BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter Of:	)	
	)	
MARATHON PETROLEUM COMPANY LP,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB No. 18-49
	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

NOTICE OF FILING

TO: Don Brown
Clerk of the Board
Illinois Pollution Control Board
100 W. Randolph Street, Suite 11-500
Chicago, Illinois 60601
(VIA ELECTRONIC MAIL)

Carol Webb
Hearing Officer
Illinois Pollution Control Board
1021 North Grand Avenue East
P.O. Box 19274
Springfield, Illinois 62794-9274
(VIA ELECTRONIC MAIL)

(SEE PERSONS ON ATTACHED SERVICE LIST)

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board **PETITIONER'S REPLY TO ILLINOIS DEPARTMENT OF NATURAL RESOURCES' RESPONSE TO AGENCY'S RECOMMENDATION**, a copy of which is herewith served upon you.

Respectfully submitted,
MARATHON PETROLEUM COMPANY LP,

Dated: March 15, 2019

By: /s/ Katherine D. Hodge
One of Its Attorneys

Katherine D. Hodge
Melissa S. Brown
HEPLERBROOM, LLC
4340 Acer Grove Drive
Springfield, Illinois 62711
Katherine.Hodge@heplerbroom.com
Melissa.brown@heplerbroom.com
(217) 528-3674

CERTIFICATE OF SERVICE

I, Katherine D. Hodge, the undersigned, on oath state the following:

That I have served the attached **PETITIONER'S REPLY TO ILLINOIS DEPARTMENT OF NATURAL RESOURCES' RESPONSE TO AGENCY'S RECOMMENDATION** via electronic mail upon:

Don Brown
Clerk of the Board
Illinois Pollution Control Board
100 W. Randolph Street, Suite 11-500
Chicago, Illinois 60601
Don.Brown@illinois.gov

Carol Webb
Hearing Officer
Illinois Pollution Control Board
1021 North Grand Avenue East
P.O. Box 19274
Springfield, Illinois 62794-9274
Carol.Webb@illinois.gov

Sara Terranova
Joanne Olson
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
Joanne.olson@illinois.gov
Sara.Terranova@illinois.gov

Renee Snow
Virginia Yang
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702-1271
Renee.Snow@illinois.gov
Virginia.Yang@illinois.gov

That my email address is Katherine.Hodge@heplerbroom.com.

That the number of pages in the email transmission is 25 pages.

That the email transmission took place before 5:00 p.m. on the date of March 15, 2019.

/s/ Katherine D. Hodge
Katherine D. Hodge

Date: March 15, 2019

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter Of:	)	
	)	
MARATHON PETROLEUM COMPANY LP,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB No. 18-49
	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

PETITIONER'S REPLY TO ILLINOIS DEPARTMENT OF NATURAL RESOURCES' RESPONSE TO AGENCY'S RECOMMENDATION

MARATHON PETROLEUM COMPANY LP ("Marathon"), by and through its attorneys, HEPLERBROOM, LLC, and pursuant to 35 Ill. Adm. Code § 101.500, hereby files this Reply to Illinois Department of Natural Resources' Response to Agency's Recommendation ("Reply"). In support of this Reply, Marathon states as follows:

I. INTRODUCTION

On December 28, 2018, the Illinois Department of Natural Resources ("IDNR") filed a response to the Illinois Environmental Protection Agency's ("Illinois EPA") recommendation to grant Marathon's Petition to Approve Alternative Thermal Effluent Limitations ("Petition").[1] In its response, IDNR recommends that the Illinois Pollution Control Board ("Board") issue a finding: (i) denying Marathon's Petition based on alleged deficiencies in burden of proof, (ii)

[1] IDNR's filing, dated December 28, 2018, is entitled "Reply to the Illinois [EPA's] Recommendation." Per the Board's Order on November 1, 2018, IDNR was granted a 90 day extension to file a *response* to Illinois EPA's Recommendation. *See* Board Order, PCB No. 18-49, at 2 (Nov. 1, 2018). The Board also noted that, "[o]nce IDNR files *response* to the recommendation, the Board expects the Agency and Marathon to file their *replies." Id.* (emphasis added). Therefore, Marathon refers to IDNR's December 28, 2018 filing as a *Response* herein.

requiring Marathon to obtain an Incidental Take Authorization, and (iii) revising Marathon's proposed mixing zone language.[2] As explained below, Marathon objects to each of IDNR's recommendations. Marathon has met its burden of proof in this proceeding, regardless of whether it obtains an Incidental Take Authorization. Marathon has also previously agreed to revise its proposed mixing zone language. The Board currently has all required information in the record to proceed with its decision in this proceeding. As such, Marathon requests that the Board grant the Petition.

II. PROCEDURAL BACKGROUND

A. Consultation with Illinois EPA Prior to Filing Petition

Marathon submitted the Early Screening Information required by 35 Ill. Adm. Code 106, Subpart K to Illinois EPA on March 11, 2016, which Illinois EPA approved on March 24, 2016. *See* Exhibits 5(a) and (b) to Petition. Marathon then submitted a Detailed Plan of Study to Illinois EPA on April 18, 2016. *See* Exhibit 5(c) to Petition. As part of its review and approval of the Detailed Plan of Study, Illinois EPA consulted with IDNR. Illinois EPA approved Marathon's Detailed Plan of Study on May 17, 2016 and IDNR issued a letter of no objection to the Detailed Plan of Study on June 2, 2016. *See* Exhibits 5(d) and (e) to Petition.

B. Filing of Petition and Subsequent Actions

Marathon has recited the procedural history of this matter in multiple filings and in the interest of brevity will refer the Board to those documents. *See* Marathon's Response to IDNR's

[2] Marathon and Illinois EPA filed a Joint Motion for Extension of Time on February 6, 2019, requesting additional time to file their replies to IDNR's Response. Marathon requested an extension of the deadline to allow for additional time needed for its consultant to re-run modeling, as well as to allow time for a meeting to be held between Marathon, Illinois EPA, and IDNR. Subsequent to filing the Joint Motion, it became clear that such a meeting would not be productive, and thus the scheduled meeting did not occur.

