

From: Deni Chambers, CEM, Principal-in-Charge **Date:** July 27, 2010
Derrick Willis, Project Manager

To: Shannon Harbour, Greg Lovato, Nevada Division of Environmental Protection

RE: Hazardous Waste Landfill (LOU 10) Sampling Plan

On behalf of the Tronox LLC., Northgate Environmental Management, Inc. (Northgate) has prepared this work plan for a limited sampling program at the closed Hazardous Waste Landfill (HWL), located in the north-western corner of the Tronox Henderson Facility, in Henderson, Nevada (the Site). This work plan is being submitted to the Nevada Division of Environmental Protection (NDEP) for review and approval in accordance with NDEP's request during a conference call with Tronox representatives on July 16, 2010. At that time, Northgate indicated that U.S. Ecology (the anticipated offsite disposal facility for HWL wastes) has requested Tronox to collect new samples of the HWL contents for waste profiling purposes.

Background Information:

The HWL (defined as LOU 10 during the Environmental Conditions Assessment) operated between February 1980 and January 1983. During that time period, the landfill received sodium chlorate filter cake that was stabilized by mixing with an equal volume of soil. The landfill also received soil originating from the closure of Pond S-1 (LOU 13) and included the dry contents, the pond liner, and two feet of underlying soil.

In 1985, the HWL was closed with an engineered cap. The cap reportedly consists of a 1.5- to 4-foot thick layer of compacted clay, a 40 mil HDPE membrane, a 6-inch clay layer, and a 1-foot thick drainage layer of compacted granular soil. Tronox continues to perform post-closure monitoring and maintenance of the HWL pursuant to a closure/post-closure plan approved by NDEP.

Sampling Procedures:

In order to collect samples of the HWL contents, it will be necessary to penetrate the engineered cap. This work plan presents a protocol to advance soil borings through the existing HWL cap, and sampling and analysis procedures to characterize soil and waste that will be excavated and transported off-Site during the implementation of the approved Removal Action Work Plan.

Northgate will contract with a Nevada-licensed drilling contractor to drill the soil borings. The borings will be advanced into the HWL using a truck-mounted drill-rig equipped with hollow-stem augers or equivalent. Although the available information does not indicate that either volatile organic compounds (VOCs) or decomposable organic matter were placed in the HWL, as a precautionary measure, the borehole and drill cuttings will be screened for the potential presence of VOCs and methane with a photoionization detector (PID) and an explosivity meter.

A total of 4 soil borings will be advanced through the HWL to a depth of approximately 24 feet below the ground surface (bgs). Figure 1 shows the location of the proposed soil borings (see attachment). Samples will be collect at approximate depth intervals of 1.0-2.5 ft bgs (within the cap) and below the cap at approximately 7.0-8.5 ft bgs, 13.0-14.5 ft bgs and 18.0-19.5 ft bgs. The discrete soil samples collected at each boring location from the HWL Cap material will be analyzed for metal and semi-volatile organic compounds. Soil samples from the depth intervals below the cap will be composited into one 3-point composite sample at each soil boring location for metal and semi-volatile organic compounds analysis at a Nevada certified laboratory.

All sampling equipment will be decontaminated prior to use, between boreholes, and at the completion of the sampling program using a laboratory grade non-phosphate detergent. Boreholes will be backfilled with cement grout upon completion. This procedure will be sufficient to maintain the cap integrity until such time as the HWL is excavated and removed from the Site. Soil cuttings generated during drilling will be contained in labeled 55-gallon drums that will be stored in an area adjacent to the HWL, and will be disposed offsite when the HWL is being removed.

The chemical analytical results of this limited soil sampling program will be included in a waste profile application for the disposal of the HWL removal action soil at a licensed facility in accordance with the RAW and applicable state and federal regulations.

Northgate intends to implement the limited soil sampling program described above - the week of August 16, 2010.

If you have any questions about this limited sampling program, please contact us.

