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Admin. Record

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August 6, 2004

Reference No. 19867

Mr. Michael J. Hinton, P.E.
Division of Environmental Remediation, Region 9
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

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Dear Mr. Hinton:

Re: Vanadium Corporation of America
Niagara Falls, New York

This letter report presents the data generated by Conestoga-Rovers & Associates (CRA) during the Phase I Investigation at the Vanadium Corporation of America Site (Site) in Niagara Falls, New York.

1.0 INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC) has designated the New York Power Authority and Niagara Mohawk Power Corporation parcel of the Site as Operable Unit 3 (OU3). The scope of work for conducting a Remedial Investigation/Feasibility Study (RI/FS) for OU3 is outlined in the Order on Consent.

As presented in the Order on Consent, the work to be performed is being done in a phased manner. The Phase I Work Plan (Work Plan) dated September 27, 2002 was prepared to meet the requirements of Phase I – Additional Data Collection. This letter report presents the data generated thus far during the Phase I investigation of OU3.

2.0 INVESTIGATION DESCRIPTION

This section provides a description of the field work performed on OU3, and is broken down into individual tasks as outlined in the Work Plan.

2.1 Shallow Monitoring Well Inventory, Survey, and Water Levels

An inventory of all existing shallow monitoring wells in the vicinity of the Site was completed during a Site visit on January 9, 2003. At that time, a total of 14 wells were located and inspected. Seven monitoring wells, including MW3R-88, WT-107-92, MW-101A, MW-101B,

BW1-86-UC, BW5-86-US, and BW6-86-UC no longer exist in the field. No repairs were required to any of the existing wells. A well inspection log was completed for each well, and the logs are presented as Attachment A. A round of hydraulic water levels was taken on January 9, 2003, and is presented in Table 2.1.

2.2 Test Pit Excavations

A total of 32 test pits were completed on July 30 and 31, and August 1, 18, and 19, 2003. The purpose of the test pits was to further delineate the extent of buried slag at the Site, particularly in the northern portion of OU3 and east of the capped area. From these test pits, the approximate limit of slag material was further delineated. The locations of the test pits were surveyed. The test pit locations and the revised extent of the slag material are presented on Figure 2.1. Test pit logs are presented as Attachment B.

The slag limits were not delineated to the north of TP-13. Slag was identified at TP-13; however, the test trench was not continued beyond the edge of the densely vegetated marshy area. The slag limits were also not identified to the north of the ditch near TP-15 through TP-18. The property north of the ditch is currently fenced and is used as a paved parking lot for storing new automobiles.

During the test pit excavation at TP-20, a dark, metallic looking material was encountered in addition to the gray white slag material. A sample of this metallic material was collected and analyzed for Target Compound List (TAL) inorganics and hexavalent chromium. The analytical data for this sample is presented in Table 2.2 and is discussed in Section 3.2.

2.3 Boreholes and Subsurface Soil Sampling and Analysis

A total of 15 boreholes (MW-1 to MW-11, MW-13 to MW-15, and BH-12) were advanced on July 22 to 25, 28, 29, and August 20, 2003. All boreholes were completed using a 4 1/4-inch hollow-stem auger (HSA). The purpose of the soil borings was to gather information to be used to:

- determine the distribution and thickness of the slag material at the Site;
- determine the thickness of the existing cap material, where present;
- determine the topography of the subsurface silt layer; and
- determine where the slag material is saturated.

All drilling techniques and decontamination procedures were conducted in accordance with the Work Plan. A total of 14 of the 15 boreholes were completed as shallow monitoring wells. The locations of the monitoring wells and boreholes are presented on Figure 2.2.

At each borehole location, subsurface soil samples were collected from two depths; the slag/fill material, where present, and the underlying native silt unit. At BH-12 and MW-18, both samples were collected from the slag/fill layer. No slag/fill material was observed at MW-15, MW-16, and MW-17. At these locations, the samples were taken from the native clay material at two different depths. All drill cuttings were collected and placed in 55-gallon drums for storage until proper waste disposal.

All subsurface soil samples were analyzed for pH, TAL inorganics, and hexavalent chromium. Table 2.2 presents the analytical data obtained from the subsurface soil sampling. An analysis of the data follows in Section 3.7.

2.4 Monitoring Well Installation

A total of 14 shallow groundwater monitoring wells were installed in the soil borings discussed above. The depths of the monitoring wells range from 10 to 24 feet below ground surface (bgs). The monitoring well stratigraphic logs are presented as Attachment C. All monitoring wells were installed and developed in accordance with the Work Plan.

Monitoring well construction details are summarized in Table 2.3.

2.5 Hydraulic Water Level Measurements

Three rounds of hydraulic water level measurements have been completed to date. The three rounds were completed on August 13, 2003, September 30, 2003, and December 19, 2003, respectively. The water level data are presented in Table 2.1. The groundwater contours for each of the three rounds are shown on Figures 2.3 to 2.5.

The contours presented of Figures 2.3 to 2.5 suggest that within OU3, the shallow groundwater appears to flow radially from the area around the large pond and the portion of the mound east of the pond. The data indicate relatively high fluctuations in water levels at several of the monitoring well locations. The greatest variability in water levels were observed at wells MW-17 (9.34 feet), MW-106A (7.45 feet), MW-103A (7.40 feet), MW-15 (7.37 feet) and MW-106B (7.25 feet). These wells are located at the southern end of the Site. The wells with the least variability are MW-20 (0.44 feet), MW-23 (0.81 feet), and MW-21 (0.95 feet). MW-21 is located on top of the mounded area, whereas MW-20 and MW-21 are located in the uncovered slag area west of the mound.

Although there is considerable variability in the water levels measured at some of the wells, the overall groundwater contour distribution over the three sampling rounds is relatively

consistent with an overall shallow groundwater flow direction from the northwest towards the southeast with a groundwater mound in the vicinity of the pond.

2.6 Shallow Groundwater Sampling and Analysis

Following installation, all new wells were developed with a centrifugal pump using development protocols as outlined in the Work Plan. All wells were developed until two consecutive and consistent readings of temperature, pH, and conductivity were obtained and the turbidity was less than 50 NTUs, where possible. At locations MW-18, MW-21, and MW-28, the well recharge was insufficient to conduct the well development as previously described. At these locations, the wells were pumped to dryness on 3 consecutive days. All development water was collected and stored in drums until proper waste disposal.

Two rounds of groundwater samples were collected using low flow purging and sampling protocols as outlined in the Work Plan. The first round was completed on August 15, 18, 20, 25, and 28, 2003. The second round was completed on October 1, 3, 6, 7, and 22, 2003.

All groundwater samples were analyzed for pH, TAL inorganics, and hexavalent chromium. Additionally, a total of seven groundwater samples were field filtered using in-line filters and analyzed for dissolved TAL inorganics and hexavalent chromium. The groundwater analytical data are presented in Table 2.4 and discussed in Section 3.5.

2.7 Surface Soil Sampling and Analysis

A total of 31 surface soil samples, SS-10 to SS-40, were collected on July 18, 21, and 22, 2003. The samples were collected from 0 to 2 inches bgs using a stainless steel spoon and bowl. All surface soil sampling and decontamination was conducted in accordance with the Work Plan. The sample locations are shown on Figure 2.6.

All surface soil samples were analyzed for pH, TAL inorganics, and hexavalent chromium. The analytical data generated from this sampling event are presented in Table 2.5. An analysis of the data is presented in the Section 3.1.

2.8 Surface Water and Sediment Sampling and Analysis

A total of four rounds of surface water sampling and one round of sediment sampling were completed. All surface water and sediment sampling and decontamination was conducted in accordance with the Work Plan.

The first round of surface water sampling and the one sediment sampling round were completed on August 14 and 21, 2003. During this sampling round, a total of 10 surface water

samples and 16 sediment samples were collected. Six surface water locations from the Work Plan were not sampled as they were dry (SW-8, SW-9, SW-10, SW-16, SW-17, and SW-18). Additionally, no surface water or sediment sample was collected from location SW-12 as this area was inaccessible by field personnel during the summer. The area surrounding location SW-12 was densely vegetated with tall reeds during the summer, and was too swampy to reach on foot.

During the second round of surface water sampling conducted on October 7, 2003, a total of 9 surface water samples were collected. Seven locations were not sampled as they were dry (SW-8, SW-9, SW-10, SW-16, SW-17, SW-18, and SW-22). The location for SW-12 was still inaccessible by field personnel during this sampling round.

During the third round of surface water sampling conducted on December 17, 2003, a total of 15 surface water samples were collected. Two locations, SW-8 and SW-10, were not sampled as they were dry. A surface water sample was collected from SW-12 during this sampling round.

During the fourth round of surface water sampling conducted on May 12, 2004, a total of 15 surface water samples were collected. Two locations, SW-8 and SW-10, were not sampled as they were dry. Additionally, a sediment sample was collected at SW-12. Sediment samples were also collected at SW-8, SW-9, SW-16, and SW-17, as the pH was not collected during the initial sediment sampling round.

Surface water samples and sediment samples were analyzed for pH, TAL inorganics, and hexavalent chromium. Due to a field oversight, pH was not measured for surface water samples collected in August and December 2003 and sediment samples from SW-8, SW-9, SW-16, and SW-17. All sediment samples were analyzed for TAL inorganics and hexavalent chromium. A complete round of surface water pH measurements was completed on April 7, 2004. Readings were not obtained at three locations, SW-8, SW-10, and SW-22, as they were dry.

The surface water and sediment sampling locations are shown on Figure 2.7, and the analytical data are presented in Tables 2.6 and 2.7. An analysis of the data follows in Sections 3.3 and 3.4.

2.9 Soil Cover Material Sampling and Analysis

A soil cover currently overlays the slag material on the eastern side of the Site. One of the tasks as outlined in the Work Plan was to collect samples from the soil cover material and analyze the samples for physical soil parameters to determine if the existing cover could be used either by itself or as a part of a final cap design.

A total of three samples were collected from the cap material on Site. The samples were collected from approximately 2 to 10 inches bgs at locations MW-21, MW-23, and MW-24. It was decided in the field that the Shelby tube method of collection would not be effective due to the shallow nature of the cap material. The three samples were collected in 5-gallon plastic containers. An excavator was used to scrape away the top vegetated layer, and then fill the 5-gallon containers with cap material. All samples were analyzed for particle size distribution, liquid limit, plastic limit, plasticity index, and hydraulic conductivity. The results are summarized in Table 2.9. The laboratory report containing all analyses performed is included as Attachment D.

2.10 Community Air Monitoring

A community air monitoring plan in accordance with the Work Plan and New York State Department of Health protocols was implemented at the Site during ground intrusive activities.

The ground intrusive activities included advancement of boreholes, installation of monitoring wells, and the test pit program. There were no exceedances of the maximum allowable 1-hour average PM-10 concentration of 150 $\mu g/m^3$ during any of the drilling activities.

During the test pit program, the 1-hour average PM-10 concentration (Time Weighted Average) was not recorded due to frequent relocation of the excavator. The real-time PM-10 concentration was recorded approximately every hour during test pit. Tables 2.10 and 2.11 provide a summary of the data collected during the community air monitoring program. As shown in these tables, the TWA and PM-10 concentrations did not exceed 150 $\mu g/m^3$.

2.11 Topographic/Property Survey

A topographic/property survey was completed between May 6 and June 30, 2004, and is presented on Figure 2.8. This survey will provide the topographic contouring required to generate geologic cross-sections across the Site and define surface water drainage patterns for the Remedial Investigation Report. The cross-sections will be used to further evaluate the slag and cap material depths across the Site, as well as the shallow groundwater flow patterns.

3.0 DATA ANALYSIS

The following sections provide an evaluation of the results obtained from the surface soil, subsurface soil, surface water, sediment, and groundwater sampling programs. The Analytical Data Assessment and Validation Report is included as Attachment E.

3.1 Surface Soil Data

The surface soil data were compared to the Recommended Soil Cleanup Objectives (RSCOs) as presented in NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 dated January 1994. In general, beryllium, chromium (total), copper, iron, mercury, nickel, selenium, vanadium, and zinc were detected at concentrations above the RSCOs in surface soils. Elevated hexavalent chromium and pH values were also detected in surface soils. A summary of concentrations of these parameters in the surface soil samples is presented in the table below and the analytical results for chromium (total), chromium (hexavalent), copper, nickel, selenium, zinc, and pH are presented on Figure 2.9.

Parameter	*TAGM (mg/kg)*	*Number of Samples*	*Number of Exceedances*	*Range of Detects (mg/kg)*	*Location of Highest Concentration*
Beryllium	0.16	31	27	0.186 - 0.868	SS-21
Chromium (total)	50	31	21	15.4 - 10,300	SS-23
Chromium (hex.)	NS[1]	31	NA[2]	1.4 - 16	SS-23
Cobalt	30	31	4	3.79 – 34.1	SS-23
Copper	25	31	20	17.8 - 462	SS-40
Iron	2,000	31	31	7,630 - 29,300	SS-21
Mercury	0.1	31	8	0.0115 - 0.784	SS-38
Nickel	13	31	31	13.8 - 1,570	SS-31
Selenium	2	31	14	0.950 - 26.3	SS-15
Vanadium	150	31	4	17.1 - 263	SS-20
Zinc	20	31	31	80.2 - 515	SS-13
pH	NS	31	NA	6.5 - 8.8	SS-27

In general, the highest concentrations of total and hexavalent chromium, copper, nickel, and selenium in the surface soils were detected in the areas of exposed slag (SS-15, SS-16, SS-20, SS-22, SS-23, SS-27, SS-30, SS-31, and SS-40). Lower concentrations were generally detected in areas where the slag is covered by common fill or topsoil.

3.2 Subsurface Soil Data

The subsurface soil data were compared to the RSCOs as presented in NYSDEC TAGM 4046 dated January 1994. For evaluation purposes, the data for the slag/fill samples has been separated from the data for samples collected from the native soils. The analytical results for

1 NS - No Standard
2 NA - Not Applicable

chromium (total), chromium (hexavalent), copper, nickel, selenium, zinc, and pH are presented on Figure 2.10.

A summary of the slag/fill material parameter concentrations is presented in the table below.

Parameter	*TAGM (mg/kg)*	*Number of Samples*	*Number of Exceedances*	*Range of Detects (mg/kg)*	*Average Concentration (mg/kg)*	*Location of Highest Concentration (ft bgs)*
Arsenic	7.5	16	3	3.00 - 70	10.7	MW-20 (4.5-6)
Beryllium	0.16	16	15	0.162 - 3.04	1.17	BH-12 (4-6.5)
Cadmium	1	16	2	0.164 - 3.75	1.61	MW-26 (2-4)
Chromium (total)	50	16	10	4.90 - 5790	1,544	MW-22 (6-8)
Chromium (hex.)	NS	16	NA	4.9 - 430	108	MW-21 (8-10)
Copper	25	16	7	2.31 - 354	42	MW-20 (4.5-6)
Iron	2,000	16	15	533 - 65,500	16,808	MW-25 (2-3)
Nickel	13	16	12	6.21 - 261	50	MW-25 (2-3)
Selenium	2	16	1	4.01	4.01	MW-17 (0-4)
Zinc	20	16	13	15.0 - 1160	144	MW-26 (2-4)
pH	NS	16	NA	8.1 - 12	10.9	See text below

A pH value of 12 was detected at MW-18 (2 to 4 feet bgs and 12 to 14 feet bgs), MW-19 (0.5 to 2 feet bgs), MW-20 (4.5 to 6 feet bgs), MW-21 (8 to 10 feet bgs), MW-22 (6 to 8 feet bgs), MW-23 (4 to 6 feet bgs), MW-24 (2 to 4 feet bgs), MW-27 (1.5 to 4 feet bgs), and MW-28 (1 to 2 feet bgs).

A summary of the native soil parameter concentrations is presented in the table below.

Parameter	*TAGM (mg/kg)*	*Number of Samples*	*Number of Exceedances*	*Range of Detects (mg/kg)*	*Average Concentration (mg/kg)*	*Location of Highest Concentration (ft bgs)*
Arsenic	7.5	14	2	2.95 – 9.44	5.93	MW-25 (8-10)
Beryllium	0.16	14	14	0.405 - 1.18	0.79	MW-27 (7-8)
Chromium (total)	50	14	0	9.66 - 30.4	22.7	MW-28 (7-8)
Chromium (hex.)	NS	14	0	ND[3]	ND	NA
Copper	25	14	4	8.96 - 30.1	21.3	MW-27 (7-8); MW-20 (8-10)
Iron	2,000	14	14	10,600 - 33,100	25,221	MW-27 (7-8)
Nickel	13	14	13	9.97 - 32.8	24.9	MW-27 (7-8)
Selenium	2	14	3	1.67 - 6.21	2.62	MW-17 (11-13)

[3] ND - Not Detected

Parameter	*TAGM (mg/kg)*	*Number of Samples*	*Number of Exceedances*	*Range of Detects (mg/kg)*	*Average Concentration (mg/kg)*	*Location of Highest Concentration (ft bgs)*
Zinc	20	14	14	46.9 - 387	111	MW-26 (10-12)
pH	NS	14	NA	7.4 - 11	9.0	MW-26 (10-12)

The samples collected from the slag/fill material have elevated concentrations of primarily total chromium, hexavalent chromium, and pH relative to the underlying native soil. Some of the slag samples also had elevated concentrations of copper, nickel, and zinc relative to the native soils.

In addition to the 30 subsurface soil samples described above, the sample collected next to TP-20 had concentrations above the RSCOs for arsenic, total chromium, copper, iron, nickel, selenium, and zinc. This material was also observed at BH-12, but only in trace amounts from 2 to 4 feet bgs. The table below shows the parameter concentrations for this sample:

Parameter	*TAGM (mg/kg)*	*Concentration (mg/kg)*
Arsenic	7.5	35.8
Beryllium	0.16	0.965
Chromium (total)	50	317
Copper	25	379
Iron	2,000	52,200
Nickel	13	87.8
Selenium	2.0	7.27
Zinc	20	258

In summary, parameter concentrations in this sample are generally within the range of concentrations for the other slag/fill material on Site, with a few minor exceptions. This sample has the highest concentrations of selenium, arsenic and barium. Arsenic was detected across the Site in slag/fill material samples, but generally below the RSCO. Three slag/fill samples (MW-20, MW-25, and BH-12) and two native soil samples (MW-25 and MW-27) had concentrations of arsenic above the RSCO.

3.3 Sediment Data

The sediment soil data were compared to the NYSDEC Lowest Effect Level (LEL) and Severe Effect Level (SEL) provided in the document Technical Guidance for Screening Contaminated Sediments, dated January 1999. This comparison is conservative in that the sediment samples were collected from ditches which can be dry at certain times of the year. In general, chromium

(total), copper, manganese, and zinc were detected at concentrations above the LELs and SELs in sediment samples. Elevated hexavalent chromium and pH values were also detected in sediments. A summary of these parameter concentrations is presented in the table below and the analytical results for chromium (total), chromium (hexavalent), copper, nickel, selenium, zinc, and pH are presented on Figure 2.11.

Parameter	*Lowest Effect Level (mg/kg)*	*Severe Effect Level (mg/kg)*	*Number of Samples*	*Number of Exceedances of LEL*	*Number of Exceedances of SEL*	*Range of Detects (mg/kg)*	*Location of Highest Concentration*
Antimony	2.0	25.0	22	9	0	0.971 – 16.9	SW-8
Arsenic	6.0	33.0	22	10	0	4.28 – 27.9	SW-11
Cadmium	0.6	9.0	22	5	1	0.0526 – 25.3	SW-8
Chromium (total)	26.0	110.0	22	19	10	7.17 - 1,840	SW-11
Chromium (hex.)	NS	NS	22	NA	NA	2.3 - 4.9	SW-23
Copper	16.0	110.0	22	14	5	2.65 - 323	SW-9
Iron	20,000	40,000	22	12	3	417 – 42,600	SW-11
Lead	31.0	110.0	22	12	5	8.55 - 1,710	SW-8
Manganese	460.0	1100.0	22	14	2	20.4 - 1,390	SW-8
Mercury	0.15	1.3	22	7	3	0.00865 – 2.77	SW-9
Nickel	16.0	50.0	22	14	8	1.63 - 209	SW-11
Silver	1.0	2.2	22	4	2	0.545 – 4.79	SW-9
Zinc	120.0	270.0	22	13	6	16.5 – 2,220	SW-9
pH	NS	NS	17	NA	NA	7.1 - 12	SW-13; SW-21

The pH was analyzed for 17 of the 22 samples. Results for pH ranged from 7.1 at SW-9 to 12 at SW-13 and SW-21.

The highest concentrations of total chromium were detected in the ditch at the north end of the Site (SW-23), north of and within the large pond in the middle of the Site (SW-20 and SW-22), as well at the western end of the ditch that runs along the southern portion of the Site adjacent to the fence line (SW-10 and 11) and across Witmer Road (SW-8 and 9). The highest concentrations of manganese and zinc were also found at the western end of this ditch and across Witmer Road (SW-8, SW-9, and SW-11).

Hexavalent chromium was only detected at two locations; SW-22 and SW-23, located north of the large pond in the centre of the Site. The highest pH values were detected around the large pond in the middle of the Site (SW-20 and SW-21), the ditch that runs along the fence line at the north end of the Site (SW-23), south of the slag area (SW-16), and the east end of the ditch running along the southern portion of the Site (SW-13 and 14).

3.4 Surface Water Data

The surface water data were compared to the NYSDEC Ambient Water Quality Standards (AWQS) for Human Consumption of Fish (fresh water) dated June 1998. In general, iron and thallium were detected at concentrations above the AWQS in the surface water samples. Elevated concentrations of hexavalent chromium were also detected in surface water. A summary of the parameter concentrations is presented in the table below and the analytical results for chromium (total), chromium (hexavalent), and pH are presented on Figure 2.12.

Parameter	*AWQS (mg/L)*	*Number of Samples*	*Number of Exceedances*	*Range of Detects (mg/L)*	*Location of Highest Concentration*
Chromium (hex.)	0.016	48	21	0.004 - 0.571	SW-14
Iron	0.300	48	25	0.0533 - 151	SW-11
Thallium	0.020	48	8	0.0086 - 0.0936	SW-20
Vanadium	0.190	48	1	0.00334 - 0.231	SW-11
pH	6.5 - 8.5	37	29	6.16 - 12.41	SW-13

The highest concentration of total chromium was detected at SW-11, located along the ditch at the southwestern end of the Site. The highest concentrations of hexavalent chromium were detected in samples collected along the western edge of the identified slag area [e.g., SW-23, down to the south ditch (SW-13, 14, and 15)].