Consultation Letter, Dated March 29, 2018, PCB 18-49, at 1-5 (Aug. 15, 2018); Marathon's Response to Recommendation, PCB 18-49, at 1-5 (Sept. 27, 2018).

IDNR filed its Response to Illinois EPA's Recommendation on December 28, 2018. *See* IDNR's Response to the Illinois EPA Recommendation, PCB No. 18-49 (Dec. 28, 2018) ("Response"). IDNR makes three specific recommendations for relief (Recommendations A, B and C), to which Marathon will reply in turn after discussing the Interim Report, dated December 14, 2018, issued by the University of Illinois at Urbana-Champaign, as well as additional work performed by Marathon's consultant to incorporate the data from the Interim Report.

III. ARGUMENT

A. The UIUC Bioassay

IDNR authorized a bioassay for the Bigeye Chub using the research facility at the University of Illinois Urbana-Champaign ("UIUC Bioassay"), the Interim Report for which is attached to IDNR's Response. IDNR Response at ¶ 13. The results of the UIUC Bioassay were discussed in a letter from IDNR to Illinois EPA, also attached to IDNR's Response. *See* Dec. 28, 2018 letter from Nathan Grider, IDNR, to Scott Twait, Illinois EPA, attached as Attachment B to IDNR's Response ("Dec. 28, 2018 IDNR Letter").

While conducting the bioassay, UIUC observed fish behavior as test temperature increased, describing "a number of erratic behaviors including burst swimming and attempts to jump out of their compartment" by fish acclimated to 78.8°F (26°C) when the temperature reached 91.4°F. *See* Suski Lab Technical Report Review No. 2018-003 Interim Report Thermal Tolerance Limits of Bigeye Chub (Dec. 14, 2018), attached as Attachment A to IDNR's Response ("UIUC Interim Report"). Thus, 91.4°F was classified as the "upper incipient avoidance temperature." *See id*; Dec. 28, 2018 IDNR Letter at 2-3. Additionally, the UIUC

Bioassay identified a "critical thermal maximum temperature" of 96.8°F which is the point where test fish lost equilibrium. *See* UIUC Interim Report. Marathon's observations regarding the UIUC bioassay and its results are discussed below.

First, caution should be exercised when viewing the "upper incipient avoidance temperature" derived by UIUC. In particular, the use of 91.4°F as the equivalent of an upper avoidance temperature as it has been defined for 40 years is appropriate only if one accepts the initial observations of fish excitement and burst swimming as surrogates for an upper avoidance temperature endpoint as it was defined by Coutant (1975)[3]. More recent studies reference fish being able to avoid lethal temperatures because they become excited or agitated by temperatures that are less than lethal and thus can swim away in avoidance.[4] Additionally, there are more established avoidance testing procedures for determining avoidance temperature that were not followed in the UIUC Bioassay.[5] In these more established avoidance testing procedures, the fish were provided with a gradient of thermal conditions (after the control) and the fish were exposed to those conditions for several minutes before conditions changed. *See id.* However, in the UIUC Bioassay, the fish were exposed to a single, continuously increasing thermal condition that changed by the minute. *See* Interim Report, UIUC Bioassay. It is also important to note UIUC's findings are set forth in an interim report and have not yet been subjected to a peer review.

Second, and most importantly, the temperatures derived by UIUC are higher than the proposed alternative thermal effluent limitations. Tables 1 and 2, below, capture the proposed

[3] *See* Coutant, C.C. 1975. Temperature selection by fish: a factor in power plant impact assessments, pp. 575-597 *in* Environmental effects of cooling systems at nuclear power plants. (IAEA) International Atomic Energy Agency, Vienna.
[4] *See* Beitinger, T. L., Bennett, W. A., & McCauley, R. W. (2000). Temperature tolerances of North American freshwater fishes exposed to dynamic changes in temperature. Environmental Biology of Fishes, 58(3), 237-275.
[5] *See* Chery, D. S., K. L. Dickson, J. Cairns Jr., and J.R. Stauffer. 1977. Preferred, avoided, and lethal temperatures of fish during rising temperature conditions. J. Fish. Res. Board Can. 34: 239-246.

alternative thermal effluent limitations as well as the existing thermal effluent limitations that will remain the same.

Table 1. Summary of Changes Proposed by Marathon from Current NPDES Permit

Current NPDES Permit	**Proposed Change in 316(a) Petition**
Not to exceed the maximum limits in the following table during more than 1% of hours in the 12-month period ending with any month	No change
Never to exceed the max limit by >3.0°F	No change
5°Δ	87°F summer (June 16 – Sept 15) average

Table 2. Proposed Changes in Maximum Effluent Limitations from Current NPDES Permit

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Current Max °F	60	60	60	90	90	90	90	90	90	90	90	60
Proposed Max °F	65	65	74	82	88	90	90	90	90	87	85	74
Net Change °F	+5	+5	+14	-8	-2	0	0	0	0	-3	-5	+14

Marathon's proposed 87°F summer average is lower than the upper incipient avoidance (91.4°F) and critical thermal maximum (96.8°F) temperatures identified by UIUC. Marathon has proposed no change to the existing 90°F maximum for June through September and has proposed to decrease the existing 90°F maximum for the months of April, May, October and November. The proposed increases in the winter maximum to 65°F and 74°F are lower than both temperatures identified by UIUC. Marathon's proposed alternative effluent limitations contain temperatures that are below the temperatures derived by UIUC, which as discussed in more detail below have no effect on the predictive demonstration supporting the Petition.

B. Petition Not Affected by UIUC Bioassay

Marathon's Addenda and Response to IDNR's March 29, 2018 Consultation Letter provide extensive technical analyses on the potential for adverse effects to Bigeye Chub that might be posed by Marathon's requested alternative thermal effluent limitations. These analyses conclude that the occurrence of Bigeye Chub in Robinson Creek has no effect on the conclusions

of Marathon's 316(a) technical evaluation or on the alternative thermal effluent limitations requested in Marathon's pending Petition, i.e., that Marathon's requested alternative thermal effluent limitations will assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on Robinson Creek.

