MANGANESE TAILINGS REMOVAL TECHNICAL MEMORANDUM

Nevada Environmental Response Trust Site
Henderson, Nevada

Prepared For:

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November 9, 2012

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Manganese Tailings Removal Technical Memorandum
Nevada Environmental Response Trust Site
Henderson, Nevada

Responsible Certified Environmental Manager (C.E.M.) for this project

I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.

Derrick Willis, C.E.M. Nevada, No. 2252
Northgate Environmental Management, Inc.

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EXECUTIVE SUMMARY

The Manganese Tailings Pile (MTP) area is located north of the Manganese Leach Plant and south of Mn-1 Pond (MTP Area) on what is now known as the Nevada Environmental Response Trust Site in Henderson, Nevada (the Site). At the time of the MTP removal activities described herein, the Site was owned and operated by Tronox LLC (Tronox). On February 14, 2011 the Nevada Environmental Response Trust (NERT) took title to the Site pursuant to the settlement of Tronox's bankruptcy proceedings. Tronox subsequently leased back a portion of the Site, on which it continues to operate its chemical manufacturing business.

The MTP Area is approximately 8.6 acres in size. From 1975 to 2004, this area was used for the disposal of manganese tailings from the leach plant process which included the leach beds (the historic manganese tails). This material is a non-hazardous solid waste product generated in the production of electrolytic-grade manganese dioxide. Manganese 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. Since 2004, manganese tailings from the Tronox operations (current tailings production) have been shipped to an appropriate off-site landfill.

MTP removal activities were initiated on April 29, 2010 and completed on July 19, 2010. A total of 284,232 tons of tailings and minor debris were removed from the area. In accordance with a request by the Nevada Division of Environmental Protection (NDEP), a confirmation sampling program was implemented subsequent to tailings removal. Based on the results of the confirmation sampling program, additional shallow soil excavation was conducted concurrent with Phase B soil remediation in accordance with the Removal Action Work Plan (Northgate, 2010d), and the Revised Excavation Plan for Phase B Soil Remediation of RZ-C Addendum to the Remedial Action Work Plan (Northgate, 2010h). The post-confirmation sampling excavation was conducted to address soil that contained concentrations of manganese, arsenic, cobalt and/or asbestos that exceeded screening criteria.

1.0 INTRODUCTION

Pursuant to its agreement with ENVIRON International Corporation (NERT's environmental consultant), Northgate Environmental Management Inc. (Northgate) has prepared this Technical Memorandum (Tech Memo) documenting the removal of manganese tailings from the MTP at the Site. A Site Location Map is given on Figure 1 and a MTP Area Location Map is given on Figure 2.

This Tech Memo presents field activities related to tailings removal, confirmation sampling, and subsequent soil remediation and asbestos abatement conducted in the MTP Area.

The tailings removal, confirmation sampling, and subsequent remedial actions described in this report are based on information contained in the following documents:

- *Volume Determination of Manganese Tailings Pile* – Dated April 9, 2007 (ENSR, 2007);
- *Removal Action Workplan for Phase B Soil Remediation of Remediation Zones RZ-B through RZ-E* – Dated May 4, 2010 (Northgate, 2010c);
- *Manganese Tailings Pile Confirmation Sampling Memo* – Dated July 9, 2010 (Northgate, 2010e);
- *Nevada Division of Environmental Protection (NDEP) Comment Letter* – Dated July 20, 2010 (NDEP, 2010a);
- *Revised Manganese Tailing Pile Confirmation Sampling Memo* – Dated July 26, 2010 (Northgate, 2010f);
- *Response to NDEP's July 20, 2010 Comments* – Dated July 26, 2010 (Northgate, 2010g);
- *Revised Excavation Plan for Phase B Soil Remediation of RZ-C Addendum to the Removal Action Work Plan* – Dated September 1, 2010 (Northgate, 2010h); and
- *Former Manganese Tailings Pile Area Remediation Memo* – Dated December 3, 2010 (Northgate, 2010i).

1.1 Scope of Report

The purpose of this report is to:

1) Describe the field activities related to manganese tailings removal;
2) Document activities and results of the confirmation sampling; and
3) Document scraping and removal of asbestos- and chemical-impacted soils within the MTP.

2.0 MANGANESE TAILINGS AREA DESCRIPTION AND HISTORY

The 410-acre Site, of which the MTP Area constitutes approximately 8.6 acres, is located approximately 13 miles southeast of the city of Las Vegas in an unincorporated area of Clark County, Nevada, and lies in Sections 1, 12, and 13 of Township 22 S, Range 62 E (Figure 1). The Site is located within the Black Mountain Industrial (BMI) complex, which consists of several facilities, owned and operated by chemical companies. One of these facilities is currently operated by Tronox pursuant to a lease with NERT, which took title to the Site on February 14, 2011 as part of the settlement of the Tronox bankruptcy proceedings. The City of Henderson surrounds the BMI complex.

2.1 Historical Uses and Results of Investigations of Manganese Tailings Area

The MTP Area is approximately 8.6 acres in size and is located north of the leach plant and south of Mn-1 Pond on the eastern side of the Site as shown in Figure 2. A narrow concrete foundation for a former cooling tower traversed the area from west to east.

From 1975 to 2004, the MTP Area was utilized for the disposal of manganese tailings from the leach plant process, which included the leach beds. Sometime prior to 1985, the manganese tailings materials from several locations at the Site were consolidated to the MTP and covered with soil. Periodic grading of the tailings pile was conducted to maintain the desired shape and drainage. Concrete that was removed from Unit Building 6 maintenance work was also disposed of in the MTP. Since 2004, manganese tailings from MnO_2 production at the Site have been shipped to and disposed of at an appropriate off-site landfill.

A *Volume Determination of Manganese Tailings Pile* report (included as Appendix A of this document), completed by ENSR and dated April 9, 2007 (ESNR, 2007), documents the work conducted to estimate the in-place volume of the manganese tailings. According to the report, a cross-sectional block model technique was used to perform the calculation that resulted in an estimated grand total of 213,031 cubic yards of manganese tailings in the pile. Figure 3 depicts the blocks that were utilized in this calculation.

3.0 MANGANESE TAILINGS REMOVAL

Northgate contracted with ENTACT Environmental Services, Inc. (ENTACT) for removal of the MTP.

3.1 Permitting

A dust control permit from the Clark County Department of Air Quality and Environmental Management (DAQEM) was obtained prior to initiating removal activities. A copy of the permit is included in Appendix B. The permit requires that the contractor control dust emissions during excavation and transportation of the manganese tailings throughout the removal process and also to apply and maintain a dust palliative upon completion of the removal work.

3.2 Health and Safety

Work performed at the Site was in accordance with the Site Health and Safety Plan (Appendix C).

3.3 Field Preparation

Field preparation activities, conducted between April 29, 2010 and May 5, 2010, included the following:

- Coordination with Tronox to obtain a ground-breaking permit;
- Obtaining a non-hazardous waste profile from Republic for disposal of the tailings at Apex Landfill (Waste Profile No. 3825104167);
- Setting up a secure egress/ingress at the Site;
- Implementing stormwater pollution prevention plan (SWPPP) measures and best management practices (BMPs) in accordance with a Tronox National Pollutant Discharge Elimination System (NPDES) permit which included the installation of silt fencing along a portion of the eastern property boundary and the installation of geosynthetic filter fabric north of the MTP in order to limit erosion and contain any run-off to the MTP Area;
- Set up and operation of a sprinkler system and application of water via water truck to pre-water the MTP materials in accordance with the dust permit;
- Set up of track-out areas and decontamination pads in MTP Area and at the landfill; and
- Finalization of an on-site and off-site transportation route.

Copies of the soil disposal manifests and daily tracking logs are included in Appendix D and a copy of the waste profile is included in Appendix E. The route from the Site to Apex Landfill is shown on Figure 4.

3.4 Removal Activities

Removal of the tailings was initiated on May 6, 2010 and was completed on July 19, 2010. Soil from the pile was loaded into covered trucks and transported to Apex Landfill, approximately 37 miles from the Site.

The work was conducted in accordance with the RAW, DAQEM permit, the Site NPDES permit and ENTACT's Health and Safety Plan. Dust mitigation and monitoring was conducted by ENTACT under the oversight of Northgate. All removal work was conducted under the oversight of NDEP's field representatives.

Dust mitigation was conducted using the application of water via water trucks. The potential for tailings material contamination was controlled through the use of dust mitigation and monitoring, truck/wheel wash stations, and gravel track-out areas. Truck wheel wash and track out areas were utilized and maintained at the egress point of the MTP Area and the Apex Landfill. In addition, a street sweeper was utilized on a daily basis to sweep the paved transportation route (as shown in Figure 5) on the Site and the adjacent 4th Street.

Tailings were confined to the MTP Area, covered trucks, and the landfill with the exception of the following incidents:

- On May 12, 2010, a partial load (3 to 5 cubic yards) of manganese tailings was inadvertently released on Highway 15 due to truck driver error. The manganese tailings were recovered from the roadway using a loader and a sweeper. An incident report is included in Appendix F;
- On May 21, 2010, a partial load (2 to 3 cubic yards) of manganese tailings was inadvertently released on a Site road just outside of the MTP Area due to a sticking belly gate. The manganese tailings were recovered from the roadway using a loader and a sweeper. An incident report is included in Appendix F; and
- On May 28, 2010, a partial load (5 to 8 cubic yards) of manganese tailings was released on a frontage road adjacent to the Apex Landfill due to driver error. The manganese tailings were recovered from the roadway using a loader and a sweeper. An incident report is included in Appendix F.

A total of 284,232 tons of manganese tailings and debris were removed from the area, of which, 0.4% was debris consisting of a minor amount of wood (approximately 3 to 5 cubic yards). This wood appears to be associated with the forms for constructing the concrete foundation of the former cooling tower covered by the MTP, which was investigated as part of the Phase B investigation.

During tailings excavation, an undetermined odor was detected from two isolated areas. During these occurrences, the excavation work was stopped in these areas, the areas were screened using a photoionization detector (PID), and sampling was conducted. A summary of these events is briefly described below:

- On May 14, 2010, ENTACT detected odors from an area in the northwest corner of the manganese tailings stockpile. Northgate isolated and performed a PID screening in a 35 foot by 20 foot section of this area. No PID readings were detected in the worker's breathing zones and low readings (less than 2 parts per million [ppm]) were detected in the sample container headspace, and the odor dissipated. Based on the results of the PID sampling and the attenuation of the odors, excavation continued; and
- On May 18, 2010, undetermined odors were detected in the northwest section of the MTP in an active excavation area along the northern side of the MTP Area. Northgate isolated and performed a PID screening in a 35 foot by 20 foot section of this area. No PID readings were detected in the worker's breathing zones; however, low readings (1.4 ppm) were detected in the sample container headspace. Two (2) samples, including one (1) primary and one (1) field duplicate were collected and analyzed for volatile organic compounds (VOCs). Samples were collected using a 2.5-inch by 6-inch stainless steel liner as well as a "LocNLoad" collection device to fill three (3) volatile organic analysis (VOA) containers for analysis.

The primary sample and field duplicate sample collected on May 18, 2010 reported concentrations of benzene at 0.51 and 0.69 micrograms per kilogram (µg/kg), respectively. The field duplicate also detected chloroform at 0.50 µg/kg. All three values were "J flagged" by the laboratory, indicating that the results reported were between the method detection limit and the method reporting limit and that the values were estimated. These results are below the NDEP Basic Comparison Level (BCL) of 1.44 milligrams per kilogram (mg/kg) for benzene (NDEP, 2010b). Based on the results of the analytical data, tailings removal work resumed in this area.

All accompanying field reports and sample results for these occurrences are presented in Appendix G.

During tailings removal work, a shallow and inactive vitreous clay pipe (VCP) was disturbed. This VCP has historically been used to transport non-contact cooling water and was connected to other inactive pipes that apparently contained a significant amount of water. Approximately 5 to 10 gallons per minute of water was discharged to the ground surface for approximately 24 hours before Tronox was able to find and close a valve. The pipe breakage was reported to NDEP by Tronox via e-mail on July 12, 2010. In the e-mail, Tronox indicated that the source of the water was stabilized Lake Mead water. The water was sampled on July 8, 2010 and was found to have a pH of 6.26, a conductivity of 3,340 micromhos per centimeter (µmho/cm), and concentrations of barium and mercury of 0.22 milligrams per liter (mg/L) and 0.002 mg/L, respectively. No other metals were detected. The letter and results of this sampling are included in Appendix H. The water pooled in the concrete foundation of the former cooling towers and did not extend outside the MTP Area. The water was allowed to evaporate from the concrete-lined cooling tower foundations.

Removal of the MTP was completed on July 16, 2010 and approved after field inspection by Mr. Devin Gordon of McGinley and Associates, the field representative for NDEP. Tailings removal completion was based on removal of the visually distinct tailings material to the interface of the tailings and underlying soil. Approximately 6 to 12 inches of soil at the tailings/soil interface were removed. Where concrete foundations were present in the center of the MTP Area, tailings above the foundations were hand-excavated to the concrete foundation. Barriers were placed denoting potential trip and fall hazards around the concrete foundations and exposed pipes, and a dust palliative was placed on the former MTP.

A small portion of the MTP extended south into the active Tronox production area as shown on Figure 6. This material was not excavated as part of the removal action and is included in Excavation Control Area C18 for the leach plant equipment and facilities (ENVIRON, 2012). The primary reason was to maintain a safe offset from the active Southwest Gas pipeline. The exposed face of residual tailings not removed from the production area was covered with approximately two of feet of soil.

A tonnage summary for the manganese tailings removal is presented in Table 1. Copies of the daily field records maintained by Northgate are given in Appendix I.

4.0 CONFIRMATION SAMPLING

Following the removal and off-site disposal of the historic manganese tailings, a confirmation sampling plan memorandum was prepared and submitted to NDEP. A copy of the original memorandum, NDEP's comments, the response-to-comment letter, and the revised memorandum are included in Appendix J.

Samples were collected in a grid pattern and along the boundary of the MTP Area for analysis for manganese, cobalt, and arsenic to confirm the removal of the manganese tailings and that associated chemicals were below their respective screening levels. Several areas in the southern portion to the MTP Area were found to contain residual concentrations of manganese, cobalt, and arsenic above their screening levels and excavation polygons were proposed at depths ranging from 1 to 3 feet below ground surface (bgs). The Phase B and confirmation sampling locations are shown in Figure 6.

4.1 Confirmation Sampling Rationale

The objective of the sampling program was to confirm that manganese tailings were removed and that associated chemicals (manganese, cobalt, and arsenic) were below their respective screening levels. NDEP's BCLs for manganese and cobalt are 13,700 and 331 mg/kg, respectively and the NDEP-approved Site background concentrations of arsenic is 7.2 mg/kg (NDEP, 2010b).

4.2 Confirmation Sampling Methodology

Following removal of the MTP, Northgate collected confirmation soil samples from the former MTP Area in July 2010. Field activities and sampling procedures were performed under the supervision of a Certified Environmental Manager and in accordance with the procedures set forth in Northgate's *Final Revised Pre-Confirmation Work Plan, Remediation Zones RZ-A Through RZ-E, Phase B Investigation, Tronox Facility, Henderson, Nevada* dated March 25, 2010 (Northgate, 2010b) and the BRC *Field Sampling and Standard Operating Procedures (SOP), BMI Common Areas, Clark County, Nevada,* dated December 2008 (ERM-West, 2008).

Soil samples were collected using a slide-hammer sampler from twenty-one (21) locations at a depth of 0-6 inches bgs. These borings are denoted as hexagons on Figure 6. Nine (9) of the sample locations were placed in a grid pattern across the main portion of the MTP; four (4) were located along the eastern property boundary; two (2) were located along the western boundary of

the MTP; four (4) were located along the northern boundary of the MTP; and one (1) boring was located in each of the Remediation Zones (RZ)-C-46 and –C-47 in the northeastern corner. Additional samples were collected from 6-12 inches bgs at each sampling location. These samples were placed on hold pending receipt of analytical results of the shallow soil samples.

If results from the 6-inch sample exceeded BCLs, the deeper (12-inch) sample was analyzed for the compound for which there was a BCL exceedance. In instances where the 12-inch soil sample results exceeded the BCL, additional soil samples were collected every foot to a total depth of 6 feet bgs and analyzed for compounds that exceeded the BCL.

A summary of the number and type of confirmation samples collected is presented in Table 2.

4.3 Confirmation Sampling Results

Results of the confirmation sampling are presented on Figure 7 and in Tables 3 through 10. In addition, analytical results from the Phase B sampling program, conducted prior to the removal of the tailings pile, are also presented. In addition, soil samples that have been removed (through excavation) are identified by orange shading.

The data presented in these tables haves been validated. Samples collected during the Phase B investigation (denoted as "Phase B" in the tables) are presented in the *Data Validation Summary Report, Phase B Investigation Area III Soil, Tronox LLC, Henderson, Nevada*, dated February 18, 2010 and prepared by Northgate (Northgate, 2010a). Samples collected during the confirmation sampling as described in Section 4.2 are presented in the *Data Validation Summary Report, Additional Pre-Confirmation Sampling, Tronox LLC, Henderson, Nevada*, dated January 28, 2011 and prepared by Northgate (Northgate, 2011).

For samples collected during the Phase B sampling program, the depth intervals of the pre-tailing pile removal samples have been corrected to reflect the removal of the tailings pile.

The results indicated that there were residual concentrations of manganese, cobalt, and arsenic above NDEP's BCLs (and background level for arsenic) at shallow depths in several areas of the southern portion of the former MTP Area. Figure 7 shows four new excavation polygons (RZ-C-45B, RZ-C-45C, RZ-C-45D, and RZ-C-45E) to be excavated to depths of 1, 3, 1, and 2 feet bgs, respectively. The depth of RZ-C-45E was modified to maintain a safe offset from the active Southwest Gas pipeline. These polygons were proposed in order to remove residual chemicals as described above. This work was incorporated into the Revised Excavation Plan for Phase B

Soil Remediation of RZ-C Addendum to the Removal Action Work Plan submitted to NDEP on September 1, 2010 (Northgate, 2010h).

