

ILLINOIS POLLUTION CONTROL BOARD

March 5, 2020

MARATHON PETROLEUM	)	
COMPANY, LP	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 18-49
	)	(Thermal Demonstration)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
	)	
Respondent.	)	

OPINION AND ORDER OF THE BOARD (by B.F. Currie):

Marathon Petroleum Company, LP (Marathon) filed a petition (Pet.) requesting that the Board grant both an alternative thermal effluent limitation (ATEL) and mixing zone relief for discharges from its Crawford County petroleum refinery to Robinson Creek. The Marathon refinery uses cooling systems, like a wet surface air cooler, which heat water before the wastewater is treated by the refinery's wastewater treatment plant. Once treated, the wastewater is discharged into Robinson Creek with an elevated temperature.

Marathon requests that its proposed alternative limitations apply instead of those thermal effluent limitations in its National Pollutant Discharge Elimination System (NPDES) permit based on the Board's water quality standards for temperature. Marathon also requests relief from the Board's mixing zone requirements. The Illinois Environmental Protection Agency (IEPA) recommends that the Board grant the requests.

As it may do so in an ATEL petition, Marathon requests relief from Section 302.102(b)(8) of the Board's mixing zone regulation (35 Ill. Adm. Code 302.102(b)(8)). Marathon requests an expanded mixing zone that would eliminate any zone of passage. The request goes well beyond the requirements of Section 302.102(b)(8), which, generally, require a 75% zone of passage or, under specified circumstances, a 50% zone of passage. Based on the current record, the Board finds that additional information is warranted for determining, among other things, whether the requested mixing zone, absent any zone of passage, would assure the protection and propagation of the bigeye chub, and if the requested thermal limits protect biotic life. As the Board's review has raised questions that should be addressed, the Board directs the hearing officer to issue an order asking those questions of the participants.

**GUIDE TO THE OPINION**

The Board's opinion begins with procedural background at pages 1-6. The Board summarizes Marathon's NPDES permit at page 4 and presents Marathon's requested alternative

thermal standards at pages 4-5. The Board then addresses the legal background at pages 6-9. The Board's discussion and findings of law are found at pages 9-10. The Board then reaches its conclusion and issues its order at page 10.

## **PROCEDURAL BACKGROUND**

### **Procedure Before Filing Petition with the Board**

**Early Screening Information.** Before filing a petition for alternative thermal standards, a petitioner must submit specified early screening information to IEPA. 35 Ill. Adm. Code 105.1115(a). Within 30 days after submitting it, the petitioner must consult with IEPA on that information. 35 Ill. Adm. Code 106.1115(b).

Marathon submitted the required early screening information to IEPA on March 11, 2016. Pet. at 10. IEPA approved Marathon's early screening information on March 24, 2016. *Id.*

**Detailed Plan of Study.** After submitting early screening information to IEPA, a petitioner must submit a detailed plan of study to support its request. 35 Ill. Adm. Code 106.1120(a). On April 18, 2016, Marathon submitted its detailed plan of study to IEPA. Pet. at 10.

**IEPA Response.** Within 90 days after receiving a detailed plan of study, IEPA must respond in writing by approving it or "recommending necessary revisions." IEPA approved Marathon's detailed plan of study on May 17, 2016. Pet. at 10, citing Exhibit 5. On June 2, 2016, IDNR issued a letter of no objection to Marathon's detailed plan of study. *Id.*

**Completing Plan.** After receiving IEPA's response, Marathon executed its detailed plan of study. 35 Ill. Adm. Code 106.1120(g). Marathon retained Midwest Biodiversity Institute (MBI) and Tetra Tech, Inc. (TTI) to conduct biological and water quality assessments, perform thermal modeling, and evaluate whether Marathon's proposed alternative thermal effluent limitations would be protective of the balanced indigenous community. Pet. at 13, *see* Exh. 4. IEPA was concerned that monitoring only one year could result in atypical data, but once the study was complete the IEPA agreed that conditions during that summer were typical, and that one year of data was sufficient. Rec. at 7.