Marathon's consultant, Midwest Biodiversity Institute ("MBI"), previously concluded that insufficient thermal tolerance data was available to include the Bigeye Chub in the final Representative Important Species ("RIS"). *See* Addendum to the 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, at 4-5, attached to Marathon's Motion for Leave to File Addendum to Exhibit 4 of the Petition, PCB 18-49 (Ill.Pol.Contorl.Bd. Feb. 27, 2018) ("Addendum"). While insufficient thermal tolerance data was available to include Bigeye Chub as a final RIS, Marathon took the position that MBI's analysis of the influence of acclimation temperature on thermal tolerance endpoints is sufficient to estimate the status of Bigeye Chub among the RIS that have sufficient thermal data and the principal conclusion that Bigeye Chub is covered by the final RIS. *See* Analysis of and Response to Illinois DNR March 29, 2018 Comment Letter dated August 10, 2018, attached as Exh. 1 to Response to IDNR's March 29, 2018 Consultation Letter.

Despite the technical concerns with the UIUC Bioassay discussed above and the fact that it has not been peer-reviewed, the UIUC Bioassay presents the opportunity to provisionally include Bigeye Chub data in the Fish Temperature Modeling System ("FTMS") to confirm MBI's conclusion in the Addendum and MBI's Analysis of and Response to Illinois DNR March 29, 2018 Comment Letter. With the receipt of the UIUC Bioassay Interim Report, MBI has re-run the FTMS to include the Bigeye Chub as a RIS and to incorporate the data referenced in the

Interim Report. Accordingly, and to document the inclusion of Bigeye Chub as a RIS, MBI prepared a Second Addendum to the 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 (March 13, 2019) ("Second Addendum"), which is attached as Exhibit 1 to this Reply.

As explained in the Second Addendum, MBI has concluded that there were no changes to the true summer period (June 16-September 15) average of 87.1°F or the maximum temperature of 90.7°F that are needed to protect all of the RIS including Bigeye Chub.[6] Second Addendum at 4. As such, adding the provisional input variables for Bigeye Chub to the RIS in the FTMS has no effect on Marathon's 316(a) Petition as it was originally submitted in 2017. *Id.* Therefore, the data provided by the UIUC Bioassay, as included in the FTMS, further supports that Marathon's proposed alternative thermal effluent limitations will assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on Robinson Creek.

C. Marathon Has Met Its Burden of Proof Concerning Protection and Propagation (IDNR Recommendation A)

In Section 316(a) proceedings, the burden of proof is on the petitioner. 35 Ill. Adm. Code 106.1160(a). Under the burden of proof, the petitioner must demonstrate two things:

> (1) That the otherwise applicable effluent limitations "are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the body of water into which the discharge is made," and
>
> (2) That the demonstration shows that the alternative thermal effluent limitation "will assure the protection and propagation of a balanced indigenous community of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made."

[6] The 87°F summer average and 90°F summer maximum proposed in the Petition were conservatively rounded down from the FTMS-derived 87.1°F summer average and 90.7°F summer maximum. *See* Petition at 20.

Id. at 106.1160(b) (emphasis added); 33 U.S.C. § 1326(a).

IDNR asserts that Marathon failed to address the issue of "protection and propagation" of a species and "opines" that such alleged failure represents a data deficiency in the Petition. IDNR Response at ¶¶ 21-22. There is no data deficiency in the Petition as alleged by IDNR, and Marathon has met its burden of proof in this proceeding.

For the demonstration of the burden of proof, MBI determined that a predictive demonstration was appropriate. Indeed, the only option available to Marathon was a predictive Type II demonstration because of the existing impaired status of the aquatic biota in Robinson Creek by non-thermal stressors. *See* Analysis of and Response to Illinois DNR March 29, 2018 Comment Letter dated August 10, 2018, attached as Exh. 1 to Response to IDNR's March 29, 2018 Consultation Letter. The regulations implementing Section 316(a) recognize that an existing discharger may support alternative thermal effluent limitations based on predictive studies under such circumstances. 35 Ill. Adm. Code 106.1160(d); 40 CFR § 125.73(c)(1). USEPA guidance states:

> Predictive studies and associated demonstrations representing the best estimate of "*what will happen"* are appropriate for 316(a) demonstrations for: . . . (3) Facilities discharging into waters which, during the period of the applicant's prior thermal discharge, were so despoiled as to preclude evaluation of the effects of the thermal discharge on species of shellfish, fish, and wildlife.

USEPA's Interagency 316(a) Technical Guidance Manual and Guide for Thermal Effects Sections of Nuclear Facilities Environmental Impact Statements (DRAFT), at § 3.1 (May 1, 1977) ("USEPA Technical Guidance") (emphasis added). A Type II demonstration utilizes the concept of RIS where thermal tolerance data for a representative portion of the potential aquatic assemblage under unpolluted conditions reflects the response of the entire assemblage, including species that do not have sufficient thermal tolerance data. *See* Analysis of and Response to

Illinois DNR March 29, 2018 Comment Letter dated August 10, 2018, attached as Exh. 1 to Response to IDNR's March 29, 2018 Consultation Letter.

IDNR asserts that in order to demonstrate propagation, Marathon would need to document in its Detailed Plan of Study or results of studies "the spawning activity and recruitment of individual species to the aquatic population through direct observations, or minimally, through documenting the presence of young-of-the-year and/or multiple year classes of individual species." IDNR Response at ¶ 21. In essence, IDNR argues that Marathon must demonstrate that propagation *is occurring*. This argument, however, is entirely unsupported by both the burden of proof imposed by law, which requires Marathon to demonstrate the proposed alternative limitations "will assure" propagation, and the concept of a Type II demonstration, which is a predictive demonstration that constitutes the best estimate of "what will happen."