It should be noted that the analytical data presented in Tables 3 through 10 also serves as the pre-confirmation sample data for the new remediation zones (RZ-C-45B, RZ-C-45C, RZ-C-45D) where the data highlighted reflects the soil to be excavated.

5.0 EXCAVATION OF SOIL EXCEEDING SCREENING CRITERIA

Based on the results of the confirmation sampling program, approximately 3,660 cubic yards of soil were excavated and transported to Apex. The work was done concurrently with and as part of the RZ-C remediation work in accordance with the Revised Excavation Plan for Phase B Soil Remediation of RZ-C Addendum to the Removal Action Work Plan (Northgate, 2010h). RZ-C-45A was excavated to 0.33 feet bgs, RZ-C-45B was excavated to a depth of 1 foot bgs, RZ-C-45C was excavated to a depth of 3 feet bgs, RZ-C-45D was excavated to a depth of 1 foot bgs, and RZ-C-45E was excavated to a depth of 2 feet bgs. Remediation of these remediation zones was completed by February 10, 2011.

6.0 REFERENCES

ENSR Corporation (ENSR). 2007. Volume Determination of Manganese Tailings Pile. Tronox Facility, Henderson, Nevada. April 9.

ENVIRON International Corporation. 2012. Site Management Plan (SMP), Nevada Environmental Response Trust Site, Clark County, Nevada. Revised April. (with May 23, 2012 and May 30, 2012 Errata)

ERM-West, Inc. (ERM-West). 2008. BRC Field Sampling and Standard Operating Procedures, BMI Industrial Complex, Clark County, Nevada. December 2008.

Nevada Division of Environmental Protection (NDEP). 2010a. Response to: TRX Letter Submittal RE: Manganese Tailings Pile Confirmation Sampling. July 20.

NDEP. 2010b. User's Guide and Background Technical Document for NDEP Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August.

Northgate Environmental Management, Inc. (Northgate). 2010a. Final Revised Pre-Confirmation Work Plan, remediation Zones RZ-A Through RZ-E, Phase B Investigation, Tronox LLC, Henderson Nevada. February 18.

Northgate. 2010b. Final Revised Pre-Confirmation Work Plan, remediation Zones RZ-A Through RZ-E, Phase B Investigation, Tronox LLC, Henderson Nevada. March 25.

Northgate. 2010c. Removal Action Work Plan for Phase B Soil Remediation of Remediation Zones RZ-B through RZ-E, Tronox LLC, Henderson, Nevada. May 4.

Northgate. 2010d. Removal Action Work Plan for Phase B Soil Remediation of Remediation Zones RZ-B through RZ-E, Tronox LLC, Henderson, Nevada. June 22.

Northgate. 2010e. Manganese Tailings Pile Confirmation Sampling, Tronox LLC, Henderson, Nevada. July 9.

Northgate. 2010f. Revised Manganese Tailings Pile Confirmation Sampling Memo. July 26.

Northgate. 2010g. Response to Nevada Division of Environmental Protection's July 20, 2010 Comments on *TRX Letter Submittal RE: Manganese Tailings Pile Confirmation Sampling*, July 26.

Northgate. 2010h. Revised Excavation Plan for Phase B Soil Remediation of RZ-C Addendum to the Removal Action Work Plan, September 1.

Northgate. 2010i. Former Manganese Tailings Pile Remediation Memo, December 3.

Northgate. 2011. Data Validation Summary Report, Additional Pre-Confirmation Sampling, Tronox LLC, Henderson, Nevada, dated January 28.

TABLES

TABLE 1
Manganese Tailings Removal Tonnage Summary

Date	Tonnage	Average On-Site Truck Time (Minutes)
05/06/10	1,196.25	31.82
05/07/10	1,118.56	25.94
05/08/10	1,420.99	35.64
05/10/10	2,690.53	25.14
05/11/10	3,352.06	24.19
05/12/10	3,612.48	24.14
05/13/10	3,443.68	24.40
05/14/10	4,135.04	24.88
05/15/10	4,370.21	41.00
05/18/10	5,466.63	37.31
05/19/10	5,845.71	26.77
05/20/10	5,661.08	25.82
05/21/10	4,827.99	26.30
05/22/10	5,214.04	24.99
05/24/10	5,104.84	26.48
05/25/10	5,939.33	25.72
05/26/10	5,583.68	26.53
05/27/10	5,705.18	25.32
05/28/10	5,873.93	27.15
06/01/10	6,206.05	25.05
06/02/10	5,463.61	26.54
06/03/10	5,568.27	31.54
06/04/10	5,806.15	32.03
06/05/10	6,251.78	29.10
06/06/10	32.13	30.00
06/07/10	5,586.93	28.56
06/08/10	5,848.62	30.16
06/09/10	6,223.78	32.05
06/10/10	5,930.83	30.69
06/11/10	6,524.19	28.69
06/12/10	6,366.80	33.32
06/14/10	6,464.63	34.84
06/15/10	5,824.19	31.17
06/16/10	2,669.81	29.07
06/17/10	5,893.91	31.56
06/18/10	6,430.50	36.75
06/19/10	5,476.28	28.82
06/21/10	5,150.70	28.91
06/22/10	5,365.50	34.57
06/23/10	6,164.96	29.35
06/24/10	5,115.51	28.84
06/25/10	6,103.80	30.93
06/26/10	5,673.79	28.45
06/28/10	4,256.31	29.01
06/29/10	5,254.50	30.10
06/30/10	5,701.65	28.33

TABLE 1
Manganese Tailings Removal Tonnage Summary

Date	Tonnage	Average On-Site Truck Time (Minutes)
07/01/10	5,771.74	29.36
07/02/10	5,249.47	28.73
07/05/10	5,482.84	27.53
07/06/10	5,658.36	28.05
07/07/10	4,784.96	28.63
07/08/10	4,962.03	27.08
07/09/10	6,050.92	30.57
07/10/10	5,471.35	30.15
07/11/10	35.80	--
07/12/10	34.86	25.33
07/13/10	4,462.37	28.84
07/14/10	4,120.60	29.95
07/15/10	2,808.05	24.15
07/16/10	1,421.30	30.56
Summary	**284,232.04**	**29.10**

-- Data not provided by subcontractor.

TABLE 2
Confirmation Samples

Boring Identification	Sample Date	Grid	Sampling Depth	Sampling Identification	8290 Dioxin	6020 Arsenic	6020 Cobalt	6020 Manganese
SSAN7-06	9/7/10	N7	0-6"	SSAN7-06-0.0BPC		X	X	X
			6-12"	SSAN7-06-0.5BPC		Hold	Hold	Hold
SSAN7-07	9/7/10	N7	0-6"	SSAN7-07-0.0BPC		X	X	X
			6-12"	SSAN7-07-0.5BPC		Hold	Hold	Hold
SSAN8-03	9/7/10	N8	0-6"	SSAN8-03-0.0BPC		X	X	X
			6-12"	SSAN8-03-0.5BPC		Hold	Hold	Hold
SSAN8-04	9/7/10	N8	0-6"	SSAN8-04-0.0BPC		X	X	X
			6-12"	SSAN8-04-0.5BPC		Hold	Hold	Hold
SSAN8-05	9/7/10	N8	0-6"	SSAN8-05-0.0BPC		X	X	X
			6-12"	SSAN8-05-0.5BPC		Hold	Hold	Hold
SSAO7-04	9/8/10	O7	0-6"	SSAO7-04-0.0BPC		X	X	X
			6-12"	SSAO7-04-0.5BPC		Hold	Hold	Hold
SSAO7-05	9/17/10	O7	0-6"	SSAO7-05-0.0BPC		X	X	X
			6-12"	SSAO7-05-0.5BPC		Hold	Hold	Hold
SSAO7-06	9/27/10	O7	0-6"	SSAO7-06-0.0BPC	X	X	X	X
			6-12"	SSAO7-06-0.5BPC	Hold	Hold	Hold	Hold
SSAO7-07	9/17/10	O7	0-6"	SSAO7-07-0.0BPC	X	X	X	X
			6-12"	SSAO7-07-0.5BPC	Hold	Hold	Hold	Hold
SSAO7-08	9/17/10	O7	0-6"	SSAO7-08-0.0BPC		X	X	X
			6-12"	SSAO7-08-0.5BPC		Hold	Hold	Hold
SSAO8-04	9/8/10	O8	0-6"	SSAO8-04-0.0BPC		X	X	X
			6-12"	SSAO8-04-0.5BPC		Hold	Hold	Hold
SSAO8-05	9/27/10	O8	0-6"	SSAO8-05-0.0BPC	X	X	X	X
			6-12"	SSAO8-05-0.5BPC	Hold	Hold	Hold	Hold
SSAO8-06	9/17/10	O8	0-6"	SSAO8-06-0.0BPC		X	X	X
			6-12"	SSAO8-06-0.5BPC		Hold	Hold	Hold
SSAO8-07	9/8/10	O8	0-6"	SSAO8-07-0.0BPC	X	X	X	X
			6-12"	SSAO8-07-0.5BPC	Hold	Hold	Hold	Hold
SSAO8-08	9/27/10	O8	0-6"	SSAO8-08-0.0BPC		X	X	X
			6-12"	SSAO8-08-0.5BPC		Hold	Hold	Hold
SSAO8-09	9/17/10	O8	0-6"	SSAO8-09-0.0BPC		X	X	X
			6-12"	SSAO8-09-0.5BPC		Hold	Hold	Hold
SSAO8-10	9/27/10	O8	0-6"	SSAO8-10-0.0BPC		X	X	X
			6-12"	SSAO8-10-0.5BPC		Hold	Hold	Hold
SSAO8-11	9/27/10	O8	0-6"	SSAO8-11-0.0BPC		X	X	X
			6-12"	SSAO8-11-0.5BPC		Hold	Hold	Hold
SSAO8-12	9/17/10	O8	0-6"	SSAO8-12-0.0BPC		X	X	X
			6-12"	SSAO8-12-0.5BPC		Hold	Hold	Hold

