

TCEQ Interoffice Memorandum

To: Gary Beyer, Project Manager; VCP/CA Section, Remediation Division

From: Larry Champagne, Ecological Risk Assessor; Division Support Section, Remediation Division

Date: October 8, 2013

Subject: Exide Technologies Former Operating Plant
Draft Screening Level Ecological Risk Assessment (SLERA)
May 10, 2013

I have completed my review of this draft SLERA and have the following comments.

General Comments:

1. It is understood that Stewart Creek was evaluated in this SLERA under the current permit designation that it was an intermittent stream. However, TCEQ has recently conducted a reassessment and has determined that it is a perennial water body and should be reevaluated as such. As a perennial water body, chronic water quality criteria will apply. If these values are exceeded by monitoring well concentrations at the groundwater-to-surface water interface, then an approved dilution factor (DL) for the groundwater-to-surface water pathway will be needed (i.e., a demonstration that the default DL of 0.15 is appropriate or the derivation of a site-specific DL). In addition, sediment protective concentration levels (PCLs) for the protection of the benthic invertebrate community will now apply.
2. In this SLERA, the Stewart Creek evaluation was limited to the property boundary of the former operating plant. However, the Texas Risk Reduction Program Rule 30 TAC 350.4(1) essentially defines the affected property as the entire area, both on-site and off-site, where chemicals of concern (COCs) are equal to or exceed the assessment level. The SLERA acknowledged other studies that reported sediment "hot spots" of lead and cadmium adjacent to the downstream former waste water treatment plant, around the Dallas North Toll Way, and further downstream and recommended further evaluation of these hot spots. The assessment of Stewart Creek will need to be continued downstream of the property boundary.
3. In several places in this document, it is stated that soil "... sample points with lead concentrations exceeding 1600 mg/kg ... were removed from the data set for the SLERA because these areas will be addressed to remove potential ecological exposure as part of the response action at the Site." It is understood that 1600 mg/kg lead is the human health industrial PCL and that this remediation level - at a minimum - will be achieved pending the outcome of the SLERA; however, these sample points should not be removed from the dataset. Ecological

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receptors will continue to be exposed to lead concentrations at these locations so there is no reason to remove them from the dataset. Also, this SLERA does not develop lead ecological PCLs for soil, so there is no identified concentration below 1600 mg/kg to target in order to protect ecological receptors. It is recommended that the current level of ecological exposure be assessed by inputting the actual lead concentrations at these locations into the dataset, recalculating the exposure point concentrations, and rerunning the exposure calculations. As an additional exposure evaluation, inputting a value of 1600 mg/kg for each of these previously omitted locations could be explored, as long as an adequate rationale was provided; however, as discussed below, a hot spot evaluation for small-ranging receptors may still be needed. This comment also applies to the elevated concentration of cadmium identified near sample location SCC-11.

4. Given that the lead (and cadmium) concentrations are elevated in some soil locations and that small-ranging receptors (e.g., robins and shrews) are likely present, it is recommended that a hot spot evaluation be considered. Although no TCEQ guidance is currently available on how best to conduct one, any hot spot evaluation should begin with a presentation of the COC concentrations on a map. Visualization of sample locations exhibiting elevated concentrations of COCs can be helpful in determining if these data points are spatially discrete and distinct from surrounding areas, or if the elevated concentrations are grouped together. In addition, the hot spot analysis should be presented in the uncertainty analysis. If it is determined that a hot spot evaluation is not warranted, a short justification or rationale should be presented. TCEQ will evaluate the adequacy of the hot spot analysis (or the justification for not performing a hot spot analysis) and comment as necessary if more detail or clarification is needed. TCEQ will also evaluate the conclusions of the hot spot analysis and the associated risk management recommendation, as appropriate.
5. As acknowledged in this SLERA, the Timber/Canebrake rattlesnake could potentially occur at the site. Currently, there is insufficient information provided to negate risk to this receptor. The SLERA states that risks would be minimal based on the assessment of birds and mammals. However, as a protected species, only the no observed adverse effect level (NOAEL) evaluation would be considered, and NOAEL-based risk was identified for the raccoon and fox. When protected species of reptiles are assumed to be present, but have little or no toxicity data, a toxicity reference value (TRV) for a bird with a similar diet can be used in combination with reptile life history information (e.g., body weight, food ingestion rate) to calculate a dose and a hazard quotient. Although an across-class extrapolation is not normally encouraged, it is preferable to having just a discussion of uncertainty when a protected species may occur at a site. Exposure factors for the reptiles should be documented and justified. When this approach is implemented, it is recommended that an uncertainty factor of 10 be used for the across-class extrapolation. All uncertainties associated with these assumptions should be discussed.
6. Since the assessment of Stewart Creek will continue downstream, the possibility exists that sediment may accumulate in locations that could support mollusks

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including the threatened Louisiana pigtoe and the Texas heelsplitter. In addition, it is possible that more viable habitat downstream may exist for other protected species, including the threatened White-faced ibis. It is recommended that these species and other protected species known to occur in Collin and Denton Counties be re-evaluated for potential occurrence in downstream Stewart Creek.

7. For risk evaluation purposes, Stewart Creek and the North Tributary Corridor were combined to form one exposure unit. Similarly, an evaluation of risk from the combined terrestrial areas to the wider-ranging receptors should be included in the SLERA.
8. Because the comments in this memo require substantial changes be made, it is not possible to concur with the conclusions and recommendations of this SLERA.
9. The perennial designation of Stewart Creek, the extension of the affected property downstream, and other aspects of the preceding general comments will have a cascading effect throughout various sections of the SLERA that will need to be addressed. The following specific comments identify some of these areas where changes are needed.

