ILLINOIS POLLUTION CONTROL BOARD
March 10, 2020

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

HEARING OFFICER ORDER

Pursuant to the Board's order dated March 5, 2020, the parties are directed to respond to the following questions within 30 days.

PCB 18-49 - Marathon's ATEL Petition
Questions for Participants

IDNR

On March 5, 2020, the Board issued an order in this proceeding stating, "[b]ased 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." *See* PCB 18-49 Marathon Petroleum Company, LP (March 5, 2020), slip op. at 11.

1. Based on the review of the UIUC bioassay of the Bigeye Chub and Marathon's technical data, IDNR states that Marathon is at "high risk" for a "take" in the form of: "harassment" where the fish is forced to evacuate aquatic habitat areas in the thermal effluent of Robinson Creek beginning at 33 degrees C (91.4 degrees F); and "harm" where the fish is unable to properly swim, avoid predators, and is at increased risk of mortality beginning at 96.8 degrees F for fish acclimated to 26 degrees C (78 degrees F). 12/28/20 IDNR Rep. at 4-5. Further, IDNR notes,

> "the Illinois Endangered Species Protection Act (IESPA), 520 ILCS 10/3 (1), prohibits any person "to possess, take ... or otherwise dispose of any animal. .. which occurs on the Illinois List", 17 Ill. Adm. Code 1010.30(a). However, the IESPA authorizes a "taking otherwise prohibited by Section 3 ... (of the IESPA) ... if that take is incidental to,

> and not the purpose of, the carrying out of an otherwise lawful activity" by means of review and approval of a conservation plan submitted to the IDNR under Section 5 .5 of the IESPA and its regulations 17 Ill. Adm. Code I 080." *Id.* at 5. "IDNR therefore recommends that Marathon submit a conservation plan to the IDNR in pursuit of an Incidental Take Authorization (ITA) for review and approval by the IDNR, as provided for under Section 5 .5. of the IESPA and its regulation I 7 Ill. Adm. Code I 080.

Marathon responds, "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." 3/15/19 Marathon Resp. at 14.

a. Please clarify whether responses from Marathon (3/15/19) and/or IEPA (4/12/19) to IDNR's Reply to IEPA's Recommendation changes IDNR's position regarding requiring Marathon to seek an Incidental Take Authorization (ITA) under the IESPA.

b. If so, please explain the reasons why IDNR now believes that Marathon does not require an ITA.

c. If not, please elaborate on the ITA process and comment on whether Marathon must seek an ITA approval from IDNR before the Board rules on Marathon's ATEL request or should a potential grant of the requested ATEL be conditioned upon Marathon seeking an ITA approval.

2. Marathon states that the "upper incipient avoidance temperature" derived by UIUC is not consistent with more established avoidance testing procedures since UIUC's procedure did not provide a gradient of thermal conditions. 3/15/19 Marathon resp. at 4 citing Chery, D.S., et al. Please comment on whether the upper incipient avoidance temperature derived in the UIUC study would have been significantly different if the fish were exposed to a gradient of thermal conditions instead of steady increase in temperature.

3. Marathon contends that the proposed alternative thermal effluent limitations are lower than the upper incipient avoidance temperature (91.4°F) and the critical thermal maximum temperature (96.8°F) derived in the UIUC study. 3/15/19 Marathon resp. at 4-5. Please comment on whether IDNR's concern is more to do with the temperature being higher than the UIUC study's avoidance/critical thermal maximum temperatures within the mixing zone (1.7-mile section of the Robinson Creek) without a zone of passage rather than the limits proposed at the edge of the mixing zone.

4. Marathon also notes that the UIUC study has not been peer reviewed. 3/15/19 Marathon resp. at 4. Please comment on whether the results of the UIUC bioassay of Bigeye Chub been submitted for peer review since the filing of the report with the Board in December 2018. Also, given lack of research on thermal tolerance of the bigeye chub, please clarify whether the UIUC study based on a larger sample from a regional watershed provides more reliable information for making decisions regarding the protection of the endangered fish population.