There is some variability in the surface water data between sampling rounds for individual locations. For example, at location SW-14 the concentration of hexavalent chromium ranged from 0.0650 mg/L in December 2003 to 0.571 mg/L in October 2003. Similarly, the concentration of total chromium in the samples from location SW-11 ranged from 0.135 mg/L in December 2003 to 6.39 mg/L in October 2003. However, there does not appear to be a pattern of uniformly higher or lower concentrations for the different sampling rounds.

The surface water that flows off the Site to the east would enter Gill Creek, which ultimately discharges into the Niagara River approximately 2 miles to the south. The surface water that flows off the Site to the west enters a ditch on the west side of Witmer Road.

3.5 Groundwater Data

The groundwater data were compared to the NYSDEC AWQS for Class GA drinking water (groundwater), dated June 1998. A summary of the parameter concentrations is presented in the table below.

Parameter	*AWQS (mg/L)*	*Number of Samples*	*Number of Exceedances*	*Range of Detects (mg/L)*	*Location of Highest Concentration*
Chromium (total)	0.05	37	8	0.0839 - 0.655	MW-19
Chromium (diss.)	0.005	14	1	0.106	MW-23
Chromium (hex.) (total)	0.05	37	4	0.0110 - 0.181	MW-23
Chromium (hex.) (diss.)	0.05	14	1	0.008 - 0.090	MW-23
Iron (total)	0.3	37	29	0.128 - 85.5	MW-19
Iron (diss.)	0.3	14	8	0.495 - 3.92	MW-104A
Lead (total)	0.025	37	8	0.00539 - 0.379	MW-17
Manganese (total)	0.3	37	17	0.00203 - 2.47	MW-17
Manganese (diss.)	0.3	14	4	0.00316 - 0.858	MW-104A
Selenium (total)	0.010	37	27	0.00669 - 0.0739	MW-17
Selenium (diss.)	0.010	14	7	0.00725 - 0.0547	MW-103A
pH	6.5-8.5	47	23	6.65 - 12.76	MW-21

The analytical results for chromium (total), chromium (hexavalent), iron (total), lead (total), manganese (total), selenium (total), selenium (dissolved), and pH are presented on Figure 2.13. The highest concentrations of total chromium and total hexavalent chromium were detected in the centre of the Site at wells MW-18, MW-19, and MW-23.

3.6 Soil Cover Material Analysis

The soil that covers much of the slag material on OU3 ranges in thickness from approximately 6 inches at MW-18 and MW-21 to approximately 3 feet at MW-23. Based on the four monitoring wells installed on top of the covered area, the average thickness of the existing soil cover material is approximately 1.5 feet. Based on the analyses of the soil samples collected of the soil cover material, the soil generally consists of a clayey silt. The hydraulic conductivity ranged from 5.77×10^{-7} cm/sec to 8.72×10^{-8} cm/sec, with an average of approximately 2.46×10^{-7} cm/sec. This material could be used as a component for a cap in this area.

5.0 REFERENCES

Conestoga-Rovers & Associates, September 27, 2002. "Phase I Work Plan, Operable Unit 3, Vanadium Corporation of America, Niagara Falls, New York".

If you have any questions or concerns, please feel free to contact us.

Yours truly,

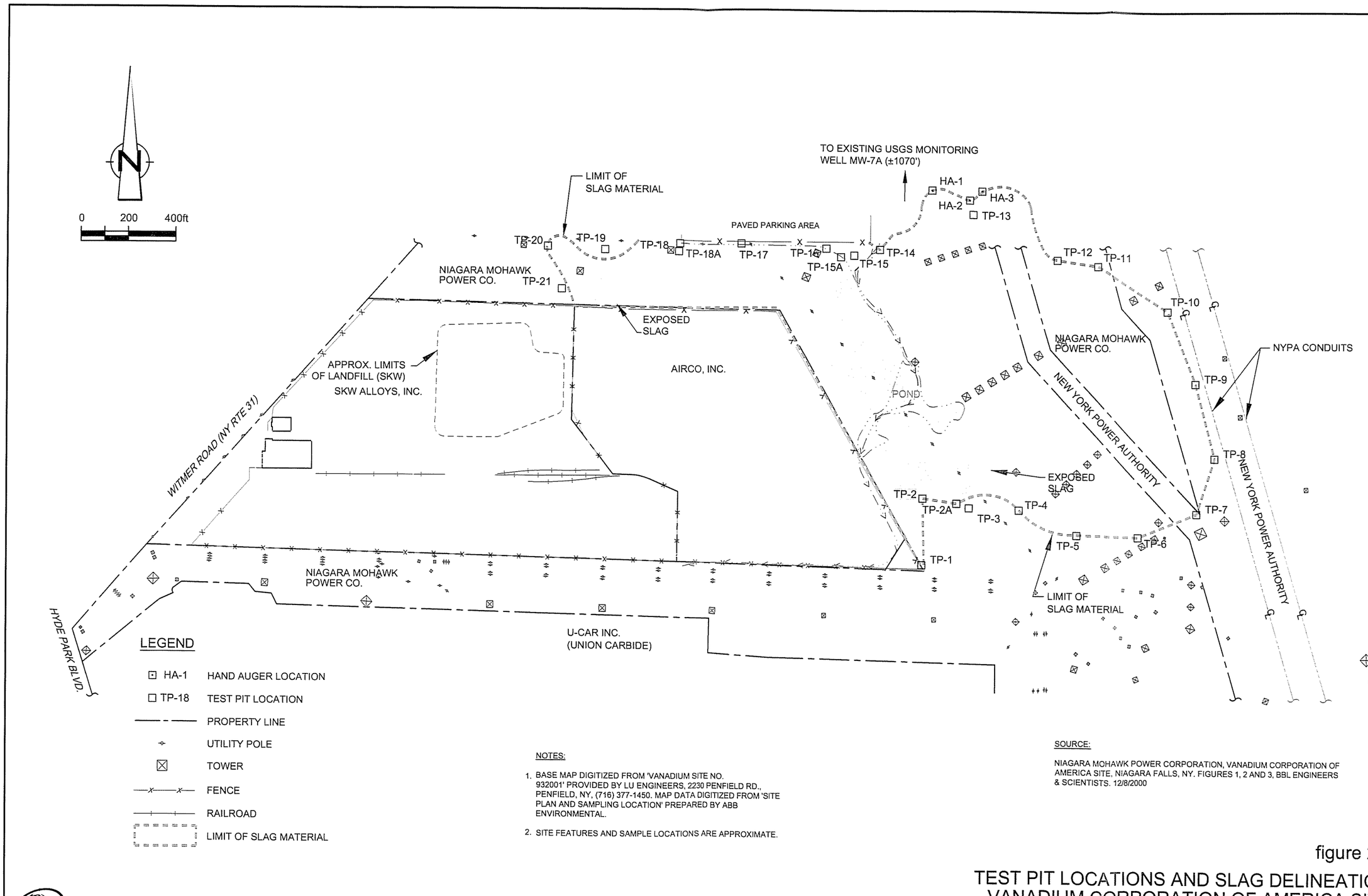
CONESTOGA-ROVERS & ASSOCIATES

Jamie Puskas, P. Eng.

CS/jdh/3
Encl.

c.c.: Matthew J. Forcucci (New York State Department of Health) (2 copies)
Director (Division of Environmental Remediation, NYSDEC)
Maura Desmond (Division of Environmental Enforcement)
Dan Johnson (Phelps Dodge Corporation)
Jim Hamula (Gallagher & Kennedy)
Edward Neuhauser (Niagara Mohawk Power Corporation)
William Holzhauer (Niagara Mohawk Power Corporation)
Susan Kosikowski (New York Power Authority)
Mark Malone (New York Power Authority)
Ed Holman (New York Power Authority)
Gary A. Litwin (New York State Department of Health)

FIGURES



NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

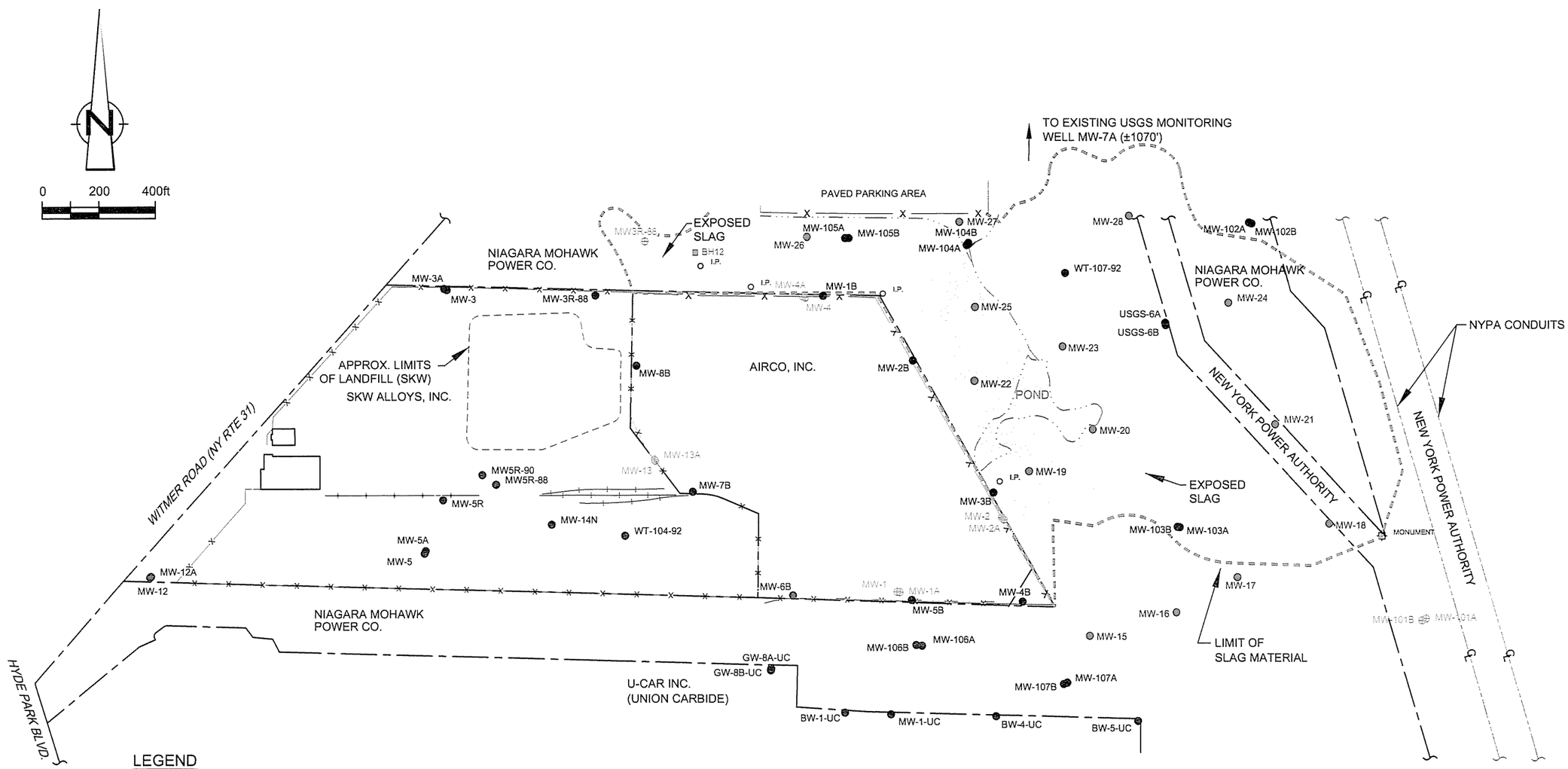
SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

figure 2.1

TEST PIT LOCATIONS AND SLAG DELINEATION VANADIUM CORPORATION OF AMERICA SITE

Niagara Falls, NY



LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- MW-7B — EXISTING MONITORING WELL LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- MW19 — EXISTING SHALLOW GROUNDWATER MONITORING WELL LOCATION (CRA 2003)
- BH9 — SOIL BORING LOCATION (CRA 2003)
- LIMIT OF SLAG MATERIAL

NOTES:

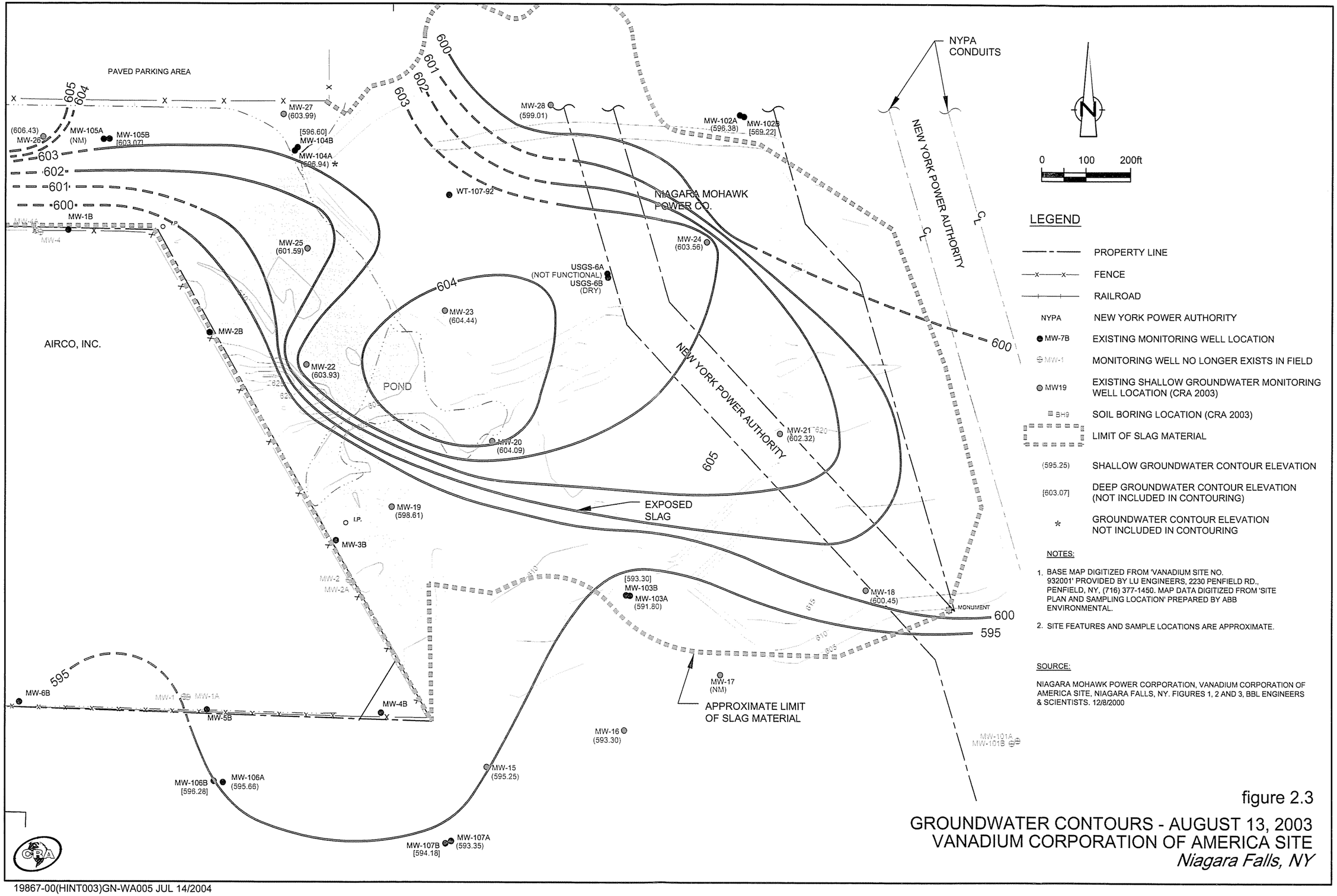
1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

figure 2.2

MONITORING WELL LOCATIONS
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY



LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- MW-7B — EXISTING MONITORING WELL LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- MW19 — EXISTING SHALLOW GROUNDWATER MONITORING WELL LOCATION (CRA 2003)
- BH9 — SOIL BORING LOCATION (CRA 2003)
- LIMIT OF SLAG MATERIAL
- (595.25) — SHALLOW GROUNDWATER CONTOUR ELEVATION
- [603.07] — DEEP GROUNDWATER CONTOUR ELEVATION (NOT INCLUDED IN CONTOURING)
- * — GROUNDWATER CONTOUR ELEVATION NOT INCLUDED IN CONTOURING

NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

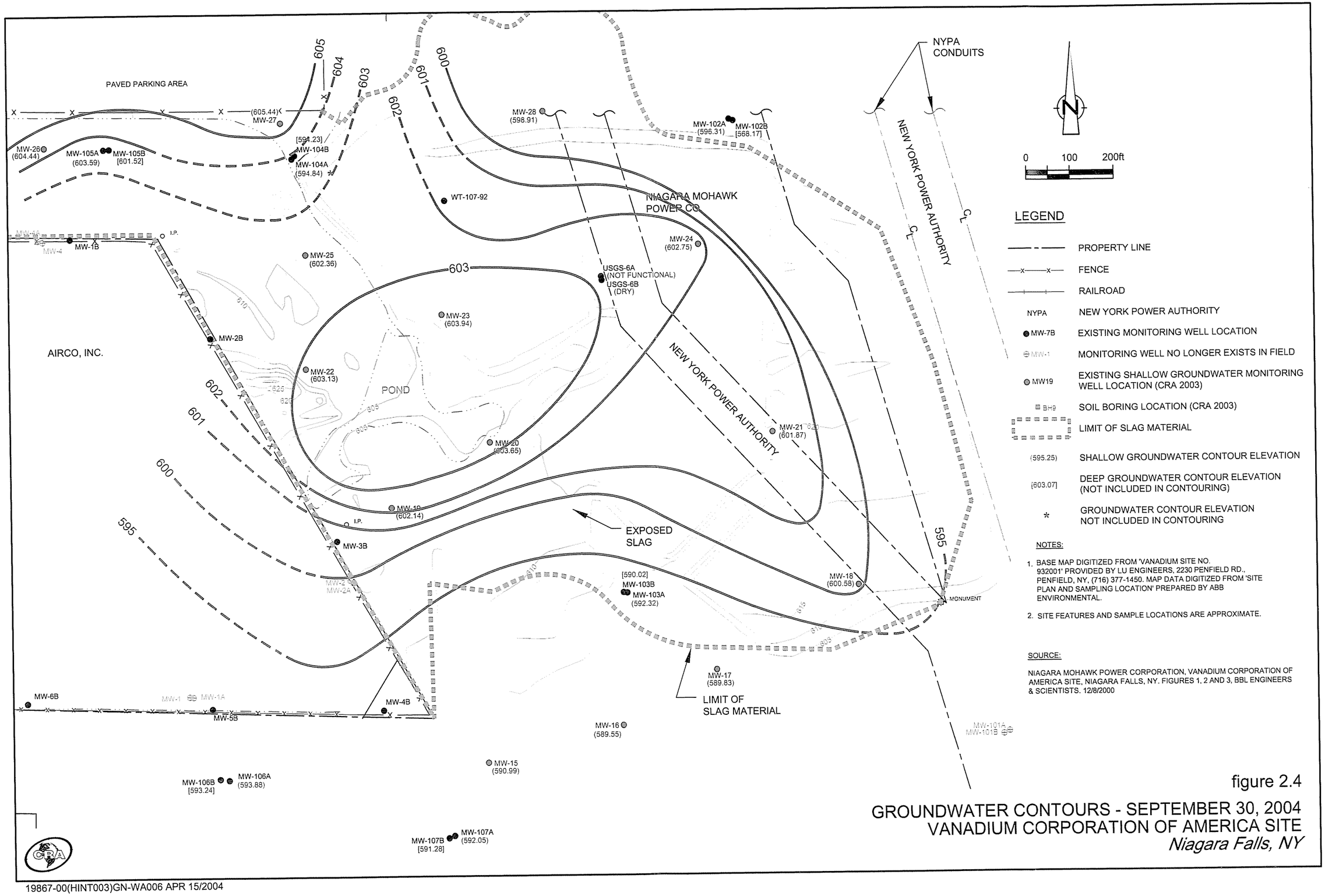
SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

figure 2.3

GROUNDWATER CONTOURS - AUGUST 13, 2003
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

19867-00(HINT003)GN-WA005 JUL 14/2004



LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- MW-7B — EXISTING MONITORING WELL LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- MW19 — EXISTING SHALLOW GROUNDWATER MONITORING WELL LOCATION (CRA 2003)
- BH9 — SOIL BORING LOCATION (CRA 2003)
- LIMIT OF SLAG MATERIAL
- (595.25) — SHALLOW GROUNDWATER CONTOUR ELEVATION
- [603.07] — DEEP GROUNDWATER CONTOUR ELEVATION (NOT INCLUDED IN CONTOURING)
- * — GROUNDWATER CONTOUR ELEVATION NOT INCLUDED IN CONTOURING

NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

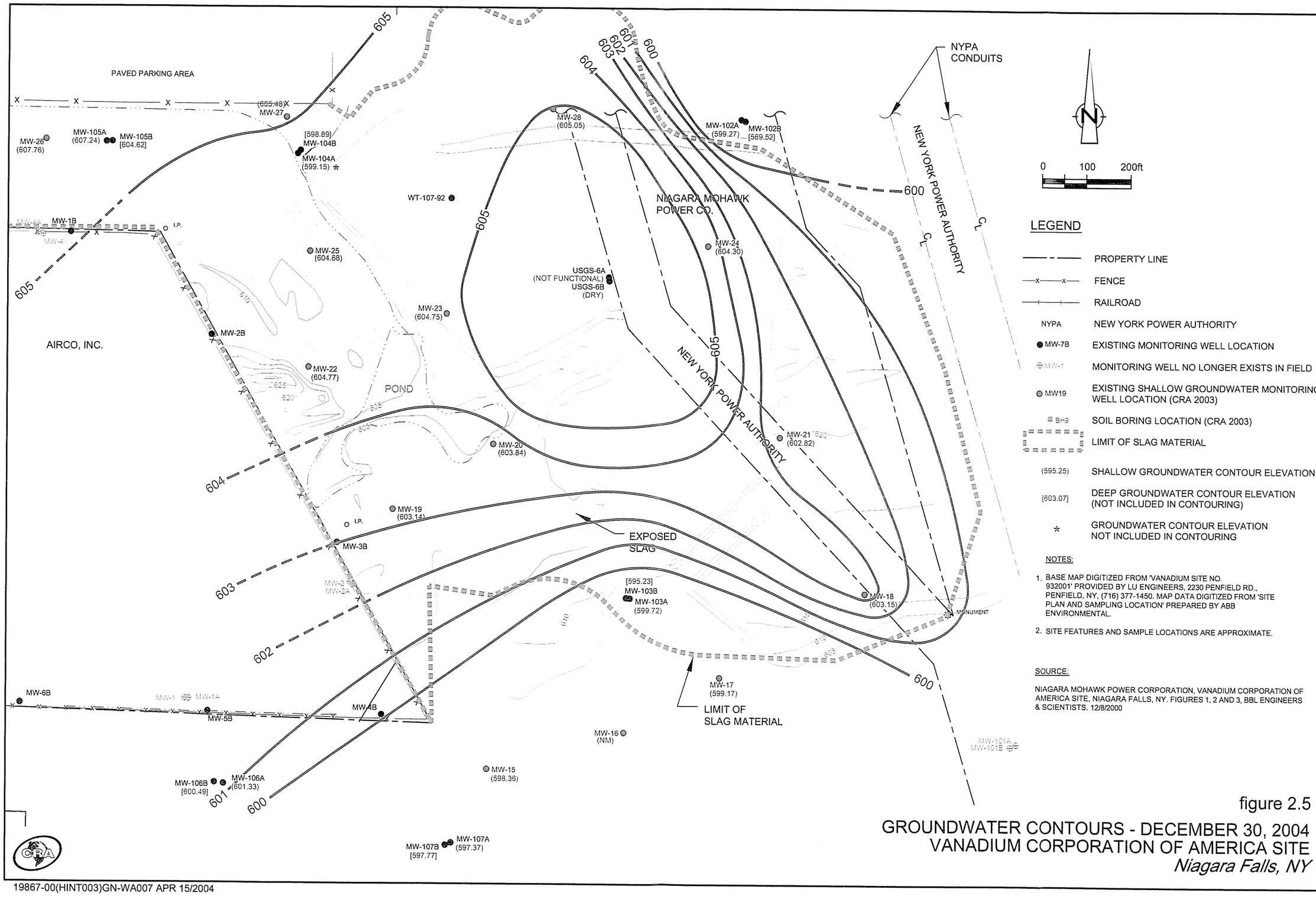
SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

figure 2.4

GROUNDWATER CONTOURS - SEPTEMBER 30, 2004
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

19867-00(HINT003)GN-WA006 APR 15/2004



LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- MW-7B — EXISTING MONITORING WELL LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- MW19 — EXISTING SHALLOW GROUNDWATER MONITORING WELL LOCATION (CRA 2003)
- BH9 — SOIL BORING LOCATION (CRA 2003)
- LIMIT OF SLAG MATERIAL
- (595.25) — SHALLOW GROUNDWATER CONTOUR ELEVATION
- [603.07] — DEEP GROUNDWATER CONTOUR ELEVATION (NOT INCLUDED IN CONTOURING)
- * — GROUNDWATER CONTOUR ELEVATION NOT INCLUDED IN CONTOURING

NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

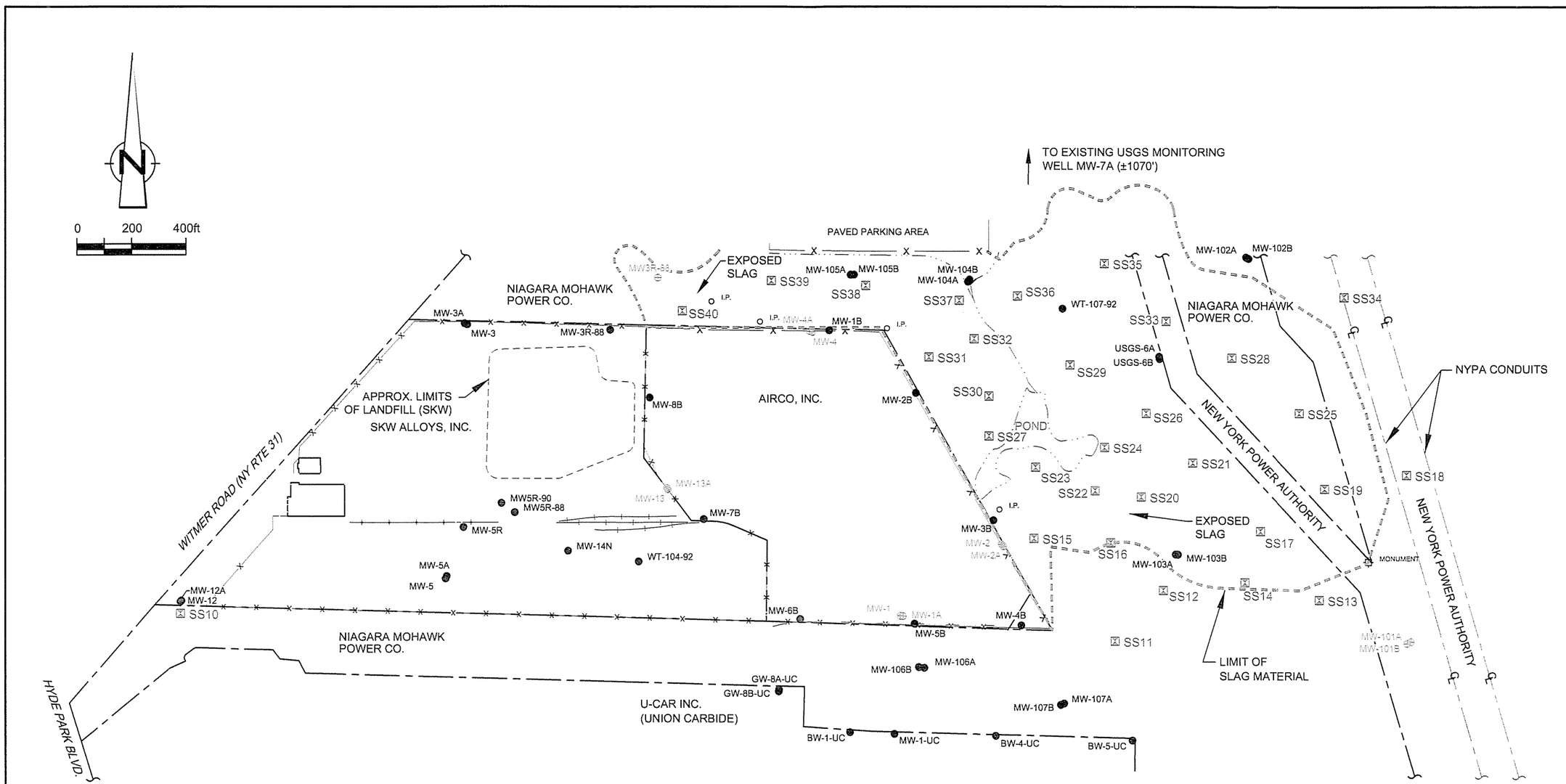
SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

figure 2.5

GROUNDWATER CONTOURS - DECEMBER 30, 2004
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

19867-00(HINT003)GN-WA007 APR 15/2004



LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- EXISTING MONITORING WELL LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- SS34 — SURFACE SOIL SAMPLING LOCATION
- LIMIT OF SLAG MATERIAL

NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

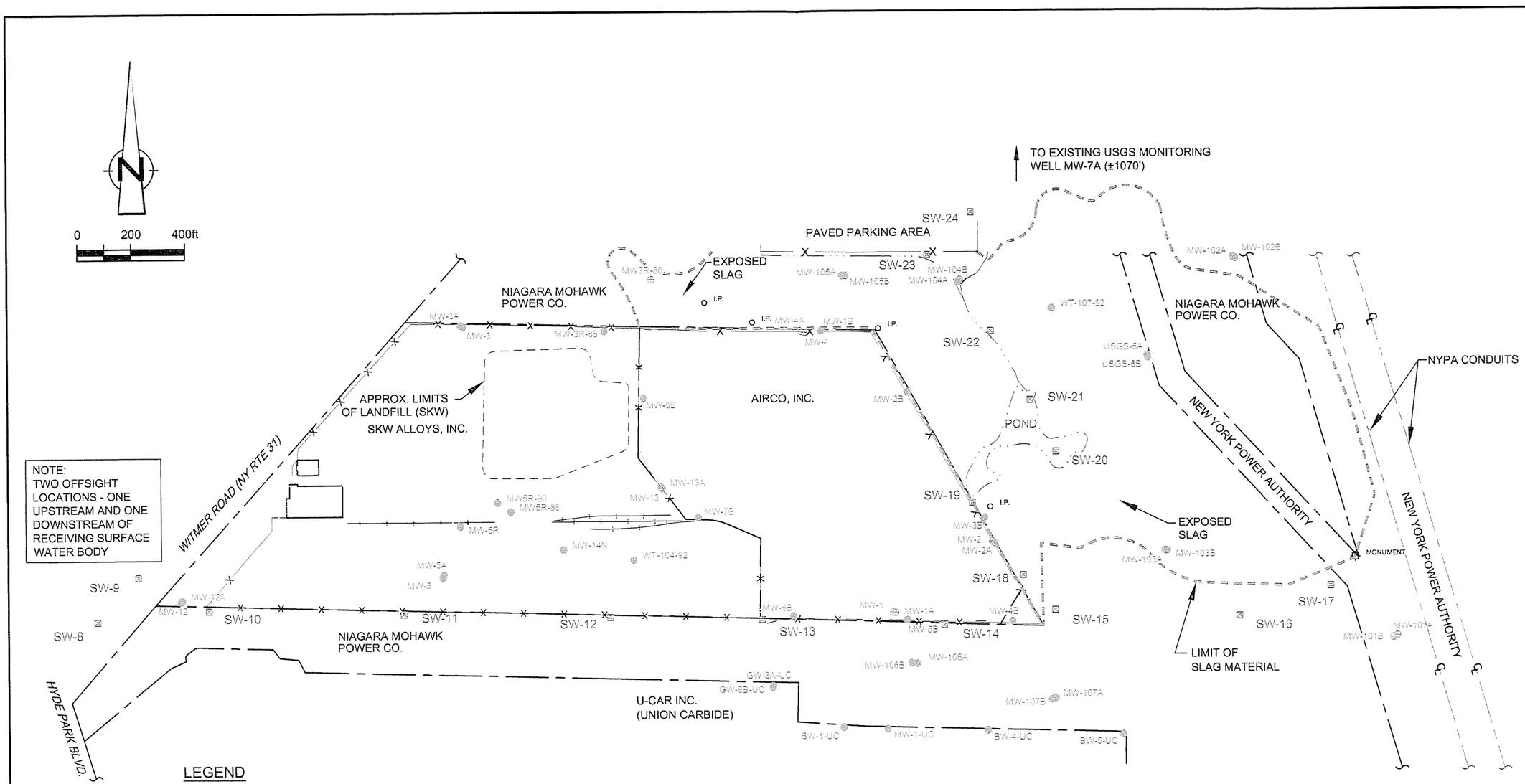
SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

figure 2.6

SURFACE SOIL SAMPLING LOCATIONS VANADIUM CORPORATION OF AMERICA SITE

Niagara Falls, NY



NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

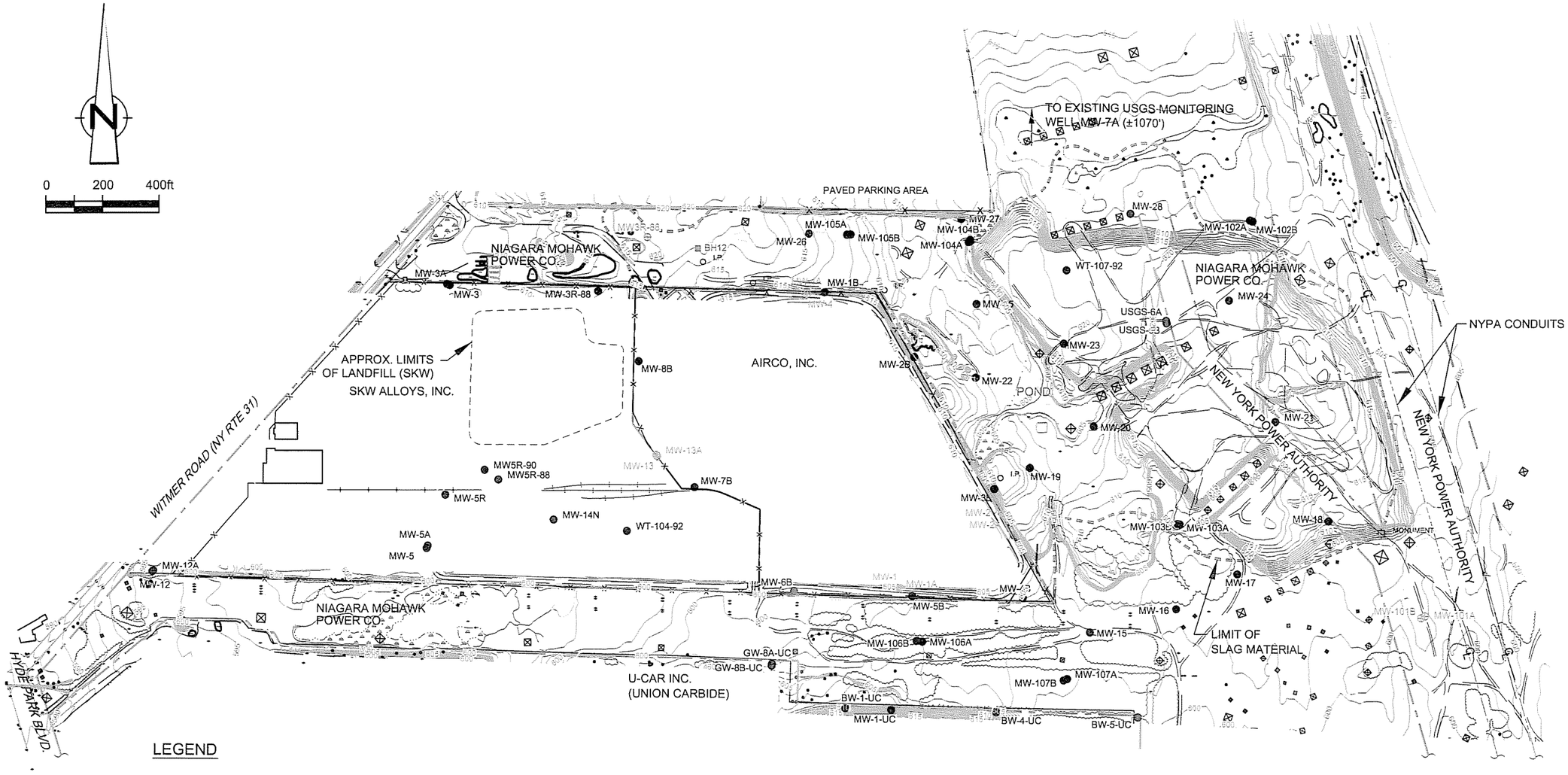
SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

figure 2.7

SURFACE WATER / SEDIMENT SAMPLING LOCATIONS
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

19867-00(HINT003)GN-WA008 JUL 14/2004



LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- EXISTING MONITORING WELL LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- LIMIT OF SLAG MATERIAL
- BRUSH
- TREELINE
- 600 — GROUND SURFACE CONTOUR (ft AMSL)

SOURCE:

SITE TOPOGRAPHY FROM ABRAMS AERIAL SURVEY INC., PHOTOGRAPHY DATE - MAY 6, 2004

figure 2.8

SITE TOPOGRAPHIC PLAN
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

19867-00(HINT003)GN-WA014 JUL 28/2004

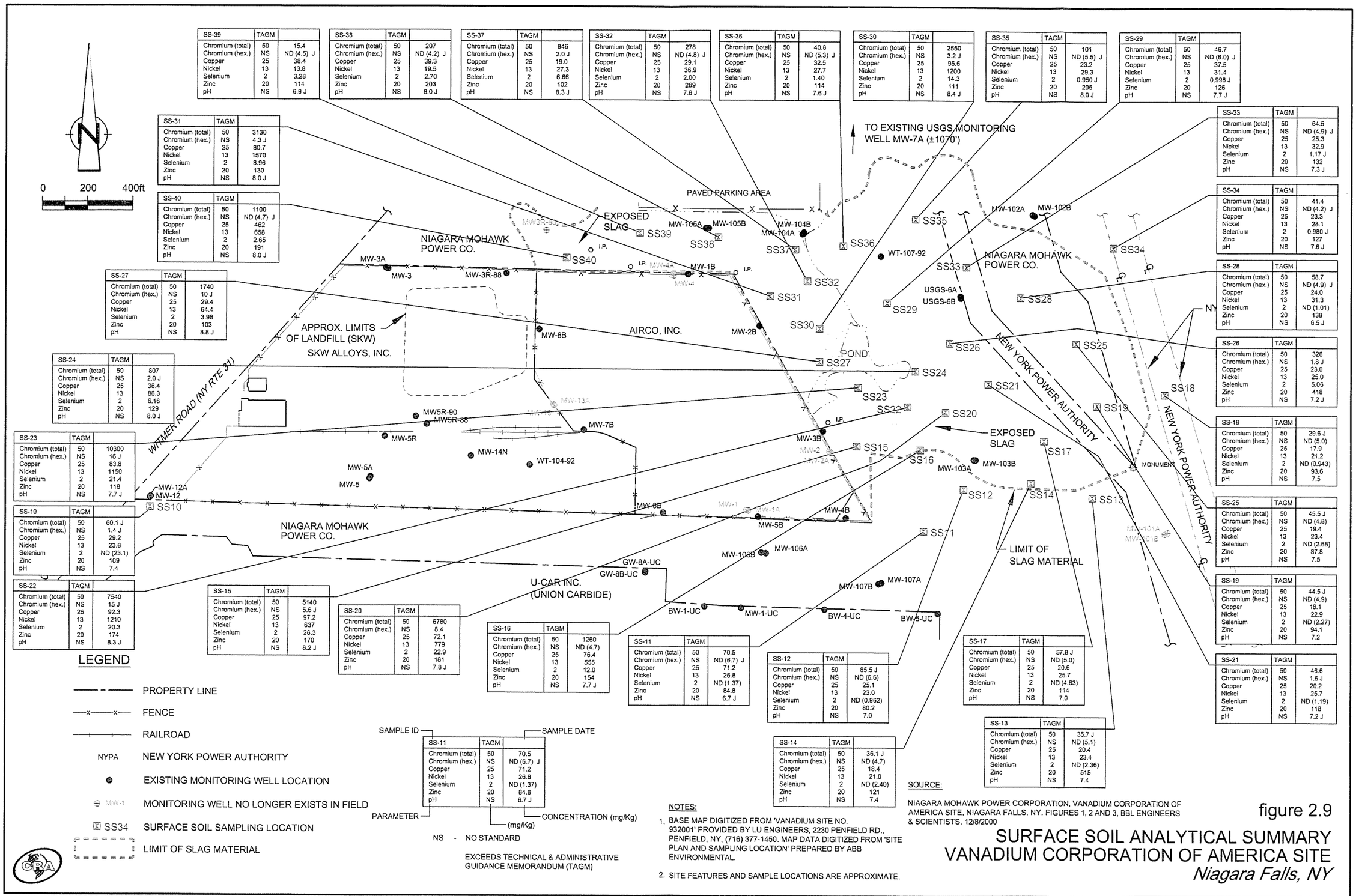
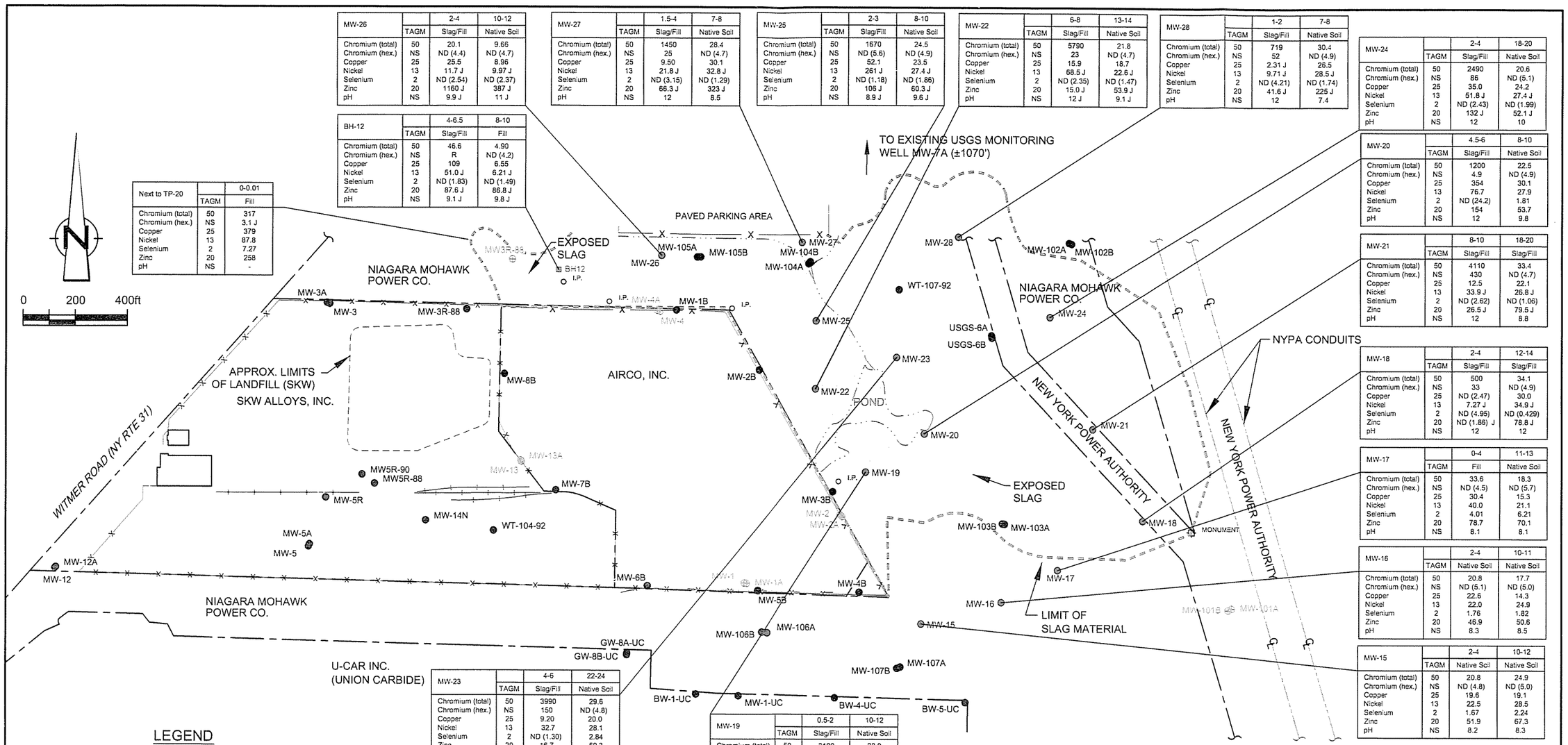


figure 2.9

SURFACE SOIL ANALYTICAL SUMMARY
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY



MW-26		2-4	10-12
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	20.1	9.66
Chromium (hex.)	NS	ND (4.4)	ND (4.7)
Copper	25	25.5	8.96
Nickel	13	11.7 J	9.97 J
Selenium	2	ND (2.54)	ND (2.37)
Zinc	20	1160 J	387 J
pH	NS	9.9 J	11 J

MW-27		1.5-4	7-8
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	1450	28.4
Chromium (hex.)	NS	25	ND (4.7)
Copper	25	9.50	30.1
Nickel	13	21.8 J	32.8 J
Selenium	2	ND (3.15)	ND (1.29)
Zinc	20	66.3 J	323 J
pH	NS	12	8.5

MW-25		2-3	8-10
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	1670	24.5
Chromium (hex.)	NS	ND (5.6)	ND (4.9)
Copper	25	52.1	23.5
Nickel	13	261 J	27.4 J
Selenium	2	ND (1.18)	ND (1.86)
Zinc	20	106 J	60.3 J
pH	NS	8.9 J	9.6 J

MW-22		6-8	13-14
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	5790	21.8
Chromium (hex.)	NS	23	ND (4.7)
Copper	25	15.9	18.7
Nickel	13	58.5 J	22.6 J
Selenium	2	ND (2.35)	ND (1.47)
Zinc	20	15.0 J	53.9 J
pH	NS	12 J	9.1 J

MW-28		1-2	7-8
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	719	30.4
Chromium (hex.)	NS	52	ND (4.9)
Copper	25	2.31 J	26.5
Nickel	13	9.71 J	28.5 J
Selenium	2	ND (4.21)	ND (1.74)
Zinc	20	41.6 J	225 J
pH	NS	12	7.4

BH-12		4-6.5	8-10
	TAGM	Slag/Fill	Fill
Chromium (total)	50	46.6	4.90
Chromium (hex.)	NS	R	ND (4.2)
Copper	25	109	6.55
Nickel	13	51.0 J	6.21 J
Selenium	2	ND (1.83)	ND (1.49)
Zinc	20	87.6 J	86.8 J
pH	NS	9.1 J	9.8 J

Next to TP-20		0-0.01
	TAGM	Fill
Chromium (total)	50	317
Chromium (hex.)	NS	3.1 J
Copper	25	379
Nickel	13	87.8
Selenium	2	7.27
Zinc	20	258
pH	NS	-

MW-24		2-4	18-20
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	2490	20.6
Chromium (hex.)	NS	86	ND (5.1)
Copper	25	35.0	24.2
Nickel	13	51.8 J	27.4 J
Selenium	2	ND (2.43)	ND (1.99)
Zinc	20	132 J	52.1 J
pH	NS	12	10

MW-20		4.5-6	8-10
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	1200	22.5
Chromium (hex.)	NS	4.9	ND (4.9)
Copper	25	354	30.1
Nickel	13	76.7	27.9
Selenium	2	ND (24.2)	1.81
Zinc	20	154	53.7
pH	NS	12	9.8

MW-21		8-10	18-20
	TAGM	Slag/Fill	Slag/Fill
Chromium (total)	50	4110	33.4
Chromium (hex.)	NS	430	ND (4.7)
Copper	25	12.5	22.1
Nickel	13	33.9 J	26.8 J
Selenium	2	ND (2.62)	ND (1.06)
Zinc	20	26.5 J	79.5 J
pH	NS	12	8.8

MW-18		2-4	12-14
	TAGM	Slag/Fill	Slag/Fill
Chromium (total)	50	500	34.1
Chromium (hex.)	NS	33	ND (4.9)
Copper	25	ND (2.47)	30.0
Nickel	13	7.27 J	34.9 J
Selenium	2	ND (4.95)	ND (0.429)
Zinc	20	ND (1.86) J	78.8 J
pH	NS	12	12

MW-17		0-4	11-13
	TAGM	Fill	Native Soil
Chromium (total)	50	33.6	18.3
Chromium (hex.)	NS	ND (4.5)	ND (5.7)
Copper	25	30.4	15.3
Nickel	13	40.0	21.1
Selenium	2	4.01	6.21
Zinc	20	78.7	70.1
pH	NS	8.1	8.1

MW-16		2-4	10-11
	TAGM	Native Soil	Native Soil
Chromium (total)	50	20.8	17.7
Chromium (hex.)	NS	ND (5.1)	ND (5.0)
Copper	25	22.6	14.3
Nickel	13	22.0	24.9
Selenium	2	1.76	1.82
Zinc	20	46.9	50.6
pH	NS	8.3	8.5

MW-15		2-4	10-12
	TAGM	Native Soil	Native Soil
Chromium (total)	50	20.8	24.9
Chromium (hex.)	NS	ND (4.8)	ND (5.0)
Copper	25	19.6	19.1
Nickel	13	22.5	28.5
Selenium	2	1.67	2.24
Zinc	20	51.9	67.3
pH	NS	8.2	8.3

MW-23		4-6	22-24
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	3990	29.6
Chromium (hex.)	NS	150	ND (4.8)
Copper	25	9.20	20.0
Nickel	13	32.7	28.1
Selenium	2	ND (1.30)	2.84
Zinc	20	16.7	59.3
pH	NS	12	10

MW-19		0.5-2	10-12
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	3100	28.0
Chromium (hex.)	NS	170	ND (5.2)
Copper	25	22.8	25.7
Nickel	13	42.7 J	24.8
Selenium	2	ND (1.30)	ND (1.24)
Zinc	20	24.4 J	64.5
pH	NS	12	9.5

LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- MW-7B — EXISTING MONITORING WELL LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- MW19 — EXISTING SHALLOW GROUNDWATER MONITORING WELL LOCATION (CRA 2003)
- BH9 — SOIL BORING LOCATION (CRA 2003)
- LIMIT OF SLAG MATERIAL

SAMPLE ID — SAMPLE DEPTH — SOIL TYPE

MW-28		1-2	7-8
	TAGM	Slag/Fill	Native Soil
Chromium (total)	50	719	30.4
Chromium (hex.)	NS	52	ND (4.9)
Copper	25	2.31 J	26.5
Nickel	13	9.71 J	28.5 J
Selenium	2	ND (4.21)	ND (1.74)
Zinc	20	41.6 J	225 J
pH	NS	12	7.4

PARAMETER — (mg/kg) — CONCENTRATION (mg/kg)

NS - NO STANDARD

R - REJECTED

EXCEEDS TECHNICAL & ADMINISTRATIVE GUIDANCE MEMORANDUM (TAGM)

SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

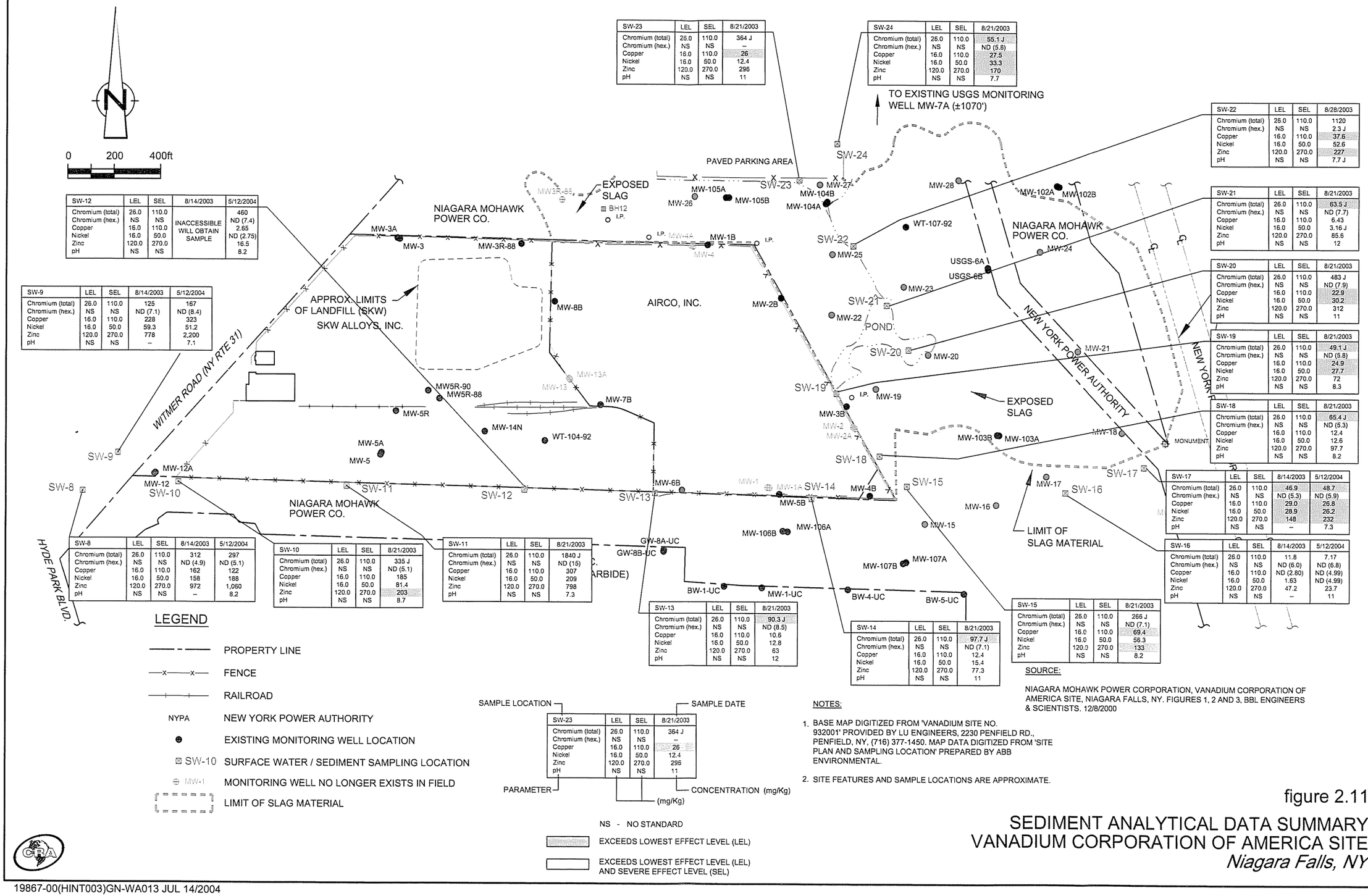
NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

figure 2.10

SUBSURFACE SOIL ANALYTICAL DATA SUMMARY VANADIUM CORPORATION OF AMERICA SITE

Niagara Falls, NY



SW-12	LEL	SEL	8/14/2003	5/12/2004
Chromium (total)	26.0	110.0	INACCESSIBLE WILL OBTAIN SAMPLE	460
Chromium (hex.)	NS	NS		ND (7.4)
Copper	16.0	110.0		2.65
Nickel	16.0	50.0		ND (2.75)
Zinc	120.0	270.0		16.5
pH	NS	NS		8.2

SW-9	LEL	SEL	8/14/2003	5/12/2004
Chromium (total)	26.0	110.0	125	167
Chromium (hex.)	NS	NS	ND (7.1)	ND (8.4)
Copper	16.0	110.0	228	323
Nickel	16.0	50.0	59.3	51.2
Zinc	120.0	270.0	778	2,200
pH	NS	NS	--	7.1

SW-23	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	364 J
Chromium (hex.)	NS	NS	--
Copper	16.0	110.0	26
Nickel	16.0	50.0	12.4
Zinc	120.0	270.0	295
pH	NS	NS	11

SW-24	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	55.1 J
Chromium (hex.)	NS	NS	ND (5.8)
Copper	16.0	110.0	27.5
Nickel	16.0	50.0	33.3
Zinc	120.0	270.0	170
pH	NS	NS	7.7

SW-22	LEL	SEL	8/28/2003
Chromium (total)	26.0	110.0	1120
Chromium (hex.)	NS	NS	2.3 J
Copper	16.0	110.0	37.6
Nickel	16.0	50.0	52.6
Zinc	120.0	270.0	227
pH	NS	NS	7.7 J

SW-21	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	63.5 J
Chromium (hex.)	NS	NS	ND (7.7)
Copper	16.0	110.0	6.43
Nickel	16.0	50.0	3.16 J
Zinc	120.0	270.0	85.6
pH	NS	NS	12

SW-20	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	483 J
Chromium (hex.)	NS	NS	ND (7.9)
Copper	16.0	110.0	22.9
Nickel	16.0	50.0	30.2
Zinc	120.0	270.0	312
pH	NS	NS	11

SW-19	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	49.1 J
Chromium (hex.)	NS	NS	ND (5.8)
Copper	16.0	110.0	24.9
Nickel	16.0	50.0	27.7
Zinc	120.0	270.0	72
pH	NS	NS	8.3

SW-18	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	65.4 J
Chromium (hex.)	NS	NS	ND (5.3)
Copper	16.0	110.0	12.4
Nickel	16.0	50.0	12.6
Zinc	120.0	270.0	97.7
pH	NS	NS	8.2

SW-17	LEL	SEL	8/14/2003	5/12/2004
Chromium (total)	26.0	110.0	46.9	48.7
Chromium (hex.)	NS	NS	ND (5.3)	ND (5.9)
Copper	16.0	110.0	29.0	26.8
Nickel	16.0	50.0	28.9	26.2
Zinc	120.0	270.0	148	232
pH	NS	NS	--	7.3

SW-16	LEL	SEL	8/14/2003	5/12/2004
Chromium (total)	26.0	110.0	11.8	7.17
Chromium (hex.)	NS	NS	ND (6.0)	ND (6.8)
Copper	16.0	110.0	ND (2.80)	ND (4.99)
Nickel	16.0	50.0	1.63	ND (4.99)
Zinc	120.0	270.0	47.2	23.7
pH	NS	NS	--	11

SW-15	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	266 J
Chromium (hex.)	NS	NS	ND (7.1)
Copper	16.0	110.0	69.4
Nickel	16.0	50.0	56.3
Zinc	120.0	270.0	133
pH	NS	NS	8.2

SW-14	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	97.7 J
Chromium (hex.)	NS	NS	ND (7.1)
Copper	16.0	110.0	12.4
Nickel	16.0	50.0	15.4
Zinc	120.0	270.0	77.3
pH	NS	NS	11

SW-13	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	90.3 J
Chromium (hex.)	NS	NS	ND (8.5)
Copper	16.0	110.0	10.6
Nickel	16.0	50.0	12.8
Zinc	120.0	270.0	63
pH	NS	NS	12

SW-11	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	1840 J
Chromium (hex.)	NS	NS	ND (15)
Copper	16.0	110.0	307
Nickel	16.0	50.0	209
Zinc	120.0	270.0	798
pH	NS	NS	7.3

SW-10	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	335 J
Chromium (hex.)	NS	NS	ND (5.1)
Copper	16.0	110.0	185
Nickel	16.0	50.0	81.4
Zinc	120.0	270.0	203
pH	NS	NS	8.7

SW-8	LEL	SEL	8/14/2003	5/12/2004
Chromium (total)	26.0	110.0	312	297
Chromium (hex.)	NS	NS	ND (4.9)	ND (5.1)
Copper	16.0	110.0	162	122
Nickel	16.0	50.0	158	188
Zinc	120.0	270.0	972	1,060
pH	NS	NS	--	8.2

LEGEND

- PROPERTY LINE
- FENCE
- RAILROAD
- NYPA — NEW YORK POWER AUTHORITY
- EXISTING MONITORING WELL LOCATION
- SW-10 — SURFACE WATER / SEDIMENT SAMPLING LOCATION
- MW-1 — MONITORING WELL NO LONGER EXISTS IN FIELD
- LIMIT OF SLAG MATERIAL

SAMPLE LOCATION — SAMPLE DATE

SW-23	LEL	SEL	8/21/2003
Chromium (total)	26.0	110.0	364 J
Chromium (hex.)	NS	NS	--
Copper	16.0	110.0	26
Nickel	16.0	50.0	12.4
Zinc	120.0	270.0	295
pH	NS	NS	11

PARAMETER — CONCENTRATION (mg/Kg) (mg/Kg)

NS - NO STANDARD

EXCEEDS LOWEST EFFECT LEVEL (LEL)

EXCEEDS LOWEST EFFECT LEVEL (LEL) AND SEVERE EFFECT LEVEL (SEL)

SOURCE:

NIAGARA MOHAWK POWER CORPORATION, VANADIUM CORPORATION OF AMERICA SITE, NIAGARA FALLS, NY. FIGURES 1, 2 AND 3, BBL ENGINEERS & SCIENTISTS. 12/8/2000

NOTES:

1. BASE MAP DIGITIZED FROM 'VANADIUM SITE NO. 932001' PROVIDED BY LU ENGINEERS, 2230 PENFIELD RD., PENFIELD, NY, (716) 377-1450. MAP DATA DIGITIZED FROM 'SITE PLAN AND SAMPLING LOCATION' PREPARED BY ABB ENVIRONMENTAL.
2. SITE FEATURES AND SAMPLE LOCATIONS ARE APPROXIMATE.

figure 2.11

SEDIMENT ANALYTICAL DATA SUMMARY
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

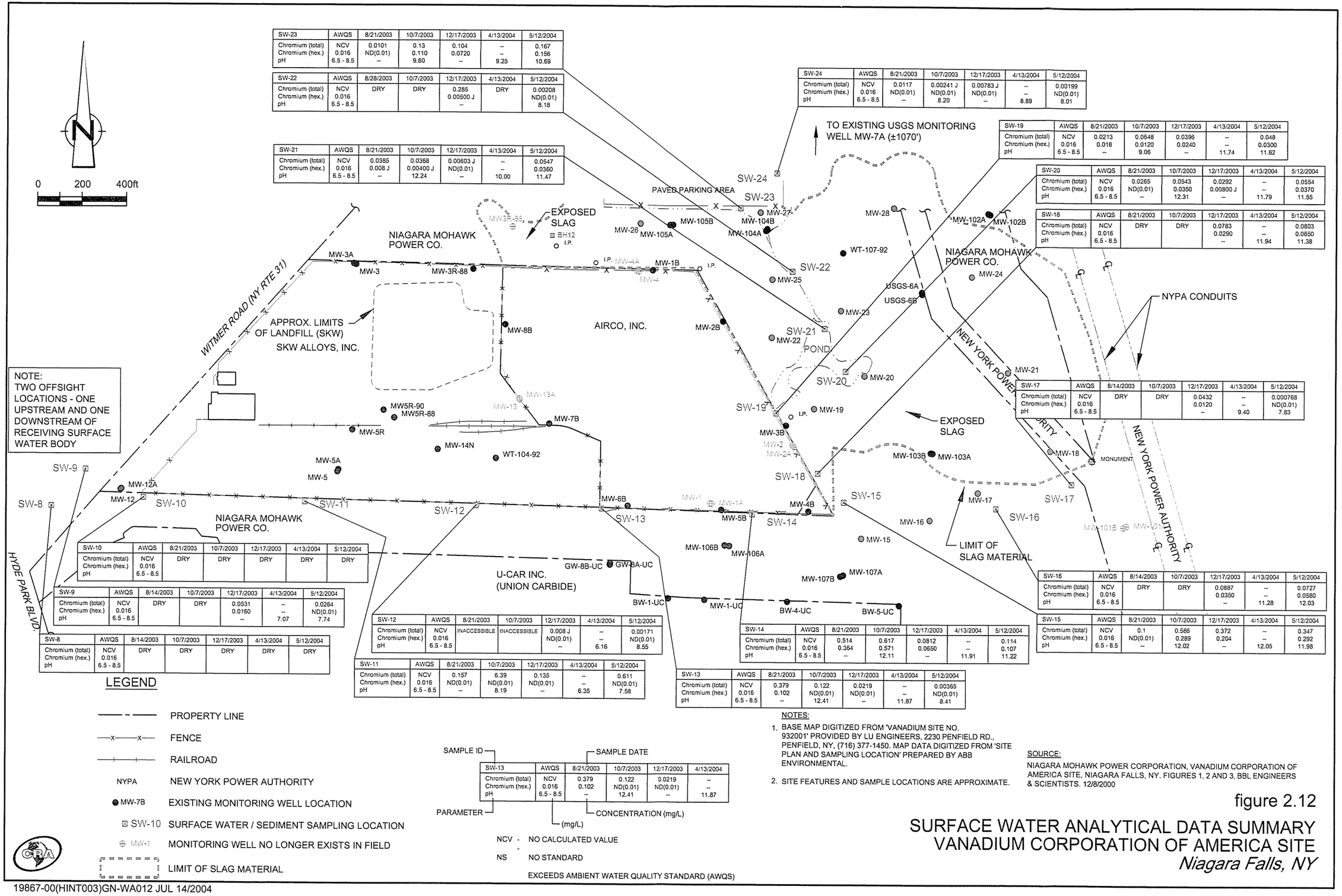


figure 2.12

SURFACE WATER ANALYTICAL DATA SUMMARY
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

