



*environmental management, inc.*

November 17, 2010

Shannon Harbour, P.E.  
Nevada Division of Environmental Protection  
901 South Stewart Street  
Carson City, Nevada 89701

Subject: RZ-D Western Property Line Cut Slope Material  
Tronox Facility, Henderson, Nevada

Dear Ms. Harbour:

This letter is a follow up to our conference call on November 12, 2010 between Tronox, Northgate Environmental Management, Inc. (Northgate), and the Nevada Division of Environmental Protection (NDEP) regarding visually impacted material (“Material”) observed in the northwest corner of the Tronox property. At the November 12<sup>th</sup> meeting, NDEP requested that Tronox provide information on the source of the Material. NDEP further indicated that if the Material did not originate from the Tronox Hazardous Waste Landfill (LOU-10), then excavation to the site boundary would be sufficient.

The Material consists of a layer of dark-colored, non-native soil that was identified in the RZ-D-01C, RZ-D-01D1, and RZ-D-D02 excavation cuts along the northern portion of the western property boundary between the Tronox facility and the BMI Common Areas. The property boundary is located approximately 50 feet west of the western boundary of LOU 10 (former Tronox Hazardous Waste Landfill; removed in 2010). Figure 1 shows the approximate location of the cut, LOU-10, and the Material exposed by the cut slope.

The dark colored Material is approximately 5 to 6 feet thick over most of its exposed length. The Material becomes thinner to the north, and terminates within the cut area (Figure 2). At the southern end of the cut, the Material is approximately 3 to 4 feet thick. The lateral and vertical extent of the Material west of this cut is unknown. The Material is overlain by a relatively uniformly thin layer of very light colored soil approximately 8 to 14 inches thick. Overlying the thin, very light colored soil are several feet of sandy soil (Figure 3). Based on visual inspection of the cut, and the geometry of the exposed Material, these three layers appear to have been physically placed, as opposed to having settled as sediment layers in a former pond.



Historical aerial photographs of the area from 1973 (Figure 4; pre-LOU 10) and 1983 (Figure 5; post-LOU 10) are attached. A hand drafted BMI plan labeled “B.M.I. Dumping Area” is also attached (Figure 6), the date of which is illegible but clearly shows the former Trade Effluent Ponds (TEP) berms, dumping area, fence line, and a road leading northwest from 4th Street to what is labeled as the “Stauffer Area”. These features are visible on the photographs and are helpful in locating the former LOU 10 with respect to the TEP berms and current roads. The 1973 photograph and the undated drawing indicate that active dumping was occurring within the former TEPs that are now crossed by 4th Street. The dumping is apparent throughout the former TEPs, including the land east of 4th Street, where LOU 10 was later constructed. The 1983 photograph shows the location of former LOU 10 and also indicates significant changes to the BMI Dumping Area.

A BMI report titled *Phase I Environmental Conditions Assessment for The Basic Management, Inc., Industrial Complex, Clark County Nevada*, dated April 14, 1993 and prepared by Geraghty & Miller, Inc. (Geraghty & Miller, 1993) documents the operational history of the TEPs on the BMI Common Area, including their closure. The report indicates the two westernmost of the four former TEPs as the unlined BMI landfill. The BMI landfill operated until 1980 when it was closed. During the landfill operation from 1943 to 1980, wastes from multiple generators were accepted. According to the Geraghty & Miller 1993 report, prior to 1970, wastes were periodically burned, but after 1970, combustible solid wastes were buried. In 1971, several fires reportedly occurred due to spontaneous combustion.

The 1980 landfill closure is described in Geraghty & Miller (1993) as follows:

*“Wastes in the landfill were first covered by lime residue to form relatively impermeable layers and water was added during placement. The total depth of the lime varied from a minimum of two feet to a maximum of 15 feet or more. The lime was then covered with a minimum of two feet of soil taken from dikes and surrounding areas.”*

The Geraghty & Miller report also mentions that grain-size analysis of the cover material indicated it was 80% sand and 20% gravel.

The description of BMI landfill closure is highly consistent with the layers of Material exposed in the RZ-D cut slope. Based on the information summarized in this letter, it is Northgate’s opinion that this Material represents the eastern portion of the closed TEP and is not related to the former Tronox Hazardous Waste Landfill.



Please contact us with your questions or comments regarding these findings.

Sincerely,

Northgate Environmental Management, Inc.



Deni Chambers, CEM,  
Principal-in-Charge



Ted Splitter, CEM  
Principal Engineer

Enclosures (6): Figure 1: Cut Slope Location Map  
Figure 2: Photographs of Cut Slope  
Figure 3: Close-up Photograph of Cut Slope  
Figure 4: 1973 Aerial Photograph  
Figure 5: 1983 Aerial Photograph  
Figure 6: B.M.I. Dumping Area Plan (undated, hand drawn)