Notes:
X = Sample was analyzed for the analyte listed

TABLE 3
Manganese Tailings Metals Soil Results

						Analyte Name	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (Total)	Chromium (VI)	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Platinum	Potassium	Selenium	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Zinc
						Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
						2010 NDEP BCL (1)	100000	454	1.77 (2)	100000	2230	100000	560	100000	1230	337	42200	100000	800	100000	15100	341	5680	21800			5680	5680		100000	79.5	100000	100000	8510	3400	5680	100000
Task	Boring ID	Sample Name	Type	Start Depth(3)	End Depth	Sample Date	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	9500	< 0.5 UJ	1.87 J-	154	0.525 J	< 10.5 U	< 0.04 U	8.76 J	< 0.19 U	8.9	20.7 J+	15400	9.8	8730 J	1330	0.024	0.3 J	19.9 J	< 0.1 U	2880	< 0.7 UJ	< 0.2 U	310	136	0.119	< 10.5 U	779	0.23	0.747	42.9 J+	34.5
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	9150	< 0.5 UJ	2.94 J-	167	0.593 J	< 10.5 U	< 0.04 U	10.5 J	< 0.19 U	7.5	18.3 J+	14100	8.3	9530 J	397	0.008 J	0.44	15 J	< 0.1 U	1770	< 0.7 UJ	< 0.2 U	473	208	0.119	< 10.5 U	716	0.22	1.39	44.4 J+	31.9
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	9930	< 2.1 UJ	3.83 J-	167	0.5 J	< 10.6 U	< 0.04 U	8.29 J	< 0.3 U	26.4	25.4 J+	16100	8.1	11000 J	2150	0.01 J	0.34	22.1 J	< 0.11 U	1960	< 0.7 UJ	< 0.2 U	713	320	0.099	< 10.6 U	782	0.23	1.79	50 J+	38.9
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	18300	< 2.2 UJ	17.3 J-	89.2	0.845 J	38.3	< 0.04 U	38.5 J	8.73	6.9	17.6 J+	15700	11.7	30700 J	357	0.006 J	0.8	14.4 J	< 0.11 U	5180	< 0.8 UJ	< 0.2 U	2550	118	0.302	< 11.1 U	724	0.4	2.78	40.2 J+	46.6
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	11600	< 0.5 U	4.75	336	0.517	7 J	1.56	11	0.66	201	53.9	20000	12.6	8730	9010	0.028	0.9	98.4	0.008 J	2590	< 0.7 U	< 0.2 U	870	174	0.609	< 10.7 U	1180	0.74	1.17	59.4	90.4
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	12100	< 0.5 U	5.21	346	0.581	7.8 J	1.84	14.9	0.83	284	77.1	21000	12.2	10200	6280	0.027	1.97	164	0.01 J	2330	< 0.7 U	< 0.2 U	846	288	0.852	< 10.7 U	1030	0.7	2.48	54.1	154
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	11500	< 0.6 U	17.9	150	0.448	15.4	1.04	11.6	< 0.21 U	96.7	25	14800	8.5	19000	1280	0.014 J	1.41	55.7	0.007 J	2740	< 0.8 U	< 0.2 U	823	577	0.471	< 11.8 U	879	0.41	3.3	52.7	60.7
Phase B	SA108	SA108-20B	N	1	2.5	10/16/2009	8850	< 2.1 UJ	2.16	215	0.521 J	38.8	0.19	12 J	2.01	19.8	24.8 J	15900	8.7	8460	967 J	0.018	0.72	19.4	0.007 J	3090	< 0.7 UJ	< 0.2 U	1910	150	0.98 J	< 10.6 U	907	0.4 J	0.793	47.2	42.2
Phase B	SA108	SA108-30B	N	11	12.5	10/16/2009	8490	< 2.1 UJ	2.26	153	0.433 J	39.5	0.17	8.03 J	< 0.19 U	7	19.7 J	15400	6.8	9730	313 J	0.005 J	0.32	15.6	0.008 J	1900	1 J-	< 0.2 U	1400	167	0.105 J	< 10.6 U	818	0.2 J	1.21	46.5	31.4
Phase B	SA108	SA108-45B	N	26	27.5	10/16/2009	7690	< 2.4 UJ	8.86	138	0.379 J	15.2	0.09 J	6.53 J	< 0.22 U	5.3	14.6 J	11700	6.9	9210	320 J	0.007 J	0.57	10.3	0.006 J	1960	< 0.8 UJ	< 0.2 U	879	372	0.071 J	< 11.9 U	636	0.27 J	1.85	40	25.1
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	20100	0.9 J-	38.2 J-	1500	1.02 J	29.4	2.79	52.7 J	4.23	**784**	272 J+	22500	98.7	12000 J	**41900**	0.115	9.08	274 J	< 0.1 U	3540	< 0.7 UJ	< 0.2 U	922	284	4.13	< 10 U	1130	23.9	1.69	84.8 J+	328
PCS	SA137	SA137-3BPC	N	3	4	4/7/2010			12							170					9400																
PCS	SA137	SA137-4BPC	N	4	5	4/7/2010			60							67					3200																
PCS	SA137	SA137-5BPC	N	5	6	4/7/2010			89							140					6900																
PCS	SA137	SA137-5BPC_FD	FD	5	6	4/7/2010			74							130					6100																
PCS	SA137	SA137-6BPC	N	6	7	4/7/2010			130																												
PCS	SA137	SA137-7BPC	N	7	8	4/7/2010			12																												
PCS	SA137	SA137-8BPC	N	8	9	4/7/2010			7.6																												
PCS	SA137	SA137-9BPC	N	9	10	4/7/2010			12							25 J+					2600																
PCS	SA137	SA137-10BPC	N	10	11	4/7/2010			6.6												1600																
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	10700	< 0.5 UJ	4.88 J-	206	0.517 J	< 10.7 U	< 0.04 U	9.65 J	< 0.19 U	8.6	19.1 J+	16900	10	11500 J	461	0.03	0.32	15 J	< 0.11 U	3290	< 0.7 UJ	< 0.2 U	1810	177	0.095	< 10.7 U	908	0.37	1.68	56.1 J+	36.1
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	14000	0.7 J-	17.9 J-	103	0.569 J	25.2	< 0.04 U	44.1 J	0.55 J	5.3	14.3 J+	12100	7.3	38100 J	235	0.01 J	0.36	11.6 J	< 0.018 U	4220	< 0.8 UJ	< 0.2 U	2560	253	0.24	< 11.1 U	698	< 0.45 U	5.91	43.8 J+	34.1
Phase B	SA139	SA139-0.5B	N	0.5	2	8/20/2009	19600	< 0.5 UJ	24.7 J	1720 J-	0.932	232	1.31	16.3 J+	1.1	335	258	25000	115	9300	**21600** J	0.08	7.34 J	175 J-	0.026 J	3560	< 0.8 UJ	0.5 J	1710	347	1.38	< 10.9 U	1000	9.34 J	1.61	76.2	233 J-
PCS	SA139	SA139-1BPC	N	1	2	4/13/2010			23							290					**31000**																
PCS	SA139	SA139-3BPC	N	3	4	4/13/2010			12												8700																
PCS	SA139	SA139-4BPC	N	4	5	4/13/2010			3.8							14					1200																
PCS	SA139	SA139-5BPC	N	5	6	4/13/2010			3.3							11					860																
Phase B	SA139	SA139-10B	N	10	11.5	8/20/2009	10200	< 0.5 UJ	6.85 J	370 J-	0.59	36.4	0.34	11.3 J+	< 0.19 U	55.5	52.6	17400	31.3	10200	4050 J	0.031	1.44	37.9 J-	0.016 J	2350	< 0.7 UJ	< 0.2 U	653	207	0.398	< 10.6 U	913	1.32 J	1.11	50.8	58.7 J-
Phase B	SA139	SA139009-25B	FD	25	26.5	8/20/2009	10900	< 0.5 UJ	4.53 J	216 J-	0.484	11	0.17	10.2 J+	< 0.2 U	11.6	22.5	18300	13.1	13500	625 J	0.008 J	0.99 J	17.1 J-	0.014 J	2230	< 0.8 UJ	< 0.2 U	650	275	0.091	< 10.8 U	1060	0.23 J	1.84	56.5	38.1 J-
Phase B	SA139	SA139-25B	N	25	26.5	8/20/2009	10300	< 0.5 UJ	4.12 J	161 J-	0.48	< 10.8 U	0.22	9.59 J+	< 0.19 U	9.2	20.5	16000	8.5	12300	474 J	0.01 J	0.48 J	14.8 J-	0.011 J	2100	< 0.8 UJ	< 0.2 U	684	316	0.099	< 10.8 U	816	0.24 J	1.6	46.7	32.9 J-
Phase B	SA139	SA139-35B	N	35	36.5	8/20/2009	10300	< 0.5 UJ	18.3 J	192 J-	0.482	18.1	0.17	10.8 J+	< 0.23 U	8.7	17.4	13800	8.3	17800	500 J	0.01 J	1.06	13 J-	0.014 J	2570	< 0.7 UJ	< 0.2 U	891	1570	0.127	< 10.4 U	763	1.4 J	3.79	52.7	29.4 J-
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	10700	< 0.5 UJ	1.57	200 J	0.435 J	< 10.6 U	< 0.04 U	6.63	< 0.19 U	8.4 J	19.7 J	16800 J	10.6 J	9630	461 J	0.032	0.95 J	15.9 J	< 0.11 U	6120	< 0.7 U	< 0.2 U	946	138	0.17 J	< 10.6 U	881	0.81 J	0.829	49 J	39.2
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	10300	0.7 J-	1.81	188 J	0.485 J	< 10.7 U	< 0.04 U	7.53	< 0.19 U	7.4 J	18.3 J	15300 J	9.2 J	9680	404 J	0.024	1.05 J	14.4 J	< 0.11 U	5500	< 0.8 U	< 0.2 U	864	167	0.177 J	< 10.7 U	853	0.81 J	0.958	43.9 J	35.1
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	9980	< 0.5 UJ	2.73	226 J	0.446 J	< 10.7 U	< 0.04 U	7.73	< 0.19 U	7.9 J	19.3 J	14900 J	8.7 J	13300	375 J	0.012 J	0.34 J	14.8 J	< 0.11 U	1970	< 0.8 U	< 0.2 U	1060	270	0.081 J	< 10.7 U	849	0.21 J	1.81	46.5 J	35.8
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	10200	< 0.5 UJ	3.69	204 J	0.408 J	< 10.8 U	< 0.04 U	7.68	< 0.2 U	6.8 J	18.5 J	14200 J	8.2 J	12400	304 J	0.009 J	0.33 J	13.6 J	< 0.11 U	1900	< 0.8 U	< 0.2 U	1010	301	0.068 J	< 10.8 U	833	0.23 J	2.74	46.5 J	31.6
PCS	SA142	SA142-1_01_BPC	N	1	2	11/2/2010			3.7																												
PCS	SA142	SA142-2_01_BPC	N	2	3	11/2/2010			3.8																												
PCS	SA142	SA142-3_01_BPC	N	3	4	11/2/2010			4.4																												
PCS	SA142	SA142-4_01_BPC	N	4	5	11/2/2010			3.7																												
PCS	SA142	SA142-5_01_BPC	N	5	6	11/2/2010			4																												
Phase B	SA142	SA142009-20.5B	FD	-5	0	10/16/2009	9450	< 0.5 UJ	223 J	208	0.413 J	7.2 J	0.26	6.22 J	< 0.19 U	8.8	47.8 J	15300	**3280**	9610	9760 J	0.026	9.15	17.6	0.006 J	3360	< 0.8 UJ	< 0.2 U	382	1130 J	1.05 J	< 10.7 U	893	1.22 J	0.883	45.7	83.2
Phase B	SA142	SA142-20.5B	N	-5	0	10/16/2009	9600	< 2.1 UJ	124 J	227	0.438 J	7.4 J	0.21	6.41 J	0.22 J	9.8	39.5 J	16800	**1990**	9590	7420 J	0.021	5.59	18.2	0.008 J	3440	< 0.7 UJ	< 0.2 U	407	650 J	0.918 J	< 10.7 U	978	3.02 J	0.868	49.6	64.5
Phase B	SA142	SA142-30.5B	N	10	11.5	10/16/2009	9280	< 2.2 UJ	2.62	194	0.471 J	8.1 J	0.15	7.44 J	< 0.19 U	8.2	19.7 J	16400	9.1	9990	1410 J	0.019	0.43	16.6	0.007 J	1950	< 0.8 UJ	< 0.2 U	426	269	0.086 J	< 10.8 U	790	0.22 J	0.901	53	32.7
Phase B	SA142	SA142-51B	N	30.5	32	10/16/2009	8520	< 2.1 UJ	9.89	468	0.463 J	15.5	0.28	8.97 J	0.67	39.7	37.5 J	13600	32.3	8310	2000 J	0.012 J	1.61	28.7	0.009 J	2030	< 0.8 UJ	< 0.2 U	975	1180	0.477 J	< 10.7 U	627	1.93 J	1.84	49.4	52.5
Phase B	SA143	SA143-24B	N	2	3.5	10/15/2009	11100	< 0.5 UJ	2.08	183 J	0.496 J	< 10.9 U	< 0.04 U	7.02	0.36 J	9.1 J	18.3 J	15600 J	9.6 J	8860	3970 J	0.008 J	0.2 J	20.6 J	< 0.11 U	2750	< 0.8 U	< 0.2 U	393	186	0.087 J	< 10.9 U	822	0.26 J	0.944	46.8 J	36.2
Phase B	SA143	SA143-34B	N	12	12.5	10/15/2009	10600	< 0.5 UJ	2.49	149 J	0.397 J	< 10.6 U	< 0.04 U	6.22	< 0.19 U	8.4 J	19.6 J	16000 J	7.3 J	11700	2800 J	0.012 J	2.16 J	18.2 J	< 0.11 U	1760	< 0.7 U	< 0.2 U	719	230	0.069 J	< 10.6 U	792	0.21 J	1.31	46.6 J	34.2
Phase B	SA143	SA143009-50B	FD	28	29.5	10/15/2009	8440	1 J-	15.1	205 J	0.427 J	14.5	0.23 J	8.74	< 0.2 U	20.6 J	18.2 J	12500 J	8.5 J	14400	434 J	0.051	0.64 J	16.8 J	< 0.096 U	2230	< 0.7 U	< 0.2 U	843	392	0.106 J	< 9.6 U	623	1.63 J	4.61	51.3 J	30.9
Phase B	SA143	SA143-50B	N	28	29.5	10/15/2009	9250	0.6 J-	15	206 J	0.4 J	12.2	< 0.05 UJ	7.89	< 0.21 U	19.4 J	23.2 J	14700 J	12.6 J	13500	687 J	0.009 J	0.55 J	16.9 J	< 0.12 U	2300	< 0.8 U	< 0.2 U	962	301	0.145 J	< 11.5 U	819	2.27 J	4.8	65.7 J	35.3
Phase B	SA149	SA149-22B	N	-6	-4.5	10/21/2009	7460	0.8 J-	1.52	193	0.446 J	< 10.9 U	0.07 J	7.42 J	0.25 J	77.2	29.9	11500	10.3	7790	1250 J	0.126	0.33	31.5	0.009 J	2730	< 4.4 UJ	< 0.2 U	358	123	0.278 J	< 10.9 U	492	0.39 J-	0.821	28.5	36.5
Phase B	SA149	SA149-32B	N	5	5.5	10/21/2009	7370	< 0.5 UJ	2.19	149	0.36 J	< 10.9 U	< 0.04 U	5.87 J	< 0.2 U	7.9	17.7	11100	6.6	9490	1460 J	0.08	0.24 J	13	0.01 J	1940	< 4.4 UJ	< 0.2 U	615	192	0.066 J	< 10.9 U	421	0.22 J-	1.22	30.2	28.9
Phase B	SA149	SA149009-45B	FD	17	18.5	10/21/2009	6810	1.1 J-	21.1	89.3 J	0.363 J	11.9	< 0.04 U	15.2 J	< 0.23 U	4.6 J	11.2	7960	4.6	17500	147 J	0.012 J	0.27	9.01	0.008 J	1830	< 3.6 UJ	< 0.2 U	587	238	0.108 J	< 9 U	336	0.41 J-	3.49	43.8	20.6
Phase B	SA149	SA149-45B	N	17	18.5	10/21/2009	6760	1.1 J-	25	173 J	0.333 J	12.9	< 0.04 U	20.1 J	< 0.22 U	7.4 J	12	8310	6.2	19200	189 J	0.012 J	0.36	9.59	0.01 J	1900	< 3.6 UJ	< 0.2 U	611	219	0.112 J	< 9 U	370	0.45 J-	3.86	54	20.9
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	8260	< 2.1 UJ	2.07	168	0.414 J	< 10.6 U	0.13	6.89 J	< 0.19 U	8	19.4 J	15200	8.3	9590	443 J	0.012 J	0.51	14.7	0.006 J	1790	< 0.7 UJ	< 0.2 U	621	212	0.076 J	< 10.6 U	682	0.15 J	0.995	41.7	31.1
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	9540	< 2.2 UJ	1.88	218	0.494 J	< 10.9 U	0.22	7.27 J	< 0.19 U	11.3	20.5 J	15800	9.5	9220	723 J	0.013 J	0.48	17.3	0.006 J	2220	< 0.8 UJ	< 0.2 U	600	179	0.096 J	< 10.9 U	772	0.17 J	0.917	45.8	35.4
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	8620	< 2.2 UJ	3.17	156	0.457 J	< 11 U	0.09 J	8.52 J	< 0.2 U	6.8	18.8 J	15300	7.6	11500	260 J	0.016 J	< 0.33 U	15.5	0.007 J	1750	< 0.8 UJ	< 0.2 U	598	201	0.095 J	< 11 U	805	0.15 J	2.09	47.6	30.3
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	9250	< 0.6 UJ	10.3	69	0.409 J	16.4	< 0.05 U	14.3 J	1.74	5.1	11.9 J	14100	10.7	10700	124 J	0.008 J	< 0.1 U	11.4	0.008 J	2840	< 0.8 UJ	< 0.2 U	592	449	0.128 J	19.8	787	0.22 J	3.86	56.3	22.7
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	7180	1.7 J-	11.5	284	0.478 J	59.6	0.37	31.6 J	3.63	9.5	52.9	10400	221	12700	3920 J	0.083	4.33	18	0.023 J	2830	< 0.8 UJ	< 0.2 U	2180	495	1.78 J	< 10.9 U	438	15.7 J-	1.46	33.3	100
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	8870	1.1 J-	4.1	145	0.445 J	15.7	< 0.04 U	8.88 J	< 0.29 U	6.1	15.3	11700	7.6	12000	247 J	0.007 J	0.2 J	11.9	0.01 J	2100	< 4.4 UJ	< 0.2 U	1950	211	0.079 J	< 11 U	513	0.71 J-	1.8	33.1	28.6
Phase B	SA52	SA52-43B	N	28.5	30	10/21/2009	17900	1.4 J-	32	42.7	0.62 J	70.5	0.19	41.2 J	1.49	5.4	15.7	12100	7.3	71100	202 J	0.007 J	0.61	13.9	0.026 J	3010	< 0.8 UJ	< 0.2 U	3500	199	0.26 J	< 10.8 U	554	0.87 J-	7.39	53.7	38.4
PCS	SSAN7-06	SSAN7-06-0BPC	N	0	0.5	9/7/2010			3.2							9.4			9.9		560																
PCS	SSAN7-07	SSAN7-07-0BPC	N	0	0.5	9/7/2010			2.7							7.7			9.8		470																
PCS	SSAN8-01	SSAN8-01-1BPC	N	1	2	5/4/2010			9.5							51 J-					3500																
PCS	SSAN8-01	SSAN8-01-2BPC	N	2	3	5/4/2010			3												450																
PCS	SSAN8-01	SSAN8-01-5BPC	N	5	6	5/4/2010			3.7							14 J-					880																
PCS	SSAN8-01	SSAN8-01-5BPC_FD	FD	5	6	5/4/2010			3.2							10 J-					630																
PCS	SSAN8-02	SSAN8-02-1BPC	N	1	2	5/4/2010			100							**3100** J-					**100000**																
PCS	SSAN8-02	SSAN8-02-5BPC	N	5	6	5/4/2010			97							**3100** J-					**300000**																
PCS	SSAN8-03	SSAN8-03-0BPC	N	0	0.5	9/7/2010			6.7							65			24		4000																
PCS	SSAN8-04	SSAN8-04-0BPC	N	0	0.5	9/7/2010			4.5							23			14		1300																
PCS	SSAN8-05	SSAN8-05-0BPC	N	0	0.5	9/7/2010			12							77			37		4500																
PCS	SSAN8-05	SSAN8-05-0.5BPC	N	0.5	1	9/7/2010			6.8																												

Notes:

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Soil sample excavated
bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.
(2) The BCL for arsenic is lower than background; therefore, data were compared to background concentrations.
(3) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 3
Manganese Tailings Metals Soil Results

						Analyte Name	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (Total)	Chromium (VI)	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Platinum	Potassium	Selenium	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Zinc
						Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
						2010 NDEP BCL (1)	100000	454	1.77 (2)	100000	2230	100000	560	100000	1230	337	42200	100000	800	100000	15100	341	5680	21800			5680	5680		100000	79.5	100000	100000	8510	3400	5680	100000
Task	Boring ID	Sample Name	Type	Start Depth(3)	End Depth	Sample Date	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCS	SSAO7-04	SSAO7-04-0BPC	N	0	0.5	9/8/2010			3.9							15			7.3		6700															
	SSAO7-05	SSAO7-05-0BPC	N	0	0.5	9/27/2010			5.4							60			19		3300															
PCS	SSAO7-05	SSAO7-05-9.5BPC	N	9.5	10.5	9/17/2010									< 0.12																					
	SSAO7-06	SSAO7-06-0BPC	N	0	0.5	9/27/2010			3.1							11			8.9		790															
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010			8.1							290			20		**31000**															
	SSAO7-07	SSAO7-07-0.5BPC	N	0.5	1	9/17/2010			8.9												**29000**															
PCS	SSAO7-07	SSAO7-07-1_01_BPC	N	1	2	10/27/2010			3.6							120					2500															
PCS	SSAO7-07	SSAO7-07-2_01_BPC	N	2	3	10/27/2010			3.6							80					2000															
PCS	SSAO7-07	SSAO7-07-3_01_BPC	N	3	4	10/27/2010			3.5							25					2500															
PCS	SSAO7-07	SSAO7-07-4_01_BPC	N	4	5	10/27/2010			3.7							8.2					2400															
PCS	SSAO7-07	SSAO7-07-5_01_BPC	N	5	6	10/27/2010			3.5							10					2000															
PCS	SSAO7-08	SSAO7-08-0BPC	N	0	0.5	9/17/2010			41							**770**			78		**110000**															
	SSAO7-08	SSAO7-08-0.5BPC	N	0.5	1	9/17/2010			35							**700**					**160000**															
PCS	SSAO7-08	SSAO7-08-1_01_BPC	N	1	2	10/27/2010			3							11					1600															
PCS	SSAO7-07	SSAO7-08-2_01_BPC	N	2	3	10/27/2010			2.8							8.2					440															
PCS	SSAO7-08	SSAO7-08-3_01_BPC	N	3	4	10/27/2010			3.2							8					410															
PCS	SSAO7-08	SSAO7-08-4_01_BPC	N	4	5	10/27/2010			2.9							7.8					360															
PCS	SSAO7-08	SSAO7-08-4_01_BPC_FD	FD	4	5	10/27/2010			2.9							7.3					320															
PCS	SSAO7-08	SSAO7-08-5_01_BPC	N	5	6	10/27/2010			2.9							7.7					350															
PCS	SSAO8-04	SSAO8-04-0BPC	N	0	0.5	9/8/2010			2.7							8.4			7.7		570															
	SSAO8-05	SSAO8-05-0BPC	N	0	0.5	9/27/2010			3							7.8			8		440															
PCS	SSAO8-05	SSAO8-05-9.5BPC	N	9.5	10.5	9/17/2010									< 0.12																					
PCS	SSAO8-05	SSAO8-05-9.5BPC_FD	N	9.5	10.5	9/17/2010									< 0.12																					
PCS	SSAO8-06	SSAO8-06-0BPC	N	0	0.5	9/17/2010			84							**1100**			110		**75000**															
	SSAO8-06	SSAO8-06-0.5BPC	N	0.5	1	9/17/2010			24							**1100**					**54000**															
PCS	SSAO8-06	SSAO8-06-1_01_BPC	N	1	2	10/27/2010			8.3							**470**					15000															
PCS	SSAO8-06	SSAO8-06-2_01_BPC	N	2	3	10/27/2010			13							300					15000															
PCS	SSAO8-06	SSAO8-06-3_01_BPC	N	3	4	10/27/2010			3.7							7.8					1700															
PCS	SSAO8-06	SSAO8-06-4_01_BPC	N	4	5	10/27/2010			3.7							7.8					2100															
PCS	SSAO8-06	SSAO8-06-5_01_BPC	N	5	6	10/27/2010			4.2							20					2800															
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010			2.9							15			9.4		2100															
	SSAO8-08	SSAO8-08-0BPC	N	0	0.5	9/27/2010			3							29			10		2300															
PCS	SSAO8-08	SSAO8-08-9.5BPC	N	9.5	10.5	9/17/2010									< 0.12																					
PCS	SSAO8-09	SSAO8-09-0BPC	N	0	0.5	9/17/2010			39							190			270		**30000**															
	SSAO8-09	SSAO8-09-0.5BPC	N	0.5	1	9/17/2010			7.3												6500															
PCS	SSAO8-09	SSAO8-09-1_01_BPC	N	1	2	10/27/2010			2.8							8.6					430															
PCS	SSAO8-09	SSAO8-09-2_01_BPC	N	2	3	10/27/2010			2.7							6.8					330															
PCS	SSAO8-09	SSAO8-09-3_01_BPC	N	3	4	10/27/2010			2.8							7.9					460															
PCS	SSAO8-09	SSAO8-09-4_01_BPC	N	4	5	10/27/2010			3							7.2					390															
PCS	SSAO8-09	SSAO8-09-5_01_BPC	N	5	6	10/27/2010			2.6							6.1					290															
PCS	SSAO8-09	SSAO8-09-5_01_BPC_FD	FD	5	6	10/27/2010			2.9							6.1					300															
	SSAO8-10	SSAO8-10-0BPC	N	0	0.5	9/27/2010			3.7							71			11		4800															
	SSAO8-11	SSAO8-11-0BPC	N	0	0.5	9/27/2010			3.9							17			9.5		1200															
PCS	SSAO8-12	SSAO8-12-0BPC	N	0	0.5	9/17/2010			4							29			8		2100															
PCS	SSAO8-12	SSAO8-12-0BPC_FD	N	0	0.5	9/17/2010			4.3							26			7.6		2100															
PCS	SSAO8-13	SSAO8-13-1_01_BPC	N	1	2	11/2/2010			3.5																											
PCS	SSAO8-13	SSAO8-13-2_01_BPC	N	2	3	11/2/2010			3.4																											
PCS	SSAO8-13	SSAO8-13-3_01_BPC	N	3	4	11/2/2010			3.5																											
PCS	SSAO8-13	SSAO8-13-4_01_BPC	N	4	5	11/2/2010			4.2																											
PCS	SSAO8-13	SSAO8-13-5_01_BPC	N	5	6	11/2/2010			3.9																											
PCS	SSAO8-14	SSAO8-14-1_01_BPC	N	1	2	11/2/2010			3																											
PCS	SSAO8-14	SSAO8-14-2_01_BPC	N	2	3	11/2/2010			3.2																											
PCS	SSAO8-14	SSAO8-14-3_01_BPC	N	3	4	11/2/2010			3																											
PCS	SSAO8-14	SSAO8-14-3_01_BPC_FD	N	3	4	11/2/2010			3.4																											
PCS	SSAO8-14	SSAO8-14-4_01_BPC	N	4	5	11/2/2010			3.6																											
PCS	SSAO8-14	SSAO8-14-5_01_BPC	N	5	6	11/2/2010			3.2																											