As explained in more detail in the Petition and Technical Support Documentation ("TSD"), based on the determination of true summer season short- and long-term protective thresholds and the analysis of the dynamics of the temperature regime downstream form the refinery's Outfall 001 in Robinson Creek, the current Outfall 001 thermal discharge should not preclude recovery of the resident biota to meet the Illinois General Use for aquatic life. *See* Petition at 20-21 (citing to TSD, attached as Exhibit 4 to the Petition). The analyses and observations in the Section 316(a) demonstration support the conclusion that the current thermal regime is sufficiently protective of the RIS and the full assemblages by extension. *See id*; TSD at 20. Additionally, based upon the RIS, the proposed alternative effluent limitations will assure protection and propagation of fish. TSD at 21. Specifically, the proposed summer maximum and average limitations along with the existing limits on the magnitude of short-term exceedances and their durations are sufficient to preclude large swings in temperature that may

be harmful. *Id*. As such, this satisfies the demonstration that the requested alternative thermal effluent limitation under Section 316(a) is justified. Moreover, specific to the Bigeye Chub and as discussed in Section B, above, including Bigeye Chub as a final RIS – whether based upon using final RIS with thermal tolerance data by proxy or based upon including Bigeye Chub in the FTMS using the UIUC data – does not alter the original conclusions of Marathon's 316(a) demonstration or the summer average and maximum temperatures derived by the FTMS used in MBI's analyses supporting Marathon's 316(a) demonstration. *See* Addendum; *see* Second Addendum, attached as Exhibit 1 to this Reply.

In its Recommendation, Illinois EPA "agrees [that Marathon] has demonstrated that the proposed alternative thermal limits would not adversely affect the balanced, indigenous population of fish, shellfish, and wildlife currently inhabiting the receiving water" and further concludes that "[t]he analyses and observations in the 316(a) Demonstration support the conclusion that the proposed limits are sufficiently protective of the RIS and the full assemblages by extension. As such this satisfies the demonstration that the requested alternative thermal effluent limitation under Section 316(a) is justified." Recommendation at 4-6. As shown by its Recommendation to the Board to grant the alternative thermal effluent limitations, it is also Illinois EPA's position that Marathon has submitted a compliant Petition under the Board's rules. *See*, *generally*, Recommendation. Illinois EPA explains in its Recommendation that Marathon submitted all required information under Part 106, Subpart K. *Id*. at 8-9.

Nevertheless, IDNR now asserts that Illinois EPA's Recommendation is incomplete. *See* IDNR Response at ¶ 13. IDNR focuses on Illinois EPA's statement in its Recommendation that it was "not rendering an opinion regarding [IDNR's] March 29, 2018 letter" or Marathon's response to such letter. IDNR Response at ¶ 5; Recommendation at 4. Marathon again objects

to IDNR's assertion that Illinois EPA "reserved its findings" regarding the March 29, 2018 letter and Marathon's response. IDNR Response at ¶ 5. In its Recommendation, Illinois EPA merely states that it is not rendering an opinion on the consultation letter or Marathon's response to the same. *See* Recommendation at 4. Nowhere in the Recommendation does Illinois EPA state that it has reserved any findings.

Moreover, Illinois EPA stated it was not rendering an opinion only as to the March 29, 2018 letter and Marathon's response. As discussed in detail in the Recommendation, Illinois EPA considered all of the information that it was required to consider in issuing a recommendation under 35 Ill. Adm. Code 106.1145(b). *See, generally* Recommendation. This information includes the results of studies conducted pursuant to an approved Detailed Plan of Study that includes criteria or methodology used to assess, in part, the protection of threatened and endangered species, pursuant to Section 106.1130(e)(4). *Id*. at 8. Additionally, pursuant to Section 106.1145(b)(6), as to whether Illinois EPA communicated with or received comments from IDNR, Illinois EPA did note that IDNR issued the March 29, 2018 consultation letter, among other actions (i.e., issuing no objection to the Detailed Plan of Study). *Id*. at 10. In considering all the information it was required to consider, Illinois EPA recommended that the Board grant Marathon's Petition. *Id*. at 4.

As demonstrated above, and as explained in more detail in Marathon's Response to IDNR's March 29, 2018 Consultation Letter and exhibits thereto, Marathon's requested alternative thermal effluent limitations will assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on Robinson Creek. As such, additional technical data and evaluation is not required. Indeed, Illinois EPA stated in its

Recommendation that it "does not believe that any additional information is needed to supplement the alternative thermal relief request." Recommendation at 9.

IDNR's opinion that Marathon's Petition is deficient is unsupported by Illinois law, which authorizes Marathon to use a predictive demonstration to show the proposed alternative effluent limitations will assure protection and propagation of a balanced indigenous community of fish, including Bigeye Chub. Marathon's Petition and supporting documentation, as well as its TSD addenda and other technical documents filed in this proceeding, demonstrate Marathon's Petition is not deficient and meets the burden of proof. As such, the Board should decline to grant the relief recommended by IDNR in Recommendation A.

D. The Proposed Alternative Effluent Limitations Do Not Require An Incidental Take Authorization (IDNR Recommendation B)

In IDNR's Response, IDNR asserts that "Marathon's thermal discharge numbers were at the point of 'harassment'" per the Illinois Endangered Species Protection Act, 520 ILCS 10 ("Illinois ESA"). IDNR Response at ¶ 14. IDNR also asserts based upon discharge data and modeling that Marathon is at a "high risk" for a take in the form of harassment and harm. *Id*. at ¶ 15. IDNR recommends that Marathon submit a conservation plan to IDNR in pursuit of an Incidental Take Authorization ("ITA"). *Id*. at ¶ 17. In its Recommendation for Relief, IDNR recommends that the Board require Marathon to "initiate, obtain and complete" an ITA pursuant to the Illinois ESA and regulations thereunder. *Id.* at 8.