5. Regarding the requested mixing zone, IDNR states "Marathon's request for mixing zone on Robinson Creek fails to provide for a "zone of passage for aquatic life", as required, and further substantiating the likelihood of "take" of the Bigeye Chub" because the entire volume of Robinson Creek from Marathon's outfall to 1.7 miles downstream is utilized for mixing.

    a. Please clarify whether providing a zone of passage within the requested mixing zone would address IDNR's concerns regarding protection of big eye chub in lieu of Marathon seeking an ITA approval.

    b. If so, comment on whether a zone of passage less than 50% of the volume stream flow afford adequate protection to bigeye chub and other aquatic species in Robinson Creek.

6. IDNR's March 2018 letter to IEPA recommends that "a bioassay of representative fish species is warranted to identify the character and likely causes of observed DELTs [deformities, eroded fins, lesions, tumors] and to determine whether granting the Alternative Thermal Effluent Limits is likely to increase the incidence and/or severity of DELTs on fish in the receiving waters." 4/12/18 IEPA Mot., Attach. A at 4. Marathon, relying on its consultants' (MBI and EA Engineering) responses (Exhibits 1 and 2), responds that DELTs in Robinson Creek "are the result of non-thermal pollution influences and the thermal regime of Robinson Creek does not play a direct or synergistic role in the observed biological assemblage impairments." 8/15/18 Marathon Resp. at 11, and Resp. Exh. 2 at 3.

    a. Please comment on whether the additional review of both literature and the stream/river databases by MBI (Marathon's consultant) addresses IDNR's concerns regarding the incidence of DELTs in Robinson Creek. See 8/15/18 Marathon Resp. Exh. 2 at 10-15.

    b. If not, please clarify the specific methodology that must be used to conduct the bioassay to identify the character and likely causes of DELTs in Robinson Creek. In this regard, comment on EA Engineering's (Marathon's consultant) assertion that no bioassay methodologies exist to address to identify the character and likely causes of DELTs. IDNR. 8/15/18 Marthon Resp. Exh. 2 at 3.

IEPA

7. IEPA recommendation states that the proposed mixing zone relief of using 100% of the volume of stream flow up to 1.7 miles downstream of Marathon's outfall is justified because "the stream biota indigenous to this small watershed possess thermal tolerance thresholds greater than that of the proposed alternative thermal effluent limitations... Further, any short-term exceedances of the maximum effluent limitations within the 1.7 mile mixing zone would be offset with stress recovery periods… Thus, the proposed alternative thermal effluent limitations are not expected to adversely impact the balanced, indigenous community of shellfish, fish, and wildlife that currently exist in the study area." 9/7/18 IEPA Rec. at 6.

    a. Please comment on whether IEPA gave any special consideration to the presence of bigeye chub, an Illinois endangered species, in Robinson Creek when recommending the grant of the mixing zone relief with no zone of passage.

    b. Has IEPA previously granted mixing zone relief in NPDES permits without a zone of passage? If so, please provide details of such permits.

8. IEPA states that the maximum temperature limits requested by Marathon do not exceed the Upper Incipient Lethal Temperatures (UILT) of the RIS (4-12-19 IEPA Reply at 3), however as noted by IDNR, temperatures within the mixing zone have reached 100°F, which is significantly higher than the UIUC bioassay's upper incipient avoidance temperature (ATmax) and critical thermal maxima (CTmax). Exh. 3; 12-28-18 IDNR Reply Att. B at 3.

    a. Please clarify whether the proposed ATELs apply only at the edge of the mixing zone. If so, comment on whether Marathon's thermal data indicate temperature levels periodically exceed UILT of the RIS, and UIUC bioassay's AT_{max} and $CT_{max.}$

    b. Please comment on whether the proposed 1.7-mile mixing zone with no zone of passage provides any thermal refuge to bigeye chub or the RIS when temperature is above the AT_{max} and CT_{max} for big eye chub or UILT for the RIS.