### **Petition to the Board**

On December 15, 2017, Marathon filed a petition accompanied by seven exhibits:

- Exhibit 1: NPDES Permit No. IL0004073 (modified Sept. 19, 2013)
- Exhibit 2: Marathon Robinson Refinery Fact Sheet
- Exhibit 3: Discharge Temperature Data from 2002 – 2016

- Exhibit 4: Midwest Biodiversity Institute, Technical Support Documentation for Alternative Thermal Effluent Limitations under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) for the Marathon Petroleum Company LP Refinery located in Robinson, Illinois (Dec. 15, 2017)
- Exhibit 5(a): Early Screening Information submitted to Illinois EPA on 3/11/2016
- Exhibit 5(b): Illinois EPA Approval Letter for Early Screening Information dated 3/24/2016
- Exhibit 5(c): Detailed Plan of Study submitted to Illinois EPA on 4/18/2016
- Exhibit 5(d): Illinois EPA Approval Letter for Detailed Plan of Study dated 5/17/2016
- Exhibit 5(e): IDNR “No Objection” Letter for Detailed Plan of Study dated 6/2/2016
- Exhibit 6: Tetra Tech, Inc., Final Hydrodynamic and Temperature Modeling Report for Robinson Creek, Illinois (May 9, 2017)
- Exhibit 7: Midwest Biodiversity Institute, Biological and Water Quality Assessment of Robinson and Sugar Creeks and Tributaries (Dec. 15, 2017)

### **Notice and Opportunity to Request Hearing**

Marathon served a copy of the petition on IEPA and IDNR. *See* 35 Ill. Adm. Code 106.1125. On December 28, 2017, Marathon filed a certificate of publication stating that the *Robinson Daily News*<sup>1</sup> published notice of the filing of the petition on December 21, 2017. *See* 35 Ill. Adm. Code 106.1135(a), 106.1140. The notice stated that any person may within 21 days after the date of publication request that the Board hold a public hearing. *See* 35 Ill. Adm. Code 106.1135(b)(7). A request was to be received by the Board on or before January 11, 2018. The Board did not receive a request to hold a public hearing and did not hold one.

### **IDNR March 29, 2018 Consultation Letter**

On March 29, 2018, IDNR sent IEPA a letter reopening its consultation with IEPA on Marathon’s Alternative Thermal Effluent Limit petition, pursuant to the Illinois Endangered Species Act, the Illinois Natural Areas Preservation Act, and Title 17 Illinois Administrative Code Part 1075. IDNR’s letter concerns the presence of the bigeye chub in Robinson Creek within proximity of Marathon’s discharge. The bigeye chub is an Illinois endangered species, and Marathon failed to include it in their petition and supporting documents. As a result of prior discussions, on February 27, 2018, Marathon filed a motion for leave to file an addendum to Exhibit 4, which included evidence of the occurrence of the bigeye chub in Robinson Creek. The motion was granted by hearing officer order on March 14, 2018.

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<sup>1</sup> The certificate states that the *Robinson Daily News* is a newspaper of general circulation in Crawford County where Marathon’s refinery is located.



**Proposed Alternative  
Thermal Effluent Limitations**

In its petition, Marathon argues that the thermal effluent limitations within its NPDES Permit “are more stringent than necessary to assure protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in Robinson Creek (the receiving waters of the Refinery’s discharge from Outfall 001).” Pet. at 3.

In lieu of temperature water quality standards found in Section 302.211(d) and (e), Marathon requests the following alternative thermal effluent limitations for discharges from the Refinery’s Outfall 001:

- Water temperature in Robinson Creek downstream from the MPC 001 outfall at a point instream in the vicinity of the IL Route 1 bridge shall not exceed the maximum limits in the following table during more than one (1) percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such location exceed the maximum limits in the following table by more than 3°F (1.7°C). (Robinson Creek temperatures are temperatures of those portions of the creek essentially similar to and following the same thermal regimes as the temperature of the main flow of the creek.) The average water temperature in Robinson Creek downstream from the MPC 001 outfall at a point instream in the vicinity of the IL Route 1 bridge for the period June 16 – September 15 shall not exceed 87°F.

	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
°F	65	65	74	82	88	90	90	90	90	87	85	74
°C	18.3	18.3	23.3	27.8	31.1	32.2	32.2	32.2	32.2	30.6	29.4	23.3

- In lieu of 35 Ill. Admin. Code § 302.102(b)(8), the following shall apply: the area and volume of mixing shall extend from the MPC 001 Outfall to a point instream in the vicinity of the IL Route 1 bridge.

Marathon also proposes that the instream sampling location be located at a point instream in the vicinity of the IL Route 1 Bridge (1.7 miles away).

**Board Order Accepting Petition**

On October 4, 2018, the Board found that Marathon had provided timely and sufficient notice of filing the petition. The Board also noted that it had not received a request to hold a hearing. The Board accepted the petition but stated it had not determined whether it would hold a hearing.