The Board should decline to grant the relief requested in IDNR's recommendation because there is no connection between it and the subject of this proceeding, Marathon's proposed alternative thermal effluent limitations, and IDNR's conclusions regarding take. The proposed 87°F summer average is lower than the avoidance (91.4°F) and critical thermal (96.8°F) temperatures identified by the UIUC Bioassay. The proposed summer period maximum

of 90°F produced by the MBI study supporting the Petition is lower than both temperatures identified by the UIUC Bioassay. As explained in the Petition, Marathon has not proposed to increase the existing summer maximum of 90°F. The proposed increases in the winter maximum limits to 65°F and 74°F are lower than both temperatures identified by the UIUC Bioassay. Indeed, IDNR does not discuss the proposed alternative thermal effluent limitations in its Reply, effectively recognizing there is no connection between its recommendation and this proceeding. Therefore, IDNR's recommendation that Marathon pursue an ITA has no place in this proceeding and should be dismissed as irrelevant.

The process for obtaining an ITA from IDNR is separate and distinct from this Section 316(a) proceeding. The authority for ITAs is provided in the Illinois ESA and the implementing IDNR regulations, 17 Ill. Adm. Code 1080. In order to obtain an ITA, a Conservation Plan must be submitted, reviewed, and approved by IDNR and IDNR is the only Illinois agency that has the authority to issue and revoke ITAs. *See, generally*, 17 Ill. Adm. Code 1080. An appeal of a denial of an ITA is heard by an IDNR Hearing Officer. *Id*. at § 1080.80. At no point in the ITA process is Illinois EPA or the Board involved.

A 316(a) proceeding, on the other hand, is based upon Section 316(a) of the Clean Water Act and is an adjudicatory proceeding in front of the Board. In Illinois, Section 316(a) of the Clean Water Act is administered via Part 106, Subpart K of the Board's regulations. The purpose of Part 106, Subpart K is to establish alternative thermal effluent limitations in NPDES permits issued by Illinois EPA. *See* 35 Ill. Adm. Code 106.110. While Subpart K requires the petition to contain criteria or methodology used to assess whether a balanced indigenous community of shellfish, fish, and wildlife will be maintained in the receiving waters and the protection of threatened and endangered species, Subpart K makes no mention of utilizing or

requiring an ITA to comply with that requirement. As explained above, Marathon has fulfilled the requirements in Subpart K for requesting an alternative thermal effluent limitation, regardless of whether it eventually obtains an ITA from IDNR.

Additionally, Marathon takes issue with IDNR's conclusion that avoidance is harassment and therefore a "take" under the Illinois ESA. *See* Marathon's Response to IDNR's March 29, 2018 Consultation Letter. "Take" is defined as "to harm, hunt shoot, pursue, lure, wound, kill, destroy, harass, gig, spear, ensnare, trap, capture, collect, or to attempt to engage in such conduct." 520 ILCS 10/2. IDNR offers no support and fails to include any statutory or regulatory basis in its Response for its assertion that avoidance behavior constitutes harassment under the Illinois ESA. IDNR also cites to no case law or guidance to support its assertion.

IDNR's position that avoidance constitutes a take in the form of harassment is unsupported by Illinois law, including IDNR's own regulations. IDNR has also failed to establish a connection between its allegations of potential take and the alternative thermal effluent limitations proposed in the Petition. Therefore, the Board should decline to grant the relief recommended by IDNR in Recommendation B.[7]

E. Marathon Has Already Addressed IDNR's Point of Compliance Recommendation (IDNR Recommendation C)

In its Recommendation for Relief, IDNR requests that the Board issue a finding that the proposed mixing zone language be revised from "the vicinity of the IL Route 1 bridge" to "at the IL Route 1 bridge" each time such language is used in the Petition. IDNR Response at 8.

[7] Marathon understands that IDNR's allegations of a potential take under the Illinois ESA relate to the proposed alternative thermal limitations, as well as the current thermal discharge and associated mixing zone authorized by Marathon's existing NPDES permit. While obtaining an ITA is not a prerequisite for obtaining relief under Section 316(a), Marathon has nevertheless authorized its consultant to begin preparing a Conservation Plan to address IDNR's apparent concerns here. Marathon's consultant is engaged in discussions with IDNR technical staff regarding the ITA process as it relates to thermal discharges.

However, IDNR's Response fails to recognize that Marathon has previously stated that it is agreeable to changing the proposed mixing zone language. As indicated in Marathon's Response to Illinois EPA's Recommendation, Marathon is agreeable to changing the language "in the vicinity of the IL Route 1 bridge" to "at the IL Route 1 bridge" each time it is used in Marathon's requested relief, except for one instance. *See* Marathon's Response to Recommendation, PCB 18-49 at 6 (Sept. 27, 2018). Specifically, due to potential difficulties relating to construction of the instream temperature monitor "at" the bridge, Marathon is willing to change its proposed language to "at or upstream of the IL Route 1 bridge" where it is used in Marathon's requested relief as follows:

> Also, Marathon proposes that the instream sampling location for monitoring the alternative thermal effluent limitations, i.e. the point of compliance, be located at a point instream ~~in the vicinity~~at or upstream of the IL Route 1 bridge.

See Petition at 22. Prior to filing its Response to Illinois EPA's Recommendation, Marathon conferred with Illinois EPA regarding this proposed change, and Illinois EPA agreed with the change. *See* Marathon's Response to Recommendation, PCB 18-49 at 6 (Sept. 27, 2018). This language accepted by Illinois EPA ensures the mixing zone does not extend past the IL Route 1 bridge, which appears to be the purpose of IDNR's recommendation. Therefore, Marathon has already addressed IDNR's Recommendation C. The Board should decline to grant the relief requested by IDNR in Recommendation C as such recommendation is moot.

IV. CONCLUSION

The Board should deny the relief recommended by IDNR in its Response. First, IDNR's allegation that Marathon's Petition is deficient is unfounded. As demonstrated herein and in Marathon's Petition, TSD, Addenda, and Response to IDNR's March 29, 2018 Letter, Marathon has followed all applicable state and federal rules, guidance, protocols, and analyses for making

a Clean Water Act Section 316(a) demonstration. As concluded by MBI in the Second Addendum, the provisional inclusion of the UIUC Bioassay data in the FTMS has no effect on Marathon's Petition as originally submitted in 2017. Second, IDNR's position that Marathon's requested alternative thermal effluent limitations require an Incidental Take Authorization is not supported by the facts or the law. Third, IDNR's recommendation regarding the mixing zone is identical to Illinois EPA's recommendation, and Marathon has already agreed to revise its proposal so the point of compliance is at or upstream of the IL Route 1 bridge. This revision was accepted by Illinois EPA and, therefore, such recommendation is moot.

