

June 21, 2017

Via U.S. Mail and Email

CSX Transportation, Inc.
c/o Mr. Matt Adkins, CHMM, Manager Environmental Remediation
351 Thornton Road, Suite 125
Lithia Springs, Georgia 30122

Re: Voluntary Remediation Program
1st – 8th Semi-Annual Status Updates
CSX Transportation DePriest Signal Shop (HSI #10611)
641 East Liberty Street, Savannah, Chatham County, Georgia
Tax Parcel ID# 2-0033-12-001

Dear Mr. Adkins:

The Georgia Environmental Protection Division (EPD) has reviewed the 1st through the 8th Voluntary Remediation Program (VRP) Semi-Annual Status Updates that were submitted for the above referenced site on your behalf by Holley Consultants, Inc. The VRP Semi-Annual Status Updates are dated September 18, 2013, March 21, 2014, August 28, 2014, March 16, 2015, September 16, 2015, March 4, 2016, September 26, 2016, and March 27, 2017, respectively. EPD has the following comments:

- 1) **Area Averaging:** Although an area averaging approach to calculate an Exposure Point Concentration (EPC) is allowable under the VRP Act, the methods presented in the 2nd and 3rd VRP Semi-Annual Status Updates will require additional work to be approved by EPD. Specifically:
 - a) A single exposure domain for the entire CSX Transportation DePriest Signal Shop property is not appropriate. In establishing exposure domains, CSX Transportation (CSXT) should consider site usage, access, sample placement / variability, and future use. At a minimum, this site should be broken into four distinct exposure domains.
 - i) The areas inside the main Signal Shop fence should be split into at least two domains. It appears that the areas closer to the Signal Shop buildings are used more frequently. In addition, there is a fence dividing the property into two sections.
 - ii) The areas outside the main Signal Shop fence should be split into at least two domains based on the location to the east or west of the Signal Shop.
 - b) If CSXT intends to use Type 4 Risk Reduction Standard (RRS) based on site-specific exposure assumptions, a separate Type 4 RRS must be calculated for each exposure domain based on expected exposure conditions. Using a site-specific commercial worker scenario for areas outside the Signal Shop fence is not appropriate. The Type 4 RRS for

those areas should be calculated using the standard assumptions listed in Appendix III, Table 3 of the Rules for Hazardous Site Response (Rules) §391-3-19. Reliance on site-specific exposure assumptions to calculate RRS may need to be documented in a Uniform Environmental Covenant (UEC) to ensure that land use remains consistent with the exposure assumptions.

- c) Area averaging is appropriate for assessing direct contact with surface soils where random exposure is assumed to occur. To meet Type 4 RRS, you must also demonstrate that concentrations of regulated substances in soil are protective of leaching to groundwater. If you are not able to demonstrate that concentrations left in place are protective of groundwater, those contaminants will have to be addressed through corrective action.
- d) A separate approach should be given for the construction/utility worker scenario. As utility and construction work tends to vary in location and depth, it tends to be impractical to establish exposure domains for averaging on larger properties that are specific to these activities and to acquire the necessary data for evaluation. It is typically more practical to address the health and safety concerns associated with this exposure pathway either by a point-by-point comparison to construction worker cleanup values or through land disturbance restrictions in a UEC. In addition, due to higher concentrations of contaminants being left in place, CSXT should establish not-to-exceed levels that are protective of acute exposure to "hot spot" locations. EPA Removal Management Levels are established values that can be used for this purpose.
- e) EPD will require an electronic submittal of the soil sampling data in a format that can be directly imported by ProUCL. The data file should also include a field indicating the exposure domain location for each sample point so that the data can be sorted and an EPC can be calculated for each exposure domain. EPD needs to evaluate the data with ProUCL and compare the results with your proposed EPC before we can concur with those values.

2) Risk Reduction Standards:

- a) The soil Type 3 RRS provided on Table 2.2 are acceptable for use at this site with the following exceptions:
 - i) The Type 3 RRS for mercury from 0-2 feet should be 10 mg/kg.
 - ii) For chromium below 2 feet, the Appendix I, Table 1 notification concentration of 1200 mg/kg applies to total chromium. If RRS based on total chromium will be used, chromium speciation data should be presented to support its use.
- b) Due to the length of time since groundwater has been sampled for this site, updated groundwater sampling data should be provided to support the soil leaching analysis.
- c) In Table 2.4, the groundwater Type 1/3 RRS for arsenic and zinc should be 0.01 mg/L and 2 mg/L, respectively.
- d) Please revise your proposed Type 4 RRS for contaminants of concern (COC) in soil based on the following comments:

- i) Some issues were noted in Tables 2.1 (Soil Risk Calculations) and 2.5 (Type 4 Soil Risk Reduction Standards). Examples include the following:
 - (1) An oral reference dose (RfDo) is listed for mercury; however, mercury does not have an RfDo.
 - (2) Arsenic should have an inhalation reference dose (RfDi), but it is not listed.
 - (3) The non-cancer risk values for mercury and arsenic are shown as the same value.
 - (4) There is no RfDi listed for selenium.

Please ensure that toxicity values are from the most recent version of the EPA Regional Screening Level (RSL) tables (or the primary sources for the RSL tables, such as IRIS) and update Tables 2.1 and 2.5 accordingly.

