TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 12, 2017

Mr. Gary Miller, Remedial Project Manager
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Comments on the September 2016 Proposed Plan for the San Jacinto River Waste Pits Federal Superfund Site (TCEQ ID: SUP160), Harris County, Texas

Dear Mr. Miller:

Thank you for providing the Texas Commission on Environmental Quality (TCEQ) an opportunity to review the Proposed Plan. The TCEQ cannot support the preferred remedy at this time without a further evaluation of the short-term risks and the uncertainties associated with the implementation of the preferred remedy. The TCEQ provides the following comments:

General Comments

1. It is unclear if groundwater beneath the waste impoundments is protective of the Texas Surface Water Quality Standard (TSWQS) of 7.97E-8 µg/L for dioxins/furans (TCDD equivalents) as the detected concentrations in groundwater beneath the northern and southern impoundments was reported to be 2.64E-6 µg/L and 60.2E-6 µ/L, respectively. Additionally, the TSWQS for dioxins/furans (TCDD equivalents) is based on the total concentration of dioxins/furans in water. Total dioxins/furans concentrations include both dissolved and suspended dioxins/furans. Due to their hydrophobicity, low solubility, and low volatility, dioxins/furans in groundwater are expected to preferentially partition to suspended solids, including colloidal particles. The analytical results reported in the September 2016 Data Summary Report for samples collected using an solid phase microextraction method only represent the concentrations of dissolved dioxins/furans and cannot be used to demonstrate compliance with TSWQS.

2. It is unclear what the scientific/risk assessment basis is for the calculation of the Principal Threat Waste value, as well as what it means for site cleanup at this site. The Principal Threat Waste cleanup value is described as being calculated by multiplying the sediment Preliminary Remediation Goal (PRG) of 30 ng/kg by a factor of 10. However, there is no explanation of the reasoning behind the factor of 10. EPA should provide the scientific/risk assessment basis for calculation of the principal threat waste value. EPA should also explain how principal threat waste is to be used in the context of the other calculated PRGs for the site.

3. Ultimately, the goal is removal of the fishing advisory in the area. The Toxicity Equivalency Quotient (TEQ) fish tissue Health Assessment Comparison (HAC) of 2.33 ng/kg is the value DSHS uses for dioxin fishing advisories. In review of EPA's August 29, 2016, Memorandum "Human Health Risk Evaluation and Recommended Sediment Cleanup Level for Site Specific

Exposure to Sediment at the San Jacinto River Superfund Site," the calculation of the sediment PRG of 30 ng/kg for dioxin is somewhat explained. EPA calculated PRGs individually for sediment ingestion, dermal exposure to sediment, and fish/shellfish ingestion, as well as a sediment PRG for fish consumption. EPA then calculated a total PRG associated with a hazard index of 1 from exposure to sediment through the ingestion of sediment, dermal contact with the sediment, ingestion of finfish, and ingestion of shellfish. The total sediment PRG is calculated to be 28.9 ng/kg, which EPA then rounds to 30 ng/kg. However, EPA does not provide the calculation for this PRG, so it is unknown how this final value was calculated from the individual PRGs.

Exposure Pathway	**Calculated Non-Cancer PRG**
Sediment ingestion	7.86E-4 mg/kg = 786 ng/kg
Dermal exposure to sediment	2.77E-4 mg/kg = 277 ng/kg
Fish tissue ingestion	3.13E-6 mg/kg = 3.13 ng/kg
Shellfish ingestion	7.3E-5 mg/kg = 73 ng/kg
Total sediment: ingestion, dermal, ingestion of fish/shellfish	30 ng/kg (rounded up)
Sediment-to-fish consumption	35 ng/kg