19867-00(HINT003)GN-WA012 JUL 14/2004

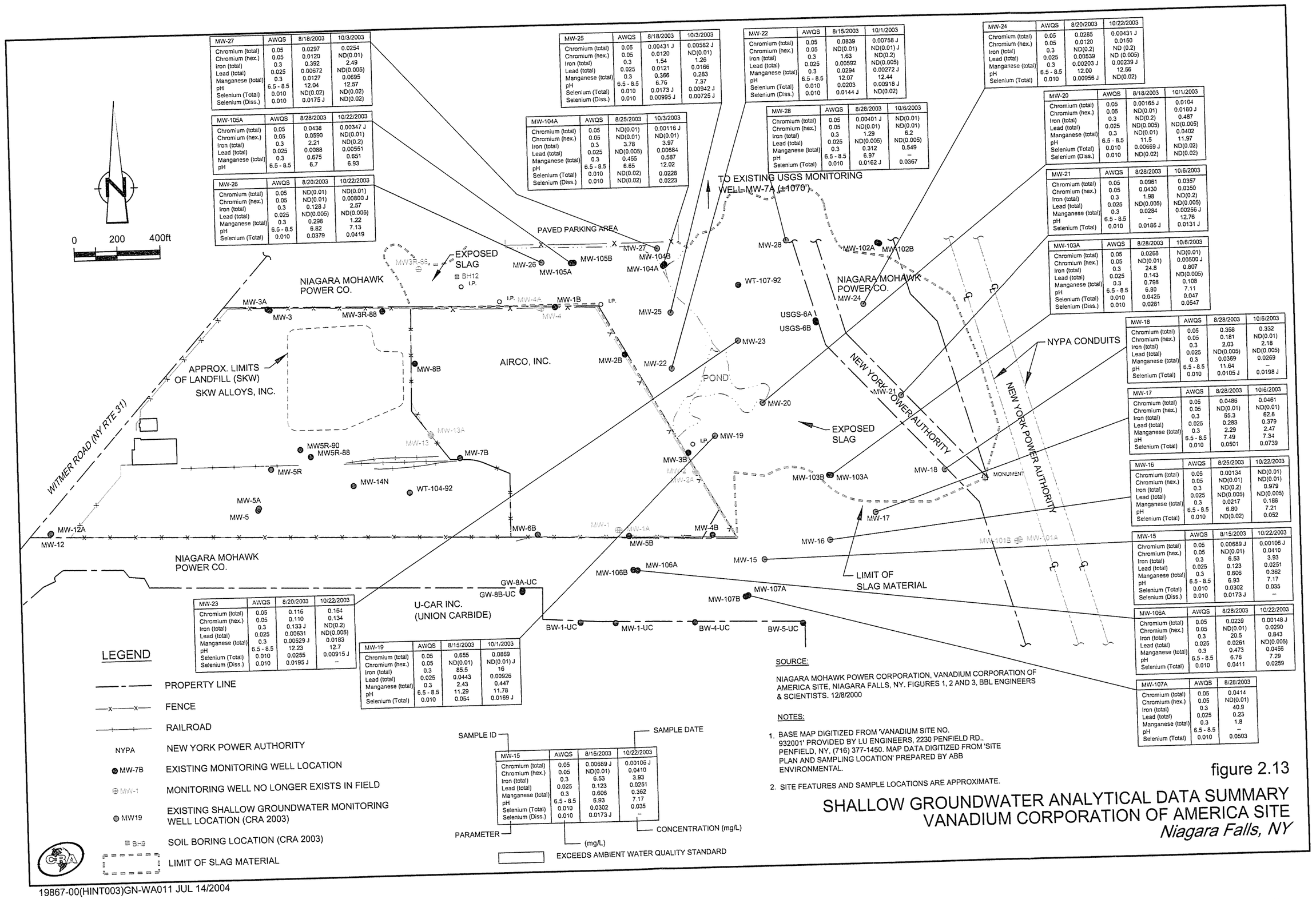


figure 2.13

SHALLOW GROUNDWATER ANALYTICAL DATA SUMMARY
VANADIUM CORPORATION OF AMERICA SITE
Niagara Falls, NY

19867-00(HINT003)GN-WA011 JUL 14/2004

TABLES

TABLE 2.1

HYDRAULIC WATER LEVEL MEASUREMENTS
VANADIUM CORPORATION OF AMERICA SITE
NIAGARA FALLS, NEW YORK

Monitoring Well ID	*Hydraulic Water Level*			
	9-Jan-03	*13-Aug-03*	*30-Sep-03*	*19-Dec-03*
MW-15	--	5.94	10.20	2.83
MW-16	--	6.79	10.54	NM(2)
MW-17	--	--	11.18	1.84
MW-18	--	11.53	11.40	8.83
MW-19	--	6.78	3.25	2.25
MW-20	--	3.08	3.52	3.33
MW-21	--	17.18	17.63	16.68
MW-22	--	1.60	2.40	0.76
MW-23	--	15.30	15.80	14.99
MW-24	--	14.02	14.83	13.28
MW-25	--	3.72	2.95	0.63
MW-26	--	7.90	9.89	6.57
MW-27	--	2.20	0.75	0.71
MW-28	--	6.95	7.05	0.91
MW-12	NM	8.40	9.63	7.54
MW-12A	NM	DRY	DRY	DRY
MW-102A	11.85	11.98	12.05	9.09
MW-102B	39.21	38.80	39.85	38.50
MW-103A	7.14	9.72	13.70	6.30
MW-103B	12.03	14.40	16.18	10.97
MW-104A	13.05	14.15	16.25	11.94
MW-104B	12.79	14.00	16.37	11.71
MW-105A	7.63	NM(1)	10.83	7.18
MW-105B	10.53	11.48	13.03	9.93
MW-106A	5.13	9.40	11.18	3.73
MW-106B	7.56	9.61	12.65	5.40
MW-107A	9.00	10.40	11.70	6.38
MW-107B	7.27	8.80	11.70	5.21
USGS-6A	NM(3)	8.09(3)	8.1(3)	8.17(3)
USGS-6B	NM	DRY	DRY	DRY

Notes:

NM - No measurement.
-- - Well not yet installed.
(1) - No measurement due to wasp nest in well.
(2) - No measurement due to flooding at well location.
(3) - Well was later found to be not functional.

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW15*	*MW15*	*MW15*	*MW-24*	*MW-24*
			Sample ID:	*S-19867-0703-PK-011*	*S-19867-0703-PK-012*	*S-19867-0703-PK-013*	*S-19867-07-03-PK-020*	*S-19867-07-03-PK-021*
			Sample Date:	*7/24/2003*	*7/24/2003*	*7/24/2003*	*7/28/2003*	*7/28/2003*
			Sample Depth:	*2-4 ft*	*10-12 ft*	*10-12 ft*	*2-4 ft*	*2-4 ft*
						Duplicate		*Duplicate*
Metals	*Units*	*Eastern USA Background Concentration*	*TAGM[a] Values*					
Aluminum	mg/kg	33000	SB	14600	17200	12700	19300	17300
Antimony	mg/kg	NS	SB	ND (1.22) J	ND (2.03) J	ND (1.21) J	ND (2.74) J	3.85 J
Arsenic	mg/kg	3 - 12	7.5 or SB	6.13	6.72	4.96	6.72	5.91
Barium	mg/kg	15 - 600	300 or SB	86.4	80.2	56.2	208 J	95.7 J
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.652**	**0.768**	**0.561 J**	**1.54**	**1.08**
Cadmium	mg/kg	0.1 - 1.0	1 or SB	ND (0.608)	ND (0.613)	ND (0.606)	ND (0.607)	ND (0.662)
Calcium	mg/kg	130 - 35000	SB	57900	33700	45600	180000	207000
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	20.8	24.9	19.2	**2490**	**1780**
Chromium VI (Hexavalent)	mg/kg	NS	NS	ND (4.8)	ND (5.0)	ND (5.2)	67	86
Cobalt	mg/kg	2.5 or 60	30 or SB	9.91	14.2	10.5	3.18	1.85 J
Copper	mg/kg	1.0 - 50	25 or SB	19.6	19.1	16.3	**32.0**	**35.0**
Cyanide (total)	mg/kg		NS	ND (0.596)	ND (0.625)	ND (0.584)	0.461 J	0.328 J
Iron	mg/kg	2000 - 550000	2000 or SB	**23900**	**28800**	**23000**	**6590**	**5350**
Lead	mg/kg	NS	SB	6.81	8.66	6.42	18.3	18.2
Magnesium	mg/kg	100 - 5000	SB	11800	10600	9630	114000 J	65300 J
Manganese	mg/kg	50 - 5000	SB	641	540	576	2050	1480
Mercury	mg/kg	0.001 - 0.2	0.1	ND (0.0413)	ND (0.0383)	ND (0.0423)	ND (0.0462)	ND (0.0393)
Nickel	mg/kg	0.5 - 25	13 or SB	**22.5**	**28.5**	**23.1**	**51.8 J**	**21.7 J**
Potassium	mg/kg	8500 - 43000	SB	2600	3640	2440	432	324
Selenium	mg/kg	0.1 - 3.9	2 or SB	1.67	ND (1.23)	**2.24**	ND (2.43)	ND (3.97)
Silver	mg/kg	NS	SB	ND (1.22)	0.239 J	ND (1.21)	0.763 J	0.525 J
Sodium	mg/kg	6000 - 8000	SB	162	123	120 J	578 J	250 J
Thallium	mg/kg	NS	SB	ND (1.22)	ND (1.23)	ND (1.21)	ND (9.70)	ND (10.6)
Vanadium	mg/kg	1.0 - 300	150 or SB	29.1	31.9	25.2	107 J	74.3 J
Zinc	mg/kg	9.0 - 50.0	20 or SB	**51.9**	**67.3**	**54.3**	**28.1 J**	**132 J**
General Chemistry								
pH (soil)	S.U.		NS	8.2	8.2	8.3	12	12

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-24*	*MW-25*	*MW-25*	*BH-12*	*BH-12*
			Sample ID:	*S-19867-07-03-PK-022*	*S-19867-07-03-PK-003*	*S-19867-07-03-PK-004*	*S-19867-07-03-PK-007*	*S-19867-07-03-PK-008*
			Sample Date:	*7/28/2003*	*7/23/2003*	*7/23/2003*	*7/23/2003*	*7/23/2003*
			Sample Depth:	*18-20 ft*	*2-3 ft*	*8-10 ft*	*4-6.5 ft*	*8-10 ft*
Metals	*Units*	*Eastern USA Background Concentration*	*TAGM[a] Values*					
Aluminum	mg/kg	33000	SB	14500	13000	17500	18300	1500
Antimony	mg/kg	NS	SB	ND (0.995) J	ND (3.54) J	ND (0.931) J	1.77 J	4.37 J
Arsenic	mg/kg	3 - 12	7.5 or SB	6.12	**26.2**	**9.44**	**11.0**	3.79
Barium	mg/kg	15 - 600	300 or SB	100 J	169 J	108 J	131 J	11.3 J
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.925**	**1.23**	**1.01**	**3.04**	**0.162 J**
Cadmium	mg/kg	0.1 - 1.0	1 or SB	ND (0.498)	0.429 J	ND (0.465)	ND (0.458)	0.164 J
Calcium	mg/kg	130 - 35000	SB	59400	70800	68000	142000	163000
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	20.6	**1670**	24.5	46.6	4.90
Chromium VI (Hexavalent)	mg/kg	NS	NS	ND (5.1)	ND (5.6)	ND (4.9)	R	ND (4.2)
Cobalt	mg/kg	2.5 or 60	30 or SB	14.5	14.7	13.1	6.14	1.47 J
Copper	mg/kg	1.0 - 50	25 or SB	24.2	**52.1**	23.5	**109**	6.55
Cyanide (total)	mg/kg		NS	ND (0.624)	ND (0.673)	ND (0.599)	0.440 J	ND (0.495)
Iron	mg/kg	2000 - 550000	2000 or SB	**26400**	**65500**	**30100**	**21400**	**4040**
Lead	mg/kg	NS	SB	8.30	12.0	7.63	19.7	14.1
Magnesium	mg/kg	100 - 5000	SB	10900	8970	12200	16900	101000
Manganese	mg/kg	50 - 5000	SB	805	1040	575	1030	403
Mercury	mg/kg	0.001 - 0.2	0.1	ND (0.0419)	0.0228 J	ND (0.0374)	ND (0.0358)	ND (0.0284)
Nickel	mg/kg	0.5 - 25	13 or SB	**27.4 J**	**261 J**	**27.4 J**	**51.0 J**	6.21 J
Potassium	mg/kg	8500 - 43000	SB	2400	1180	3120	1140	553
Selenium	mg/kg	0.1 - 3.9	2 or SB	ND (1.99)	ND (1.18)	ND (1.86)	ND (1.83)	ND (1.49)
Silver	mg/kg	NS	SB	ND (0.995)	0.575 J	ND (0.931)	0.321 J	0.172 J
Sodium	mg/kg	6000 - 8000	SB	361	219	235	635	272
Thallium	mg/kg	NS	SB	ND (2.99)	ND (9.45)	ND (3.72)	ND (7.33)	ND (1.12)
Vanadium	mg/kg	1.0 - 300	150 or SB	31.1 J	74.4 J	32.8 J	29.3 J	6.48 J
Zinc	mg/kg	9.0 - 50.0	20 or SB	**52.1 J**	**106 J**	**60.3 J**	**87.6 J**	**86.8 J**
General Chemistry								
pH (soil)	S.U.		NS	10	8.9 J	9.6 J	9.1 J	9.8 J

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-26*	*MW-26*	*MW-27*	*MW-27*	*MW-28*
			Sample ID:	*S-19867-07-03-PK-005*	*S-19867-07-03-PK-006*	*S-19867-07-03-PK-029*	*S-19867-07-03-PK-030*	*S-19867-07-03-PK-027*
			Sample Date:	*7/23/2003*	*7/23/2003*	*7/29/2003*	*7/29/2003*	*7/29/2003*
			Sample Depth:	*2-4 ft*	*10-12 ft*	*1.5-4 ft*	*7-8 ft*	*1-2 ft*
Metals	***Units***	*Eastern USA Background Concentration*	*TAGM[a] Values*					
Aluminum	mg/kg	33000	SB	5100	5970	20200	20500	15400
Antimony	mg/kg	NS	SB	3.01 J	2.82 J	3.44 J	ND (2.58) J	3.85 J
Arsenic	mg/kg	3 - 12	7.5 or SB	6.00	5.42	4.25	**7.97**	3.63
Barium	mg/kg	15 - 600	300 or SB	174 J	37.4 J	62.2 J	159 J	29.4 J
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.380 J**	**0.405**	**0.864**	**1.18**	**0.718**
Cadmium	mg/kg	0.1 - 1.0	1 or SB	**3.75**	0.737	ND (0.787)	0.743	ND (0.701)
Calcium	mg/kg	130 - 35000	SB	133000	124000	190000	4710	191000
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	20.1	9.66	**1450**	28.4	**719**
Chromium VI (Hexavalent)	mg/kg	NS	NS	ND (4.4)	ND (4.7)	25	ND (4.7)	52
Cobalt	mg/kg	2.5 or 60	30 or SB	4.45	4.31	3.59	15.3	1.38 J
Copper	mg/kg	1.0 - 50	25 or SB	**25.5**	8.96	9.50	**30.1**	2.31 J
Cyanide (total)	mg/kg		NS	ND (0.540)	ND (0.554)	0.327 J	ND (0.619)	ND (0.708)
Iron	mg/kg	2000 - 550000	2000 or SB	**11100**	**10600**	**8150**	**33100**	**3390**
Lead	mg/kg	NS	SB	85.1	54.7	10.5	10.5	21.8
Magnesium	mg/kg	100 - 5000	SB	62700	77900	69200	7910	62900
Manganese	mg/kg	50 - 5000	SB	544	475	463	824	318
Mercury	mg/kg	0.001 - 0.2	0.1	**0.166**	ND (0.0345)	ND (0.0506)	0.0126 J	ND (0.0492)
Nickel	mg/kg	0.5 - 25	13 or SB	11.7 J	9.97 J	**21.8 J**	**32.8 J**	9.71 J
Potassium	mg/kg	8500 - 43000	SB	1050	1460	942	3030	500
Selenium	mg/kg	0.1 - 3.9	2 or SB	ND (2.54)	ND (2.37)	ND (3.15)	ND (1.29)	ND (4.21)
Silver	mg/kg	NS	SB	ND (0.847)	ND (0.592)	ND (1.57)	ND (0.861)	ND (1.40)
Sodium	mg/kg	6000 - 8000	SB	228	237	281	155	95.8 J
Thallium	mg/kg	NS	SB	ND (2.54)	ND (1.78)	ND (6.29)	ND (2.58)	ND (7.01)
Vanadium	mg/kg	1.0 - 300	150 or SB	15.7 J	13.6 J	48.9 J	40.0 J	35.7 J
Zinc	mg/kg	9.0 - 50.0	20 or SB	**1160 J**	**387 J**	**66.3 J**	**323 J**	**41.6 J**
General Chemistry								
pH (soil)	S.U.		NS	9.9 J	11 J	12	8.5	12

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-28*	*MW-16*	*MW-16*	*MW-17*	*MW-17*
			Sample ID:	*S-19867-07-03-PK-028*	*S-19867-0703-PK-014*	*S-19867-0703-PK-015*	*S-19867-08-03-PK-032*	*S-19867-08-03-PK-033*
			Sample Date:	*7/29/2003*	*7/24/2003*	*7/24/2003*	*8/20/2003*	*8/20/2003*
			Sample Depth:	*7-8 ft*	*2-4 ft*	*10-11 ft*	*0-4 ft*	*11-13 ft*
Metals	***Units***	*Eastern USA Background Concentration*	*TAGM[a] Values*					
Aluminum	mg/kg	33000	SB	21000	15500	12000	24300	11900
Antimony	mg/kg	NS	SB	ND (1.74) J	ND (1.13) J	ND (1.33) J	ND (5.42)	ND (1.17)
Arsenic	mg/kg	3 - 12	7.5 or SB	5.27	6.20	6.22	5.67	5.14
Barium	mg/kg	15 - 600	300 or SB	224 J	83.9	51.9	143	67.7
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**1.13**	**0.693**	**0.540 J**	**1.05**	**0.532 J**
Cadmium	mg/kg	0.1 - 1.0	1 or SB	0.0609 J	ND (0.564)	ND (0.570)	ND (0.542)	ND (0.584)
Calcium	mg/kg	130 - 35000	SB	31500	62200	43600	4780	43900
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	30.4	20.8	17.7	33.6	18.3
Chromium VI (Hexavalent)	mg/kg	NS	NS	ND (4.9)	ND (5.1)	ND (5.0)	ND (4.5)	ND (5.7)
Cobalt	mg/kg	2.5 or 60	30 or SB	12.3	9.59	11.4	17.4	10.0
Copper	mg/kg	1.0 - 50	25 or SB	**26.5**	22.6	14.3	**30.4**	15.3
Cyanide (total)	mg/kg		NS	ND (0.532)	0.937	ND (0.633)	ND (0.590)	ND (0.584)
Iron	mg/kg	2000 - 550000	2000 or SB	**29900**	**23600**	**23400**	**32900**	**21800**
Lead	mg/kg	NS	SB	8.74	7.74	5.39	14.0	8.19
Magnesium	mg/kg	100 - 5000	SB	11000	11500	8530	8480	11100
Manganese	mg/kg	50 - 5000	SB	510	854	837	997	597
Mercury	mg/kg	0.001 - 0.2	0.1	0.0131 J	0.0154 J	ND (0.0376)	0.0108 J	ND (0.0410)
Nickel	mg/kg	0.5 - 25	13 or SB	**28.5 J**	**22.0**	**24.9**	**40.0**	**21.1**
Potassium	mg/kg	8500 - 43000	SB	3260	2740	2350	3460	2740
Selenium	mg/kg	0.1 - 3.9	2 or SB	ND (1.74)	1.76	1.82	**4.01**	**6.21**
Silver	mg/kg	NS	SB	ND (0.871)	ND (1.13)	ND (1.14)	ND (1.08)	ND (1.17)
Sodium	mg/kg	6000 - 8000	SB	319	163	129	172	131
Thallium	mg/kg	NS	SB	ND (1.74)	ND (1.13)	ND (1.14)	ND (1.08)	ND (1.17)
Vanadium	mg/kg	1.0 - 300	150 or SB	38.2 J	31.0	24.5	45.4	25.2
Zinc	mg/kg	9.0 - 50.0	20 or SB	**225 J**	**46.9**	**50.6**	**78.7**	**70.1**
General Chemistry								
pH (soil)	S.U.		NS	7.4	8.3	8.5	8.1	8.1

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-18*	*MW-18*	*MW-19*	*MW-19*	*MW-20*
			Sample ID:	*S-19867-07-03-PK-023*	*S-19867-07-03-PK-024*	*S-19867-07-03-PK-009*	*S-19867-07-03-PK-010*	*S-19867-0703-PK-016*
			Sample Date:	*7/28/2003*	*7/28/2003*	*7/28/2003*	*7/28/2003*	*7/25/2003*
			Sample Depth:	*2-4 ft*	*12-14 ft*	*0.5-2 ft*	*10-12 ft*	*4.5-6 ft*
Metals	*Units*	*Eastern USA Background Concentration*	*TAGM[a] Values*					
Aluminum	mg/kg	33000	SB	34500	25900	16100	20400	13100
Antimony	mg/kg	NS	SB	4.91 J	ND (2.57) J	3.83 J	ND (2.09)	ND (24.2) J
Arsenic	mg/kg	3 - 12	7.5 or SB	3.38	4.76	4.29	5.90	**70.0**
Barium	mg/kg	15 - 600	300 or SB	19.9 J	158 J	34.4 J	143	117
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.946**	**1.35**	**0.825**	**0.838**	**2.56 J**
Cadmium	mg/kg	0.1 - 1.0	1 or SB	ND (0.618)	ND (0.429)	ND (0.651)	ND (0.620)	**2.08 J**
Calcium	mg/kg	130 - 35000	SB	249000	16500	176000	68000	105000
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	**500**	34.1	**3100**	28.0	**1200**
Chromium VI (Hexavalent)	mg/kg	NS	NS	33	ND (4.9)	170	ND (5.2)	4.9
Cobalt	mg/kg	2.5 or 60	30 or SB	0.265 J	15.7	2.53 J	11.8	**31.5 J**
Copper	mg/kg	1.0 - 50	25 or SB	ND (2.47)	**30.0**	22.8	**25.7**	**354**
Cyanide (total)	mg/kg		NS	ND (0.674)	ND (0.639)	ND (0.591)	ND (0.557)	1.40
Iron	mg/kg	2000 - 550000	2000 or SB	533	**33600**	**6990**	**28700**	**25300**
Lead	mg/kg	NS	SB	12.2	13.0	9.77	8.86	81.4
Magnesium	mg/kg	100 - 5000	SB	78000	13100	70700	11800	37700
Manganese	mg/kg	50 - 5000	SB	154	811	524	668	49000
Mercury	mg/kg	0.001 - 0.2	0.1	ND (0.0434)	ND (0.0375)	ND (0.0435)	ND (0.0447)	0.0345 J
Nickel	mg/kg	0.5 - 25	13 or SB	7.27 J	**34.9 J**	**42.7 J**	**24.8**	**76.7**
Potassium	mg/kg	8500 - 43000	SB	89.7 J	3730	250	4860	1270 J
Selenium	mg/kg	0.1 - 3.9	2 or SB	ND (4.95)	ND (0.429)	ND (1.30)	ND (1.24)	ND (24.2)
Silver	mg/kg	NS	SB	0.371 J	ND (0.857)	0.279 J	0.433 J	7.06 J
Sodium	mg/kg	6000 - 8000	SB	83.7 J	304	118 J	294	ND (2420)
Thallium	mg/kg	NS	SB	ND (9.89)	ND (2.57)	ND (6.51)	ND (1.24)	89.6
Vanadium	mg/kg	1.0 - 300	150 or SB	16.3 J	45.9 J	62.8 J	38.2	58.8
Zinc	mg/kg	9.0 - 50.0	20 or SB	ND (1.86) J	**78.8 J**	**24.4 J**	**64.5**	**154**
General Chemistry								
pH (soil)	S.U.		NS	12	12	12	9.5	12