**IEPA Recommendation**

On September 7, 2018, IEPA filed its recommendation (Rec.) that the Board grant the

relief requested by Marathon. Within the recommendation the IEPA also recommended granting Marathon's request for a mixing zone that encompasses 100% of Robinson Creek for a 1.7-mile stretch, even though a 100% mixing zone is "larger than what could be typically granted by the Agency." Rec. at 6. The IEPA reasons that the petition shows that aquatic life within the stream has thermal tolerance thresholds greater than the proposed alternative thermal effluent limits, and that any short term exceedances of the thermal limits would be offset with "stress recovery periods (cooler temperatures) of longer durations." *Id.* Any party or interested party may, within 21 days, file a response to the IEPA's recommendation. 35 Ill. Adm. Code 106.1145(c). On September 27, 2018, Marathon filed a response to IEPA's recommendation, stating that the Board's record contained all required information to make a decision, and that the Board should proceed with its review.

On September 28, 2018, IDNR filed a motion for extension of time to respond to IEPA's recommendation. IDNR requested a 90-day extension of time to respond to IEPA's recommendation so that it could work with the University of Illinois at Urbana-Champaign (UIUC) to conduct a test on the thermal tolerance of the Illinois bigeye chub. On October 12, 2018, Marathon filed a response in opposition to IDNR's motion for extension of time. Marathon argued that rather than relying on the UIUC non-peer reviewed study, the Board should grant Marathon's petition, and that it would be required to consider any new information discovered in the study during its NPDES renewal. On November 1, 2018, the Board granted IDNR's motion for extension of time.

### **IDNR's Response to IEPA's Recommendation**

On December 28, 2018, IDNR filed a response to IEPA's recommendation, in part recommending the Board deny Marathon's petition. IDNR Resp. 12-28-18 at 7-8. IDNR recommended denial because it did not think Marathon met its burden concerning protection and propagation of a species under 35 Ill. Adm. Code 1160, or the protection of threatened and endangered species under 35 Ill. Adm. Code 106.1130(e)(4). *Id.*

IDNR's response included a copy of the bioassay completed by Dr. Suski and Qihong Dai on December 14, 2018 into the record, entitled "Suski Lab Technical Report Review No. 2018-003 – Interim Report Thermal Tolerance Limits of Bigeye Chub" (UIUC Bioassay Report). 12-28-18 IDNR Reply at 2, Att. A. IDNR asserted that the preliminary results of the UIUC study show the proposed ATEL is not protective of the bigeye chub. IDNR also expressed concern regarding the requested relief from the mixing zone and zone of passage. IDNR noted the requested 100% mixing zone is not allowable under the Board's subpart K regulations and is not sufficiently protective of the balanced indigenous community. *Id.* at 6-7. IDNR also noted the presence of the bigeye chub or other wildlife is not indicative of their protection and/or propagation.

On March 15, 2019, Marathon filed a reply to IDNR's recommendation disagreeing with IDNR's claim that Marathon had not met its burden and urges the Board to grant its petition. Marathon Reply 3-15-19 at 15-16. Regarding the UIUC study, Marathon argued that the researchers did not use appropriate research methods to measure the thermal critical points they calculated. 3-15-19 Marathon Resp. at 4-5. Marathon submitted a report prepared by MBI to

support its assertions. Marathon also contends that of the UIUC study results does not affect the results of their demonstration. Marathon declined to submit an Incidental Take Authorization and stated that they are not requesting to increase the temperature of its outfall.

On April 12, 2019, after reviewing the UIUC study, IEPA filed a reply to IDNR's response again recommending that the Board grant Marathon's petition. IEPA Reply 4-12-19 at 4. IEPA states that "the response temperatures for the Bigeye Chub were in line with the thermal response temperatures of other cyprinids that were already represented in the Fish Temperature Modeling System (FTMS) used by the Petitioner. *See* Table 13 of the Technical SD. Inclusion of the Bigeye Chub critical thermal maximum temperature (96.8 °F) into the FTMS has not modified the model outputs that were developed for protection of all RIS." 4-12-19 IEPA Rep at 3. IEPA also submitted spawning information for the Bigeye Chub provided by Marathon to evaluate whether they would be able to propagate in Robinson Creek under the requested ATEL. The data Marathon sent shows that most spawning occurs in the late spring/early summer. *Id.*, Att. A.

On June 4, 2019, Marathon filed a motion to supplement its March 15, 2019 reply to IDNR, stating that counsel for IDNR conveyed that Marathon and IEPA's reply briefs addressed IDNR's concerns and that IDNR would no longer seek a denial of Marathon's petition. Marathon Mot. at 3. The Board's record shows IDNR never withdrew its recommendation to deny the petition.