- ii) **Exposure Assumptions:** As mentioned in comment 1b above, you must use standard assumptions when calculating the Type 4 RRS for areas outside the fence unless you can provide justification for using less conservative values. EPD recommends that you also evaluate EPC compliance with RRS using standard non-residential exposure assumptions for areas inside the fence to potentially avoid having additional restrictions in the UEC. In addition, an exposure duration of 10 years for the Trespasser scenario should be used.
- iii) **Target Leachate Concentrations:** Defaulting to a value of 20 for your dilution attenuation factor (DAF) when calculating the target soil leachate concentrations is not appropriate for source areas greater than 0.5-acre in areal extent. Source areas for deriving Type 4 RRS for soil are considered to be those areas where soil is impacted above approved Type 3 RRS. It appears that the source area(s) is likely to be greater than 0.5-acre. Please either default to a DAF of 1 or calculate a site-specific DAF using Equation 4-11 of the *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (OSWER9355.4-24, December 2002)¹. If you choose to calculate a site-specific DAF, please provide the following as backup documentation for EPD's evaluation:
 - (1) Calculations used to determine the areal extent of the source area(s), and
 - (2) Analytical summary figures, representing *in-situ* soil above the water table conditions, with isoconcentration contour lines (isocons) representing the approved Type 3 RRS values for the contaminants of concern in soil superimposed on them. Please note that a conservative approach should be used in estimating the areal extent of source areas by not interpolating between data points when constructing the isocons. Rather the isocons should be drawn through the data locations representing soils in compliance with Type 3 RRS immediately outside the data locations representing soil not in compliance with Type 3 RRS.

¹ The referenced guidance may be accessed on the worldwide web at: <https://semspub.epa.gov/work/HQ/175237.pdf>.

- iv) **Soil-Water Partition Coefficient (K_d) Values:** Typically, EPD requests that a statistically significant number of soil samples (e.g., 8 or more) be collected and analyzed for SPLP or TCLP when deriving site-specific K_d values.
 - (1) Note 1 on Table 2.4 of the subject VRP 2nd Status Update indicates the K_d values derived from SPLP analytical results from two soil samples were averaged and used as the site-specific K_d in Equation 10 of EPA's *Soil Screening Guidance: User's Guide* (EPA540/R-96/018, July 1996). As SPLP analytical results from two soil samples is not considered to be statistically significant for the source area(s) at this site, the lowest sample-specific K_d values derived from SPLP analytical results should be used in the referenced soil partitioning equation which should result in "conservative" Type 4 RRS values, as long as the samples were collected at the appropriate locations. Furthermore, use of the lowest site-specific K_d in the referenced equation is consistent with the K_d values reportedly (Note 3 of the referenced Progress Report table) input into the USGS VS2DI model code used as a secondary backup to conclusions regarding the leaching potential of detected COCs to groundwater.
 - (2) Please revise Figures 3.1 through 3.8 of the subject Progress Report to include the sample locations (in relation to the other sampling locations for total COCs) for the SPLP analytical results and include a table summarizing analytical results for total COCs representing *in-situ* soil conditions at the qualifying Property. Since only two samples were collected for SPLP analyses, those two samples should have been collected at or immediately adjacent to those samples containing the most elevated concentrations of total COCs. If the participant wishes to collect more soil samples for SPLP analysis, they should be collected using a reasonable gridded pattern that includes the above referenced locations. Depth of sampling should also reflect the depth of the total COC samples being duplicated.
- v) **USGS VS2DI Modeling:** Although the referenced soil leaching model may have been found to be acceptable for use at the adjacent Stevens Oil site (HSI #10339), the following should be submitted to EPD for evaluation for the subject property, especially as at least one input value (K_d), and possibly more, used in the VS2DI modeling appears to be specific to soil conditions at the subject qualifying Property:
 - (1) An electronic copy of the model code with input values used to represent the subject qualifying property and site-specific output results,
 - (2) Properly labeled paper copies of the model worksheet(s) (showing input parameter values) and resulting output maps/results, and
 - (3) A table summarizing all input values, and their specific bibliographic references, used in the model.

3) Other Comments

- a) The figures showing horizontal delineation of regulated substances in soils need to be revised to indicate off-site sampling from previous investigations in order to demonstrate delineation requirements for all regulated substances as required by Section 391-3-19-.06(3)(b)2. of the Rules. Delineation should be indicated by data points that are at or

below the applicable standard (Type 1 RRS, Type 2 RRS, or background concentrations). In addition, for SVOCs, the figures should indicate individual regulated substances.

- b) Electronic copies of the large format maps must be revised to have legible soil data. EPD previously commented on this issue in the VRP Application comments dated March 15, 2013. Please revise and re-submit Figures 3.1-3.8 of the 2nd Semi-Annual Status update and Figure 2.1 of the 3rd Semi-Annual Status update in order to complete our files. Future submittals should be prepared so that the text and data on PDF copies are legible.

Please address these comments in the next Semi-Annual Status Update, which is due by September 15, 2017. Please submit updated soil Type 4 RRS and not-to-exceed soil concentrations at your earliest convenience so that EPD can approve these values. If you have any questions, please contact Bill Williams at 404-232-1502.

Sincerely,



David Hayes
Unit Coordinator
Response and Remediation Program

C: Ron Holley (via email)

File ID: 242-0232 (HSI# 10611, VRP950192559)