9. IEPA notes that any short-term exceedances of the maximum effluent limitations within the 1.7-mile mixing zone would be offset with stress recovery periods (cooler temperatures) of longer durations." 9/7/18 IEPA Rec. at 6. MBI's analysis of the duration and severity of thermal stress periods refers to temperatures recorded at the R07 sampling point approximately 1.7 miles downstream of Outfall 001, which is near the proposed location for compliance sampling and the edge of the mixing zone in Marathon's petition. Pet. Exh. 4, Table 14, Fig. 10 at 65-66. MBI also provided daily temperature profiles during the summer of 2016 for Robinson Creek at the RC05 sampling point, approximately 750 feet downstream from Outfall 001 and within the proposed mixing zone. The temperature profiles show the number of hours and days when temperatures at RC05 were above and below 90°F. Pet. Exh. 4, Table 14, Fig. 10 at 65-66; Exh. 6, Figure 5-1. The actual temperatures based on

HOBO deployment as shown in Figure 10 were above 90°F standard for as long as 4 days at a time. Pet. Exh. 4 at 65-66.

a. Please clarify whether MBI's analysis of the duration and severity of thermal stress periods based on temperatures recorded near the compliance point is applicable within the mixing zone without a zone of passage when considering the protection of bigeye chub or the RIS.

b. Given that the UIUC Bioassay indicates erratic behavioral responses of Bigeye Chub to temperatures approaching the AT_{max}/ CT_{max} occurred within minutes, and temperature profiles indicating levels above 90°F standard lasting as long as 4 days at a time, please comment on whether Marathon has adequately demonstrated that a fish traversing this 1.7-mile segment, behaving erratically or near loss of equilibrium, would be expected to successfully navigate the 1.7-mile segment upstream or downstream to find thermal refuge during the times when cooler temperatures exist to experience an adequate period of stress recovery.

10. Marathon's current NPDES permit requires temperature sampling frequency of 2 grab samples per week. The 2 grab samples per week is significantly less frequent than the daily frequency and continuous sampling required for other NPDES thermal discharges for which the Board has considered thermal relief or Alternative Thermal Effluent Limitations. *See* Coffeen Power Station, NPDES Permit No. IL0000108 (PCB 09-38); Dresden, NPDES Permit No. IL0002224 (PCB 15-204, IEPA Rec. Att. 1.) Please comment on whether the thermal data relied upon by Marathon based on two grab samples on weekly basis is adequate to discern temperature peaks within the 1.7-mile mixing zone that might adversely affect bigeye chub or the RIS.

11. If the Board decides to grant the requested ATEL with mixing zone relief that includes a zone of passage, please comment on the appropriate percentage of the volume of stream flow of that must be allowed for mixing instead of the proposed 100 percent. Also comment on whether inclusion of a zone of passage will affect the size of the mixing zone.

Marathon

12. In its March 5, 2020 order, the Board notes, "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*." *See* PCB 18-49 Marathon Petroleum Company, LP (March 5, 2020), slip op. at 1 (*emphasis added*). Further according to USEPA 316(a) Manual, the demonstration must show that "fish communities will not suffer appreciable harm from: …Exclusion from *unacceptably large areas*…" USEPA 316(a) Manual at 28-29

(*emphasis added*). As proposed, the mixing zone would be 1.7 miles long with no zone of passage. Although Marathon argues that stress recovery periods would be provided, the temperatures within the mixing zone exceed the thermal tolerance thresholds for several fish species, not just the Bigeye Chub. With no zone of passage in this 1.7-mile-long stretch of Robinson Creek, fish migrating upstream or downstream would have any means to avoid passing through the thermal plume.

a. Please explain why Marathon declined to include a zone of passage in the proposed mixing zone for fish to migrate upstream or downstream even after IDNR raised concerns regarding thermal tolerance of bigeye chub, an Illinois endangered species.

b. If the Board decides to grant the requested ATEL with mixing zone relief that includes a zone of passage, please comment on the appropriate percentage of the volume of stream flow of that must be allowed for mixing instead of the proposed 100 percent.

c. Please comment on the implications of including a zone of passage ranging from 25, 50, or 75 percent of the stream flow on the size of the mixing zone.