Notes:

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Soil sample excavated
bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.
(2) The BCL for arsenic is lower than background; therefore, data were compared to background concentrations.
(3) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 4
Manganese Tailings SVOCs Soil Results

								Analyte Name	1,4-Dioxane	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								NDEP 2010 MIN BCL (1)	174	--	2350	147	9060	2.34
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Validated		Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.0052 U	< 0.00059 U	< 0.0011 U	< 0.00078 U	< 0.0013 U	< 0.0006 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.0052 U	< 0.00059 U	< 0.0011 U	< 0.00078 U	< 0.0013 U	< 0.0006 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.0052 U	< 0.0006 U	< 0.0011 U	< 0.00078 U	< 0.0013 U	< 0.00061 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0076 U	< 0.00087 U	< 0.0016 U	< 0.0012 U	< 0.0019 U	< 0.00089 U
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	Y		< 0.005 U	0.002 J	< 0.001 U	< 0.00074 U	< 0.0012 U	0.0051 J
PCS	SA137	SA137-3BPC	N	3	4	4/7/2010	Y		< 0.072 U	< 0.021 U	< 0.011 U	< 0.019 U	< 0.019 U	< 0.022 U
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	Y		< 0.0053 U	< 0.0006 U	< 0.0011 U	< 0.00079 U	< 0.0013 U	< 0.00061 U
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	Y		< 0.0066 U	< 0.00075 U	< 0.0014 U	< 0.00098 U	< 0.0016 U	< 0.00076 U
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	Y		< 0.0052 UJ	< 0.00059 U	< 0.0011 U	< 0.00078 U	< 0.0013 U	< 0.00061 U
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	Y		< 0.0052 UJ	< 0.00059 U	< 0.0011 U	< 0.00078 U	< 0.0013 U	< 0.0006 U
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	Y		< 0.0053 UJ	< 0.00061 U	< 0.0011 U	< 0.00079 U	< 0.0013 U	< 0.00062 U
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	Y		< 0.0053 UJ	< 0.00061 U	< 0.0011 U	< 0.00079 U	< 0.0013 U	< 0.00062 U
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	Y		< 0.0052 UJ	< 0.00059 U	< 0.0011 U	< 0.00078 U	< 0.0013 U	< 0.0006 U
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	Y		< 0.0052 UJ	< 0.0006 U	< 0.0011 U	< 0.00078 U	< 0.0013 U	< 0.00061 U
Phase B	SA142	SA142-30.5B	N	30.5	32	10/16/2009	Y		< 0.0053 UJ	< 0.0006 U	< 0.0011 U	< 0.00079 U	< 0.0013 U	< 0.00061 U
Phase B	SA142	SA142-51B	N	51	52.5	10/16/2009	Y		< 0.0053 U	< 0.0006 U	< 0.0011 U	< 0.00079 U	< 0.0013 U	0.0011 J
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	Y		< 0.0053 U	< 0.0006 U	< 0.0011 U	< 0.00079 U	< 0.0013 U	< 0.00061 U
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	Y		< 0.0053 U	< 0.00061 U	< 0.0011 U	< 0.0008 U	< 0.0013 U	< 0.00062 U
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	Y		< 0.0053 U	< 0.00061 U	< 0.0011 U	< 0.0008 U	< 0.0013 U	< 0.00062 U
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	Y		< 0.0059 U	< 0.00067 U	< 0.0012 U	< 0.00088 U	< 0.0014 U	< 0.00068 U
PCS	SSAN7-06	SSAN7-06-0BPC	N	0	0.5	9/7/2010	N		< 0.065	< 0.019	< 0.01	< 0.017	< 0.017	< 0.02
PCS	SSAN7-07	SSAN7-07-0BPC	N	0	0.5	9/7/2010	N		< 0.065	< 0.019	< 0.01	< 0.017	< 0.017	< 0.02
PCS	SSAN8-03	SSAN8-03-0BPC	N	0	0.5	9/7/2010	N		< 0.067	< 0.019	< 0.01	< 0.017	< 0.017	< 0.02
PCS	SSAN8-04	SSAN8-04-0BPC	N	0	0.5	9/7/2010	N		< 0.067	< 0.019	< 0.01	< 0.017	< 0.017	< 0.02
PCS	SSAN8-05	SSAN8-05-0BPC	N	0	0.5	9/7/2010	N		< 0.064	< 0.018	< 0.01	< 0.016	< 0.016	0.023
PCS	SSAO7-04	SSAO7-04-0BPC	N	0	0.5	9/8/2010	N		< 0.067	< 0.019	< 0.011	< 0.017	< 0.017	< 0.02
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	N		< 0.064	< 0.019	< 0.01	< 0.017	< 0.017	< 0.02
PCS	SSAO7-08	SSAO7-08-0BPC	N	0	0.5	9/17/2010	N		< 0.27	< 0.077	< 0.042	< 0.069	< 0.069	< 0.082
PCS	SSAO8-04	SSAO8-04-0BPC	N	0	0.5	9/8/2010	N		< 0.067	< 0.019	< 0.01	< 0.017	< 0.017	< 0.02
PCS	SSAO8-06	SSAO8-06-0BPC	N	0	0.5	9/17/2010	N		< 0.074	< 0.021	< 0.012	< 0.019	< 0.019	0.028
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	N		< 0.067	< 0.019	< 0.01	< 0.017	< 0.017	< 0.02
PCS	SSAO8-09	SSAO8-09-0BPC	N	0	0.5	9/17/2010	N		< 0.068	< 0.019	< 0.011	< 0.017	0.031	0.15
PCS	SSAO8-12	SSAO8-12-0BPC	N	0	0.5	9/17/2010	N		< 0.067	0.024	0.03	< 0.017	< 0.017	< 0.02
PCS	SSAO8-12	SSAO8-12-0BPC_FD	N	0	0.5	9/17/2010	N		< 0.066	0.1	0.057	< 0.017	< 0.017	< 0.02

Notes:

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BCL: Basic comparison level

FD: Field duplicate

J: Indicates that the result is less than the method reporting limit but greater than the method detection limit and is therefore an estimated quantity

mg/kg: milligrams per kilogram

NDEP: Nevada Division of Environmental Protection

U: Indicates that the result is less than the method detection limit

Soil sample excavated.

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 4
Manganese Tailings SVOCs Soil Results

								Analyte Name	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								NDEP 2010 MIN BCL (1)	0.234	2.34	34100	23.4	137
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Validated		Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00087 U	< 0.14 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00087 U	< 0.14 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00087 U	< 0.14 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0011 U	< 0.0018 U	< 0.0019 U	< 0.0013 U	< 0.2 U
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	Y		0.0034 J	0.0075	0.0051 J	0.0085	< 0.13 U
PCS	SA137	SA137-3BPC	N	3	4	4/7/2010	Y		< 0.022 U	< 0.029 U	< 0.017 U	< 0.044 U	0.11 J
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	Y		< 0.00072 U	< 0.0012 U	< 0.0013 U	< 0.00088 U	< 0.14 U
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	Y		< 0.00089 U	< 0.0015 U	< 0.0016 U	< 0.0011 U	< 0.18 U
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00087 U	< 0.14 U
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00087 U	< 0.14 U
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	Y		< 0.00072 U	< 0.0012 U	< 0.0013 U	< 0.00089 U	< 0.14 U
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	Y		< 0.00072 U	< 0.0012 U	< 0.0013 U	< 0.00089 U	< 0.14 U
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00087 U	< 0.14 U
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00087 U	< 0.14 U
Phase B	SA142	SA142-30.5B	N	30.5	32	10/16/2009	Y		< 0.00072 U	< 0.0012 U	< 0.0013 U	< 0.00088 U	< 0.14 U
Phase B	SA142	SA142-51B	N	51	52.5	10/16/2009	Y		< 0.00072 U	< 0.0012 U	< 0.0013 U	< 0.00088 U	< 0.14 U
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	Y		< 0.00071 U	< 0.0012 U	< 0.0013 U	< 0.00088 U	< 0.14 U
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	Y		< 0.00073 U	< 0.0013 U	< 0.0013 U	< 0.00089 U	< 0.14 U
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	Y		< 0.00072 U	< 0.0012 U	< 0.0013 U	< 0.00089 U	< 0.14 U
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	Y		< 0.0008 U	< 0.0014 U	< 0.0015 U	< 0.00098 U	< 0.16 U
PCS	SSAN7-06	SSAN7-06-0BPC	N	0	0.5	9/7/2010	N		< 0.02	< 0.026	< 0.016	< 0.04	< 0.046
PCS	SSAN7-07	SSAN7-07-0BPC	N	0	0.5	9/7/2010	N		< 0.02	< 0.026	< 0.016	< 0.04	< 0.045
PCS	SSAN8-03	SSAN8-03-0BPC	N	0	0.5	9/7/2010	N		< 0.02	< 0.027	< 0.016	< 0.041	< 0.047
PCS	SSAN8-04	SSAN8-04-0BPC	N	0	0.5	9/7/2010	N		< 0.02	< 0.026	< 0.016	< 0.04	< 0.046
PCS	SSAN8-05	SSAN8-05-0BPC	N	0	0.5	9/7/2010	N		< 0.019	0.035	0.016	< 0.039	0.4
PCS	SSAO7-04	SSAO7-04-0BPC	N	0	0.5	9/8/2010	N		< 0.02	< 0.027	< 0.016	< 0.041	< 0.047
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	N		< 0.02	< 0.026	< 0.016	< 0.039	0.11
PCS	SSAO7-08	SSAO7-08-0BPC	N	0	0.5	9/17/2010	N		< 0.082	0.12	< 0.065	< 0.16	0.67
PCS	SSAO8-04	SSAO8-04-0BPC	N	0	0.5	9/8/2010	N		< 0.02	< 0.027	< 0.016	< 0.041	< 0.047
PCS	SSAO8-06	SSAO8-06-0BPC	N	0	0.5	9/17/2010	N		0.076	0.066	0.034	< 0.045	0.35
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	N		< 0.02	< 0.027	< 0.016	< 0.041	< 0.047
PCS	SSAO8-09	SSAO8-09-0BPC	N	0	0.5	9/17/2010	N		0.21	0.41	0.2	< 0.041	0.22
PCS	SSAO8-12	SSAO8-12-0BPC	N	0	0.5	9/17/2010	N		< 0.02	< 0.026	< 0.016	< 0.04	0.098
PCS	SSAO8-12	SSAO8-12-0BPC_FD	N	0	0.5	9/17/2010	N		< 0.02	< 0.026	< 0.016	< 0.04	0.11

Notes:

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J: Indicates that the result is less than the method reporting limit but greater than the method detection limit and is therefore an estimated quantity

mg/kg: milligrams per kilogram

NDEP: Nevada Division of Environmental Protection

U: Indicates that the result is less than the method detection limit

Soil sample excavated.

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 4
Manganese Tailings SVOCs Soil Results

								Analyte Name	Butyl benzyl phthalate	Chrysene	Dibenz(a,h)anthracene	Diethyl phthalate	Dimethyl phthalate
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								NDEP 2010 MIN BCL (1)	240	234	0.234	100000	100000
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Validated		Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.0025 U	0.004 J	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0036 U	< 0.0016 U	< 0.0012 U	< 0.19 U	< 0.0014 U
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	Y		< 0.0024 U	0.014	< 0.0008 U	< 0.12 U	< 0.0009 U
PCS	SA137	SA137-3BPC	N	3	4	4/7/2010	Y		< 0.047 U	< 0.029 U	< 0.021 U	< 0.028 U	< 0.025 U
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.001 U
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	Y		< 0.0031 U	< 0.0013 U	< 0.0011 U	< 0.16 U	< 0.0012 U
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	Y		0.0039 J	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.001 U
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.001 U
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	Y		< 0.0025 U	0.0022 J	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	SA142	SA142-30.5B	N	30.5	32	10/16/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	SA142	SA142-51B	N	51	52.5	10/16/2009	Y		0.0029 J	0.0026 J	< 0.0008 U	< 0.13 U	< 0.001 U
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	Y		0.0043 J	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.0009 U
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	Y		< 0.0025 U	0.0011 J	< 0.0008 U	< 0.13 U	< 0.001 U
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	Y		< 0.0025 U	< 0.0011 U	< 0.0008 U	< 0.13 U	< 0.001 U
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	Y		< 0.0028 U	< 0.0012 U	< 0.0009 U	< 0.14 U	< 0.0011 U
PCS	SSAN7-06	SSAN7-06-0BPC	N	0	0.5	9/7/2010	N		< 0.043	< 0.027	< 0.019	< 0.026	< 0.023
PCS	SSAN7-07	SSAN7-07-0BPC	N	0	0.5	9/7/2010	N		< 0.042	< 0.027	< 0.019	< 0.026	< 0.023
PCS	SSAN8-03	SSAN8-03-0BPC	N	0	0.5	9/7/2010	N		< 0.044	< 0.027	< 0.019	< 0.026	< 0.023
PCS	SSAN8-04	SSAN8-04-0BPC	N	0	0.5	9/7/2010	N		< 0.043	< 0.027	< 0.019	< 0.026	< 0.023
PCS	SSAN8-05	SSAN8-05-0BPC	N	0	0.5	9/7/2010	N		0.042	0.036	< 0.018	< 0.025	0.055
PCS	SSAO7-04	SSAO7-04-0BPC	N	0	0.5	9/8/2010	N		< 0.044	< 0.028	< 0.019	< 0.027	< 0.023
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	N		< 0.042	< 0.026	< 0.019	< 0.025	0.054
PCS	SSAO7-08	SSAO7-08-0BPC	N	0	0.5	9/17/2010	N		< 0.18	< 0.11	< 0.077	< 0.11	0.29
PCS	SSAO8-04	SSAO8-04-0BPC	N	0	0.5	9/8/2010	N		< 0.044	< 0.027	< 0.019	< 0.026	< 0.023
PCS	SSAO8-06	SSAO8-06-0BPC	N	0	0.5	9/17/2010	N		< 0.048	0.054	< 0.021	< 0.029	0.069
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	N		< 0.044	< 0.027	< 0.019	< 0.026	< 0.023
PCS	SSAO8-09	SSAO8-09-0BPC	N	0	0.5	9/17/2010	N		< 0.044	0.28	< 0.019	< 0.027	0.068
PCS	SSAO8-12	SSAO8-12-0BPC	N	0	0.5	9/17/2010	N		< 0.043	< 0.027	< 0.019	< 0.026	< 0.023
PCS	SSAO8-12	SSAO8-12-0BPC_FD	N	0	0.5	9/17/2010	N		< 0.043	< 0.027	< 0.019	< 0.026	0.027

Notes:

<: Not detected at or above the indicated laboratory method reporting limit

BCL: Basic comparison level

FD: Field duplicate

J: Indicates that the result is less than the method reporting limit but greater than the method detection limit and is therefore an estimated quantity

mg/kg: milligrams per kilogram

NDEP: Nevada Division of Environmental Protection

U: Indicates that the result is less than the method detection limit

Soil sample excavated.

