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REVISED MEMORANDUM

From: Deni Chambers, Principal-in-Charge
Derrick Willis, Project Manager

Date: July 27, 2010

To: Shannon Harbour, PE
Nevada Division of Environmental Protection

RE: Revised Manganese Tailings Pile Confirmation Sampling Memo

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The Nevada Division of Environmental Protection (NDEP) has requested that confirmation sampling be performed at the location of the former manganese (Mn) tailings pile at the Tronox facility in Henderson, Nevada (the Site) following removal of the Mn tailings.

Description and Background

The Mn tailings area is located north of the Mn leach plant and south of Mn-1 Pond. The area is approximately 8.6 acres in size. The southern edge of the area is still active and Mn tailings are still present. A narrow concrete foundation for a former cooling tower traverses the area from west to east.

From 1975 to 2004, this area was used for the disposal of Mn tailings from the leach plant process which included the leach beds. Mn tailings material from all locations at the Site were consolidated to the current location and covered with soil sometime prior to 1985. The tailings pile was periodically graded to maintain the desired shape and drainage. Concrete removed from Unit 6 was also disposed in the Mn tailings pile. Since 2001 to 2004, Mn tailings have been removed and disposed at an appropriate landfill.

Removal of the tailings was completed on July 19, 2010. A total of 284,232 tons of Mn tailings and debris were removed from the area, of which 0.4% was debris consisting of a minor amount of wood (approximately 3-5 cubic yards) which appears to be associated with forming the cooling tower concrete foundation structure. The cooling tower (Letter of Understanding [LOU] 46) was investigated as part of the Phase B investigation by 11 borings to depths of approximately 40 feet bgs. Select samples were analyzed for perchlorate, metals, hexavalent chromium, radionuclides, total petroleum hydrocarbons, dioxin/furans, and asbestos. No samples exceeded their respective basic comparison levels (BCLs). Phase B investigation results are presented in Table 2.

During tailings removal, a shallow inactive vitreous clay pipe, historically used for transport of non-contact cooling water, was disturbed. Approximately 5 to 10 gallons per minute (gpm) of water was discharged to the ground surface for approximately 24 hours before Tronox was able to close a valve. The pipe breakage and subsequent discharge was reported to NDEP by Tronox via e-mail on July 12, 2010. Tronox indicated in the e-

mail that the source of the water was stabilized Lake Mead water. The water was sampled and tested and was found to have a pH of 6.62, a conductivity of 3,340 µmho/cm, and barium and mercury at concentrations of 0.22 mg/L and 0.02 mg/L, respectively. No other metals were detected.

Confirmation Soil Sampling

Confirmation soil sampling will be conducted following procedures set forth in Northgate's *Pre-Confirmation Sampling Work Plan*[1] and the BMI standard operating procedures (SOPs)[2].The objectives of the sampling program are: 1) to confirm that Mn tailings are removed and that associated chemicals (manganese, cobalt and arsenic) are below the following screening levels. NDEP's BCLs for manganese and cobalt are 13,700 and 331 milligrams per kilogram (mg/kg), respectively, and the background concentration for arsenic is 7.2 mg/kg; and, 2) to additionally analyze select shallow soil samples for dioxin/furans based on previous Phase B soil boring SA52, where a 890 parts per thousand dioxin concentration was detected.

Soil samples will be collected using a slide-hammer sampler from 21 locations at a depth of 0-6 inches below ground surface (bgs), as shown on Figure 1. Additional samples will be collected from 6-12 inches bgs at each sampling location; these samples will be placed on hold pending receipt of analytical results of the shallow samples. Nine of the sample locations will be placed in a grid pattern across the main portion of the Mn tailings area; four will be located along the eastern property boundary; two will be located along the west boundary of the tailings area; four will be located along the north boundary of the tailings area; and two will be located in the vicinity of boring SA139 (northeast corner). No samples will be collected along the southern boundary, as this area is a part of active Site operations and there is an active utility corridor present. The proposed sampling locations and analyses are presented in Table 1.

Results of confirmation soil sampling will be presented in the Human Health Risk Assessment and Closure report for RZ-C.

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

Enclosures: Figure 1 – Manganese Tailings Proposed Sampling Locations
Table 1 – Confirmation Sampling Plan for Manganese Tails Area
Table 2 – Phase B Investigation Results
Attachment A – Volume Determination of Manganese Tailings Pile, Tronox Facility, Henderson, Nevada. Prepared by ENSR/AECOM on April 9, 2007.
Response to NDEP's Comments

[1] Northgate. 2010. Final Revised Pre-Confirmation Work Plan, Remediation Zones RZ-A Through RZ-E, Phase B Investigation, Tronox Facility, Henderson, Nevada. March 25.
[2] ERM-West, Inc. 2009. BRC Field Sampling and Standard Operating Procedures, BMI Common Areas, Clark County, Nevada. December.