WHEREFORE, for the above and foregoing reasons, MARATHON PETROLEUM COMPANY LP requests that the Illinois Pollution Control Board enter an Order denying the relief recommended in IDNR's Response, granting MARATHON PETROLEUM COMPANY LP'S Petition to Approve Alternative Thermal Effluent Limitations, and granting such other and further relief in MARATHON PETROLEUM COMPANY LP'S favor as the Illinois Pollution Control Board deems just and proper.

Respectfully submitted,

MARATHON PETROLEUM COMPANY LP,

By: /s/ Katherine D. Hodge
One of Its Attorneys

Dated: March 15, 2019

Katherine D. Hodge
Melissa S. Brown
HEPLERBROOM, LLC
4340 Acer Grove Drive
Springfield, Illinois 62711
Katherine.Hodge@heplerbroom.com
Melissa.Brown@heplerbroom.com
(217) 528-3674

EXHIBIT 1

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

-SECOND ADDENDUM-

by

Midwest Biodiversity Institute
P.O Box 21561
Columbus, OH 43221-0561

to

Marathon Petroleum Company LP
Illinois Refining Division
400 S Marathon Ave.
Robinson, IL 62454

March 13, 2019

SECOND ADDENDUM to 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

Midwest Biodiversity Institute
P.O. Box 21561
Columbus, OH 43221-0561

BACKGROUND

The documentation of Bigeye Chub *(Hybopsis amblops)*, an Illinois endangered species, in Robinson Creek in 2016 prompted Illinois DNR to sponsor laboratory based thermal tolerance studies conducted by Suski and Dai (2018) at the University of Illinois at Urbana-Champaign (UIUC) in 2018. While we have concerns about the design of the Suski and Dai (2018) study, it yielded thermal tolerance endpoints that Marathon Petroleum Company LP (MPC) agreed to provisionally include in the Fish Temperature Modeling System (FTMS; Yoder 2008). The FTMS was used by MPC to support alternative effluent limitations in the form of modified temperature standards for the true summer period (June 16-September 15) and to support a Type II 316(a) demonstration consistent with the *Interagency 316(a) Technical Guidance Manual and Guide for Thermal Effects Sections of Nuclear Facilities Environmental Impact Statements* (U.S. EPA 1977). This Second Addendum updates the FTMS outputs using some of the thermal tolerance data for Bigeye Chub that was produced by Suski and Dai (2018). The inclusion of these new thermal tolerance endpoints herein is provisional and does not necessarily endorse the methods nor the thermal endpoints produced by Suski and Dai (2018). As discussed in detail below, adding the provisional input variables for Bigeye Chub to the FTMS has no effect on the 316(a) petition as it was originally submitted by MPC in 2017.

Thermal Tolerance of Bigeye Chub

The study conducted by Suski and Dai (2018) tested the thermal tolerance of Bigeye Chub using fish collected from the Middle Fork Vermilion River at Kennekuk Cove County Park near Danville, IL. The objective of their study was to "quantify the thermal tolerance of bigeye chub" acclimated to two different temperatures. Concurrent tests were also carried out on Sand Shiner *(Notropis stramineus)* which is a more commonly occurring and widely distributed species in Illinois. The test fish were acclimated in two batches to temperatures of 21°C (69.8°F) and 26°C (78.8°F) in multiple glass aquaria. What Suski and Dai (2018) referred to as "critical thermal limit tests" were conducted following a 21-day acclimation period for the test fish. Test fish were separated into individual chambers within each aquaria containing 4-6 fish each and exposed to temperatures that were increased at a rate of 0.3°C (0.54°F) per minute which classifies it as a critical thermal maximum (CTM) test. They observed fish behavior as the test temperature increased describing "a number of erratic behaviors including burst swimming

and attempts to jump out of their compartment" which was classified as the "upper incipient avoidance temperature" as defined by Xia et al. (2017). They also recorded "the temperature at which fish started to lose body equilibrium" and classified it as the "critical thermal maxima" (CT_{max}) after Beitinger et al. (2000), Xia et al. (2017), and Morgan et al. (2018). Multiple trials were performed at a particular acclimation temperature on the same day, with eight total trials for Bigeye Chub (four trials at each acclimation temperature) and seven total trials for Sand Shiner. Suski and Dai (2018) found that no significant variation in test results occurred between any of the trials. Following the observation of a loss of righting response, individual fish were returned to their original acclimation temperatures and observed for a period of 72 hours. Two fish, one of each species, experienced post-test mortality. The results reported by Suski and Dai (2018) are summarized in Table 1.

Table 1. *Summary of thermal test endpoints as defined by Suski and Dai (2018) for Bigeye Chub and Sand Shiner.*

Species	Acclimation °C (°F)	UIAT °C (°F)[a]	CTM_{max} °C (°F)[b]
Bigeye Chub	21.0 (69.8)	30.0 (86.0)	33.0 (91.4)
Bigeye Chub	26.0 (78.8)	33.0 (91.4)	36.0 (96.8)
Sand Shiner	21.0 (69.8)	28.5 (83.3)	33.0 (91.4)
Sand Shiner	26.0 (78.8)	34.0 (93.2)	37.0 (98.6)

[a] Upper Incipient Avoidance Temperature (after Xia et al. 2017).
[b] Critical Thermal Maximum (CTM).

Impact on the MPC Alternative Thermal Effluent Limitations Request

The MPC request for alternative thermal effluent limitations is based on the analyses in the 316(a) Technical Support Documentation[1] (MBI 2017). The results of the recent Suski and Dai (2018) testing of the thermal tolerance of Bigeye Chub presented an opportunity to include that data in the FTMS. As an Illinois endangered species Bigeye Chub is eligible for inclusion in the Representative Important Species (RIS) provided that sufficient thermal tolerance data is available. We had originally deemed the sole study by Lutterschmidt and Hutchinson (1997) as being insufficient primarily because of the non-representative acclimation temperature and that only a single fish was tested, thus Bigeye Chub was not included in the FTMS as an RIS with sufficient thermal data in the Technical Support Documentation.

