



environmental management, inc.

From: Deni Chambers, CEM
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Date: December 7, 2010

To: Shannon Harbour, NDEP

RE: Response to NDEP's November 30, 2010 Comments on *RZ-D Western Property Line Cut Slope Material*, dated November 17, 2010

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1. *General comment, NDEP notes that three property boundary samples were collected in area labeled as the cut slope in Figure 1. TRX should provide this data and include discussion on how this data supports or doesn't support the conclusion in the last paragraph on page 2 that "this Material represents the eastern portion of the closed TEP and is not related to the former Tronox Hazardous Waste Landfill." TRX should additionally include statistical comparison data as appropriate.*

Response:

Analytical results for the three property boundary borings, SSAI2-04, SSAI2-03, and SSAJ2-04, are presented in Table 1. Soil samples were collected from these borings at depths of 1, 5 and 10 ft bgs, and were analyzed for dioxin/furans, semi-volatile organic compounds (SVOCs) and polynuclear aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), and hexachlorobenzene (HCB). Analytical results indicate the presence of dioxins and HCB above Comparison Criteria developed for the site.

These three soil borings were advanced as requested by NDEP for defining the conditions at the property boundaries. Soil samples have also been collected from LOU 10 for waste characterization purposes (Table 2) and were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) analytical testing. In addition, four borings, SB-01 through SB-04, were advanced into and through LOU10 at the locations shown on Figure 1. Samples were collected from SB-01 through SB-04. Analytical results for composite samples from SB-01 through SB-04 are presented on Table 3. The samples were analyzed for perchlorate and chlorate, and TCLP for HCB, arsenic, silver, barium, cadmium, chromium, mercury, lead, and selenium. Results of analyses performed on discrete samples collected from depths of 24 bgs or deeper in LOU 10 are also presented in Table 3. These samples were analyzed for dioxin/furans, HCB, arsenic, and perchlorate. Data for the former BMI Landfill was not accessible. A meaningful statistical comparison between the shallow cut slope soils and the LOU 10 sample results cannot be made using this limited dataset.

The following paragraphs present a discussion supporting the conclusion that "this Material represents the eastern portion of the closed TEP and is not related to the former Tronox Hazardous Waste Landfill."



A west to east cross-section using borings SSAI2-04 (northernmost property line boring), LOU10-S1 (northernmost boring drilled through LOU 10), and RSAI2 (located approximately 80 ft east, and outside, of LOU 10) is presented as Figure 7. As indicated in Figure 7, the black material layer is not horizontally continuous from the Site boundary through LOU-10. In addition, the white layer that is exposed above the black layer in the cut slope is absent in LOU10, based on review of boring logs. At SSAI2-04, the black material in the western cut slope was encountered at an elevation of approximately 1732 ft above mean sea level (MSL). In LOU10-S1, the black waste material was encountered at an elevation of 1722 ft above MSL; 10 feet below the material in the cut slope. No black material was reportedly encountered in RSAI2.

The black material in SSAI2-04 was described as grayish black sand with an “ash appearance”, and was overlain by approximately 4.5 ft of pale brown sand (fill). Odors were not detected in soil collected from boring SSAI2-04 and photoionization detector (PID) readings were all zero. The black material encountered in LOU10-S1 was described as bluish black, very fine-grained silty sand, “possibly graphite material” with “trace pale yellow crystalline nodules” and moderate odor with elevated PID readings, and was overlain by approximately 16 feet of brown sand with gravel and mixed waste.

As shown on Figures 1 and 6, the black material exposed in the cut slope does not correlate with the location of LOU 10. The black material extends approximately 350 ft beyond the southern limit of LOU 10. This corresponds closely with the southern limit of the TEP berm. This supports the premise that the black material is associated with the TEPs.

Additional evidence is provided in the Kerr-McGee report entitled “Closure/Post-Closure Plan for Hazardous-Waste Landfill” dated October 25, 1984 (attached as an appendix to an October 21, 1985 letter prepared by J.H. Kleinfelder & Associates). The 1984 plan describes the closure of LOU 10, and reports that “hazardous waste”, including chromium, was not detected in analyses performed on four soil samples collected from the top of the landfill (J.H. Kleinfelder & Associates, 1984). In preparation for closure, backhoe trenches were excavated in LOU 10 to verify the landfill limits. The limits of LOU 10 were located, and stakes were set five feet out from the landfill boundary on all sides. Additionally, the 1984 plan states that “The surrounding area is free of contamination as determined by visual inspection, since the carbonaceous chrome-bearing waste is detectable by color”. Tronox interprets this statement as saying that the material surrounding the landfill was not black. Therefore, the black material seen in the cut slope did not extend to LOU 10.

In summary, the fact that the black material is not continuous from the cut slope through LOU-10 and the white layer is absent from LOU 10, coupled with the clearly different soil boring descriptions and PID readings and the descriptions reported in the 1984 plan, supports Northgate’s conclusion that the black material exposed in the property line cut slope is not related to the former LOU 10. The conclusion that the cut slope material represents the former closed TEP landfill is further supported by the presence of the white layer above the black material, overlain by brown fill soil, which matches the description of the closed TEP landfill, as described in the 1993 BMI report prepared by Geraghty & Miller, Inc., and referenced in Northgate’s November 16, 2010 letter to the NDEP.



2. *Comment: Page 1, 2nd paragraph, please clarify which excavation polygon is being referenced by RZ-D-D02 (i.e. RZ-D-02 or RZ-D-01D2).*

Response:

The polygon referred to in the letter should be RZ-D-02. The reference has been corrected.

3. *Comment: Figure 1, TRX states in the 2nd paragraph of page 1 that Figure 1 shows the approximate location of the “Material exposed by the cut slope”; however, NDEP did not see this notated on this Figure. Please revise the Figure accordingly.*

Response:

Comment noted. Figure 1 (as well as Figures 4, 5, and 6) has been revised to clearly indicate the location of the exposed material in the cut slope, including the newly observed extensions of the black material to the south and north.

4. *Comment: Figure 3, please annotate this Figure with the different layers described in the text.*

Response:

Comment noted. Figure 3 has been annotated to show the various layers.

5. *Comment: Figures 4 – 6: please label the Trade Effluent Pond berms, the TRX Hazardous Waste Landfill, BMI waste placement, and any other features that are discussed in the text on these Figures.*

Response:

Comments noted. Figures 4 through 6 have been annotated accordingly, and have been revised to show the newly observed extensions of the black material.