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 4
Manganese Tailings SVOCs Soil Results

								Analyte Name	Di-N-Butyl phthalate	Di-N-Octyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Indeno(1,2,3-cd)pyrene
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								NDEP 2010 MIN BCL (1)	68400	--	24400	3440	1.2	2.34
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Validated		Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		0.13 J+	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.0009 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.088 U	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.0009 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.035 U	< 0.0012 U	0.009	< 0.0007 U	< 0.0009 U	< 0.0009 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.074 U	< 0.0017 U	< 0.0022 U	< 0.0011 U	0.014	< 0.0014 U
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	Y		0.057 J+	< 0.0011 U	0.022	< 0.0007 U	**3.6**	0.0044 J
PCS	SA137	SA137-3BPC	N	3	4	4/7/2010	Y		< 0.032 U	< 0.016 U	< 0.039 U	< 0.02 U	0.24 J	< 0.024 U
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	Y		< 0.036 U	< 0.0012 U	< 0.0015 U	< 0.0007 U	0.0058 J	< 0.0009 U
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	Y		< 0.044 U	< 0.0015 U	< 0.0019 U	< 0.0009 U	< 0.0012 U	< 0.0012 U
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	Y		< 0.035 U	< 0.0012 U	< 0.0015 U	< 0.0007 U	0.011	< 0.0009 U
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	Y		< 0.035 U	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.0009 U
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	Y		< 0.049 UJ	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.001 U
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	Y		< 0.036 U	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.001 U
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	Y		< 0.044 UJ	< 0.0012 U	0.0018 J	< 0.0007 U	0.029	< 0.0009 U
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	Y		< 0.07 UJ	< 0.0012 U	0.0022 J	< 0.0007 U	0.036	< 0.0009 U
Phase B	SA142	SA142-30.5B	N	30.5	32	10/16/2009	Y		< 0.07 UJ	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.0009 U
Phase B	SA142	SA142-51B	N	51	52.5	10/16/2009	Y		0.063 J	< 0.0012 U	0.0058 J	< 0.0007 U	< 0.0009 U	< 0.001 U
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	Y		0.054 J	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.0009 U
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	Y		0.046 J	< 0.0012 U	0.0022 J	< 0.0007 U	0.0048 J	< 0.001 U
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	Y		< 0.036 U	< 0.0012 U	< 0.0015 U	< 0.0007 U	< 0.0009 U	< 0.001 U
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	Y		< 0.039 U	< 0.0013 U	< 0.0017 U	< 0.0008 U	< 0.001 U	< 0.0011 U
PCS	SSAN7-06	SSAN7-06-0BPC	N	0	0.5	9/7/2010	N		< 0.029	< 0.014	< 0.036	< 0.018	< 0.029	< 0.022
PCS	SSAN7-07	SSAN7-07-0BPC	N	0	0.5	9/7/2010	N		< 0.029	< 0.014	< 0.036	< 0.018	< 0.029	< 0.022
PCS	SSAN8-03	SSAN8-03-0BPC	N	0	0.5	9/7/2010	N		< 0.029	< 0.015	< 0.037	< 0.018	< 0.029	< 0.022
PCS	SSAN8-04	SSAN8-04-0BPC	N	0	0.5	9/7/2010	N		< 0.029	< 0.015	< 0.036	< 0.018	< 0.029	< 0.022
PCS	SSAN8-05	SSAN8-05-0BPC	N	0	0.5	9/7/2010	N		< 0.028	< 0.014	0.044	< 0.017	< 0.028	< 0.021
PCS	SSAO7-04	SSAO7-04-0BPC	N	0	0.5	9/8/2010	N		< 0.03	< 0.015	< 0.037	< 0.018	< 0.03	< 0.022
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	N		< 0.028	< 0.014	< 0.035	< 0.018	0.057	0.05
PCS	SSAO7-08	SSAO7-08-0BPC	N	0	0.5	9/17/2010	N		< 0.12	< 0.059	< 0.15	< 0.073	0.56	0.22
PCS	SSAO8-04	SSAO8-04-0BPC	N	0	0.5	9/8/2010	N		< 0.029	< 0.015	< 0.037	< 0.018	< 0.029	< 0.022
PCS	SSAO8-06	SSAO8-06-0BPC	N	0	0.5	9/17/2010	N		< 0.033	< 0.016	0.062	< 0.02	0.73	< 0.025
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	N		< 0.029	0.07	< 0.036	< 0.018	< 0.029	< 0.022
PCS	SSAO8-09	SSAO8-09-0BPC	N	0	0.5	9/17/2010	N		< 0.03	< 0.015	0.32	< 0.018	0.35	0.16
PCS	SSAO8-12	SSAO8-12-0BPC	N	0	0.5	9/17/2010	N		< 0.029	< 0.015	< 0.036	< 0.018	< 0.029	< 0.022
PCS	SSAO8-12	SSAO8-12-0BPC_FD	N	0	0.5	9/17/2010	N		< 0.029	< 0.015	< 0.036	< 0.018	< 0.029	< 0.022

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TABLE 4
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								Analyte Name	Naphthalene	Nitrobenzene	Octachlorostyrene	Phenanthrene	Pyrene	Pyridine
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								NDEP 2010 MIN BCL (1)	15.6	13.6	--	24.5	19300	667
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Validated		Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	< 0.0019 U	< 0.0011 U	< 0.028 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	< 0.0019 U	< 0.0011 U	< 0.028 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		0.004 J	< 0.0019 U	< 0.0037 U	0.02	0.0054 J	< 0.028 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0013 U	< 0.0028 U	< 0.0054 U	< 0.0028 U	< 0.0015 U	< 0.041 U
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	Y		0.0024 J	< 0.0018 U	0.53	0.015	0.013	< 0.027 U
PCS	SA137	SA137-3BPC	N	3	4	4/7/2010	Y		< 0.034 U	< 0.024 U	0.24 J	< 0.019 U	< 0.013 U	< 0.14 U
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	< 0.0019 U	< 0.0011 U	< 0.029 U
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	Y		< 0.0012 U	< 0.0024 U	< 0.0046 U	< 0.0024 U	< 0.0013 U	< 0.036 U
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	< 0.0019 U	< 0.0011 U	< 0.028 U
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	< 0.0019 U	< 0.0011 U	< 0.028 U
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0038 U	< 0.0019 U	< 0.0011 U	< 0.029 U
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0038 U	< 0.0019 U	< 0.0011 U	< 0.029 U
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	0.0021 J	0.0018 J	< 0.028 U
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	Y		< 0.0009 U	< 0.0019 U	0.0075	0.0029 J	0.0018 J	< 0.028 U
Phase B	SA142	SA142-30.5B	N	30.5	32	10/16/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	< 0.0019 U	< 0.0011 U	< 0.029 U
Phase B	SA142	SA142-51B	N	51	52.5	10/16/2009	Y		0.0015 J	< 0.0019 U	< 0.0038 U	0.0084	0.0036 J	< 0.029 U
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0037 U	< 0.0019 U	< 0.0011 U	< 0.029 U
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0038 U	0.0033 J	0.0015 J	< 0.029 U
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	Y		< 0.0009 U	< 0.0019 U	< 0.0038 U	< 0.0019 U	< 0.0011 U	< 0.029 U
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	Y		< 0.001 U	< 0.0021 U	< 0.0041 U	< 0.0021 U	< 0.0012 U	< 0.032 U
PCS	SSAN7-06	SSAN7-06-0BPC	N	0	0.5	9/7/2010	N		< 0.031	< 0.022	< 0.056	< 0.017	< 0.012	< 0.13
PCS	SSAN7-07	SSAN7-07-0BPC	N	0	0.5	9/7/2010	N		< 0.031	< 0.022	< 0.056	< 0.017	< 0.012	< 0.13
PCS	SSAN8-03	SSAN8-03-0BPC	N	0	0.5	9/7/2010	N		< 0.032	< 0.022	< 0.058	< 0.017	0.021	< 0.13
PCS	SSAN8-04	SSAN8-04-0BPC	N	0	0.5	9/7/2010	N		< 0.031	< 0.022	< 0.058	< 0.017	< 0.012	< 0.13
PCS	SSAN8-05	SSAN8-05-0BPC	N	0	0.5	9/7/2010	N		< 0.03	< 0.021	< 0.055	0.049	0.049	< 0.13
PCS	SSAO7-04	SSAO7-04-0BPC	N	0	0.5	9/8/2010	N		< 0.032	< 0.022	< 0.058	< 0.017	< 0.012	< 0.13
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	N		< 0.03	< 0.021	< 0.056	< 0.017	0.012	< 0.13
PCS	SSAO7-08	SSAO7-08-0BPC	N	0	0.5	9/17/2010	N		< 0.13	< 0.09	< 0.23	< 0.069	0.06	< 0.53
PCS	SSAO8-04	SSAO8-04-0BPC	N	0	0.5	9/8/2010	N		< 0.031	< 0.022	< 0.058	< 0.017	< 0.012	< 0.13
PCS	SSAO8-06	SSAO8-06-0BPC	N	0	0.5	9/17/2010	N		< 0.035	< 0.025	0.19	0.035	0.051	< 0.15
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	N		< 0.031	< 0.022	< 0.058	< 0.017	< 0.012	< 0.13
PCS	SSAO8-09	SSAO8-09-0BPC	N	0	0.5	9/17/2010	N		0.036	< 0.023	0.1	0.16	0.29	< 0.13
PCS	SSAO8-12	SSAO8-12-0BPC	N	0	0.5	9/17/2010	N		< 0.031	< 0.022	< 0.058	0.017	< 0.012	< 0.13
PCS	SSAO8-12	SSAO8-12-0BPC_FD	N	0	0.5	9/17/2010	N		0.25	< 0.022	< 0.057	< 0.017	< 0.012	< 0.13

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mg/kg: milligrams per kilogram

NDEP: Nevada Division of Environmental Protection

U: Indicates that the result is less than the method detection limit

Soil sample excavated.

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 5
Manganese Tailings Dioxin/Furans Soil Results

									Analyte Name	1,2,3,4,5,6,7,8-Octachloro-dibenzofuran	1,2,3,4,5,6,7,8-Octachloro-dibenzo-p-dioxin	1,2,3,4,6,7,8-Heptachloro-dibenzofuran	1,2,3,4,6,7,8-Heptachlorodi-benzo-p-dioxin	1,2,3,4,7,8,9-Heptachloro-dibenzofuran	1,2,3,4,7,8-Hexachloro-dibenzofuran
									Units	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
									2010 NDEP BCL (1)	--	--	--	--	--	--
Task	**Boring ID**	**Sample Name**	**Type**	**Start Depth (2)**	**End Depth**	**Sample Date**	**Units**	**Validated**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009		Y		7.2 J	2.8 J	1.6 JK	< 2.6 U	< 2.6 U	< 2.6 U
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	pg/g	Y		110 J	60 J	43 J	6.2 J	19 J	17
Phase B	SA108	SA108-20B	N	1	2.5	10/16/2009	pg/g	Y		11	28	3	5.4	1 JK	< 2.6 U
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	pg/g	Y		7000	230	2000	150	930	930
Phase B	SA139	SA139-0.5B	N	0.5	2	8/20/2009	pg/g	Y		1440 J	130	499	61.6	250	312
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	pg/g	Y		5.4 J	< 1.1 U	2.2 J	0.42 J	1 J	1.5 J
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	pg/g	Y		13 J	< 1.1 U	5	0.36 JK	1.7 J	2.2 J
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	pg/g	Y		1400 J	43 J	510 J	40 J	190 J	200 J
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	pg/g	Y		610 J	15 J	220 J	16 J	99 J	93 J
Phase B	SA143	SA143-24B	N	2	3.5	10/15/2009	pg/g	Y		< 5.4 UJ	< 2.6 UJ	< 2.7 U	< 2.7 U	< 2.7 U	< 2.7 U
Phase B	SA149	SA149-22B	N	-6	-4.5	10/21/2009	pg/g	Y		92	5.4	44	3.9 JK	20	25
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	pg/g	Y		< 5.2 U	< 0.95 U	< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	pg/g	Y		9200	400	4300	320	2200	2000
	SSAO7-06	SSAO7-06-0BPC	N	0	0.5	9/27/2010	pg/g	N		240	50	100	11	39	34
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	pg/g	N		1200	93	600	47	250	190
	SSAO8-05	SSAO8-05-0BPC	N	0	0.5	9/27/2010	pg/g	N		0.96	1	0.5	0.27	0.19	0.21
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	pg/g	N		3.9	4.1	1.7	0.66	0.59	0.67

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Soil sample excavated

bold = Exceeds the NDEP BCL

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(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 5
Manganese Tailings Dioxin/Furans Soil Results

									Analyte Name	1,2,3,4,7,8-Hexachloro-dibenzo-p-dioxin	1,2,3,6,7,8-Hexachloro-dibenzofuran	1,2,3,6,7,8-Hexachloro-dibenzo-p-dioxin	1,2,3,7,8,9-Hexachloro-dibenzofuran	1,2,3,7,8,9-Hexachloro-dibenzo-p-dioxin	1,2,3,7,8-Pentachloro-dibenzofuran
									Units	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
									2010 NDEP BCL (1)	--	--	--	--	--	--
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Units	Validated		Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009		Y		< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	pg/g	Y		0.54 JK	12	0.89 J	2.1 JK	0.59 JK	10
Phase B	SA108	SA108-20B	N	1	2.5	10/16/2009	pg/g	Y		< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U	0.65 J
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	pg/g	Y		28	640	66	170	64	970
Phase B	SA139	SA139-0.5B	N	0.5	2	8/20/2009	pg/g	Y		8.33	190	15.8	39.8	16.3	147
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	pg/g	Y		< 2.6 U	1.1 J	0.22 JK	0.33 J	0.23 J	0.95 J
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	pg/g	Y		< 2.7 U	1.5 J	< 2.7 U	< 2.7 U	< 2.7 U	1 J
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	pg/g	Y		5.1 J	140 J	11 J	23 J	14 J	91 J
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	pg/g	Y		2.4 J	69 J	4.8 J	13 J	5.1 J	60
Phase B	SA143	SA143-24B	N	2	3.5	10/15/2009	pg/g	Y		< 2.7 U	< 2.7 U	< 2.7 U	< 2.7 U	< 2.7 U	< 2.7 U
Phase B	SA149	SA149-22B	N	-6	-4.5	10/21/2009	pg/g	Y		< 2.7 U	17	1.6 J	1.9 J	1.7 J	14
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	pg/g	Y		< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U	< 2.6 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	pg/g	Y		54	1300	110	190	120	1200
	SSAO7-06	SSAO7-06-0BPC	N	0	0.5	9/27/2010	pg/g	N		0.88	20	1.8	4	1.6	16
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	pg/g	N		5.9	140	13	33	7.7	150
	SSAO8-05	SSAO8-05-0BPC	N	0	0.5	9/27/2010	pg/g	N		< 0.098	0.12	< 0.097	< 0.071	< 0.081	0.2
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	pg/g	N		< 0.11	0.35	< 0.096	0.1	< 0.093	0.34

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Soil sample excavated

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(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 5
Manganese Tailings Dioxin/Furans Soil Results

									Analyte Name	1,2,3,7,8-Pentachloro-dibenzo-p-dioxin	2,3,4,6,7,8-Hexachloro-dibenzofuran	2,3,4,7,8-Pentachloro-dibenzofuran	2,3,7,8-Tetra-chloro-dibenzofuran	2,3,7,8-Tetrachloro-dibenzo-p-dioxin	Total TEQ (Calculated)	TTEQ_TAS
									Units	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
									2010 NDEP BCL (1)	--	--	--	--	--	1000	1000
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Units	Validated		Result	Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009		Y		< 2.6 U	< 2.6 U	< 2.6 U	< 0.52 U	< 0.52 U		0.003
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	pg/g	Y		0.61 JK	3	5.6	4.9	0.27 J	6.8	
Phase B	SA108	SA108-20B	N	1	2.5	10/16/2009	pg/g	Y		< 2.6 U	< 2.6 U	< 2.6 U	< 0.52 U	< 0.52 U		0.12
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	pg/g	Y		94	180	580	3500	58		940
Phase B	SA139	SA139-0.5B	N	0.5	2	8/20/2009	pg/g	Y		9.96	43.1	74.4	82.3	3.05	119	
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	pg/g	Y		< 2.6 U	0.47 JK	0.5 J	< 0.52 U	< 0.52 U		0.53
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	pg/g	Y		< 2.7 U	0.39 JK	0.52 JK	0.51 JK	< 0.54 U		0.47
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	pg/g	Y		6.6 JK	41 J	38 J	42 J	2.3 J		71
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	pg/g	Y		4.2	18 J	28	34	1.6 J		43
Phase B	SA143	SA143-24B	N	2	3.5	10/15/2009	pg/g	Y		< 2.7 U	< 2.7 U	< 2.7 U	0.084 J	< 0.54 U		0.0092
Phase B	SA149	SA149-22B	N	-6	-4.5	10/21/2009	pg/g	Y		< 2.7 U	3.4	7.6	8.9	< 0.53 U		9.3
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	pg/g	Y		< 2.6 U	< 2.6 U	< 2.6 U	0.079 J	< 0.52 U		0.0082
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	pg/g	Y		91	380	560	770	28		890
	SSAO7-06	SSAO7-06-0BPC	N	0	0.5	9/27/2010	pg/g	N		1.2	4.4	8.8	7.9	0.36	14	
PCS	SSAO7-07	SSAO7-07-0BPC	N	0	0.5	9/17/2010	pg/g	N		8.6	30	81	80	3.1	100	
	SSAO8-05	SSAO8-05-0BPC	N	0	0.5	9/27/2010	pg/g	N		< 0.066	< 0.07	< 0.075	0.28	< 0.084	0.077	
PCS	SSAO8-07	SSAO8-07-0BPC	N	0	0.5	9/8/2010	pg/g	N		< 0.097	0.14	< 0.12	0.51	< 0.052	0.22	

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TABLE 6
Manganese Tailings OCP Soils Results

								Analyte Name	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Alpha-BHC
								Units	mg/kg	mg/gk	mg/kg	mg/kg	mg/kg
								2010 NDEP BCL (1)	11.1	7.81	7.81	0.113	0.399
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Vali-dated		Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.0018 U	< 0.0018 U	< 0.0018 U	< 0.00091 U	< 0.00091 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.0018 U	< 0.0018 U	< 0.0018 U	< 0.00091 U	< 0.00091 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.0019 U	< 0.0019 U	< 0.0019 U	< 0.00091 U	< 0.00091 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0014 U	< 0.0014 U
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	Y		< 0.0018 U	< 0.0018 U	< 0.0018 U	< 0.0009 U	< 0.0009 U
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	Y		< 0.0019 U	< 0.0019 U	< 0.0019 U	< 0.00091 U	< 0.00091 U
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	Y		< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0011 U	< 0.0011 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	Y		< 0.0019 U	0.017 J+	0.017 J+	< 0.00093 U	< 0.00093 U
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	Y		< 0.0019 U	< 0.0019 U	< 0.0019 U	< 0.00093 U	< 0.00093 U