In order to include the Suski and Dai (2018) results we had to equate their endpoints with those required by the FTMS – a behavioral or physiological optimum, an upper avoidance

[1] 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. December 15, 2017.

temperature (UAT), or an appropriate lethal endpoint (preferably an Upper Incipient Lethal Temperature [UILT]) derived at an appropriate acclimation temperature of at least 25°C (77°F). We prefer to have at least two of the three endpoints be measured in an acceptable study. In order to use the Suski and Dai (2018) results, we provisionally accepted their UIAT as a UAT and the CTM as the upper lethal endpoint equivalents. The tests conducted with fish acclimated to 26°C (78.8°F) were the only acceptable results that we could use as it meets the 25°C (77°F) minimum acclimation temperature for inclusion in the FTMS. We used the 33°C (91.4°F) temperature at which Suski and Dai (2018) observed fish becoming excited, agitated, and exhibiting attempts to escape the test aquaria as a UAT equivalent endpoint and the 36°C (96.8°F) CTM as the equivalent upper lethal endpoint (Table 2). Since Suski and Dai (2018) did not carry out the CTM to a death endpoint, the results were considered "equivalent" to a UILT thus no adjustment was made to the CTM as used in the FTMS. The optimum temperature was extrapolated using relationships that we had already established for this purpose and to provide a means to calculate the mean weekly average temperature for growth (MWAT) which is one of the four FTMS input variables[2]. These data were then used to rerun the FTMS, the same as was done to produce the currently requested alternative thermal effluent limitations, and there was no change to the true summer period (June 16-September 15) average of 87.1°F (30.6°C) or the maximum temperature of 90.7°F (32.6°C) that are needed to protect the RIS (Table 3). This result makes sense because the thermal endpoints for Bigeye Chub are in the middle range of thermal tolerance among the RIS for Robinson Creek (Table 2).

Thus, adding the provisional input variables for Bigeye Chub to the FTMS has no effect on the 316(a) petition as it was originally submitted by MPC in 2017.

[2] Values used to extrapolate to missing tolerance endpoint are in Appendix B-2 of the 316(a) Technical Support Documentation.

Table 2. *Thermal endpoints (optimum, MWAT, UAT, upper lethal) used as input variables for the Robinson Creek FTMS adding Bigeye Chub to the RIS (cited references are in Appendix B-4 of the 316(a) Technical Support Documentation).*

				MWAT for					Upper		Temperature Threshold References		
Species	Optimum			Growth[a]		UAT[b]			Lethal[c,d]		Optimum	UAT	Upper Lethal
Robinson Cr. RIS <15 mi.[2]	°F	°C		°F	°C	°F	°C		°F	°C			
Gizzard Shad	86.0	30.0		89.5	31.9	89.6	32.0		96.4	35.8	Gammon 1973	Gammon 1973	Hart 1952
Quillback	86.0	30.0		90.3	32.4	93.7	34.3		99.0	37.2	Gammon 1973	Gammon 1973	Reutter & Herdendorff 1974
White Sucker	73.6	23.1		80.7	27.0	88.9	31.6	X	94.8	34.9	Smale & Rabeni 1995		Smale & Rabeni 1995
Common Carp	91.4	33.0		95.0	35.0	97.0	36.1		102.2	39.0	Yoder & Gammon 1976	Proffit & Benda 1971	Reutter & Herdendorff 1974
Bigeye Chub	84.0	28.9	X	88.3	31.3	91.4	33.0		96.8	36.0		Suski & Dai 2018[e]	Suski & Dai 2018[f]
Emerald Shiner	80.6	27.0	X	85.1	29.5	88.0	31.1		94.1	34.5		Proffit & Benda 1971	Matthews 1981
Striped Shiner	87.1	30.6	X	90.4	32.5	93.0	33.9	X	97.2	36.2			Mundahl 1990
Spotfin Shiner	87.1	30.6		90.3	32.4	91.4	33.0		96.8	36.0	Cherry et al. 1977	Cherry et al. 1977	Cherry et al. 1977
Redfin Shiner	87.1	30.6	X	90.4	32.5	93.0	33.9	X	97.2	36.2			Smale & Rabeni 1995
Red Shiner	87.1	30.6	X	90.4	32.5	91.2	32.9	X	97.2	36.2			Takle et al. 1983
Creek Chub	86.2	30.1	X	89.5	32.0	93.0	33.9		96.3	35.7		Stauffer et al. 1976	Smale & Rabeni 1995
Central Stoneroller	82.8	28.2		87.3	30.7	91.4	33.0		96.3	35.7	Cherry et al. 1977	Cherry et al. 1977	Mundahl 1990
Bluntnose Minnow	81.5	27.5		86.5	30.3	91.4	33.0		96.6	35.9	Cherry et al. 1977	Cherry et al. 1977	Mundahl 1990
Silverjaw Minnow	84.9	29.4	X	88.3	31.3	90.9	32.7	X	95.0	35.0			Mundahl 1990
Western Mosquitofish	89.6	32.0		93.8	34.3	96.8	36.0		102.2	39.0	Cherry et al. 1977	Cherry et al. 1977	Cherry et al. 1977
Blackstripe Topminnow	86.9	30.5	X	91.6	33.1	95.0	35.0	X	100.9	38.3			Smale & Rabeni 1995
Yellow Bullhead	83.1	28.4		87.9	31.1	91.6	33.1	X	97.5	36.4	Reynolds & Casterlin 1978		Reutter & Herdendorff 1974
Largemouth Bass	81.5	27.5		87.9	31.0	91.4	33.0	X	100.6	38.1	Coutant 1975	Yoder & Gammon 1976a	Smith 1975
Bluegill	86.2	30.1		89.7	32.1	91.4	33.0		96.8	36.0	Cherry et al. 1977	Stauffer et al. 1976	Cherry et al. 1982
Green Sunfish	87.3	30.7		91.6	33.1	91.4	33.0		100.2	37.9	Cherry et al. 1975	Cherry et al. 1975	Smale & Rabeni 1995
Longear Sunfish	86.0	30.0	X	90.7	32.6	92.7	33.7	X	100.0	37.8			Smale & Rabeni 1995
Johnny Darter	76.1	24.5		83.3	28.5	91.6	33.1	X	97.5	36.4	Smale & Rabeni 1995		Smale & Rabeni 1995
Non-RIS "Boundary" Species													
Smallmouth Buffalo	90.5	32.5		93.9	34.4	94.6	34.8	X	100.6	38.1	Gammon 1973	Gammon 1973	
Spotted Bass	85.8	29.9		89.5	31.9	91.4	33.0		96.8	36.0	Cherry et al. 1977	Cherry et al. 1977	Cherry et al. 1977
White Crappie	78.8	26.0		82.8	28.2	88.0	31.1		90.7	32.6	Gebhart & Summerfelt 1975	Proffit & Benda 1971	Kleiner 1981