13. On page 13 of Marathon's 8/15/18's Response to the IDNR it was stated "due to private property along Robinson Creek downstream from Marathon's Refinery, Marathon must negotiate access with private property owners in order to gain access significant enough for transporting, installing, maintaining, and monitoring the instream, continuous temperature sampling equipment. Retaining the compliance point in the vicinity of the IL Route 1 bridge will allow for comparatively reasonable access and flexibility for implementing equipment maintenance and sampling, as compared to a different location that would most likely be located further away from a public roadway and require a larger scope of access across private property".

a. Please clarify whether Marathon would require the full 1.7 miles between the point of discharge and the IL Route 1 bridge to meet the proposed ATEL at the edge of the mixing zone?

b. If not, would it be possible to include a zone in passage the proposed mixing zone if the point of compliance is located at the IL Route 1 Bridge? If so, what percentage of the stream flow would the zone of passage occupy?

14. USEPA 316(a) Manual Section 3.3.5.1 specifies that the Petitioner must prove that fish communities will not suffer appreciable harm from "cold shock, excess heat, *reduced reproductive success or growth, exclusion from unacceptably large areas, or blockage of migration*". USEPA 316(a) Manual at 28-29, (*emphasis added*). Please provide a detailed explanation with appropriate citations that the Bigeye Chub and the RIS will not suffer from reduced reproductive success or growth or exclusion from unacceptable large areas due to the absence of a zone of passage (blockage of migration).

15. As noted in Question 9 for IEPA, MBI's analysis of the duration and severity of thermal stress periods refers to temperatures recorded at the R07 sampling point approximately 1.7 miles downstream of Outfall 001, which is near the proposed location for compliance sampling and the edge of the mixing zone in Marathon's petition. Additionally, the daily temperature profiles during the summer of 2016 for Robinson Creek at the RC05 sampling point, approximately 750 feet downstream from Outfall 001 and within the proposed mixing zone indicate temperature above 90°F standard for as long as 4 days at a time.

    a. Given that Marathon is not proposing a zone of passage, please evaluate the duration and severity of stress periods within the mixing zone when temperatures are above the thermal tolerance of bigeye chub and other RIS.

    b. Provide a detailed explanation with appropriate citations to the record that demonstrates that a fish traversing the 1.7-mile segment, behaving erratically or near loss of equilibrium, would be expected to successfully navigate the 1.7-mile segment upstream or downstream to find thermal refuge during the times when cooler temperatures exist to experience an adequate period of stress recovery.

16. MBI states, "While it is true the impaired status of Robinson Creek precludes a Type I demonstration (no prior appreciable harm), recent results show the creek to be on a trajectory of improvement in response to abatement of non-thermal chemical impacts." Exh. 4 at 2. Marathon follows, "[T]he current Outfall 001 thermal discharge should not preclude recovery of the resident biota to meet the Illinois General Use for aquatic life." Pet. at 21. Given the trajectory of improvements with respect to chemical impacts and recovery of the resident biota, comment on whether including a zone of passage in the mixing zone would be beneficial to restoring Robinson Creek to meet the General Use Aquatic life.

17. Referring to Question 10, please comment on whether the thermal data based on two grab samples taken on a weekly basis is adequate to discern temperature peaks that might adversely affect bigeye chub or the RIS within the 1.7-mile mixing zone.

18. Marathon contends that an ITA has no place in this proceeding because 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." 3/15/19 Marathon Resp. at 12-13.

    a. Given that the proposed ATEL apply at the edge of the 1.7-mile mixing zone, which does not include a zone of passage, and the record indicates temperatures above the tolerance levels of bigeye chub and the RIS within the mixing zone, please comment on why IDNR's recommendation that "Marathon pursue an ITA has no place in this proceeding and should be dismissed as irrelevant".

b. Please comment on whether seeking an ITA approval could be viewed as an alternative to not providing for “a zone of passage” in the proposed mixing zone to alleviate the possibility of Marathon's operations being in “the constant risk of noncompliance for "taking" the Bigeye Chub found in Robinson Creek,” as noted by IDNR, as well to improve the conditions of Robinson Creek to meet the General Use aquatic life.

IT IS SO ORDERED.

Carol Webb

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CERTIFICATE OF SERVICE

It is hereby certified that true copies of the foregoing order were e-mailed, on March 10, 2020, to each of the persons on the service list below.

It is hereby certified that a true copy of the foregoing order was e-mailed to the following on March 10, 2020:

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