Specific Comments:

1. P. 3, **2.1 Site History**, second paragraph: This paragraph requires clarification. As currently written, the indication is that no wastewater from the site was ever treated by the Former Stewart Creek Wastewater Treatment Plant (FSCWWTP). This conflicts with a statement from the Affected Property Assessment Report for the FSCWWTP (Pastor, Behling & Wheeler, 2013) that states that the plant treated wastewater streams from downtown Frisco and local industrial sources, including the GNB (now Exide) lead battery recycling center.
2. P. 7, **3.1.1 Data Summary**, 1st paragraph, last sentence: This sentence should be modified to reflect that TCEQ identifies the 0-6 inch soil depth as "surface soil" and the 6 inch to 5 feet depth as "subsurface soil" for ecological receptors. The combination of these depths represents the total depth of ecological exposure.
3. P. 9, **3.1.2 TCEQ Benchmarks/Initial Screening Comparison**, and elsewhere: Discussions of Stewart Creek as being intermittent and acute criteria applying will need to be revised. In addition, statements that indicate there are no exceedances of water quality criteria may need to be revised.
4. P. 14, **3.3 Assessment Endpoints**: An assessment endpoint (and associated text/tables elsewhere in the document) will need to be added to the bullets that reflects protection of the benthic invertebrate community in Stewart Creek with no unacceptable effects on species diversity due to site-related cadmium or lead in the sediment. Any associated text or table evaluating sediment concentrations to the protection of the benthics should include the benthic sediment PCLs for cadmium and lead.
5. P. 15, **3.3 Assessment Endpoints**, last sentence and Table 7: The quotation from the TCEQ discharge permit regarding protected species speaks to the effect

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of the discharge on federally-listed, aquatic-dependent species and not to the potential occurrence of these species. Additionally, this does not address State-listed species.

6. P.18, **4.1 Cadmium, 1st paragraph**: The avian lowest observed adverse effect level (LOAEL) TRV used here (6.35 mg/kg-day) is higher than the one used in the SLERA for the Former Stewart Creek Wastewater Treatment Plant (5.63 mg/kg-day). All other NOAEL and LOAEL TRVs for cadmium and lead are the same for these two SLERAs. Either the lower LOAEL should be used or this SLERA should provide a justification for not doing so.
7. P. 21, **5.1.2 Potential Risks to Benthic Invertebrates in Sediment**: The reference to the second effects level should be removed.
8. P. 22, **5.1.3 Potential Risks to Aquatic Life Organisms in Surface Water**, first full sentence: Based on these SLERA comments, this sentence may need to be modified. In addition, the remainder of this paragraph pertains to sediment and should be removed.
9. P. 22, **5.1.4 Potential Risks to Upper Trophic Level Receptors**: Some of the preceding comments will affect the inputs of the calculated risks such that it is not possible to concur with the conclusions here.
10. Table 2: The benthic sediment PCLs for cadmium and lead should be used in lieu of or in addition to the initial effects levels.
11. Tables 3-5: The acute risk based exposure limits (RBELs) for cadmium and lead will need to be replaced with the chronic RBELs.
12. Table 4: In addition to using the chronic RBELs, the ^{SWG}W PCL should incorporate an approved dilution factor.
13. Figure 9. Reptiles and amphibians are likely present at this site and should be reflected in the conceptual site model. In addition, risk to these receptors should be qualitatively evaluated in the SLERA. The risk to reptiles could be tied to the evaluation of the Timber/Canebrake rattlesnake discussed previously and the risk to amphibians could be related to the evaluation of site surface water quality.
14. Table E-2: The fraction of arthropods in the diet of the robin exceeds 1 and should be corrected.
15. Table E-5: The food ingestion rates for the hawk and robin and the soil ingestion rate for the robin are not plausible. All associated exposure calculations should be reevaluated and adjusted accordingly.
16. Tables E-5, E-11, and E-17: The TCEQ ERA Program has researched the home range of the robin and has determined that a value of 0.45 ha (1.12 acre) is appropriate. This value is consistent with the 0.12-0.84 ha range listed in U.S. EPA (1993) and is supported by more recent data (e.g., Dellinger et al., 2007). Older studies that reference a radius in distance or excursions from the nesting area rather than an actual home range are not considered defensible. All associated exposure calculations should be reevaluated and adjusted accordingly.

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References:

Dellinger, Rachel L., Petra Bohall Wood, Patrick D. Keyser and George Seidel. 2007. Habitat Partitioning of Four Sympatric Thrush Species at Three Spatial Scales on a Managed Forest in West Virginia. *The Auk*. Vol. 124, No. 4 (Oct., 2007), pp. 1425-1438.

Pastor, Behling & Wheeler, LLC. 2013. Affected Property Assessment Report: Former Stewart Creek Wastewater Treatment Plant. Frisco, Collin County, Texas. April.

U.S. Environmental Protection Agency (USEPA). 1993. Wildlife Exposure Factors Handbook, Volume I of II, EPA/600/R-93/187a. Wildlife Exposure Factors Handbook Appendix: Literature Review Database, Volume II of II, EPA/600/R-93/187b. Office of Research and Development, Washington D.C. 20460.

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