a - Calculated as: Optimum + 0.333(UUILT[d]-Optimum); "MWAT: for growth (Brungs and Jones 1977).
b - Upper Avoidance Temperature (UAT)
c - Ultimate Upper Incipient Temperature (UUILT) or equivalent endpoint (i.e., Chronic Thermal Maximum [ChTM]; CTM Loss of Righting Response).
d - Default translation from Critical Thermal Maximum (CTM) used when UILT was not available: UUILT + CTM - 2°C.
e - estimated UAT based initial stages of fish "excitement" behavior after Suski & Dai 2018.
f - Loss of righting response onset after Suski & Dai 2018.
X - Estmated value (see conversion factors in Appendix B-2).

***Table 3**. FTMS outputs for the Robinson Creek RIS with Bigeye Chub added in terms of the proportion of the 25 RIS that are consistent with temperatures (C°) for each of five thermal effect thresholds (upper table) compared to the same output from the 316(a) Technical Support Documentation without Bigeye Chub (lower table; MBI 2017 at Table 10). The proportion of the RIS that are protected by the corresponding temperature for a set of percentiles (50%, 75%, 90%, and 100%). For example, a summer maximum temperature of 96.8°F (36°C) only protects 50% of the RIS for short-term survival; a summer average of 93.2°F (34°C) only protects 50% of the RIS for long term survival. The 316(a) petition recommended temperatures of 87°F and 90°F (conservatively rounded down from 87.1°F (30.6°C) and 90.7°F (32.6°C)) will protect for 100% long and short term survival, respectively, for all 25 RIS including Bigeye Chub.*

Category	100% °F(°C)	90% °F(°C)	75% °F(°C)	50% °F(°C)
Optimum	73.6 (23.1)	79.2 (26.2)	82.2 (27.9)	86.0 (30.0)
Growth	80.6 (27.0)	83.7 (28.7)	87.6 (30.9)	89.7 (32.0)
Avoidance (UAT)	88.0 (31.1)	89.1 (31.7)	91.4 (33.0)	91.4 (33.0)
Survival (LT)	87.1 (30.6)	91.2 (32.9)	92.8 (33.8)	93.2 (34.0)
Survival (ST)	90.7 (32.6)	94.8 (34.9)	96.4 (35.8)	96.8 (36.0)

Category	100% °F(°C)	90% °F(°C)	75% °F(°C)	50% °F(°C)
Optimum	73.6 (23.1)	79.2 (26.2)	82.2 (27.9)	86.0 (30.0)
Growth	80.6 (27.0)	83.7 (28.7)	87.6 (30.9)	89.7 (32.0)
Avoidance (UAT)	88.0 (31.1)	89.1 (31.7)	91.4 (33.0)	91.4 (33.0)
Survival (LT)	87.1 (30.6)	91.2 (32.9)	92.8 (33.8)	93.2 (34.0)
Survival (ST)	90.7 (32.6)	94.8 (34.9)	96.4 (35.8)	96.8 (36.0)

REFERENCES

Beitinger, T. L., Bennett, W. A., & McCauley, R. W. (2000). Temperature tolerances of North American freshwater fishes exposed to dynamic changes in temperature. Environmental Biology of Fishes, 58(3), 237-275.

Lutterschmidt. W.I. and V.H. Hutchinson. 1997. The critical thermal maximum: data to support the onset of spasms as the definitive endpoint. Can. J. Zoology 75: 1553-1560.

Midwest Biodiversity Institute. 2017. 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. Submitted to Marathon Petroleum Corporation by MBI, Columbus, OH. 66 pp. + appendices.

Morgan, R., Finnøen, M. H., & Jutfelt, F. (2018). CT max is repeatable and doesn't reduce growth in zebrafish. Scientific reports, 8(1), 7099.

Suski, C. and Q. Dai. 2018. Thermal Tolerance Limits of Bigeye Chub (Interim Report). Suski Lab Technical Report Series No. 2018-003. Submitted to Illinois Department of Natural Resources, Springfield, IL. 13 pp.

U.S. Environmental Protection Agency (EPA). 1977. Interagency 316(a) technical guidance manual and guide for thermal effects sections of nuclear facilities environmental impact statements. Office of Water Enforcement, Permits Division, Industrial Permits Branch. 147 pp.

Xia, J., Ma, Y., Fu, C., Fu, S., & Cooke, S. J. (2017). Effects of temperature acclimation on the critical thermal limits and swimming performance of *Brachymystax lenok tsinlingensis*: a threatened fish in Qinling Mountain region of China. Ecological research, 32(1), 61-70.

Yoder, C.O. 2008. Challenges with modernizing a temperature criteria derivation methodology: the fish temperature modeling system, pp. 1-1 to 1-19. *in* Robert Goldstein and Christine Lew (eds.). Proceedings of the Second Thermal Ecology and Regulation Workshop, Electric Power Research Institute, Palo Alto, CA.