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-20*	*MW-21*	*MW-21*	*MW-22*	*MW-22*
			Sample ID:	*S-19867-0703-PK-017*	*S-19867-07-03-PK-025*	*S-19867-07-03-PK-026*	*S-19867-07-03-PK-001*	*S-19867-07-03-PK-002*
			Sample Date:	*7/25/2003*	*7/28/2003*	*7/28/2003*	*7/22/2003*	*7/22/2003*
			Sample Depth:	*8-10 ft*	*8-10 ft*	*18-20 ft*	*6-8 ft*	*13-14 ft*
Metals	***Units***	*Eastern USA Background Concentration*	*TAGM[a] Values*					
Aluminum	mg/kg	33000	SB	15800	21900	24500	21400	15300
Antimony	mg/kg	NS	SB	ND (1.19) J	5.98 J	ND (3.17) J	5.55 J	ND (0.736) J
Arsenic	mg/kg	3 - 12	7.5 or SB	5.38	3.00	4.29	4.09	2.95
Barium	mg/kg	15 - 600	300 or SB	96.9	24.7 J	102 J	49.5 J	110 J
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.688**	**0.729**	**1.18**	**1.11**	**0.872**
Cadmium	mg/kg	0.1 - 1.0	1 or SB	ND (0.530)	ND (0.437)	ND (0.528)	ND (0.782)	ND (0.368)
Calcium	mg/kg	130 - 35000	SB	63800	203000	7850	244000	48300
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	22.5	**4110**	33.4	**5790**	21.8
Chromium VI (Hexavalent)	mg/kg	NS	NS	ND (4.9)	430	ND (4.7)	23	ND (4.7)
Cobalt	mg/kg	2.5 or 60	30 or SB	11.8	3.00	19.1	6.49	9.17
Copper	mg/kg	1.0 - 50	25 or SB	**30.1**	12.5	22.1	15.9	18.7
Cyanide (total)	mg/kg		NS	ND (0.570)	ND (0.631)	ND (0.597)	ND (0.826)	ND (0.580)
Iron	mg/kg	2000 - 550000	2000 or SB	**25300**	**5030**	**33600**	**6400**	**21800**
Lead	mg/kg	NS	SB	7.67	3.07	14.7	7.92	8.10
Magnesium	mg/kg	100 - 5000	SB	11500	118000	8370	83400	11500
Manganese	mg/kg	50 - 5000	SB	602	296	600	494	575
Mercury	mg/kg	0.001 - 0.2	0.1	ND (0.0385)	ND (0.0394)	ND (0.0365)	ND (0.0595)	ND (0.0342)
Nickel	mg/kg	0.5 - 25	13 or SB	**27.9**	**33.9 J**	**26.8 J**	**68.5 J**	**22.6 J**
Potassium	mg/kg	8500 - 43000	SB	3070	84.5 J	2950	177	2880
Selenium	mg/kg	0.1 - 3.9	2 or SB	1.81	ND (2.62)	ND (1.06)	ND (2.35)	ND (1.47)
Silver	mg/kg	NS	SB	0.206 J	0.262 J	ND (1.06)	0.283 J	ND (0.736)
Sodium	mg/kg	6000 - 8000	SB	256	89.8	552	257	219
Thallium	mg/kg	NS	SB	ND (1.06)	ND (5.25)	ND (4.22)	ND (9.38)	ND (2.94)
Vanadium	mg/kg	1.0 - 300	150 or SB	33.4	73.9 J	48.1 J	82.7 J	28.9 J
Zinc	mg/kg	9.0 - 50.0	20 or SB	**53.7**	**26.5 J**	**79.5 J**	15.0 J	**53.9 J**
General Chemistry								
pH (soil)	S.U.		NS	9.8	12	8.8	12 J	9.1 J

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-23*	*MW-23*	*Next to TP-20*
			Sample ID:	*S-19867-0703-PK-018*	*S-19867-0703-PK-019*	*S-19867-08-03-PK-031*
			Sample Date:	*7/25/2003*	*7/25/2003*	*8/18/2003*
			Sample Depth:	*4-6 ft*	*22-24 ft*	*0.5-1.5 ft*
Metals	*Units*	*Eastern USA Background Concentration*	*TAGM[a] Values*			
Aluminum	mg/kg	33000	SB	21500	19800	12700
Antimony	mg/kg	NS	SB	4.49 J	ND (1.92) J	4.50
Arsenic	mg/kg	3 - 12	7.5 or SB	ND (1.30)	4.13	**35.8**
Barium	mg/kg	15 - 600	300 or SB	66.7 J	145	**308**
Beryllium	mg/kg	0 - 1.75	0.16 or SB	ND (0.649)	**0.806**	**0.965**
Cadmium	mg/kg	0.1 - 1.0	1 or SB	ND (0.649)	ND (0.575)	0.419 J
Calcium	mg/kg	130 - 35000	SB	215000	68100	27700
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	**3990**	29.6	**317**
Chromium VI (Hexavalent)	mg/kg	NS	NS	150	ND (4.8)	3.1 J
Cobalt	mg/kg	2.5 or 60	30 or SB	2.85	11.5	12.9
Copper	mg/kg	1.0 - 50	25 or SB	9.20	20.0	**379**
Cyanide (total)	mg/kg		NS	ND (0.669)	ND (0.549)	ND (0.603)
Iron	mg/kg	2000 - 550000	2000 or SB	**4410**	**25700**	**52200**
Lead	mg/kg	NS	SB	1.25	7.06	172
Magnesium	mg/kg	100 - 5000	SB	109000	12900	9740 J
Manganese	mg/kg	50 - 5000	SB	510 J	576	2330 J
Mercury	mg/kg	0.001 - 0.2	0.1	ND (0.0414)	ND (0.0394)	**0.216**
Nickel	mg/kg	0.5 - 25	13 or SB	**32.7**	**28.1**	**87.8**
Potassium	mg/kg	8500 - 43000	SB	176	3580	1450
Selenium	mg/kg	0.1 - 3.9	2 or SB	ND (1.30)	**2.84**	**7.27**
Silver	mg/kg	NS	SB	0.572 J	0.349 J	ND (1.07)
Sodium	mg/kg	6000 - 8000	SB	115 J	241	302
Thallium	mg/kg	NS	SB	ND (2.60)	ND (1.15)	ND (1.07)
Vanadium	mg/kg	1.0 - 300	150 or SB	80.9 J	34.6	28.1
Zinc	mg/kg	9.0 - 50.0	20 or SB	16.7	**59.3**	**258**
General Chemistry						
pH (soil)	S.U.		NS	12	10	--

TABLE 2.2

SUBSURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

Notes:

NS - No Standard
SB - Site Background
ND ( ) - Non Detect at associated value.
J - Estimated Value
- - No Measurement
a - New York State Technical and Administrative Guidance, Recommended Soil Cleanup Objectives, January 1994.
b - Telephone Conversation, Jim Harrington, NYSDEC, February 3, 2004.

TABLE 2.3

MONITORING WELL SUMMARY
VANADIUM CORPORATION OF AMERICA SITE
NIAGARA FALLS, NEW YORK

Monitoring Well	*Ground Elevation (ft AMSL)* [1]	*Casing Elevation (ft AMSL)*	*Top of Riser Elevation (ft AMSL)*	*Borehole Depth (ft bgs)*	*Bottom of Borehole Elevation (ft AMSL)*	*Screen Interval (ft bgs)*	*Screen Interval Elevation (ft AMSL)*	*Sandpack (ft bgs)*
MW-15	601.35	601.51	601.19	13.5	587.85	8.4 - 13.4	592.95 - 587.95	6.4-13.5
MW-16	600.94	601.06	600.09	14	586.94	8.5 - 13.5	592.44 - 587.44	6.5-14
MW-17	601.68	601.69	601.01	14	587.68	8 - 13	593.68 - 588.68	6-14
MW-18	612.94	613.02	611.98	14	598.94	8.5 - 13.5	604.44 - 599.44	6.5-14
MW-19	605.50	605.63	605.39	12	593.5	5 - 10	600.50 - 595.50	3-12
MW-20	607.32	607.38	607.17	10.5	596.82	5 - 10	602.32 - 595.32	3-10.5
MW-21	619.97	620.02	619.50	20	599.97	9.5 - 19.5	610.47 - 600.47	7.5-20
MW-22	606.45	606.54	605.53	14	592.45	7 - 12	599.45 - 594.45	5-14
MW-23	619.88	620.09	619.74	24	595.88	13 - 23	606.88 - 596.88	11-24
MW-24	618.41	618.48	617.58	20	598.41	9 - 19	609.41 - 599.41	7-20
MW-25	605.96	606.05	605.31	10	596.05	4.5 - 9.5	601.46 - 596.46	2.5-10
MW-26	614.38	614.54	614.33	14	600.38	7 - 12	607.38 - 602.38	5-14
MW-27	606.72	607.02	606.19	9	597.72	3 - 8	603.72 - 598.72	2-9
MW-28	606.16	606.22	605.96	8.5	597.66	3 - 8	603.16 - 598.16	2-8.5

Note:

(1) - Datum used is NAVD 29.

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-15*	*MW-15*	*MW-15*	*MW-16*
			Sample ID:	*GW-19867-08-03-PK-004*	*GW-19867-08-03-PK-005*	*GW-19867-10-03-PK-024*	*GW-19867-08-03-PK-019*
			Sample Date:	*8/15/2003*	*8/15/2003*	*10/22/2003*	*8/25/2003*
	Units	*NYSDEC Ambient Water Quality*[a]					
Metals							
Aluminum (Total)	mg/L	NS		5.14	--	1.18	0.124
Aluminum (Dissolved)	mg/L	NS		--	ND(0.2)	--	--
Antimony (Total)	mg/L	0.003		ND(0.01)	--	ND(0.01)	ND(0.01)
Antimony (Dissolved)	mg/L	0.003		--	ND(0.01)	--	--
Arsenic (Total)	mg/L	0.025		**0.0276**	--	ND(0.025)	0.0139
Arsenic (Dissolved)	mg/L	0.025		--	0.0217 J	--	--
Barium (Total)	mg/L	1		0.0901	--	0.0698	0.0444
Barium (Dissolved)	mg/L	1		--	0.06	--	--
Beryllium (Total)	mg/L	NS		ND(0.005)	--	ND(0.005)	ND(0.005)
Beryllium (Dissolved)	mg/L	NS		--	ND(0.005)	--	--
Cadmium (Total)	mg/L	0.005		ND(0.005)	--	ND(0.005)	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005		--	ND(0.005)	--	--
Calcium (Total)	mg/L	NS		155	--	98.8	145
Calcium (Dissolved)	mg/L	NS		--	97.3	--	--
Chromium (Total)	mg/L	0.05		0.00689 J	--	0.00106 J	0.00134
Chromium (Dissolved)	mg/L	0.05		--	0.000859 J	--	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05		ND(0.01)	--	0.0410	ND(0.01)
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05		--	ND(0.01)	--	--
Cobalt (Total)	mg/L	NS		0.00264 J	--	ND(0.02)	ND(0.02)
Cobalt (Dissolved)	mg/L	NS		--	0.00135 J	--	--
Copper (Total)	mg/L	0.2		0.0793	--	ND(0.02)	0.00628
Copper (Dissolved)	mg/L	0.2		--	0.0102 J	--	--
Cyanide (Dissolved)	mg/L	0.2		--	ND(0.01)	--	--
Cyanide (Total)	mg/L	0.2		ND(0.01)	--	ND(0.01)	ND(0.01)
Iron (Total)	mg/L	0.3		**6.53**	--	**3.93**	ND(0.2)
Iron (Dissolved)	mg/L	0.3		--	**2.01**	--	--
Lead (Total)	mg/L	0.025		**0.123**	--	**0.0251**	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-15*	*MW-15*	*MW-15*	*MW-16*
			Sample ID:	*GW-19867-08-03-PK-004*	*GW-19867-08-03-PK-005*	*GW-19867-10-03-PK-024*	*GW-19867-08-03-PK-019*
			Sample Date:	*8/15/2003*	*8/15/2003*	*10/22/2003*	*8/25/2003*
	Units	*NYSDEC Ambient Water Quality*[a]					
Lead (Dissolved)	mg/L	0.025	--	0.00751	--	--
Magnesium (Total)	mg/L	NS	71.9	--	37.2	69.1
Magnesium (Dissolved)	mg/L	NS	--	39.1	--	--
Manganese (Total)	mg/L	0.3	**0.606**	--	**0.362**	0.0217
Manganese (Dissolved)	mg/L	0.3	--	**0.421**	--	--
Mercury (Total)	mg/L	0.0007	ND(0.0004)	--	ND(0.0004)	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007	--	ND(0.0004)	--	--
Nickel (Total)	mg/L	0.1	0.00178 J	--	ND(0.02)	ND(0.02)
Nickel (Dissolved)	mg/L	0.1	--	ND(0.02)	--	--
Potassium (Total)	mg/L	NS	3.13	--	2.78	3.15
Potassium (Dissolved)	mg/L	NS	--	1.93	--	--
Selenium (Total)	mg/L	0.010	**0.0302**	--	**0.035**	ND(0.02)
Selenium (Dissolved)	mg/L	0.010	--	**0.0173 J**	--	--
Silver (Total)	mg/L	0.050	ND(0.01)	--	ND(0.01)	ND(0.01)
Silver (Dissolved)	mg/L	0.050	--	ND(0.01)	--	--
Sodium (Total)	mg/L	20	**32.2**	--	**29.8**	**40.3**
Sodium (Dissolved)	mg/L	20	--	**30.1**	--	--
Thallium (Total)	mg/L	NS	ND(0.02)	--	ND(0.02)	ND(0.02)
Thallium (Dissolved)	mg/L	NS	--	ND(0.02)	--	--
Vanadium (Total)	mg/L	NS	0.00528 J	--	0.014 J	ND(0.02)
Vanadium (Dissolved)	mg/L	NS	--	ND(0.02)	--	--
Zinc (Total)	mg/L	NS	0.144	--	0.0393	0.0176
Zinc (Dissolved)	mg/L	NS	--	0.00948 J	--	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	6.93	6.93	7.17	6.80

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-16*	*MW-17*	*MW-17*	*MW-18*
			Sample ID:	*GW-19867-10-03-PK-025*	*GW-19867-08-03-PK-024*	*GW-19867-10-03-PK-015*	*GW-19867-08-03-PK-023*
			Sample Date:	*10/22/2003*	*8/28/2003*	*10/6/2003*	*8/28/2003*
	Units	*NYSDEC Ambient Water Quality*[a]					
Metals							
Aluminum (Total)	mg/L	NS		ND(0.2)	38.9	38	4.83
Aluminum (Dissolved)	mg/L	NS		--	--	--	--
Antimony (Total)	mg/L	0.003		ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Antimony (Dissolved)	mg/L	0.003		--	--	--	--
Arsenic (Total)	mg/L	0.025		ND(0.025)	0.0224 J	**0.0288**	0.0203 J
Arsenic (Dissolved)	mg/L	0.025		--	--	--	--
Barium (Total)	mg/L	1		0.0396	0.316	0.349	0.049
Barium (Dissolved)	mg/L	1		--	--	--	--
Beryllium (Total)	mg/L	NS		ND(0.005)	0.00219 J	0.00177 J	ND(0.005)
Beryllium (Dissolved)	mg/L	NS		--	--	--	--
Cadmium (Total)	mg/L	0.005		ND(0.005)	0.00211 J	0.00395 J	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005		--	--	--	--
Calcium (Total)	mg/L	NS		142	317	305	134
Calcium (Dissolved)	mg/L	NS		--	--	--	--
Chromium (Total)	mg/L	0.05		ND(0.01)	0.0486	0.0461	**0.358**
Chromium (Dissolved)	mg/L	0.05		--	--	--	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05		ND(0.01)	ND(0.01)	ND(0.01)	**0.181**
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05		--	--	--	--
Cobalt (Total)	mg/L	NS		ND(0.02)	0.0303	0.0285	0.00442 J
Cobalt (Dissolved)	mg/L	NS		--	--	--	--
Copper (Total)	mg/L	0.2		ND(0.02)	0.0955	0.0822	0.0794
Copper (Dissolved)	mg/L	0.2		--	--	--	--
Cyanide (Dissolved)	mg/L	0.2		--	--	--	--
Cyanide (Total)	mg/L	0.2		ND(0.01)	0.00331	ND(0.01) J	ND(0.01)
Iron (Total)	mg/L	0.3		**0.979**	**55.3**	**62.8**	**2.03**
Iron (Dissolved)	mg/L	0.3		--	--	--	--
Lead (Total)	mg/L	0.025		ND(0.005)	**0.283**	**0.379**	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-16*	*MW-17*	*MW-17*	*MW-18*
			Sample ID:	*GW-19867-10-03-PK-025*	*GW-19867-08-03-PK-024*	*GW-19867-10-03-PK-015*	*GW-19867-08-03-PK-023*
			Sample Date:	*10/22/2003*	*8/28/2003*	*10/6/2003*	*8/28/2003*
	Units	*NYSDEC Ambient Water Quality*[a]					
Lead (Dissolved)	mg/L	0.025		--	--	--	--
Magnesium (Total)	mg/L	NS		74.7	120	120	1.32 J
Magnesium (Dissolved)	mg/L	NS		--	--	--	--
Manganese (Total)	mg/L	0.3		0.188	**2.29**	**2.47**	0.0369
Manganese (Dissolved)	mg/L	0.3		--	--	--	--
Mercury (Total)	mg/L	0.0007		ND(0.0004)	0.000291 J	0.000072 J	0.0000911 J
Mercury (Dissolved)	mg/L	0.0007		--	--	--	--
Nickel (Total)	mg/L	0.1		ND(0.02)	0.0512	0.0555	0.0135 J
Nickel (Dissolved)	mg/L	0.1		--	--	--	--
Potassium (Total)	mg/L	NS		3.59	9.09	8.57	3.35
Potassium (Dissolved)	mg/L	NS		--	--	--	--
Selenium (Total)	mg/L	0.010		**0.052**	**0.0501**	**0.0739**	**0.0105 J**
Selenium (Dissolved)	mg/L	0.010		--	--	--	--
Silver (Total)	mg/L	0.050		ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Silver (Dissolved)	mg/L	0.050		--	--	--	--
Sodium (Total)	mg/L	20		**34.9**	**40.8**	**39.7**	**55.8**
Sodium (Dissolved)	mg/L	20		--	--	--	--
Thallium (Total)	mg/L	NS		ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
Thallium (Dissolved)	mg/L	NS		--	--	--	--
Vanadium (Total)	mg/L	NS		0.0157 J	0.063	0.0772	0.0268
Vanadium (Dissolved)	mg/L	NS		--	--	--	--
Zinc (Total)	mg/L	NS		0.00752 J	1.44	1.79	0.0548
Zinc (Dissolved)	mg/L	NS		--	--	--	--
General Chemistry							
pH (water)	S.U.	6.5 - 8.5		7.21	7.49	7.34	**11.64**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-18*	*MW-19*	*MW-19*	*MW-20*
			Sample ID:	*GW-19867-10-03-PK-018*	*GW-19867-08-03-PK-003*	*GW-19867-10-03-PK-001*	*GW-19867-08-03-PK-009*
			Sample Date:	*10/6/2003*	*8/15/2003*	*10/1/2003*	*8/18/2003*
	Units	*NYSDEC Ambient Water Quality*[a]					
Metals							
Aluminum (Total)	mg/L	NS		3.18	64.3	12.8	1.82
Aluminum (Dissolved)	mg/L	NS		--	--	--	--
Antimony (Total)	mg/L	0.003		**0.01**	ND(0.01)	ND(0.01)	ND(0.01)
Antimony (Dissolved)	mg/L	0.003		--	--	--	--
Arsenic (Total)	mg/L	0.025		0.0136 J	**0.0437**	**0.0267**	0.022 J
Arsenic (Dissolved)	mg/L	0.025		--	--	--	--
Barium (Total)	mg/L	1		0.0226	0.388	0.0858	0.186
Barium (Dissolved)	mg/L	1		--	--	--	--
Beryllium (Total)	mg/L	NS		ND(0.005)	0.00208 J	0.000467 J	ND(0.005)
Beryllium (Dissolved)	mg/L	NS		--	--	--	--
Cadmium (Total)	mg/L	0.005		ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005		--	--	--	--
Calcium (Total)	mg/L	NS		73.4	298	112	219
Calcium (Dissolved)	mg/L	NS		--	--	--	--
Chromium (Total)	mg/L	0.05		**0.332**	**0.655**	**0.0869**	0.00165 J
Chromium (Dissolved)	mg/L	0.05		--	--	--	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05		ND(0.01)	ND(0.01)	ND(0.01) J	ND(0.01)
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05		--	--	--	--
Cobalt (Total)	mg/L	NS		0.00167 J	0.0282	0.00423 J	ND(0.02)
Cobalt (Dissolved)	mg/L	NS		--	--	--	--
Copper (Total)	mg/L	0.2		0.0318	0.105	0.0191 J	ND(0.02)
Copper (Dissolved)	mg/L	0.2		--	--	--	--
Cyanide (Dissolved)	mg/L	0.2		--	--	--	--
Cyanide (Total)	mg/L	0.2		ND(0.01) J	ND(0.01)	ND(0.01)	ND(0.01)
Iron (Total)	mg/L	0.3		**2.18**	**85.5**	**16**	ND(0.2)
Iron (Dissolved)	mg/L	0.3		--	--	--	--
Lead (Total)	mg/L	0.025		ND(0.005)	**0.0443**	0.00926	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-18*	*MW-19*	*MW-19*	*MW-20*
			Sample ID:	*GW-19867-10-03-PK-018*	*GW-19867-08-03-PK-003*	*GW-19867-10-03-PK-001*	*GW-19867-08-03-PK-009*
			Sample Date:	*10/6/2003*	*8/15/2003*	*10/1/2003*	*8/18/2003*
	Units	*NYSDEC Ambient Water Quality*[a]					
Lead (Dissolved)	mg/L	0.025		--	--	--	--
Magnesium (Total)	mg/L	NS		5.87	43.9	8.65	0.0388 J
Magnesium (Dissolved)	mg/L	NS		--	--	--	--
Manganese (Total)	mg/L	0.3		0.0269	**2.43**	**0.447**	ND(0.01)
Manganese (Dissolved)	mg/L	0.3		--	--	--	--
Mercury (Total)	mg/L	0.0007		ND(0.0004)	0.0000718 J	ND(0.0004)	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007		--	--	--	--
Nickel (Total)	mg/L	0.1		ND(0.02)	0.0769	0.0221	0.00459 J
Nickel (Dissolved)	mg/L	0.1		--	--	--	--
Potassium (Total)	mg/L	NS		2.17	21.4	11.5	7.56
Potassium (Dissolved)	mg/L	NS		--	--	--	--
Selenium (Total)	mg/L	0.010		**0.0198 J**	**0.054**	**0.0169 J**	0.00669 J
Selenium (Dissolved)	mg/L	0.010		--	--	--	--
Silver (Total)	mg/L	0.050		ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Silver (Dissolved)	mg/L	0.050		--	--	--	--
Sodium (Total)	mg/L	20		**33.6**	**71.8**	**67.3**	**66.3**
Sodium (Dissolved)	mg/L	20		--	--	--	--
Thallium (Total)	mg/L	NS		ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
Thallium (Dissolved)	mg/L	NS		--	--	--	--
Vanadium (Total)	mg/L	NS		0.0345	0.161	0.0558	0.00721 J
Vanadium (Dissolved)	mg/L	NS		--	--	--	--
Zinc (Total)	mg/L	NS		0.171	0.213	0.0409	ND(0.01)
Zinc (Dissolved)	mg/L	NS		--	--	--	--
General Chemistry							
pH (water)	S.U.	6.5 - 8.5		--	**11.29**	**11.78**	**11.5**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-20*	*MW-20*	*MW-20*	*MW-21*
		Sample ID:	*GW-19867-08-03-PK-010*	*GW-19867-10-03-PK-005*	*GW-19867-10-03-PK-006*	*GW-19867-08-03-PK-022*
		Sample Date:	*8/18/2003*	*10/1/2003*	*10/1/2003*	*8/28/2003*
	Units	*NYSDEC Ambient Water Quality* [a]				
Metals						
Aluminum (Total)	mg/L	NS	--	2.21	--	3.89
Aluminum (Dissolved)	mg/L	NS	1.66	--	1.82	--
Antimony (Total)	mg/L	0.003	--	ND(0.01)	--	**0.0109**
Antimony (Dissolved)	mg/L	0.003	ND(0.01)	--	ND(0.01)	--
Arsenic (Total)	mg/L	0.025	--	0.0191 J	--	ND(0.025)
Arsenic (Dissolved)	mg/L	0.025	0.0232 J	--	0.0217 J	--
Barium (Total)	mg/L	1	--	0.071	--	0.222
Barium (Dissolved)	mg/L	1	0.194	--	0.0718	--
Beryllium (Total)	mg/L	NS	--	ND(0.005)	--	ND(0.005)
Beryllium (Dissolved)	mg/L	NS	ND(0.005)	--	ND(0.005)	--
Cadmium (Total)	mg/L	0.005	--	ND(0.005)	--	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005	ND(0.005)	--	ND(0.005)	--
Calcium (Total)	mg/L	NS	--	126	--	378
Calcium (Dissolved)	mg/L	NS	228	--	125	--
Chromium (Total)	mg/L	0.05	--	0.0104	--	**0.0961**
Chromium (Dissolved)	mg/L	0.05	0.00163 J	--	ND(0.01)	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05	--	0.0180 J	--	0.0430
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	ND(0.01)	--	ND(0.01) J	--
Cobalt (Total)	mg/L	NS	--	ND(0.02)	--	0.00161
Cobalt (Dissolved)	mg/L	NS	ND(0.02)	--	ND(0.02)	--
Copper (Total)	mg/L	0.2	--	ND(0.02)	--	0.0538
Copper (Dissolved)	mg/L	0.2	ND(0.02)	--	ND(0.02)	--
Cyanide (Dissolved)	mg/L	0.2	--	--	ND(0.01)	--
Cyanide (Total)	mg/L	0.2	--	ND(0.01)	--	ND(0.01)
Iron (Total)	mg/L	0.3	--	**0.487**	--	**1.98**
Iron (Dissolved)	mg/L	0.3	ND(0.2)	--	ND(0.2)	--
Lead (Total)	mg/L	0.025	--	ND(0.005)	--	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-20*	*MW-20*	*MW-20*	*MW-21*
		Sample ID:	*GW-19867-08-03-PK-010*	*GW-19867-10-03-PK-005*	*GW-19867-10-03-PK-006*	*GW-19867-08-03-PK-022*
		Sample Date:	*8/18/2003*	*10/1/2003*	*10/1/2003*	*8/28/2003*
	Units	*NYSDEC Ambient Water Quality*[a]				
Lead (Dissolved)	mg/L	0.025	ND(0.005)	--	ND(0.005)	--
Magnesium (Total)	mg/L	NS	--	0.613 J	--	1.56
Magnesium (Dissolved)	mg/L	NS	ND(1.5)	--	ND(1.5)	--
Manganese (Total)	mg/L	0.3	--	0.0402	--	0.0284
Manganese (Dissolved)	mg/L	0.3	ND(0.01)	--	ND(0.01)	--
Mercury (Total)	mg/L	0.0007	--	ND(0.0004)	--	ND(0.0004) J
Mercury (Dissolved)	mg/L	0.0007	ND(0.0004)	--	ND(0.0004)	--
Nickel (Total)	mg/L	0.1	--	0.00806 J	--	0.0109 J
Nickel (Dissolved)	mg/L	0.1	0.00516 J	--	0.00714 J	--
Potassium (Total)	mg/L	NS	--	5.48	--	22.8
Potassium (Dissolved)	mg/L	NS	7.57	--	5.9	--
Selenium (Total)	mg/L	0.010	--	ND(0.02)	--	**0.0186 J**
Selenium (Dissolved)	mg/L	0.010	ND(0.02)	--	ND(0.02)	--
Silver (Total)	mg/L	0.050	--	ND(0.01)	--	ND(0.01)
Silver (Dissolved)	mg/L	0.050	ND(0.01)	--	ND(0.01)	--
Sodium (Total)	mg/L	20	--	**58.2**	--	**90.3**
Sodium (Dissolved)	mg/L	20	**65.8**	--	**59**	--
Thallium (Total)	mg/L	NS	--	ND(0.02)	--	ND(0.02)
Thallium (Dissolved)	mg/L	NS	ND(0.02)	--	ND(0.02)	--
Vanadium (Total)	mg/L	NS	--	0.0085 J	--	0.00691 J
Vanadium (Dissolved)	mg/L	NS	0.00591 J	--	0.00511 J	--
Zinc (Total)	mg/L	NS	--	0.0127	--	0.0187
Zinc (Dissolved)	mg/L	NS	ND(0.01)	--	0.00494 J	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	**11.5**	**11.97**	**11.97**	--