### **STATUTORY AND LEGAL BACKGROUND**

The CWA makes it unlawful for any person to discharge a pollutant from a point source into waters of the United States without a permit. 33 U.S.C. § 1311(a). Heat is a pollutant (33 U.S.C. § 1362(6)) and therefore requires a permit. In general, discharge limitations in a permit are technology-based or water quality based. 33 U.S.C. § 1311(b). Technology-based effluent limits generally are developed for an industry and reflect the "best available technology economically achievable." 33 U.S.C. § 1311(b)(2)(A); *see e.g.*, 40 C.F.R. Parts 405-471.

Water quality-based effluent limits ensure that water quality standards are met regardless of technology or economics considered in establishing technology-based limits. Water quality-based effluent limits are defined as "any more stringent limitation, including those necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations. . . or any other Federal law or regulation, or required to implement any applicable water quality standard." 33 U.S.C. § 1311(b)(1)(C).

Thus, if a discharge from a point source interferes with attainment or maintenance of a water quality standard, an effluent limitation is established for that discharge, regardless of any other technology-based standard. 33 U.S.C. §§ 1311(b)(1)(C), 1312(a); *see also* 35 Ill. Adm. Code 304.105 (Violation of Water Quality Standards). Water quality standards are set under authority provided in Section 303 of the CWA (33 U.S.C. § 1313). Illinois law authorizes the Board to adopt water quality standards, including thermal standards. 415 ILCS 5/13 (2018). The Board has done so, and the Board's General Use water quality temperature standards which apply to Robinson Creek are found at 35 Ill. Adm. Code 302.211.

Since adoption of the CWA in 1972, Section 316(a) has allowed a point source with a thermal discharge to obtain relief from otherwise applicable thermal effluent limitations. Specifically, CWA Section 316(a) provides:

With respect to any point source otherwise subject to the provisions of section 1311 of this title or section 1316 of this title, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, the Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections for such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water. 33 U.S.C. § 1326 (Thermal Discharges).

Accordingly, Section 304.141(c)<sup>2</sup> of the Board's rules provides:

The standards of this Chapter shall apply to thermal discharges unless, after public notice and opportunity for public hearing, in accordance with section 316 of the CWA, and applicable federal regulations, and procedures in 35 Ill. Adm. Code 106.Subpart K, the Board has determined that different standards shall apply to a particular thermal discharge. 35 Ill. Adm. Code 304.141(c).

Therefore, under Section 316(a) of the CWA and 35 Ill. Adm. Code 304.141(c), the Board may establish "alternative thermal effluent limitations" based on a demonstration that the alternate limits will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in the receiving water. Part 106, Subpart K of the Board's rules provides for review of a petition for an alternative thermal effluent limitation. 35 Ill. Adm. Code 106.1100–106.1180. A discharger may seek relief from section 302.102 mixing zone regulations in an ATEL under Section 106.1130(g)(2). The establishment of alternative thermal effluent limitations is not a change in the water quality standard.

In 1977, USEPA issued a draft manual on demonstrations under CWA Section 316(a). This "USEPA 316(a) Manual" provides that it "is intended to be used as a general guidance and as a starting point for discussions," and that delegated state agencies "are not rigidly bound by the contents of this document." USEPA 316(a) Manual at 8–9. This USEPA guidance remains a draft. Nevertheless, the Board has found that the "decision criteria" in the USEPA 316(a)

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<sup>2</sup> The Board originally codified the rule on August 29, 1974, as Rule 410(c) of Chapter 3 of its water pollution regulations.



Manual are a useful guide for the Board's analysis, and the Board has followed guidance's decision-making outline. Exelon Generation LLC v. IEPA, PCB 14-123, slip op. at 2 (Sept. 18, 2014). Further, Section 106.1120 of the Board's rules requires a petitioner seeking alternative thermal effluent relief to consider guidance published by USEPA in making its demonstration. *See* 35 Ill. Adm. Code 106.1120(e). In 1979, USEPA promulgated rules implementing CWA Section 316(a) which are codified at 40 C.F.R. 125.Subpart H.

### **Mixing Zones**

The CWA allows mixing zones as a mechanism to deal with thermal discharge under § 316(a). The USEPA delegates authority allowing states to implement policies like mixing zones in their water quality standards, subject to USEPA review and approval. 40 C.F.R. § 131.13. Any mixing zone must be designed to assure the protection and propagation of a balanced indigenous population. *Id.*

The Board's mixing rules at 35 Ill. Adm. Code 302.102(b) provide in pertinent part:

#### Section 302.102 Allowed Mixing, Mixing Zones and ZIDs

- ...
- (b) The portion, volume and area of any receiving waters within which mixing is allowed pursuant to subsection (a) shall be limited by the following:
- ...
- 4) Mixing is not allowed in waters containing mussel beds, endangered species habitat, fish spawning areas, areas of important aquatic life habitat, or any other natural features vital to the well being of aquatic life in such a manner that the maintenance of aquatic life in the body of water as a whole would be adversely affected.
- ...
- 6) Mixing must allow for a zone of passage for aquatic life in which water quality standards are met. However, a zone of passage is not required in receiving streams that have zero flow for at least seven consecutive days recurring on average in nine years out of 10.
- ...
- 8) The area and volume in which mixing occurs, alone or in combination with other areas and volumes of mixing must not contain more than 25% of the cross-sectional area or volume of flow of a stream except for those streams for which the dilution ratio is less than 3:1. In streams where the dilution ratio is less than 3:1, the volume in which mixing occurs, alone or in combination with other volumes of mixing, must not contain more than 50% of the volume flow unless an applicant for an NPDES permit demonstrates, pursuant to subsection (d), that an adequate zone of passage is provided for pursuant to subsection (b)(6).
- ...

- 10) No body of water may be used totally for mixing of single outfall or combination of outfalls, except as provided in subsection (b)(6).

...

- d) Pursuant to the procedures of Section 39 of the Act and 35 Ill. Adm. Code 309, a person may apply to the Agency to include as a condition in an NPDES permit formal definition of the area and volume of the waters of the State within which mixing is allowed for the NPDES discharge in question. The defined area and volume of allowed mixing shall constitute a "mixing zone" for the purposes of 35 Ill. Adm. Code: Subtitle C. Upon proof by the applicant that a proposed mixing zone conforms with the requirements of Section 39 of the Act, this section and any additional limitations as may be imposed by the Clean Water Act (CWA) (33 USC 1251 et seq.), the Act or Board regulations, the Agency shall, pursuant to Section 39(b) of the Act, include within the NPDES permit a condition defining the mixing zone.

Board rules under 35 Ill. Adm. Code 301.270 provide the following relevant definition:

"Dilution Ratio" means the ratio of the seven-day once in ten year low flow of the receiving stream or the lowest flow of the receiving stream when effluent discharge is expected to occur, whichever is greater, to the average flow of the treatment works for the design year.

### **DISCUSSION**

As stated above, the CWA allows for the use of mixing zones as a means for complying with 35 Ill. Adm. Code 304.105 by mixing the effluent with its receiving waters. *See* 35 Ill. Adm. Code 302.102. Board mixing zone rules regulate the portion, volume, and area of these mixing zones.

Part 106, Subpart K, allows a discharger to petition the Board for an alternative thermal limitation. "Alternative thermal effluent limitation" is defined by Board regulation as "...all effluent limitations or standards of performance for the control of the thermal component of any discharge that are established under 35 Ill. Adm. Code 304.141(c), Section 316(a) of the CWA and this Subpart." *See* 35 Ill. Adm. Code 106.1110. If a discharger shows that thermal effluent limitation is more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in or on the body of water which the discharge is made, the Board can grant alternative thermal limitations. Part 106, Subpart K also allows a discharger to request relief from mixing zone regulations in the same petition.

It is Marathon's burden to prove that the increased mixing zone encompassing 1.7 miles of Robinson Creek with no zone of passage would adequately assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in or on the body of water which the discharge is made.

IDNR's December 28, 2018, response to IEPA's recommendation expressed concern that data from the UIUC study showed that the bigeye chub, an endangered species, would in fact not be adequately protected in the extended mixing zone. Nothing in the record indicates that IDNR withdrew their objections to the petition. On June 4, 2019, Marathon filed a supplement to its reply to IDNR's response, stating that IDNR would no longer seek denial of the petition.

Based on the current record, the Board finds that additional information is warranted in determining, among other things, whether the requested mixing zone, absent any zone of passage, would assure the protection and propagation of the bigeye chub, and if the requested thermal limits protect the biotic life in Robinson Creek. The Board requests that additional information to include IDNR's explanation of whether and, if so, how its assessment of the UIUC data has changed. Therefore, the Board will direct the hearing officer to issue an order, providing specific questions to be addressed by the participants.

### **CONCLUSION**

The Board finds that additional information is warranted in, among other things, determining whether the extended mixing zone, with no zone of passage, assures the protection and propagation of the endangered species, the bigeye chub, and if the requested thermal limits protect the biotic life in Robinson Creek. Therefore, the Board will issue questions by hearing officer order to further complete the record.

### **ORDER**

The Board directs the hearing officer to issue an order with questions for the parties.

IT IS SO ORDERED.

Board Member B.K. Carter abstained.

I, Don A. Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on March 5, 2020, by a vote of 3-0



Don A. Brown, Clerk  
Illinois Pollution Control Board