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Soil sample excavated

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TABLE 6
Manganese Tailings OCP Soils Results

								Analyte Name	Alpha-chlordane	Beta-BHC	Delta-BHC	Dieldrin	Endosulfan I
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								2010 NDEP BCL (1)	--	1.4	--	0.12	--
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Vali-dated		Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.00091 U	< 0.00091 U	< 0.00091 U	< 0.0018 U	< 0.00091 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.00091 U	< 0.00091 U	< 0.00091 U	< 0.0018 U	< 0.00091 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.00091 U	< 0.00091 U	< 0.00091 U	< 0.0019 U	< 0.00091 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0014 U	< 0.0014 U	< 0.0014 U	< 0.0027 U	< 0.0014 U
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	Y		< 0.0009 U	0.0025	< 0.0009 U	< 0.0018 U	< 0.0009 U
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	Y		< 0.00091 U	< 0.00091 U	< 0.00091 U	< 0.0019 U	< 0.00091 U
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	Y		< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0021 U	< 0.0011 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	Y		< 0.00093 U	0.013 J+	< 0.00093 U	< 0.0019 U	< 0.00093 U
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	Y		< 0.00093 U	< 0.00093 U	< 0.00093 U	< 0.0019 U	< 0.00093 U

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Soil sample excavated

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

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TABLE 6
Manganese Tailings OCP Soils Results

								Analyte Name	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde
								Units	mg/kg	mg/kg	mg/kg	mg/kg
								2010 NDEP BCL (1)	--	--	205	--
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Vali-dated		Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.0018 U	< 0.0018 U	< 0.0018 U	< 0.0018 UJ
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.0018 U	< 0.0018 U	< 0.0018 U	< 0.0018 UJ
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.0019 U	< 0.0019 U	< 0.0019 U	< 0.0019 UJ
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 UJ
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	Y		< 0.0018 U	< 0.0018 U	< 0.0018 U	< 0.0018 U
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	Y		< 0.0019 U	< 0.0019 U	< 0.0019 U	< 0.0019 U
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	Y		< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	Y		< 0.0019 U	< 0.0019 U	< 0.0019 U	< 0.0019 U
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	Y		< 0.0019 U	< 0.0019 U	< 0.0019 U	< 0.0019 U

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TABLE 6
Manganese Tailings OCP Soils Results

								Analyte Name	Endrin Ketone	Gamma-BHC (Lindane)	Gamma-Chlordane	Heptachlor
								Units	mg/kg	mg/kg	mg/kg	mg/kg
								2010 NDEP BCL (1)	--	1.93	--	0.426
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Vali-dated		Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.0018 U	< 0.00091 U	0.0014 J	< 0.00091 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.0018 U	< 0.00091 U	< 0.00091 U	< 0.00091 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.0019 U	< 0.00091 U	< 0.00091 U	< 0.00091 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0027 U	< 0.0014 U	0.0058	< 0.0014 U
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	Y		< 0.0018 U	< 0.0009 U	< 0.0009 U	< 0.0009 U
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	Y		< 0.0019 U	< 0.00091 U	< 0.00091 U	< 0.00091 U
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	Y		< 0.0021 U	< 0.0011 U	< 0.0011 U	< 0.0011 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	Y		< 0.0019 U	< 0.00093 U	0.0044 J+	< 0.00093 U
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	Y		< 0.0019 U	< 0.00093 U	< 0.00093 U	< 0.00093 U

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TABLE 6
Manganese Tailings OCP Soils Results

								Analyte Name	Heptachlor Epoxide	Methoxychlor	Tech-Chlordane	Toxaphene
								Units	mg/kg	mg/kg	mg/kg	mg/kg
								2010 NDEP BCL (1)	0.21	3420	7.19	1.74
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Vali-dated		Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.00091 U	< 0.009 U	< 0.0045 U	< 0.018 U
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.00091 U	< 0.009 U	< 0.0045 U	< 0.018 U
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.00091 U	< 0.0091 U	< 0.0046 U	< 0.018 U
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.0014 U	< 0.014 U	< 0.0066 U	< 0.027 U
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	Y		< 0.0009 U	< 0.009 U	< 0.0045 U	< 0.018 U
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	Y		< 0.00091 U	< 0.0091 U	< 0.0046 U	< 0.018 U
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	Y		< 0.0011 U	< 0.011 U	< 0.0051 U	< 0.021 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	Y		< 0.00093 U	< 0.0092 U	< 0.0046 U	< 0.019 U
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	Y		< 0.00093 U	< 0.0092 U	< 0.0046 U	< 0.019 U

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TABLE 7
Manganese Tailings Wet Chemistry Soil Results

						Analyte Name		Alkalinity (as CaCO3)	Ammonia (as N)	Bicarbonate	Bromide	Carbonate	Chlorate	Chloride	Cyanide
						Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
						2010 NDEP BCL (1)		--	100000	--	--	--	--	--	13700
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Vali-dated	Result	Result	Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y	182	< 0.08 U	182	< 0.2 U	< 3 U	< 0.044 U	6.2 J	
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y	237	< 0.08 U	229	< 0.2 U	8 J	< 0.043 U	5.5 J	
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y	269	< 0.08 U	269	< 0.2 U	< 3 U	< 0.044 U	9.8 J	
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y	524	< 0.11 U	511	1.1 J	13 J	1750	563 J	
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	Y	118	< 0.54 U	118	1.3	< 3 U	16.5	316	
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	Y	133	< 0.54 U	133	2.3	< 3 U	8.58	494	
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	Y	121	< 0.09 U	121	< 0.2 U	< 3 U	0.944	172	
Phase B	SA108	SA108-20B	N	1	2.5	10/16/2009	Y	313	< 0.08 U	301	< 0.2 U	13 J	88	594	
Phase B	SA108	SA108-30B	N	11	12.5	10/16/2009	Y	377	< 0.08 U	353	< 0.2 U	24	46.3	307	
Phase B	SA108	SA108-45B	N	26	27.5	10/16/2009	Y	121	< 0.09 U	121	2.1	< 3 U	7.71	60.1	
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	Y	141	2.82	141	< 0.2 U	< 3 U	1.17	120 J	0.82 J+
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	Y	864	< 0.08 U	807	< 0.2 U	57	0.948	10.7 J	< 0.42 U
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	Y	1470	< 0.1 U	1380	< 0.2 U	91	79.3 J-	144 J	< 0.6 U
Phase B	SA139	SA139-0.5B	N	0.5	2	8/20/2009	Y	250	< 0.08 U	250	< 0.2 U	< 3 U	0.537	632	
Phase B	SA139	SA139-10B	N	10	11.5	8/20/2009	Y	167	< 0.08 U	167	< 0.2 U	< 3 U	0.126 J	152	
Phase B	SA139	SA139009-25B	FD	25	26.5	8/20/2009	Y	250	< 0.08 U	241	< 0.2 U	9 J	2.88	39.9	
Phase B	SA139	SA139-25B	N	25	26.5	8/20/2009	Y	284	< 0.08 U	279	< 0.2 U	4 J	2.51	36.2	
Phase B	SA139	SA139-35B	N	35	36.5	8/20/2009	Y	113	< 0.09 U	113	< 0.2 U	< 3 U	6.03	168	
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	Y	259	< 0.08 U	253	< 0.2 U	6 J	9.8	1020 J+	
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	Y	269	< 0.08 U	260	< 0.2 U	8 J	11.1 J-	1060 J+	
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	Y	162	< 0.08 U	162	< 0.2 U	< 3 U	20.6	1680 J+	
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	Y	164	< 0.08 U	164	< 0.2 U	< 3 U	13	1730 J+	
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	Y	145	< 0.08 U	145	< 0.2 U	< 3 U	< 0.043 U	151	0.9 J
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	Y	135	< 0.08 U	135	< 0.2 U	< 3 U	0.07 J+	113	0.9 J
Phase B	SA142	SA142-30.5B	N	30.5	32	10/16/2009	Y	238	< 0.08 U	235	< 0.2 U	3 J	0.128 J	9.4	0.6 J
Phase B	SA142	SA142-51B	N	51	52.5	10/16/2009	Y	111	< 0.08 U	111	0.9 J	< 3 U	2.6	104	< 0.42 U
Phase B	SA143	SA143-24B	N	2	3.5	10/15/2009	Y	228	< 0.08 U	224	< 0.2 U	4 J	< 0.044 U	7.8 J+	
Phase B	SA143	SA143-34B	N	12	12.5	10/15/2009	Y	330	< 0.08 U	321	< 0.2 U	9 J	0.353	20.5 J+	
Phase B	SA143	SA143009-50B	FD	28	29.5	10/15/2009	Y	105	< 0.08 U	105	< 0.2 U	< 3 U	1.19	85.7 J+	
Phase B	SA143	SA143-50B	N	28	29.5	10/15/2009	Y	170	< 0.08 U	170	< 0.2 U	< 3 U	1.08	88.3 J+	
Phase B	SA149	SA149-22B	N	-6	-4.5	10/21/2009	Y	234	< 0.2 U	230	< 0.2 U	4 J	< 0.045 U	17.5	
Phase B	SA149	SA149-32B	N	5	5.5	10/21/2009	Y	294	< 0.1 U	286	< 0.2 U	8 J	< 0.044 U	12.9	
Phase B	SA149	SA149009-45B	FD	17	18.5	10/21/2009	Y	393	< 0.09 U	380	< 0.2 U	13 J	3.68 J	57.5	
Phase B	SA149	SA149-45B	N	17	18.5	10/21/2009	Y	464	< 0.09 U	449	< 0.2 U	15 J	6.26 J	84.7	
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	Y	157	< 0.08 U	157	< 0.2 U	< 3 U	2.42	539	< 0.42 U
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	Y	197	< 0.08 U	197	< 0.2 U	< 3 U	2.66	122	< 0.5 U
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	Y	317	< 0.08 U	306	< 0.2 U	11 J	0.305	35.6	< 0.5 U
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	Y	94	< 0.09 U	94	< 0.2 U	< 3 U	0.081 J	84.2	< 0.5 U
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	Y	615	< 0.1 U	573	1.1	42	135 J+	628	
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	Y	386	< 0.1 U	366	1.2	20 J	282	808	
Phase B	SA52	SA52-43B	N	28.5	30	10/21/2009	Y	225	< 0.16 U	225	1.8	< 4 U	1010	2600	

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TABLE 7
Manganese Tailings Wet Chemistry Soil Results

								Analyte Name	MBAS	Mercury	Nitrate (as N)	Nitrite	Perchlorate	Sulfate	Total Phosphorus-P
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								2010 NDEP BCL (1)	--	341	--	--	795	--	--
Task	Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Vali-dated		Result	Result	Result	Result	Result	Result	Result
Phase B	RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	Y		< 0.6 U	0.024	5.41 J+	< 0.08 U	< 0.044 UJ	376 J+	831
Phase B	RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	Y		< 0.6 U	0.008 J	1.28 J+	< 0.08 U	< 0.043 UJ	236 J+	546
Phase B	RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	Y		< 0.6 U	0.01 J	1.6 J+	< 0.08 U	0.223 J	435 J+	912
Phase B	RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	Y		< 0.8 U	0.006 J	11.7 J+	< 0.16 U	442 J-	1260 J+	712
Phase B	RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	Y		0.9 J	0.028	13.9 J+	0.16	9.37	11200	945
Phase B	RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	Y		< 0.6 U	0.027	6.58 J+	< 0.08 U	6.1	11400	750
Phase B	RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	Y		< 0.7 U	0.014 J	3.46 J+	< 0.09 U	1.41	15200	849
Phase B	SA108	SA108-20B	N	1	2.5	10/16/2009	Y		< 0.6 U	0.018	21.8 J+	0.24	105 J+	1660	976
Phase B	SA108	SA108-30B	N	11	12.5	10/16/2009	Y		< 0.6 U	0.005 J	3.71 J+	0.11 J	37.6 J+	983	905
Phase B	SA108	SA108-45B	N	26	27.5	10/16/2009	Y		< 0.7 U	0.007 J	2.13 J+	< 0.09 U	4.6 J+	17400	602
Phase B	SA137	SA137-0.5B	N	0.5	2	10/9/2009	Y		< 0.6 U	0.115	12.6 J+	0.16	47.6 J-	15400 J+	581
Phase B	SA137	SA137-15B	N	15	16.5	10/9/2009	Y		< 0.6 U	0.03	0.84 J+	< 0.08 U	0.851 J-	43.5 J+	610
Phase B	SA137	SA137-31B	N	31	32.5	10/9/2009	Y		1.4 J	0.01 J	3.07 J+	< 0.1 U	26.2 J-	216 J+	459
Phase B	SA139	SA139-0.5B	N	0.5	2	8/20/2009	Y		0.7 J-	0.08	54 J+	0.11	39.4	17300	688
Phase B	SA139	SA139-10B	N	10	11.5	8/20/2009	Y		< 0.6 UJ	0.031	12.2 J+	< 0.08 U	5.83	3910	864
Phase B	SA139	SA139009-25B	FD	25	26.5	8/20/2009	Y		0.7 J-	0.008 J	2.2 J+	< 0.08 U	0.915	544	848
Phase B	SA139	SA139-25B	N	25	26.5	8/20/2009	Y		1.2 J-	0.01 J	1.83 J+	< 0.08 U	1.19	474	872
Phase B	SA139	SA139-35B	N	35	36.5	8/20/2009	Y		1.4 J-	0.01 J	4.58 J+	< 0.09 U	2.05	20500	575
Phase B	SA141	SA141009-14B	FD	0.5	2	10/15/2009	Y		1.5 J	0.032	5.58 J+	< 0.08 U	3.18	408 J+	794
Phase B	SA141	SA141-14B	N	0.5	2	10/15/2009	Y		< 0.6 U	0.024	5.68 J+	< 0.08 U	3.56	444 J+	702
Phase B	SA141	SA141-24B	N	10	11.5	10/15/2009	Y		< 0.6 U	0.012 J	2.5 J+	0.11	6.54	307 J+	653
Phase B	SA141	SA141-30B	N	16	17.5	10/15/2009	Y		< 0.6 U	0.009 J	5.43 J+	< 0.08 U	2.18	164 J+	772
Phase B	SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	Y		< 0.6 U	0.026	9.42 J+	< 0.08 U	1.1 J+	7210	879
Phase B	SA142	SA142-20.5B	N	20.5	22	10/16/2009	Y		< 0.6 U	0.021	7.69 J+	< 0.08 U	1.33 J+	6390	854
Phase B	SA142	SA142-30.5B	N	30.5	32	10/16/2009	Y		< 0.6 U	0.019	3.57 J+	< 0.08 U	0.047 J+	620	707
Phase B	SA142	SA142-51B	N	51	52.5	10/16/2009	Y		< 0.6 U	0.012 J	2.68 J+	< 0.08 U	1.97 J+	4960	723
Phase B	SA143	SA143-24B	N	2	3.5	10/15/2009	Y		< 0.6 U	0.008 J	6.71 J+	< 0.08 U	9.14	433 J+	559
Phase B	SA143	SA143-34B	N	12	12.5	10/15/2009	Y		0.7 J	0.012 J	1.42 J+	< 0.08 U	0.375	192 J+	852
Phase B	SA143	SA143009-50B	FD	28	29.5	10/15/2009	Y		0.7 J	0.051	2.7 J+	< 0.09 U	0.414	6890 J+	630
Phase B	SA143	SA143-50B	N	28	29.5	10/15/2009	Y		< 0.6 U	0.009 J	2.6 J+	< 0.09 U	0.324	7690 J+	585
Phase B	SA149	SA149-22B	N	-6	-4.5	10/21/2009	Y		< 0.6 U	0.126	0.89 J+	< 0.08 U	< 0.035 UJ	295	1010
Phase B	SA149	SA149-32B	N	5	5.5	10/21/2009	Y		< 0.6 U	0.08	< 0.05 U	< 0.08 U	< 0.035 UJ	92.2	722
Phase B	SA149	SA149009-45B	FD	17	18.5	10/21/2009	Y		< 0.7 U	0.012 J	1.58 J+	< 0.09 U	2.22 J	250	617
Phase B	SA149	SA149-45B	N	17	18.5	10/21/2009	Y		< 0.7 U	0.012 J	1.75 J+	< 0.09 U	3.67 J	353	585
Phase B	SA171	SA171-5B	N	0.5	2	10/19/2009	Y		< 0.6 U	0.012 J	13.1 J+	< 0.08 U	6.01 J+	745	1020
Phase B	SA171	SA171-15B	N	10	11.5	10/19/2009	Y		< 0.6 U	0.013 J	7.29 J+	< 0.08 U	2.69 J+	952	907
Phase B	SA171	SA171-30B	N	25	26.5	10/19/2009	Y		< 0.6 U	0.016 J	4.24 J+	< 0.08 U	0.424 J+	125 J+	571
Phase B	SA171	SA171-41B	N	36	37.5	10/19/2009	Y		< 0.7 U	0.008 J	3.2 J+	< 0.09 U	0.161 J+	12800	479
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	Y		0.7 J	0.083	9.6 J+	< 0.08 U	73.2 J	1060	1070
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	Y		< 0.6 U	0.007 J	6.3 J+	< 0.08 U	92.3 J	395	639
Phase B	SA52	SA52-43B	N	28.5	30	10/21/2009	Y		< 0.8 U	0.007 J	30.5 J+	< 0.11 U	489 J	14300	547

Notes:

<: Not detected at or above the indicated laboratory method reporting limit

BCL: Basic comparison level

FD: Field duplicate

J: Indicates that the result is less than the method reporting limit but greater than the method detection limit and is therefore an estimated quantity

mg/kg: milligrams per kilogram

NDEP: Nevada Division of Environmental Protection

U: Indicates that the result is less than the method detection limit

Soil sample excavated

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 8
Manganese Tailings PCB Aroclors Soil Results