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-21*	*MW-22*	*MW-22*	*MW-22*
		Sample ID:	*GW-19867-10-03-PK-017*	*GW-19867-08-03-PK-001*	*GW-19867-08-03-PK-002*	*GW-19867-10-03-PK-003*
		Sample Date:	*10/6/2003*	*8/15/2003*	*8/15/2003*	*10/1/2003*
	Units	*NYSDEC Ambient Water Quality* [a]				
Metals						
Aluminum (Total)	mg/L	NS	2.19	2.9	--	1
Aluminum (Dissolved)	mg/L	NS	--	--	0.681	--
Antimony (Total)	mg/L	0.003	**0.0119**	ND(0.01)	--	ND(0.01)
Antimony (Dissolved)	mg/L	0.003	--	--	ND(0.01)	--
Arsenic (Total)	mg/L	0.025	0.0154 J	0.0132 J	--	ND(0.025)
Arsenic (Dissolved)	mg/L	0.025	--	--	0.0112 J	--
Barium (Total)	mg/L	1	0.146	0.135	--	0.085
Barium (Dissolved)	mg/L	1	--	--	0.123	--
Beryllium (Total)	mg/L	NS	ND(0.005)	ND(0.005)	--	ND(0.005)
Beryllium (Dissolved)	mg/L	NS	--	--	ND(0.005)	--
Cadmium (Total)	mg/L	0.005	ND(0.005)	ND(0.005)	--	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005	--	--	ND(0.005)	--
Calcium (Total)	mg/L	NS	267	388	--	395
Calcium (Dissolved)	mg/L	NS	--	--	391	--
Chromium (Total)	mg/L	0.05	0.0357	**0.0839**	--	0.00758 J
Chromium (Dissolved)	mg/L	0.05	--	--	0.0372	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05	0.0350	ND(0.01)	--	ND(0.01) J
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	--	--	0.0120	--
Cobalt (Total)	mg/L	NS	ND(0.02)	0.00124 J	--	ND(0.02)
Cobalt (Dissolved)	mg/L	NS	--	--	0.000932 J	--
Copper (Total)	mg/L	0.2	0.0198 J	ND(0.02)	--	ND(0.02)
Copper (Dissolved)	mg/L	0.2	--	--	ND(0.02)	--
Cyanide (Dissolved)	mg/L	0.2	--	--	ND(0.01)	--
Cyanide (Total)	mg/L	0.2	ND(0.01) J	ND(0.01)	--	ND(0.01)
Iron (Total)	mg/L	0.3	ND(0.2)	**1.63**	--	ND(0.2)
Iron (Dissolved)	mg/L	0.3	--	--	ND(0.2)	--
Lead (Total)	mg/L	0.025	ND(0.005)	0.00592	--	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-21*	*MW-22*	*MW-22*	*MW-22*
		Sample ID:	*GW-19867-10-03-PK-017*	*GW-19867-08-03-PK-001*	*GW-19867-08-03-PK-002*	*GW-19867-10-03-PK-003*
		Sample Date:	*10/6/2003*	*8/15/2003*	*8/15/2003*	*10/1/2003*
	Units	*NYSDEC Ambient Water Quality* [a]				
Lead (Dissolved)	mg/L	0.025	--	--	ND(0.005)	--
Magnesium (Total)	mg/L	NS	ND(1.5)	1.2 J	--	ND(1.5)
Magnesium (Dissolved)	mg/L	NS	--	--	ND(1.5)	--
Manganese (Total)	mg/L	0.3	0.00256 J	0.0294	--	0.00272 J
Manganese (Dissolved)	mg/L	0.3	--	--	0.00414 J	--
Mercury (Total)	mg/L	0.0007	ND(0.0004)	ND(0.0004)	--	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007	--	--	ND(0.0004)	--
Nickel (Total)	mg/L	0.1	0.0136 J	0.00172 J	--	0.002 J
Nickel (Dissolved)	mg/L	0.1	--	--	ND(0.02)	--
Potassium (Total)	mg/L	NS	20.6	6.54	--	5.5
Potassium (Dissolved)	mg/L	NS	--	--	6.18	--
Selenium (Total)	mg/L	0.010	**0.0131 J**	**0.0203**	--	0.00918 J
Selenium (Dissolved)	mg/L	0.010	--	--	**0.0144 J**	--
Silver (Total)	mg/L	0.050	ND(0.01)	ND(0.01)	--	ND(0.01)
Silver (Dissolved)	mg/L	0.050	--	--	ND(0.01)	--
Sodium (Total)	mg/L	20	**91.5**	**90.5**	--	**83**
Sodium (Dissolved)	mg/L	20	--	--	**93**	--
Thallium (Total)	mg/L	NS	ND(0.02)	ND(0.02)	--	ND(0.02)
Thallium (Dissolved)	mg/L	NS	--	--	ND(0.02)	--
Vanadium (Total)	mg/L	NS	0.012 J	0.00563 J	--	ND(0.02)
Vanadium (Dissolved)	mg/L	NS	--	--	ND(0.02)	--
Zinc (Total)	mg/L	NS	0.0343	0.00977 J	--	ND(0.01)
Zinc (Dissolved)	mg/L	NS	--	--	ND(0.01)	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	**12.76**	**12.07**	**12.07**	**12.44**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-22*	*MW-23*	*MW-23*	*MW-23*
		Sample ID:	*GW-19867-10-03-PK-004*	*GW-19867-08-03-PK-014*	*GW-19867-08-03-PK-015*	*GW-19867-10-03-PK-021*
		Sample Date:	*10/1/2003*	*8/20/2003*	*8/20/2003*	*10/22/2003*
	Units	*NYSDEC Ambient Water Quality*[a]				
Metals						
Aluminum (Total)	mg/L	NS	--	0.384	--	0.792
Aluminum (Dissolved)	mg/L	NS	0.79	--	0.184 J	--
Antimony (Total)	mg/L	0.003	--	**0.00767 J**	--	**0.0194**
Antimony (Dissolved)	mg/L	0.003	ND(0.01)	--	ND(0.01)	--
Arsenic (Total)	mg/L	0.025	--	ND(0.025)	--	ND(0.025)
Arsenic (Dissolved)	mg/L	0.025	ND(0.025)	--	ND(0.025)	--
Barium (Total)	mg/L	1	--	0.209	--	0.237
Barium (Dissolved)	mg/L	1	0.0929	--	0.208	--
Beryllium (Total)	mg/L	NS	--	ND(0.005)	--	ND(0.005)
Beryllium (Dissolved)	mg/L	NS	ND(0.005)	--	ND(0.005)	--
Cadmium (Total)	mg/L	0.005	--	ND(0.005)	--	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005	ND(0.005)	--	ND(0.005)	--
Calcium (Total)	mg/L	NS	--	751	--	742
Calcium (Dissolved)	mg/L	NS	390	--	732	--
Chromium (Total)	mg/L	0.05	--	**0.116**	--	**0.154**
Chromium (Dissolved)	mg/L	0.05	0.0121	--	**0.106**	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05	--	**0.110**	--	**0.134**
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	ND(0.01) J	--	**0.0900**	--
Cobalt (Total)	mg/L	NS	--	ND(0.02)	--	ND(0.02)
Cobalt (Dissolved)	mg/L	NS	ND(0.02)	--	ND(0.02)	--
Copper (Total)	mg/L	0.2	--	ND(0.02)	--	ND(0.02)
Copper (Dissolved)	mg/L	0.2	ND(0.02)	--	ND(0.02)	--
Cyanide (Dissolved)	mg/L	0.2	ND(0.01)	--	ND(0.01)	--
Cyanide (Total)	mg/L	0.2	--	ND(0.01)	--	ND(0.01)
Iron (Total)	mg/L	0.3	--	0.133 J	--	ND(0.2)
Iron (Dissolved)	mg/L	0.3	ND(0.2)	--	ND(0.2)	--
Lead (Total)	mg/L	0.025	--	0.00631	--	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-22*	*MW-23*	*MW-23*	*MW-23*
		Sample ID:	*GW-19867-10-03-PK-004*	*GW-19867-08-03-PK-014*	*GW-19867-08-03-PK-015*	*GW-19867-10-03-PK-021*
		Sample Date:	*10/1/2003*	*8/20/2003*	*8/20/2003*	*10/22/2003*
	Units	*NYSDEC Ambient Water Quality* [a]				
Lead (Dissolved)	mg/L	0.025	ND(0.005)	--	0.00581	--
Magnesium (Total)	mg/L	NS	--	0.44 J	--	1.83
Magnesium (Dissolved)	mg/L	NS	ND(1.5)	--	ND(1.5)	--
Manganese (Total)	mg/L	0.3	--	0.00529 J	--	0.0183
Manganese (Dissolved)	mg/L	0.3	ND(0.01)	--	ND(0.01)	--
Mercury (Total)	mg/L	0.0007	--	ND(0.0004)	--	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007	ND(0.0004)	--	ND(0.0004)	--
Nickel (Total)	mg/L	0.1	--	ND(0.02)	--	ND(0.02)
Nickel (Dissolved)	mg/L	0.1	0.00176 J	--	ND(0.02)	--
Potassium (Total)	mg/L	NS	--	3.26	--	3.3
Potassium (Dissolved)	mg/L	NS	5.6	--	3.18	--
Selenium (Total)	mg/L	0.010	--	**0.0255**	--	**0.00915 J**
Selenium (Dissolved)	mg/L	0.010	ND(0.02)	--	**0.0195 J**	--
Silver (Total)	mg/L	0.050	--	ND(0.01)	--	ND(0.01)
Silver (Dissolved)	mg/L	0.050	ND(0.01)	--	ND(0.01)	--
Sodium (Total)	mg/L	20	--	**89.4**	--	**76**
Sodium (Dissolved)	mg/L	20	**83.8**	--	**88.9**	--
Thallium (Total)	mg/L	NS	--	ND(0.04)	--	0.0158 J
Thallium (Dissolved)	mg/L	NS	ND(0.02)	--	ND(0.04)	--
Vanadium (Total)	mg/L	NS	--	ND(0.02)	--	0.00687 J
Vanadium (Dissolved)	mg/L	NS	ND(0.02)	--	ND(0.02)	--
Zinc (Total)	mg/L	NS	--	ND(0.01)	--	ND(0.02)
Zinc (Dissolved)	mg/L	NS	ND(0.01)	--	ND(0.01)	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	**12.44**	**12.23**	**12.23**	**12.7**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-24*	*MW-24*	*MW-25*	*MW-25*
		Sample ID:	*GW-19867-08-03-PK-016*	*GW-19867-10-03-PK-022*	*GW-19867-08-03-PK-006*	*GW-19867-08-03-PK-007*
		Sample Date:	*8/20/2003*	*10/22/2003*	*8/18/2003*	*8/18/2003*
	Units	*NYSDEC Ambient Water Quality*[a]				
Metals						
Aluminum (Total)	mg/L	NS	2.95	2.18	0.557	--
Aluminum (Dissolved)	mg/L	NS	--	--	--	ND(0.2)
Antimony (Total)	mg/L	0.003	ND(0.01)	**0.00706 J**	ND(0.01)	--
Antimony (Dissolved)	mg/L	0.003	--	--	--	ND(0.01)
Arsenic (Total)	mg/L	0.025	0.0173 J	ND(0.025)	0.0215 J	--
Arsenic (Dissolved)	mg/L	0.025	--	--	--	0.0186 J
Barium (Total)	mg/L	1	0.836	**1.12**	0.173	--
Barium (Dissolved)	mg/L	1	--	--	--	0.164
Beryllium (Total)	mg/L	NS	ND(0.005)	ND(0.005)	ND(0.005)	--
Beryllium (Dissolved)	mg/L	NS	--	--	--	ND(0.005)
Cadmium (Total)	mg/L	0.005	ND(0.005)	ND(0.005)	ND(0.005)	--
Cadmium (Dissolved)	mg/L	0.005	--	--	--	ND(0.005)
Calcium (Total)	mg/L	NS	322	352	80.2	--
Calcium (Dissolved)	mg/L	NS	--	--	--	78.7
Chromium (Total)	mg/L	0.05	0.0285	0.00413 J	0.00431 J	--
Chromium (Dissolved)	mg/L	0.05	--	--	--	0.00249 J
Chromium VI (Hexavalent) (Total)	mg/L	0.05	0.0120	0.0150	0.0110	--
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	--	--	--	ND(0.01)
Cobalt (Total)	mg/L	NS	ND(0.02)	ND(0.02)	ND(0.02)	--
Cobalt (Dissolved)	mg/L	NS	--	--	--	ND(0.02)
Copper (Total)	mg/L	0.2	0.0165 J	ND(0.02)	ND(0.02)	--
Copper (Dissolved)	mg/L	0.2	--	--	--	ND(0.02)
Cyanide (Dissolved)	mg/L	0.2	--	--	--	--
Cyanide (Total)	mg/L	0.2	ND(0.01)	ND(0.01)	ND(0.01)	--
Iron (Total)	mg/L	0.3	ND(0.2)	ND(0.2)	**1.54**	--
Iron (Dissolved)	mg/L	0.3	--	--	--	**1.04**
Lead (Total)	mg/L	0.025	0.00539	ND(0.005)	0.015	--

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-24*	*MW-24*	*MW-25*	*MW-25*
		Sample ID:	*GW-19867-08-03-PK-016*	*GW-19867-10-03-PK-022*	*GW-19867-08-03-PK-006*	*GW-19867-08-03-PK-007*
		Sample Date:	*8/20/2003*	*10/22/2003*	*8/18/2003*	*8/18/2003*
	Units	*NYSDEC Ambient Water Quality* [a]				
Lead (Dissolved)	mg/L	0.025	--	--	--	ND(0.005)
Magnesium (Total)	mg/L	NS	0.115 J	0.0382 J	18.6	--
Magnesium (Dissolved)	mg/L	NS	--	--	--	18
Manganese (Total)	mg/L	0.3	0.00203 J	0.00239 J	**0.36**	--
Manganese (Dissolved)	mg/L	0.3	--	--	--	**0.347**
Mercury (Total)	mg/L	0.0007	ND(0.0004)	ND(0.0004)	ND(0.0004)	--
Mercury (Dissolved)	mg/L	0.0007	--	--	--	ND(0.0004)
Nickel (Total)	mg/L	0.1	0.00518 J	0.00606 J	ND(0.02)	--
Nickel (Dissolved)	mg/L	0.1	--	--	--	ND(0.02)
Potassium (Total)	mg/L	NS	12.5	12.9	4.26	--
Potassium (Dissolved)	mg/L	NS	--	--	--	4.28
Selenium (Total)	mg/L	0.010	0.00956 J	ND(0.02)	0.00777 J	--
Selenium (Dissolved)	mg/L	0.010	--	--	--	0.00995 J
Silver (Total)	mg/L	0.050	ND(0.01)	ND(0.01)	ND(0.01)	--
Silver (Dissolved)	mg/L	0.050	--	--	--	ND(0.01)
Sodium (Total)	mg/L	20	**87**	**71.5**	**71.3**	--
Sodium (Dissolved)	mg/L	20	--	--	--	**71.2**
Thallium (Total)	mg/L	NS	ND(0.02)	0.00941 J	ND(0.02)	--
Thallium (Dissolved)	mg/L	NS	--	--	--	ND(0.02)
Vanadium (Total)	mg/L	NS	0.00318 J	0.00606 J	ND(0.02)	--
Vanadium (Dissolved)	mg/L	NS	--	--	--	ND(0.02)
Zinc (Total)	mg/L	NS	ND(0.01)	0.00315 J	0.0123	--
Zinc (Dissolved)	mg/L	NS	--	--	--	ND(0.01)
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	**12.00**	**12.56**	6.76	6.76