The fish tissue PRG EPA calculated, which is used in the calculation of the total sediment PRG, is 3.1E-6 mg/kg, or 3.1 ng/kg. This fish tissue PRG is 1.33 fold higher than the DSHS dioxin fish tissue HAC of 2.33 ng/kg. Similarly, EPA uses the fish tissue PRG in the calculation of the sediment-to-fish consumption PRG of 35 ng/kg. *By using a fish tissue PRG 1.33 fold higher than the DSHS dioxin fish tissue HAC, the resulting total sediment PRG and sediment-to-fish consumption PRG are higher than what would be needed to address the site's contribution to the fishing advisory.* In order to sufficiently address the site's ongoing contribution to the fishing advisory in the area, the DSHS fish tissue HAC value for dioxin should be used. The TCEQ does not support actions/remedies that do not fully address the ultimate goal of allowing the removal of fishing advisories by DSHS (e.g., DSHS uses a Toxicity Equivalency Quotient fish tissue HAC of 2.33 ng/kg based on a hazard quotient of 1).

4. The TCEQ requests that the EPA to annotate the tables provided under *Human Health Risks* section on pages 17 and 18 to include the meaning of the numbers in bold font. One might assume the bold is highlighting the numbers above the Hazard Index of 1, except that 0.11 is bold under the last entry for Scenario DS-5 in the table on page 18.

5. Based on the Proposed Plan, it does not appear that EPA is planning to address the sediment areas outside the armored cap with dioxins/furans concentrations greater than the PRG of 30 ng/kg. Regarding the sediment cleanup areas, the following statement is made on Page 20.

> *For the river areas outside of the armored cap, the surface area-weighted average dioxin concentration in sediment located just south of the waste pits (Figure 11) is 16.1 ng/kg, and the surface area-weighted average dioxin concentration in sediment in areas located adjacent to and upstream of the waste pits is 11.2 ng/kg. Because the average dioxin concentrations in sediment both upstream and downstream of the waste pits are less than the 30 ng/kg Preliminary Remediation Goal [PRG] for sediment, remediation of the sediment is not required.*

This seems in contrast with Figure 9, which shows surface sediment areas with concentrations greater than the 30 ng/kg PRG outside the armored cap. Also, Figure 11 seems to be referring to fish collection areas and tissue sampling transects and not the

sediment. If the EPA is not planning to address areas with dioxins/furans concentration above 30 ng/kg outside the armored cap, please explain the rationale for this decision.

6. The abbreviation PRG was used in the document, but was not associated with the term "preliminary remediation goal."

7. For the determination of net present value to compare remedial alternatives, the EPA used a discount rate of 7% with no assumed inflation in accordance with EPA guidance. This methodology may not provide realistic costs, considering that it would be difficult to achieve a 7% return on investment in today's financial markets. We believe that a 4% discount rate along with 2% inflation would provide a more realistic cost estimate. The net effect of using EPA's methodology of a 7% discount rate may understate the actual costs, especially for longer term remediation alternatives.

Comments regarding the preferred remedy Alternative 6N and 4S

8. The United States Army Corps of Engineers (USACE) found that capping would be permanent and effective at containing pollutants at the northern disposal site. EPA rejected the USACE conclusions because it is possible that (a) the cap could be damaged by a barge strike, (b) the cap could be damaged by "extreme weather events," and (c) climate change and sea-level rise is likely to make future weather events even more severe and frequent. As to EPA's first reason, the USACE found that "[a] major barge strike, which would be predicted to occur once in 400 years, would impact less than 1% of the cap area and potentially release less than 0.1% of the contaminated sediment, which is less than 25% of the releases predicted for [EPA's preferred removal remedy]." (Feasibility Study App. A at 3.) And the USACE noted that the risks of a barge strike could be all but eliminated by reinforcing and protecting the cap. *See id.* at 60-69. EPA did not provide a reasoned basis for rejecting the USACE findings, given that (1) major barge strikes happen once every 400 years, (2) even a major barge strike would affect less than 1% of the cap, (3) the toxins released by even a major barge strike would pale in comparison to the toxins released by EPA's chosen dredging remedy, and (4) capping (even when reinforced to all but eliminate the risks of barge strikes) is dramatically cheaper than EPA's preferred removal remedy.

