

From: Deni Chambers, CEM
Derrick Willis, CEM

Date: November 24, 2010

To: Shannon Harbour, NDEP

RE: Update to *Environmental Covenants, Institutional and Engineering Control Plan, Tronox LLC, Henderson, Nevada*, dated November 19, 2010

This memorandum provides updated information for the following Institutional/Engineering Control Areas (I/E areas) that were discussed in the Environmental Covenants, Institutional and Engineering Control Plan (the IC/EC Plan) submitted to NDEP on November 19, 2010:

- I/E 1: Footings for Overhead Utility Rack,
- I/E 2: Sodium Chlorate Filter Cake Process Area, and
- I/E 16: Groundwater Treatment System Equalization Tanks

The following figures are attached to this memorandum, and reflect updates to the figures in the IC/EC Plan in accordance with the revised text:

- Figure 3: Proposed Environmental Covenant Areas
- Figure 4: Legend for Individual Environmental Covenant Area Maps
- Figure 5: I/E 1 - Footings for Overhead Utility Rack
- Figure 6: I/E 2 - Sodium Chlorate Filter Cake Process Area
- Figure 9: I/E 5 – Unit Building 2
- Figure 10: I/E6 – Unit Building 3
- Figure 11: I/E 7 – Unit Building 4
- Figure 18: I/E 16 - Groundwater Treatment System Equalization Tanks
- Figure 19: I/E 17 – Groundwater Ponds and Berms and WC Ponds and Berms
- Figure 20: I/E 18 – Former Hazardous Waste Storage Area

Figures 9, 10, 11, 19 and 20 were updated because they also show one of the three updated I/E areas. We have also attached updated Table 1: Summary of Institutional and Engineering Control Areas and updated Table A-1: Summary of Institutional and Engineering Controls to this memo, in order to reflect the change in the volume of impacted soil for I/Es 1, 2, and 16.

The following portion of this memo presents the revised text for I/Es 1, 2, and 16. We have provided this text in redline/strikeout format, in order to facilitate your review.

Section 2.2.1, I/E 1: Footings for Overhead Utility Rack

The overhead utility rack extends across RZ-B-06, RZ-B-07, RZ-10, RZ-12, and RZ-13, although RZ-B-07 is the only excavation polygon that is affected by the overhead utility rack. The footings for the overhead utility rack poles are three feet in diameter, and extend to 6.5 feet below the ground surface (bgs). RZ-B-07 extends to a depth of 10 feet bgs and is the only excavation area that could potentially undermine the footings for the overhead utility rack poles. Therefore, the portion of RZ-B-07 where the overhead utility rack pole is located is designated as I/E 01, and this area cannot be completely excavated because of concern that the excavation would undermine the concrete footing for the utility rack pole. I/E 1 is shown on Figure 5, and is located in APN 17813101002. Table 1 includes a summary of the excavation polygons that will be impacted by ICs/ECs in this area, the depth of excavation for each polygon and the volume of contaminated soil that will remain in place in each excavation polygon. We currently estimate that the total volume of impacted soil that will remain in place in I/E 1 is ~~218-14~~ cubic yards.

Soil in this area will be excavated to a depth of one foot above the top of the footings, to maintain soil support for the footings. Below this depth, ~~the~~ excavation for RZ-B-07 will utilize a slope of 1-~~5~~:1, and therefore the area for I/E 1 is a ~~33-12~~ foot diameter circle (3 feet for the utility pole footing and ~~45-4.5~~ feet around the footing to account for a 1-~~5~~:1 slope down to 10 feet bgs). Because some contaminated soil will remain in place an institutional control, which requires that soil excavations in this area be performed in accordance with the procedures outlined in the Risk Management Plan, will be implemented to protect human health and the environment until the contaminated soil ~~is~~-can be removed.

Section 2.2.2, I/E 2: Sodium Chlorate Filter Cake Process Area

The sodium chlorate filter cake process area is part of the boron and boron trichloride process operations and cannot be removed. The concrete slab for the process area is located in RZ-B-13, and is approximately ~~4560~~' x 50' x 2' thick. Therefore, the portion of RZ-B-13 that cannot be excavated is designated as I/E 2 as shown on Figure 6. I/E 2 is located in APN 17812801001. Information related to I/E 2, including the COCs present in RZ-B-13 and the maximum depth of excavation, is presented in Table 1. We currently estimate that the volume of impacted soil that will remain in place in this area is 15 cubic yards. The concrete slab will function as an engineered control, capping the contaminated soil and preventing or greatly limiting the potential for contact with contaminated soil.

Section 2.2.14, I/E 16: Groundwater Treatment System Equalization Tanks

Equalization tanks for the groundwater treatment system and associated influent and effluent pipelines and electrical and control lines for the equalization tanks are actively used by Veolia and cannot be removed. RZ-D-15, RZ-D-16, RZ-D-16A, RZ-D-18 and RZ-D-17C extend beneath the equalization tanks and associated pipelines and electrical and control lines, and therefore portions of these excavation polygons cannot be excavated. This area is designated as I/E 16, and is shown on Figure 18. I/E 16 is located in APNs 17812201004 and 17812301003-and information related to this control area is presented in Table 1. We currently estimate that the volume of impacted soil that will remain in place in this area is ~~343-1,675~~ cubic yards-, This estimate assumes an average planned excavation depth of



2 feet over ~~this~~ equalization tank area, and a planned excavation depth of 9 feet over the area covered by the associated influent and effluent pipelines and electrical and control lines for the equalization tanks~~entire control area~~. The equalization tanks are on concrete pads, and the pads will function as an engineered control for this portion of I/E 16. Additionally, the remainder of this control area will be covered at the ground surface by asphaltic chip seal, which will function as an engineered control for the remaining portions of this control area. ~~These engineered controls will,~~ capping the soil at the ground surface, ~~and~~ preventing or ~~greatly reducing~~ mitigating the potential for contact with contaminated soil.

Attachments

Table 1: Summary of Institutional and Engineering Control Areas

Table A-1: Summary of Institutional and Engineering Controls

Figure 3: Proposed Environmental Covenant Areas

Figure 4: Legend for Individual Environmental Covenant Area Maps

Figure 5: I/E 1 – Footings for Overhead Utility Rack

Figure 6: I/E 2 – Sodium Chlorate Filter Cake Process Area

Figure 9: I/E 5 – Unit Building 2

Figure 10: I/E6 – Unit Building 3

Figure 11: I/E 7 – Unit Building 4

Figure 18: I/E 16 - Groundwater Treatment System Equalization Tanks

Figure 19: I/E 17 – Groundwater Ponds and Berms and WC Ponds and Berms

Figure 20: I/E 18 – Former Hazardous Waste Storage Area

