritten signature in black ink that reads "Alan Keller".

Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

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