9. EPA's other reasons for rejecting the USACE capping remedy are equally untenable. EPA found that, "based on the Corps of Engineers review (Appendix A of the Feasibility Study), a severe future storm could result in significant erosion of 80% of the armor cap and up to 2.4 feet of scour into the waste pits." (Proposed Plan page 32.) But that finding is based on the USACE review of only one of the capping alternatives (namely, alternative 3N). The USACE specifically recommended additional changes to the capping remedy (such as alternative 3aN) that would *not* suffer 80% erosion or 2.4 feet of scour in even the most severe and anomalous weather events. EPA's only response is to speculate that it is theoretically conceivable that there are still more severe weather events that no one could foresee, that the USACE did not model, and that could theoretically damage even the enhanced and armored cap. EPA does not even attempt to explain, quantify, or justify that speculation. If it were true that EPA could reject any remedy where there is *any* risk in it—however infinitesimally small, however ill-defined, and however speculative—then EPA could reject any remedy it wanted.

10. EPA chose dredging of the northern disposal site. In doing so, however, EPA did not consider the "short[]-term potential for adverse health effects from human exposure" and "the potential threat to human health and the environment associated with excavation, transportation, and redisposal . . . ." 42 U.S.C. § 9621(b)(1)(D), (G). The USACE specifically found that EPA's preferred dredging remedy (namely, alternative 6N) "would be expected to significantly increase short-term exposures to contaminants." Feasibility Study App. A

Section 5. And the USACE specifically found that dredging under alternative 6N would have dramatically worse short-term impacts than the capping remedies. EPA failed to provide a reasoned justification for rejecting the USACE analysis.

11. EPA also failed to explain the cost-effectiveness of its preferred dredging remedies. Among other things, CERCLA requires EPA to "select a remedial action . . . that is cost effective." 42 U.S.C. § 9621(b)(1). EPA chose the most-expensive of the proposed remedies because, in EPA's view, they are superior to the alternatives. But the question is not whether alternatives 6N and 4S are *better* than the alternatives; the question is whether EPA can explain how those remedies are more cost-effective—that is, whether and to what extent they are so far superior to the alternatives that they warrant exponential increases in the cost of the remedial order. EPA should further consider the cost-effectiveness of the proposed remedy, and explain its choice in light of CERCLA's cost-effectiveness mandate.

12. The preferred remedial alternatives for the northern impoundments (alternative 6N) and the southern impoundment (alternative 4S) involve dewatering of the sediment and soil column. The Proposed Plan did not provide information on wastewater management. The TCEQ requests preliminary wastewater management information such as the contaminants of concern (COCs) to be monitored, threshold COC concentrations in the wastewater prior to disposal, and the method and location of the wastewater disposal. Even though details are expected during the remedial design phase, the TCEQ would like preliminary wastewater management information prior to issuance of the record of decision (ROD). Typically, total suspended solids (TSS) concentrations in the decant water from dredging activities must not exceed 300 mg/L. In addition, if the decant water is diverted back to the river, the COC concentrations in the water must be protective of TSWQS. The diverted water must be treated, if necessary.

13. Based on the excavation volumes and the number of truck trips projected for remedial alternative 6N, it appears that the EPA is considering the use of 12-cubic yard trucks for the transportation of waste material. The TCEQ suggests the use of larger trucks, if feasible, to reduce the number of truck trips. The TCEQ also suggests that truck routes be determined prior to issuance of the ROD, to identify the neighborhoods impacted by the removal actions, if any.

14. For the preferred remedial alternatives 6N and 4S, the EPA did not specify the location for staging and possible stabilization for the excavated sediment and soil prior to their final disposal. Please provide this preliminary information along with the final disposal facility name and location prior to issuance of the ROD.