								Analyte Name	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260
								Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
								2010 NDEP BCL (1)	23.6	0.826	0.826	0.826	0.826	0.826	0.826
Investigation	**Boring ID**	**Sample Name**	**Type**	**Start Depth (2)**	**End Depth**	**Sample Date**	**Units**	**Vali-dated**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Phase B	SA52	SA52-15B	N	0.5	2	10/21/2009	mg/kg	Y	< 0.019 U	< 0.042 U	< 0.019 U	< 0.029 U	< 0.019 U	< 0.019 U	0.077 J+
Phase B	SA52	SA52-28B	N	13.5	15	10/21/2009	mg/kg	Y	< 0.019 U	< 0.042 U	< 0.019 U	< 0.029 U	< 0.019 U	< 0.019 U	< 0.033 U

Notes:

<: Not detected at or above the indicated laboratory method reporting limit

BCL: Basic comparison level

FD: Field duplicate

J: Indicates that the result is less than the method reporting limit but greater than the method detection limit and is therefore an estimated quantity

mg/kg: milligrams per kilogram

NDEP: Nevada Division of Environmental Protection

U: Indicates that the result is less than the method detection limit

Soil sample excavated

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 9
Manganese Tailings TPH Soil Results

									Analyte Name	Oil Range Organics			Total petroleum hydrocarbon-diesel		
									NDEP 2010 MIN BCL (1)	--			100		
Boring ID	Sample Name	Type	Start Depth (2)	End Depth	Sample Date	Units	Task	Validated	Detected	Result	Qualifier	Detected	Result	Qualifier
RSAO7	RSAO7-9B	N	0.5	2	10/12/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
RSAO7	RSAO7-19B	N	10	11.5	10/12/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
RSAO7	RSAO7-29B	N	20	21.5	10/12/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
RSAO7	RSAO7-47B	N	36	37.5	10/12/2009	mg/kg	Phase B	Y	<	48	U	<	48	U
RSAO8	RSAO8-11.5B	N	-0.5	1	9/14/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
RSAO8	RSAO8-21.5B	N	9.5	11	9/14/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
RSAO8	RSAO8-43B	N	31	32.5	9/14/2009	mg/kg	Phase B	Y	<	37	U	<	37	U
SA137	SA137-0.5B	N	0.5	2	10/9/2009	mg/kg	Phase B	Y	<	31	U	<	31	U
SA137	SA137-15B	N	15	16.5	10/9/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA137	SA137-31B	N	31	32.5	10/9/2009	mg/kg	Phase B	Y	<	41	UJ	<	41	UJ
SA141	SA141009-14B	FD	0.5	2	10/15/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA141	SA141-14B	N	0.5	2	10/15/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA141	SA141-24B	N	10	11.5	10/15/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA141	SA141-30B	N	16	17.5	10/15/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA142	SA142009-20.5B	FD	20.5	22	10/16/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA142	SA142-20.5B	N	20.5	22	10/16/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA142	SA142-30.5B	N	30.5	32	10/16/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA142	SA142-51B	N	51	52.5	10/16/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA171	SA171-5B	N	0.5	2	10/19/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA171	SA171-15B	N	10	11.5	10/19/2009	mg/kg	Phase B	Y	<	34	U	<	34	U
SA171	SA171-30B	N	25	26.5	10/19/2009	mg/kg	Phase B	Y	<	33	U	<	33	U
SA171	SA171-41B	N	36	37.5	10/19/2009	mg/kg	Phase B	Y	<	37	U	<	37	U

Notes:

<: Not detected at or above the indicated laboratory method reporting limit

BCL: Basic comparison level

FD: Field duplicate

J: Indicates that the result is less than the method reporting limit but greater than the method detection limit and is therefore an estimated quantity

mg/kg: milligrams per kilogram

NDEP: Nevada Division of Environmental Protection

U: Indicates that the result is less than the method detection limit

bold = Exceeds the NDEP BCL

(1) From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010.

(2) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 10
Manganese Tailings Asbestos Soil Results

								Analyte Name	Long Amphibole Protocol Structures Count				Long Asbestos Protocol Structures Count			
Boring ID	Task	Sample Name	Sample Date	Start Depth (1)	End Depth	Units	Vali-dated		Detected	Uncertainty	Result	Qualifier	Detected	Uncertainty	Result	Qualifier
SA137	Phase B	SA137-0.0B	9/9/2009	0	0.5	s/samp	Y		<		0		<		0	
SA139	Phase B	SA139-0.0B	8/26/2009	0	0.5	s/samp	Y		<		0	U	<		0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.00BPC	4/14/2010	0	0.17	s/samp	N			2980000	1	J		2980000	1	J
SSAO8-02	PCS Asbestos	SSAO8-02-0.33BPC	4/14/2010	0.33	0.5	s/samp	Y		<	2960000	0	U	<	2960000	0	U
SSAP7-01	PCS Asbestos	SSAP7-01-0.00BPC	4/14/2010	0	0.17	s/samp	N		<	2970000	0	U	<	2970000	0	U
SSAP8-02	PCS Asbestos	SSAP8-02-0.00_01_BPC	10/28/2010	0	0.17	s/samp	N		<	2658194	0		<	2658194	0	

Notes:

Soil sample excavated and data will be excluded from HRA calculations

(1) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 10
Manganese Tailings Asbestos Soil Results

								Analyte Name				Long Chrysotile Protocol Structures Count				Short Amphibole Structures Counts			
Boring ID	Task	Sample Name	Sample Date	Start Depth (1)	End Depth	Units	Vali-dated	Detected	Uncertainty	Result	Qualifier	Detected	Uncertainty	Result	Qualifier	Detected	Uncertainty	Result	Qualifier
SA137	Phase B	SA137-0.0B	9/9/2009	0	0.5	s/samp	Y			< 0						<		0	
SA139	Phase B	SA139-0.0B	8/26/2009	0	0.5	s/samp	Y			< 0	U					<		0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.00BPC	4/14/2010	0	0.17	s/samp	N			< 2980000	0 U					<	2980000	0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.33BPC	4/14/2010	0.33	0.5	s/samp	Y			< 2960000	0 U					<	2960000	0	U
SSAP7-01	PCS Asbestos	SSAP7-01-0.00BPC	4/14/2010	0	0.17	s/samp	N			< 2970000	0 U					<	2970000	0	U
SSAP8-02	PCS Asbestos	SSAP8-02-0.00_01_BPC	10/28/2010	0	0.17	s/samp	N			< 2658194	0					<	2658194	0	

Notes:

Soil sample excavated and data will be excluded from HRA calculations

(1) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 10
Manganese Tailings Asbestos Soil Results

								Analyte Name	Short Asbestos Structures Counts				Short Chrysotile Structures Counts			
Boring ID	Task	Sample Name	Sample Date	Start Depth (1)	End Depth	Units	Vali-dated		Detected	Uncertainty	Result	Qualifier	Detected	Uncertainty	Result	Qualifier
SA137	Phase B	SA137-0.0B	9/9/2009	0	0.5	s/samp	Y		<		0		<		0	
SA139	Phase B	SA139-0.0B	8/26/2009	0	0.5	s/samp	Y		<		0	U	<		0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.00BPC	4/14/2010	0	0.17	s/samp	N		<	2980000	0	U	<	2980000	0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.33BPC	4/14/2010	0.33	0.5	s/samp	Y		<	2960000	0	U	<	2960000	0	U
SSAP7-01	PCS Asbestos	SSAP7-01-0.00BPC	4/14/2010	0	0.17	s/samp	N		<	2970000	0	U	<	2970000	0	U
SSAP8-02	PCS Asbestos	SSAP8-02-0.00_01_BPC	10/28/2010	0	0.17	s/samp	N		<	2658194	0		<	2658194	0	

Notes:

Soil sample excavated and data will be excluded from HRA calculations

(1) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 10
Manganese Tailings Asbestos Soil Results

								Analyte Name	Total Amphibole Protocol Structures Count				Total Asbestos Protocol Structures Count			
Boring ID	Task	Sample Name	Sample Date	Start Depth (1)	End Depth	Units	Vali-dated		Detected	Uncertainty	Result	Qualifier	Detected	Uncertainty	Result	Qualifier
SA137	Phase B	SA137-0.0B	9/9/2009	0	0.5	s/samp	Y		<		0		<		0	
SA139	Phase B	SA139-0.0B	8/26/2009	0	0.5	s/samp	Y		<		0	U	<		0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.00BPC	4/14/2010	0	0.17	s/samp	N			2980000	1	J		2980000	1	J
SSAO8-02	PCS Asbestos	SSAO8-02-0.33BPC	4/14/2010	0.33	0.5	s/samp	Y		<	2960000	0	U	<	2960000	0	U
SSAP7-01	PCS Asbestos	SSAP7-01-0.00BPC	4/14/2010	0	0.17	s/samp	N		<	2970000	0	U	<	2970000	0	U
SSAP8-02	PCS Asbestos	SSAP8-02-0.00_01_BPC	10/28/2010	0	0.17	s/samp	N		<	2658194	0		<	2658194	0	

Notes:

Soil sample excavated and data will be excluded from HRA calculations

(1) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

TABLE 10
Manganese Tailings Asbestos Soil Results

						Analyte Name		Total Chrysotile Protocol Structures Count			
Boring ID	Task	Sample Name	Sample Date	Start Depth (1)	End Depth	Units	Vali-dated	Detected	Uncertainty	Result	Qualifier
SA137	Phase B	SA137-0.0B	9/9/2009	0	0.5	s/samp	Y	<		0	
SA139	Phase B	SA139-0.0B	8/26/2009	0	0.5	s/samp	Y	<		0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.00BPC	4/14/2010	0	0.17	s/samp	N	<	2980000	0	U
SSAO8-02	PCS Asbestos	SSAO8-02-0.33BPC	4/14/2010	0.33	0.5	s/samp	Y	<	2960000	0	U
SSAP7-01	PCS Asbestos	SSAP7-01-0.00BPC	4/14/2010	0	0.17	s/samp	N	<	2970000	0	U
SSAP8-02	PCS Asbestos	SSAP8-02-0.00_01_BPC	10/28/2010	0	0.17	s/samp	N	<	2658194	0	

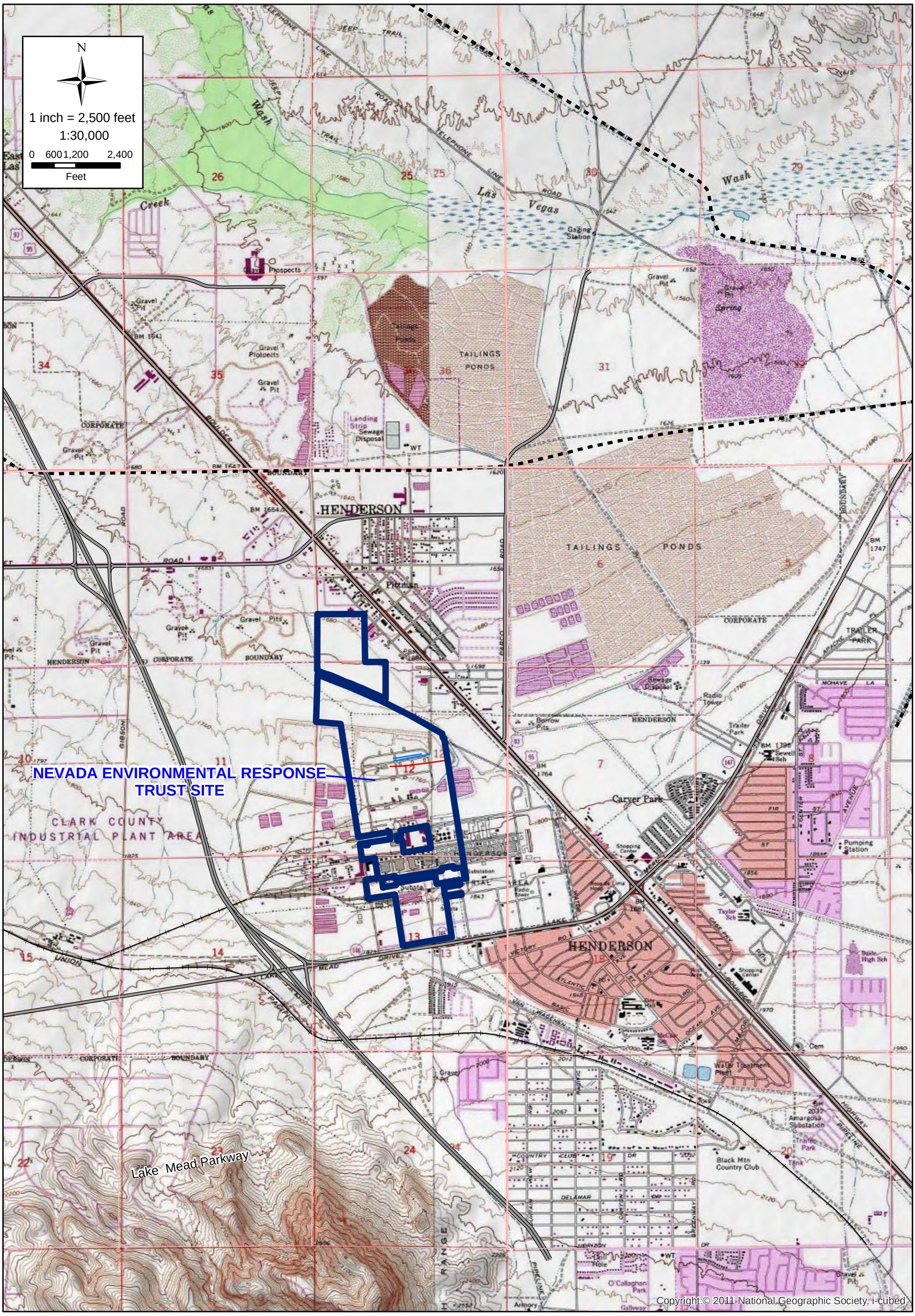
Notes:

Soil sample excavated and data will be excluded from HRA calculations

(1) Depth from ground surface after tailings pile removed. Depth corrected from Phase B borings to remove thickness of tailings pile.

FIGURES

M:\01_Projects\1232_Environ\1232.01_TRX_ECA\T61_SOW18_MN_Tails\P1232_01_T61_SOW18_MN_Tails_TechMemo_F01_Site_Location_Map_20120920.mxd 11/9/2012



SHEET NUMBER: 1	FIGURE NUMBER: 1	

SITE LOCATION MAP

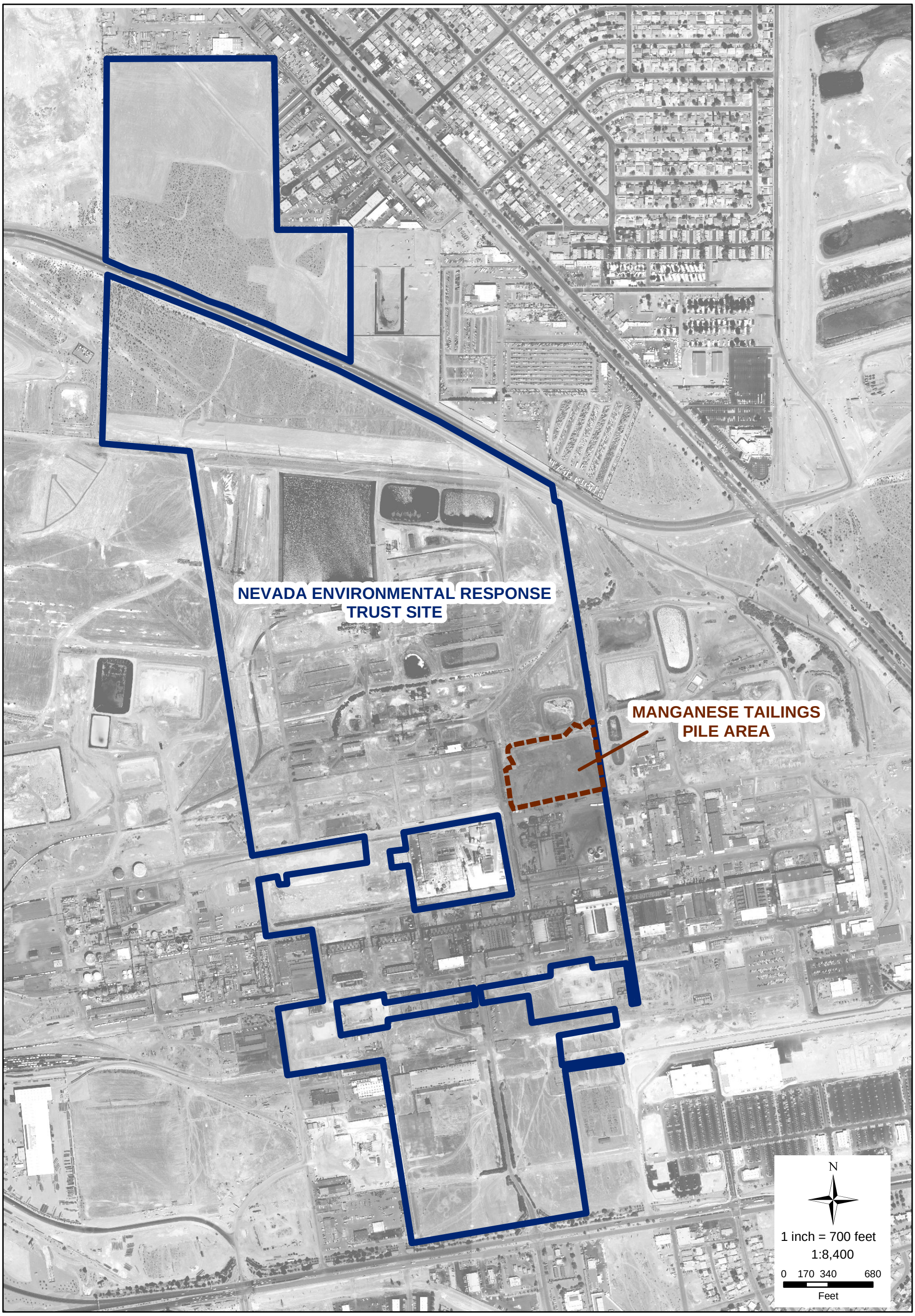
Manganese Tailings Removal Technical Memorandum
Nevada Environmental Response Trust Site
Henderson, Nevada