15. The EPA indicated that the analytical results for dioxins/furans at the sand separation area may not be representative of the concentrations in that area and concluded that additional sampling may be necessary to obtain representative data. The TCEQ agrees with the EPA's conclusion and suggest collection of additional samples in the sand separation area, prior to issuance of the ROD.

16. Under remedial alternative 6N, it is not clear if the excavated areas would be backfilled prior to placement of the residual management layer of clean cover; we request clarification. The USACE report specified three methods of backfill placement – dump placement, rain placement, and best practice placement. We request information on the placement method selected by the EPA and the rationale for the selection, prior to issuance of the ROD.

17. Estimated construction time for remedial alternative 6N is 19 months. That appears to be a radical under-estimate of the true construction time. And if EPA has underestimated the

construction time of alternative 6N, it will make that remedy even less cost-effective than it otherwise appears. The TCEQ requests the EPA explain how this construction time is estimated.

- Does the construction period include the time required for best management practice (BMPs) installations prior to the commencement of work?
- Is the construction expected to occur on a 7-days per week schedule or a 5-day per week?
- How many work shifts are estimated and what are the durations of shifts?
- Were allowances made for stoppage of work during hurricane season, storms, etc.? If so, what are the allowances?

18. Under *Primary Balancing Criteria* on Page 34, excavation volume for alternative 6N was listed as 200,100 cubic yards. It appears that it is a typographical error and it should be 152,000 cubic yards.

Comments regarding capping alternatives listed in the Proposed Plan

19. For remedial alternatives involving capping at the northern impoundments, present worth costs were developed assuming operation and maintenance (O&M) for a 30-year period. Considering that dioxins/furans are expected to persist in the environment for centuries, the present worth costs for a 30-year period would under-estimate the real costs and is inconsistent with EPA's own guidance document, *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (EPA 540-R-00-002), which recommends that the present worth cost analysis should not necessarily be limited to the commonly used assumption of 30 years, and an explanation should be provided whenever the period of analysis is less than the estimated project duration (in this case, centuries). Life-time O&M costs must be developed to ensure the integrity of the armored cap is maintained while COCs persist at the site.

20. Estimated costs for remedial alternative 3N and 3aN should include present worth cost for repairing cap erosion from weather events expected during the life of the armored cap (the USACE report *Evaluation of the San Jacinto Waste Pits Feasibility Study Remediation Alternatives* dated August 2016 modeled a potential for an 80% erosional loss during a major storm). Multiple erosional events are possible over centuries so major repairs should be accounted for in the proposed costs associated with these alternatives. Present worth costs for repairing damages to the armored cap due to all projected events are necessary to ensure that adequate funds are available for the life of the armored cap.

21. Under remedial alternative 4N, the EPA proposed construction of an upgraded armored cap, as described in alternative 3N, over solidified and stabilized waste material. To ensure better containment of waste material, EPA should consider construction of an enhanced armored cap per remedial alternative 3aN, in accordance with the USACE recommendations. This change would reflect a change in cost from 3N to 3aN.

22. Under remedial alternative 5N, the EPA proposed construction of an upgraded armored cap, as described in alternative 3N, over the excavated area. To ensure better containment of waste material, please consider construction of an enhanced armored cap per remedial alternative 3aN in accordance with the USACE recommendation. Also, please revise the costs to reflect this change from 3N to 3aN.

23. Under remedial alternative 5aN, following the removal of waste material, the EPA proposed covering the waste material removal area with a residuals management layer of clean cover. It is not clear if the excavations would be backfilled prior to placement of the residuals management layer; please clarify.

If you have any questions, please contact me at 512-239-6566.

Sincerely,

Brent Wade, Deputy Director
Office of Waste
Texas Commission on Environmental Quality

BW/rk

cc: Mr. Valmichael Leos, On-Scene Coordinator, U.S. EPA, Region 6, Superfund Division (6SF-RA)
Mr. Carlos Sanchez, Branch Chief, U.S. EPA, Region 6, Superfund Division