SCALE:	DATE:	PROJECT NUMBER:
1:24,000	09/19/12	1232.01 T61

DESIGNED BY:	REVISIONS			
OS	NO.:	DESCRIPTION:	DATE:	BY:
DRAWN BY:				
OS				
CHECKED BY:				
NG				
APPROVED BY:				
DW				

northgate environmental management, inc.
www.ngem.com

M:\01_Projects\1232_Environ\1232.01_TRX_ECA\T61_SOW18_MN_Tails\P1232_01_T61_SOW18_MN_Tails_TechMemo_F02_MN_Tailings_Piles_Location_20120919.mxd 11/9/2012



MANGANESE TAILINGS PILE AREA LOCATION MAP

Manganese Tailings Removal Technical Memorandum
Nevada Environmental Response Trust Site
Henderson, Nevada

SCALE:	DATE:	PROJECT NUMBER:
1:24,000	09/19/2012	1232.01 T61

FIGURE NUMBER: 2
SHEET NUMBER: 1

DESIGNED BY:	REVISIONS			
OS	NO.:	DESCRIPTION:	DATE:	BY:
DRAWN BY:				
OS				
CHECKED BY:				
NG				
APPROVED BY:				
DW				

northgate environmental management, inc.
www.ngem.com

M:\01_Projects\1232_Environ\1232.01_TRX_ECA\T61_SOW18_MN_Tails\P1232_01_T61_SOW18_MN_Tails_TechMemo_F04_Route_to_Apex_20120919.mxd 11/9/2012

Directions	Distance
1. Turn left and head east on Avenue G toward 5th St.	0.1 mi
2. Avenue G turns rigth and becomes 5th St	0.1 mi
3. 5th St. turns right and becomes S. 4th St.	0.4 mi
4. Turn right on Fiesta Henderson toward Eastgate Rd.	0.2 mi
5. Turn rigth at W. Lake Mead Dr/NV-564 W	0.3 mi
6. Take the exit onto I-515 N/US-93 N/US-95 N toward Las Vegas	14.4 mi
7. Take exit 76B to merge onto I-15 N/US-93 N toward Salt Lake City	21.3 mi
8. Take exit 64 for US-93 N/Great Basin Hwy towrd Pioche Ely	0.2 mi
9. Turn left at Great Basin Hwy/US-93 N Continue to follow US-93 N	0.2 mi

Apex Regional Landfill Facility Republic Services, Inc.
Facility Address: 13550 North US Highway 93
Las Vegas, NV 89165
Point of Contact: Fred Hayes
Telephone: (480) 353-1301

Total Estimated Distance and Time: 36.5 miles - about 45 minutes

NEVADA ENVIRONMENTAL RESPONSE TRUST SITE

1 inch = 2 miles
1:126,720
0 0.5 1 2
Miles

Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

SHEET NUMBER: 1
FIGURE NUMBER: 4

ROUTE TO APEX LANDFILL
Manganese Tailings Removal Technical Memorandum
Nevada Environmental Response Trust Site
Henderson, Nevada

SCALE:	DATE:	PROJECT NUMBER:
1:126,720	09/19/12	1232.01 T61

DESIGNED BY:	REVISIONS			
OS	NO.:	DESCRIPTION:	DATE:	BY:
DRAWN BY:				
OS				
CHECKED BY:				
NG				
APPROVED BY:				
DW				

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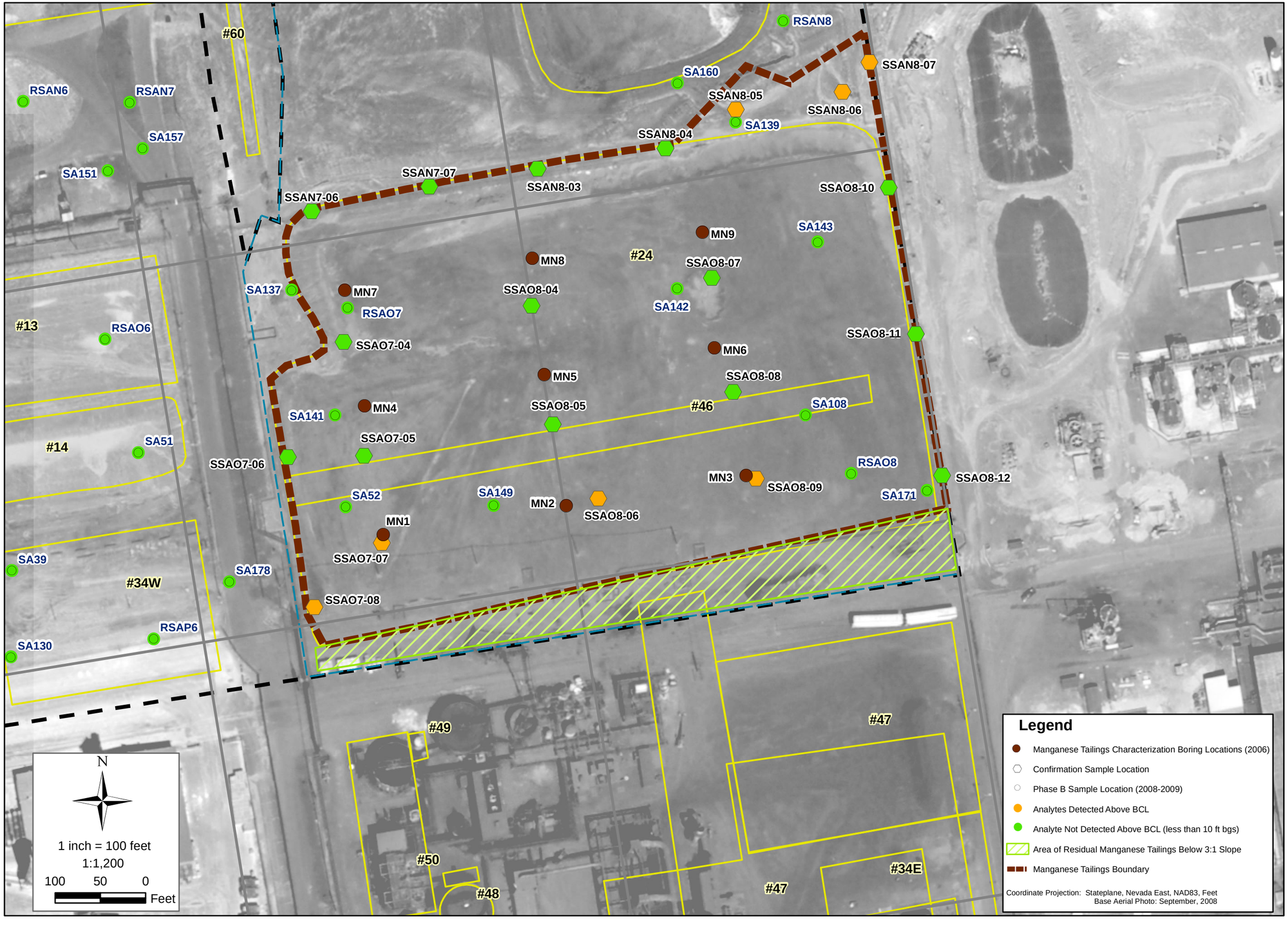

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northgate environmental management, inc.
www.ngem.com

REVISIONS:			
NO:	DESCRIPTION:	DATE:	BY:

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED BY:
CW	KH	CW	DW

LOCATION OF PHASE B AND PRECONFIRMATION SOIL BORINGS

Manganese Tailings Removal Technical Memorandum
Nevada Environmental Response Trust Site
Henderson, Nevada

SCALE:	DATE:	PROJECT NUMBER:
1 in = 100 ft	09/24/2012	1232.01 T61

FIGURE NUMBER:

6

SHEET NUMBER:

1

M:\01_Projects\1232_Environ\1232.01_TRX_ECA\T61_SOW18_MN_Tails\P1232_01_T61_SOW18_MN_Tails_TechMemo_F07_Excavation_Boundaries_Data_20121919.mxd 11/9/2012

N

1 inch = 80 feet

1:960

0 20 40 80

Feet

HISTORIC MANGANESE TAILINGS PILE AREA

SSAN8-05 HCB Arsenic Cobalt Lead Manganese
0.0-0.5' : < 0.028 **12** 77 37 4,500
0.5-1.0' : - 6.8 - - -

SSAN8-03 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.029 6.7 65 24 4,000

SSAN7-07 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.029 2.7 7.7 9.8 470

SSAN8-04 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.029 4.5 23 14 1,300

SSAN8-01 Arsenic Cobalt Manganese
1.0-2.0' : **9.5** 51 3,500
2.0-3.0' : 3 - 450
5.0-6.0' : 3.7 14 880
5.0-6.0' (dup): 3.2 10 630

SA139 Arsenic Cobalt Manganese
0.5-2.0' : **24.7** **335** **21,600**
1.0-2.0' : **23** 290 **31,000**
3.0-4.0' : **12** - 8,700
4.0-5.0' : 3.8 **14** **1,200**
5.0-6.0' : 3.3 11 860
10.0-11.5' : 6.85 55.5 4,050

SSAN7-06 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.029 3.2 9.4 9.9 560

SA137 Dioxin HCB Arsenic Cobalt Manganese
0.5-2.0' : 940 **3.6** **38.2** **784** **41,900**
3.0-4.0' : - 0.24 **12** 170 9,400
4.0-5.0' : - - **60** 67 3,200
5.0-6.0' : - - **89** 140 6,900
5.0-6.0' (dup): - - **74** 130 6,100
6.0-7.0' : - - **130** - -
7.0-8.0' : - - **12** - -
8.0-9.0' : - - **7.6** - -
9.0-10.0' : - - **12** **25** **2,600**
10.0-11.0' : - - 6.6 - **1,600**
15.0-16.5' : - 0.0058 4.88 8.6 461

SSAO8-14 Arsenic
1.0-2.0' : 3.0
2.0-3.0' : 3.2
3.0-4.0' : 3.0
3.0-4.0' (dup): 3.4
4.0-5.0' : 3.6
5.0-6.0' : 3.2

SA142 Arsenic
1.0-2.0' : 3.7
2.0-3.0' : 3.8
3.0-4.0' : 4.4
4.0-5.0' : 3.7
5.0-6.0' : 4.0

SSAO8-07 Dioxin HCB Arsenic Cobalt Lead Manganese
0.0-0.5' : 0.22 <0.029 2.9 15 9.4 2,100

SSAO8-10 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.029 3.7 71 11 4,800

SA143 Arsenic Cobalt Lead Manganese
2.0-3.5' : 2.08 9.1 9.6 3,970
12.0-12.5' : 2.49 8.4 7.3 2,800

RSAO7 Arsenic Cobalt Lead Manganese
0.5-2.0' : 1.87 8.9 9.8 1330
10.0-11.5' : 2.94 7.5 8.3 397

SSAO8-11 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.030 3.9 17 9.5 1,200

SSAO8-04 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.029 2.7 8.4 7.7 570

SA141 Arsenic Cobalt Lead Manganese
0.5-2.0' : 1.57 8.4 10.6 461
10.0-11.5' : 2.73 7.9 8.7 375

SSAO7-04 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.030 3.9 15 7.3 6,700

SSAO8-13 Arsenic
1.0-2.0' : 3.5
2.0-3.0' : 3.4
3.0-4.0' : 3.5
4.0-5.0' : 4.2
5.0-6.0' : 3.9

SSAO8-08 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.028 3.0 29 10 2,300

SSAO8-09 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': 0.35 **39** 190 270 **30,000**
0.5-1.0': - **7.3** - - 6,500
1.0-2.0' : - 2.8 8.6 - 430
2.0-3.0' : - 2.7 6.8 - 330
3.0-4.0' : - 2.8 7.9 - 460
4.0-5.0' : - 3.0 7.2 - 390
5.0-6.0' : - 2.6 6.1 - 290
5.0-6.0' (dup): - 2.9 6.1 - 300

SSAO7-06 Dioxin HCB Arsenic Cobalt Lead Manganese
0.0-0.5': 14 <0.030 3.1 11 8.9 790

SSAO7-05 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': 0.060J 5.4 60 19 3,300

SA108 Arsenic Cobalt Manganese
1.0-2.5' : 2.16 19.8 967

SA52 Arsenic Cobalt Lead Manganese
0.5-2.0' : 11.5 9.5 221 3920
13.5-15.0' : 4.1 6.1 7.6 247

RSAO8 Arsenic Cobalt Lead Manganese
-0.5-1': 4.75 201 12.6 9,010
9.5-11' : 5.21 284 12.2 6,280
31-32.5' : 17.9 96.7 8.5 1,280

SSAO8-12 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': <0.029 4 29 8.0 2,100
0.0-0.5' (dup): <0.029 4.3 26 7.6 2,100

SSAP8-02 Asbestos
0.0-0.17': 0 (amp) 0 (chr)

SA171 Arsenic Cobalt Lead Manganese
0.5-2.0' : 2.07 8 8.3 443
10.0-11.5' : 1.88 11.3 9.5 723

SSAO8-02 Asbestos
0.0-0.17': **1 (amp)** 0 (chr)
0.33-0.5' : 0 (amp) 0 (chr)

SSAO7-08 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': 0.56J **41** **770** 78 **110,000**
0.5-1.0': - **35** **700** - **160,000**
1.0-2.0' : - 3 11 - 1,600
2.0-3.0' : - 2.8 8.2 - 440
3.0-4.0' : - 3.2 8.0 - 410
4.0-5.0' : - 2.9 7.8 - 360
4.0-5.0' (dup): - 2.9 7.3 - 320
5.0-6.0' : - 2.9 7.7 - 350

SA149 Arsenic Cobalt Lead Manganese
5.0-5.5' : 2.19 7.9 6.6 1,460

SSAP7-01 Asbestos
0.0-0.17' 0 (amp) 0 (chr)

SSAO7-07 Dioxin HCB Arsenic Cobalt Lead Manganese
0.0-0.5': 100 0.057J **8.1** 290 20 **31,000**
0.5-1.0': - - **8.9** - - **29,000**
1.0-2.0' : - - 3.6 120 - 2,500
2.0-3.0' : - - 3.6 80 - 2,000
3.0-4.0' : - - 3.5 25 - 2,500
4.0-5.0' : - - 3.7 8.2 - 2,400
5.0-6.0' : - - 3.5 10 - 2,000

SSAO8-06 HCB Arsenic Cobalt Lead Manganese
0.0-0.5': 0.73 **84** **1,100** 110 **75,000**
0.5-1.0': - **24** **1,100** - **54,000**
1.0-2.0' : - **8.3** **470** - **15,000**
2.0-3.0' : - **13** 300 - **15,000**
3.0-4.0' : - 3.7 7.8 - 1,700
4.0-5.0' : - 3.7 7.8 - 2,100
5.0-6.0' : - 4.2 20 - 2,800

SSAO8-05 Dioxin HCB Arsenic Cobalt Lead Manganese
0.0-0.5': 0.077 <0.030 3.0 7.8 8.0 440

RZ-C-46A 0.5
RZ-C-47 2'
RZ-C-46 4'
RZ-C-44 10'
RZ-C-45 0'
RZ-C-45C 3'
RZ-C-45D 1'
RZ-C-45E 2'
RZ-C-45A 0.33'
RZ-C-45B 1'
RZ-C-22A 0.66'
RZ-C-22B 8'

Soil concentrations exceeding NDEP worker Basic Comparison Levels (BCLs) except for dioxin/furans which is based on the Site specific worker BCL of 2,700 ppt and arsenic, which is based on the maximum background concentration of 7.2 mg/kg.

One or more long fibers (amphibole) and/or greater than five long fibers (chrysotile)

Area where depth of excavation determined by exceedances of Comparison Criteria other than perchlorate. Remediation of perchlorate in these areas will be accomplished using methods other than excavation and off-site disposal.

Legend

Sampling Locations
- Phase A Sample Location (2006)
- Phase B Sample Location (2008-2009)
- Horizontal Delination Sample Location
- Analytes Detected Above BCL
- Analyte Not Detected Above BCL (less than 10 ft bgs)
- Proposed Surface Dioxin/HCB Sample Location
- High Pressure Gas Line Right of Way
- Area of Residual Manganese Tailings Below 3:1 Slope
- Proposed Institutional/Engineering Control Area
- Site features (Buildings and Tanks)
- Remediation Zone Boundary
- RZ-C South Area Boundary
- Property Line
- *2.8* *Dioxin Concentration*
- *0.029* *HCB Concentration*

Coordinate Projection: Stateplane, Nevada East, NAD83, Feet
Base Aerial Photo: September, 2008

Abbreviations:

dup	Field Duplicate
DP	Data Pending
-	Not Analyzed
SH	Screening Data Greater Than BCL
SL	Screening Data Less Than BCL
Dioxin	Dioxin/Furan Toxicity Equivalence (TEQ)
HCB	Hexachlorobenzene
amp	Amphibole
chr	Chrysotile
B(a)P TEQ	Benzo(a)pyrene Toxicity Equivalence (TEQ)

Notes:
Units for asbestos in number of long fibers and dioxin is parts per trillion (ppt), all other units are in milligrams per kilogram (mg/kg).

northgate environmental management, inc.
www.ngem.com

REVISIONS: NO:	DESCRIPTION:	DATE:	BY:

DESIGNED BY: OS
DRAWN BY: OS
CHECKED BY: NG
APPROVED BY: DW

LOCATION OF REMEDIATION POLYGONS AND PRE-CONFIRMATION AND CONFIRMATION SOIL SAMPLES
Manganese Tailings Removal Technical Memorandum
Nevada Environmental Response Trust Site
Henderson, Nevada

SCALE: 1 in = 80 ft
DATE: 09/24/2012
PROJECT NUMBER: 1232.01 T61

FIGURE NUMBER: **7**

SHEET NUMBER: 1