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:	MW-25	MW-25	MW-25	MW-26
	Sample ID:	GW-19867-08-03-PK-008	GW-19867-10-03-PK-002	GW-19867-10-03-PK-007	GW-19867-08-03-PK-013
	Sample Date:	8/18/2003	10/3/2003	10/3/2003	8/20/2003
		Duplicate			
	Units	NYSDEC Ambient Water Quality [a]			
Metals					
Aluminum (Total)	mg/L	NS	ND(0.2)	0.544	--	ND(0.2)
Aluminum (Dissolved)	mg/L	NS	--	--	ND(0.2)	--
Antimony (Total)	mg/L	0.003	ND(0.01)	ND(0.01)	--	ND(0.01)
Antimony (Dissolved)	mg/L	0.003	--	--	ND(0.01)	--
Arsenic (Total)	mg/L	0.025	**0.0273**	ND(0.025)	--	0.022 J
Arsenic (Dissolved)	mg/L	0.025	--	--	ND(0.025)	--
Barium (Total)	mg/L	1	0.167	0.153	--	0.068
Barium (Dissolved)	mg/L	1	--	--	0.133	--
Beryllium (Total)	mg/L	NS	ND(0.005)	ND(0.005)	--	ND(0.005)
Beryllium (Dissolved)	mg/L	NS	--	--	ND(0.005)	--
Cadmium (Total)	mg/L	0.005	ND(0.005)	ND(0.005)	--	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005	--	--	ND(0.005)	--
Calcium (Total)	mg/L	NS	80.9	69.4	--	132
Calcium (Dissolved)	mg/L	NS	--	--	66.8	--
Chromium (Total)	mg/L	0.05	0.00356 J	0.00582 J	--	ND(0.01)
Chromium (Dissolved)	mg/L	0.05	--	--	0.00174 J	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05	0.0120	ND(0.01)	--	ND(0.01)
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	--	--	ND(0.01)	--
Cobalt (Total)	mg/L	NS	ND(0.02)	ND(0.02)	--	ND(0.02)
Cobalt (Dissolved)	mg/L	NS	--	--	ND(0.02)	--
Copper (Total)	mg/L	0.2	ND(0.02)	ND(0.02)	--	ND(0.02)
Copper (Dissolved)	mg/L	0.2	--	--	ND(0.02)	--
Cyanide (Dissolved)	mg/L	0.2	--	--	0.00397 J	--
Cyanide (Total)	mg/L	0.2	ND(0.01)	ND(0.01)	--	ND(0.01)
Iron (Total)	mg/L	0.3	**1.54**	**1.26**	**0.827**	0.128 J
Iron (Dissolved)	mg/L	0.3	--	--	--	--
Lead (Total)	mg/L	0.025	0.0121	0.0166	--	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*MW-25*	*MW-25*	*MW-25*	*MW-26*
	Sample ID:		*GW-19867-08-03-PK-008*	*GW-19867-10-03-PK-002*	*GW-19867-10-03-PK-007*	*GW-19867-08-03-PK-013*
	Sample Date:		*8/18/2003*	*10/3/2003*	*10/3/2003*	*8/20/2003*
			Duplicate			
	Units	*NYSDEC Ambient Water Quality*[a]				
Lead (Dissolved)	mg/L	0.025	--	--	ND(0.005)	--
Magnesium (Total)	mg/L	NS	18.7	13.4	--	70.1
Magnesium (Dissolved)	mg/L	NS	--	--	13	--
Manganese (Total)	mg/L	0.3	**0.366**	0.283	--	0.298
Manganese (Dissolved)	mg/L	0.3	--	--	0.275	--
Mercury (Total)	mg/L	0.0007	ND(0.0004)	ND(0.0004)	--	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007	--	--	ND(0.0004)	--
Nickel (Total)	mg/L	0.1	ND(0.02)	ND(0.02)	--	ND(0.02)
Nickel (Dissolved)	mg/L	0.1	--	--	ND(0.02)	--
Potassium (Total)	mg/L	NS	4.19	3.85	--	3.46
Potassium (Dissolved)	mg/L	NS	--	--	3.78	--
Selenium (Total)	mg/L	0.010	**0.0173 J**	0.00942 J	--	**0.0379**
Selenium (Dissolved)	mg/L	0.010	--	--	0.00725 J	--
Silver (Total)	mg/L	0.050	ND(0.01)	ND(0.01)	--	ND(0.01)
Silver (Dissolved)	mg/L	0.050	--	--	ND(0.01)	--
Sodium (Total)	mg/L	20	**71.5**	**60.6**	--	**48.4**
Sodium (Dissolved)	mg/L	20	--	--	**59.7**	--
Thallium (Total)	mg/L	NS	ND(0.02)	ND(0.02)	--	ND(0.02)
Thallium (Dissolved)	mg/L	NS	--	--	ND(0.02)	--
Vanadium (Total)	mg/L	NS	ND(0.02)	0.00332 J	--	ND(0.02)
Vanadium (Dissolved)	mg/L	NS	--	--	ND(0.02)	--
Zinc (Total)	mg/L	NS	0.0311	0.0332	--	ND(0.01)
Zinc (Dissolved)	mg/L	NS	--	--	ND(0.01)	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	6.76	7.37	7.37	6.82

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:	MW-26	MW-27	MW-27	MW-27
	Sample ID:	GW-19867-10-03-PK-019	GW-19867-08-03-PK-011	GW-19867-08-03-PK-012	GW-19867-10-03-PK-008
	Sample Date:	10/22/2003	8/18/2003	8/18/2003	10/3/2003
	Units	NYSDEC Ambient Water Quality [a]			
Metals					
Aluminum (Total)	mg/L	NS	ND(0.2)	1.53	--
Aluminum (Dissolved)	mg/L	NS	--	--	4.36
Antimony (Total)	mg/L	0.003	ND(0.01)	**0.00683 J**	--
Antimony (Dissolved)	mg/L	0.003	--	--	**0.00718 J**
Arsenic (Total)	mg/L	0.025	ND(0.025)	ND(0.025)	--
Arsenic (Dissolved)	mg/L	0.025	--	--	ND(0.025)
Barium (Total)	mg/L	1	0.08	0.167	--
Barium (Dissolved)	mg/L	1	--	--	0.168
Beryllium (Total)	mg/L	NS	ND(0.005)	ND(0.005)	--
Beryllium (Dissolved)	mg/L	NS	--	--	ND(0.005)
Cadmium (Total)	mg/L	0.005	ND(0.005)	ND(0.005)	--
Cadmium (Dissolved)	mg/L	0.005	--	--	ND(0.005)
Calcium (Total)	mg/L	NS	126	570	--
Calcium (Dissolved)	mg/L	NS	--	--	551
Chromium (Total)	mg/L	0.05	ND(0.01)	0.0297	--
Chromium (Dissolved)	mg/L	0.05	--	--	0.0254
Chromium VI (Hexavalent) (Total)	mg/L	0.05	0.00800 J	0.0120	--
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	--	--	ND(0.01)
Cobalt (Total)	mg/L	NS	ND(0.02)	0.00122 J	--
Cobalt (Dissolved)	mg/L	NS	--	--	ND(0.02)
Copper (Total)	mg/L	0.2	ND(0.02)	ND(0.02)	--
Copper (Dissolved)	mg/L	0.2	--	--	ND(0.02)
Cyanide (Dissolved)	mg/L	0.2	--	--	--
Cyanide (Total)	mg/L	0.2	ND(0.01)	ND(0.01)	--
Iron (Total)	mg/L	0.3	**2.57**	**0.392**	0.00385 J
Iron (Dissolved)	mg/L	0.3	--	--	**2.49**
Lead (Total)	mg/L	0.025	ND(0.005)	0.00672	--
					ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-26*	*MW-27*	*MW-27*	*MW-27*
			Sample ID:	*GW-19867-10-03-PK-019*	*GW-19867-08-03-PK-011*	*GW-19867-08-03-PK-012*	*GW-19867-10-03-PK-008*
			Sample Date:	*10/22/2003*	*8/18/2003*	*8/18/2003*	*10/3/2003*
	Units	*NYSDEC Ambient Water Quality*[a]					
Lead (Dissolved)	mg/L	0.025		--	--	0.00467 J	--
Magnesium (Total)	mg/L	NS		73	0.297 J	--	2.62
Magnesium (Dissolved)	mg/L	NS		--	--	ND(1.5)	--
Manganese (Total)	mg/L	0.3		**1.22**	0.0127	--	0.0695
Manganese (Dissolved)	mg/L	0.3		--	--	ND(0.01)	--
Mercury (Total)	mg/L	0.0007		ND(0.0004)	ND(0.0004)	--	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007		--	--	ND(0.0004)	--
Nickel (Total)	mg/L	0.1		ND(0.02)	0.00534 J	--	0.00682 J
Nickel (Dissolved)	mg/L	0.1		--	--	0.00468 J	--
Potassium (Total)	mg/L	NS		3.4	8.32	--	8.56
Potassium (Dissolved)	mg/L	NS		--	--	8.38	--
Selenium (Total)	mg/L	0.010		**0.0419**	ND(0.02)	--	ND(0.02)
Selenium (Dissolved)	mg/L	0.010		--	--	**0.0175 J**	--
Silver (Total)	mg/L	0.050		ND(0.01)	ND(0.01)	--	ND(0.01)
Silver (Dissolved)	mg/L	0.050		--	--	ND(0.01)	--
Sodium (Total)	mg/L	20		**52.2**	**191**	--	**184**
Sodium (Dissolved)	mg/L	20		--	--	**192**	--
Thallium (Total)	mg/L	NS		ND(0.02)	ND(0.02)	--	ND(0.02)
Thallium (Dissolved)	mg/L	NS		--	--	ND(0.02)	--
Vanadium (Total)	mg/L	NS		0.0149 J	ND(0.02)	--	0.00494 J
Vanadium (Dissolved)	mg/L	NS		--	--	ND(0.02)	--
Zinc (Total)	mg/L	NS		0.00518 J	0.0114	--	0.0296
Zinc (Dissolved)	mg/L	NS		--	--	ND(0.01)	--
General Chemistry							
pH (water)	S.U.	6.5 - 8.5		7.13	**12.04**	**12.04**	**12.57**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*MW-27*	*MW-28*	*MW-28*	*MW-103A*
	Sample ID:		*GW-19867-10-03-PK-009*	*GW-19867-08-03-PK-021*	*GW-19867-10-03-PK-016*	*GW-19867-08-03-PK-025*
	Sample Date:		*10/3/2003*	*8/28/2003*	*10/6/2003*	*8/28/2003*
	Units	*NYSDEC Ambient Water Quality*[a]				
Metals						
Aluminum (Total)	mg/L	NS	--	0.816	1.25	17.4
Aluminum (Dissolved)	mg/L	NS	0.983	--	--	--
Antimony (Total)	mg/L	0.003	--	ND(0.01)	**0.0158**	ND(0.01)
Antimony (Dissolved)	mg/L	0.003	**0.00915 J**	--	--	--
Arsenic (Total)	mg/L	0.025	--	0.0162 J	0.0187 J	**0.0262**
Arsenic (Dissolved)	mg/L	0.025	ND(0.025)	--	--	--
Barium (Total)	mg/L	1	--	0.0825	0.0986	0.199
Barium (Dissolved)	mg/L	1	0.162	--	--	--
Beryllium (Total)	mg/L	NS	--	ND(0.005)	ND(0.005)	0.000719 J
Beryllium (Dissolved)	mg/L	NS	ND(0.005)	--	--	--
Cadmium (Total)	mg/L	0.005	--	ND(0.005)	ND(0.005)	0.000891 J
Cadmium (Dissolved)	mg/L	0.005	ND(0.005)	--	--	--
Calcium (Total)	mg/L	NS	--	57.2	66.3	168
Calcium (Dissolved)	mg/L	NS	557	--	--	--
Chromium (Total)	mg/L	0.05	--	0.00401 J	ND(0.01)	0.0268
Chromium (Dissolved)	mg/L	0.05	0.0361	--	--	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05	--	ND(0.01)	ND(0.01)	ND(0.01)
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	ND(0.01)	--	--	--
Cobalt (Total)	mg/L	NS	--	0.00168	ND(0.02)	0.00906 J
Cobalt (Dissolved)	mg/L	NS	ND(0.02)	--	--	--
Copper (Total)	mg/L	0.2	--	0.00934	0.00677 J	0.029
Copper (Dissolved)	mg/L	0.2	ND(0.02)	--	--	--
Cyanide (Dissolved)	mg/L	0.2	0.00436 J	--	--	--
Cyanide (Total)	mg/L	0.2	--	ND(0.01)	ND(0.01) J	0.00211
Iron (Total)	mg/L	0.3	--	**1.29**	**6.2**	**24.8**
Iron (Dissolved)	mg/L	0.3	**0.495**	--	--	--
Lead (Total)	mg/L	0.025	--	ND(0.005)	ND(0.005)	**0.143**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:	MW-27	MW-28	MW-28	MW-103A
	Sample ID:	GW-19867-10-03-PK-009	GW-19867-08-03-PK-021	GW-19867-10-03-PK-016	GW-19867-08-03-PK-025
	Sample Date:	10/3/2003	8/28/2003	10/6/2003	8/28/2003
	Units	NYSDEC Ambient Water Quality[a]			
Lead (Dissolved)	mg/L	0.025	ND(0.005)	--	--	--
Magnesium (Total)	mg/L	NS	--	18.8	23.3	119
Magnesium (Dissolved)	mg/L	NS	ND(1.5)	--	--	--
Manganese (Total)	mg/L	0.3	--	**0.312**	**0.549**	**0.798**
Manganese (Dissolved)	mg/L	0.3	0.00316 J	--	--	--
Mercury (Total)	mg/L	0.0007	--	0.000144 J	ND(0.0004)	ND(0.0004) J
Mercury (Dissolved)	mg/L	0.0007	ND(0.0004)	--	--	--
Nickel (Total)	mg/L	0.1	--	0.00276	ND(0.02)	0.0167 J
Nickel (Dissolved)	mg/L	0.1	0.00695 J	--	--	--
Potassium (Total)	mg/L	NS	--	2.77	2.23	4.95
Potassium (Dissolved)	mg/L	NS	8.22	--	--	--
Selenium (Total)	mg/L	0.010	--	**0.0162 J**	**0.0367**	**0.0425**
Selenium (Dissolved)	mg/L	0.010	ND(0.02)	--	--	--
Silver (Total)	mg/L	0.050	--	ND(0.01)	ND(0.01)	ND(0.01)
Silver (Dissolved)	mg/L	0.050	ND(0.01)	--	--	--
Sodium (Total)	mg/L	20	--	**119**	**148**	**47.9**
Sodium (Dissolved)	mg/L	20	**185**	--	--	--
Thallium (Total)	mg/L	NS	--	ND(0.02)	ND(0.02)	ND(0.02)
Thallium (Dissolved)	mg/L	NS	ND(0.02)	--	--	--
Vanadium (Total)	mg/L	NS	--	0.00312 J	0.0145 J	0.0341
Vanadium (Dissolved)	mg/L	NS	ND(0.02)	--	--	--
Zinc (Total)	mg/L	NS	--	0.0199	0.0235	1.15
Zinc (Dissolved)	mg/L	NS	ND(0.01)	--	--	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	**12.57**	6.97	--	6.80

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-103A*	*MW-103A*	*MW-103A*	*MW-103A*
		Sample ID:	*GW-19867-08-03-PK-026*	*GW-19867-10-03-PK-013*	*GW-19867-10-03-PK-014*	*GW-19867-10-03-PK-012*
		Sample Date:	*8/28/2003*	*10/6/2003*	*10/6/2003*	*10/6/2003*
						Duplicate
	Units	*NYSDEC Ambient Water Quality* [a]				
Metals						
Aluminum (Total)	mg/L	NS	--	ND(0.2)	--	ND(0.2)
Aluminum (Dissolved)	mg/L	NS	0.088	--	ND(0.2)	--
Antimony (Total)	mg/L	0.003	--	**0.00865 J**	--	ND(0.01)
Antimony (Dissolved)	mg/L	0.003	ND(0.01)	--	**0.00817 J**	--
Arsenic (Total)	mg/L	0.025	--	0.0136 J	--	0.0104 J
Arsenic (Dissolved)	mg/L	0.025	0.0182 J	--	0.0136 J	--
Barium (Total)	mg/L	1	--	0.0708	--	0.0732
Barium (Dissolved)	mg/L	1	0.0776	--	0.0789	--
Beryllium (Total)	mg/L	NS	--	ND(0.005)	--	ND(0.005)
Beryllium (Dissolved)	mg/L	NS	ND(0.005)	--	ND(0.005)	--
Cadmium (Total)	mg/L	0.005	--	ND(0.005)	--	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005	ND(0.005)	--	ND(0.005)	--
Calcium (Total)	mg/L	NS	--	82.2	--	83.9
Calcium (Dissolved)	mg/L	NS	88.7	--	91.3	--
Chromium (Total)	mg/L	0.05	--	ND(0.01)	--	ND(0.01)
Chromium (Dissolved)	mg/L	0.05	ND(0.01)	--	ND(0.01)	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05	--	ND(0.01)	--	0.00500 J
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	ND(0.01)	--	ND(0.01)	--
Cobalt (Total)	mg/L	NS	--	ND(0.02)	--	ND(0.02)
Cobalt (Dissolved)	mg/L	NS	0.00134	--	ND(0.02)	--
Copper (Total)	mg/L	0.2	--	ND(0.02)	--	ND(0.02)
Copper (Dissolved)	mg/L	0.2	ND(0.02)	--	ND(0.02)	--
Cyanide (Dissolved)	mg/L	0.2	0.00219	--	ND(0.01) J	--
Cyanide (Total)	mg/L	0.2	--	ND(0.01) J	--	ND(0.01) J
Iron (Total)	mg/L	0.3	--	**0.807**	--	**0.762 J**
Iron (Dissolved)	mg/L	0.3	**0.656**	--	**0.544 J**	--
Lead (Total)	mg/L	0.025	--	ND(0.005)	--	ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		MW-103A	MW-103A	MW-103A	MW-103A
	Sample ID:		GW-19867-08-03-PK-026	GW-19867-10-03-PK-013	GW-19867-10-03-PK-014	GW-19867-10-03-PK-012
	Sample Date:		8/28/2003	10/6/2003	10/6/2003	10/6/2003
						Duplicate
	Units	NYSDEC Ambient Water Quality[a]				
Lead (Dissolved)	mg/L	0.025	ND(0.005)	--	ND(0.005)	--
Magnesium (Total)	mg/L	NS	--	71.3	--	71.5
Magnesium (Dissolved)	mg/L	NS	78.9	--	81.7	--
Manganese (Total)	mg/L	0.3	--	0.108	--	0.102
Manganese (Dissolved)	mg/L	0.3	0.107	--	0.0889	--
Mercury (Total)	mg/L	0.0007	--	ND(0.0004)	--	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007	ND(0.0004) J	--	ND(0.0004)	--
Nickel (Total)	mg/L	0.1	--	ND(0.02)	--	ND(0.02)
Nickel (Dissolved)	mg/L	0.1	ND(0.02)	--	ND(0.02)	--
Potassium (Total)	mg/L	NS	--	0.896 J	--	0.946 J
Potassium (Dissolved)	mg/L	NS	0.852 J	--	0.98 J	--
Selenium (Total)	mg/L	0.010	--	**0.0468**	--	**0.047**
Selenium (Dissolved)	mg/L	0.010	**0.0281**	--	**0.0547**	--
Silver (Total)	mg/L	0.050	--	ND(0.01)	--	ND(0.01)
Silver (Dissolved)	mg/L	0.050	ND(0.01)	--	ND(0.01)	--
Sodium (Total)	mg/L	20	--	**49.3**	--	**50.4**
Sodium (Dissolved)	mg/L	20	**48**	--	**49.5**	--
Thallium (Total)	mg/L	NS	--	ND(0.02)	--	ND(0.02)
Thallium (Dissolved)	mg/L	NS	ND(0.02)	--	ND(0.02)	--
Vanadium (Total)	mg/L	NS	--	0.012 J	--	0.00804 J
Vanadium (Dissolved)	mg/L	NS	ND(0.02)	--	0.0131 J	--
Zinc (Total)	mg/L	NS	--	ND(0.01)	--	ND(0.01)
Zinc (Dissolved)	mg/L	NS	0.0113	--	ND(0.01)	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	6.80	7.11	7.11	7.11

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*MW-104A*	*MW-104A*	*MW-104A*	*MW-104A*
	Sample ID:		*GW-19867-08-03-PK-017*	*GW-19867-08-03-PK-018*	*GW-19867-10-03-PK-010*	*GW-19867-10-03-PK-011*
	Sample Date:		*8/25/2003*	*8/25/2003*	*10/3/2003*	*10/3/2003*
	Units	*NYSDEC Ambient Water Quality*[a]				
Metals						
Aluminum (Total)	mg/L	NS	–	0.0601	0.354	–
Aluminum (Dissolved)	mg/L	NS	0.0384	–	–	ND(0.2)
Antimony (Total)	mg/L	0.003	–	ND(0.01)	ND(0.01)	–
Antimony (Dissolved)	mg/L	0.003	ND(0.01)	–	–	ND(0.01)
Arsenic (Total)	mg/L	0.025	–	0.0127	ND(0.025)	–
Arsenic (Dissolved)	mg/L	0.025	0.0157	–	–	ND(0.025)
Barium (Total)	mg/L	1	–	0.133	0.139	–
Barium (Dissolved)	mg/L	1	0.127	–	–	0.142
Beryllium (Total)	mg/L	NS	–	ND(0.005)	ND(0.005)	–
Beryllium (Dissolved)	mg/L	NS	ND(0.005)	–	–	ND(0.005)
Cadmium (Total)	mg/L	0.005	–	ND(0.005)	ND(0.005)	–
Cadmium (Dissolved)	mg/L	0.005	ND(0.005)	–	–	ND(0.005)
Calcium (Total)	mg/L	NS	–	109	97.9	–
Calcium (Dissolved)	mg/L	NS	98.4	–	–	104
Chromium (Total)	mg/L	0.05	–	ND(0.01)	0.00116 J	–
Chromium (Dissolved)	mg/L	0.05	0.000817	–	–	ND(0.01)
Chromium VI (Hexavalent) (Total)	mg/L	0.05	–	ND(0.01)	ND(0.01)	–
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	ND(0.01)	–	–	ND(0.01)
Cobalt (Total)	mg/L	NS	–	ND(0.02)	ND(0.02)	–
Cobalt (Dissolved)	mg/L	NS	ND(0.02)	–	–	ND(0.02)
Copper (Total)	mg/L	0.2	–	0.00706	ND(0.02)	–
Copper (Dissolved)	mg/L	0.2	0.00344	–	–	ND(0.02)
Cyanide (Dissolved)	mg/L	0.2	ND(0.01)	–	–	ND(0.01)
Cyanide (Total)	mg/L	0.2	–	ND(0.01)	0.00336 J	–
Iron (Total)	mg/L	0.3	–	**3.78**	**3.97**	–
Iron (Dissolved)	mg/L	0.3	**2.92**	–	–	**3.92**
Lead (Total)	mg/L	0.025	–	ND(0.005)	0.00684	–

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:	MW-104A	MW-104A	MW-104A	MW-104A
	Sample ID:	GW-19867-08-03-PK-017	GW-19867-08-03-PK-018	GW-19867-10-03-PK-010	GW-19867-10-03-PK-011
	Sample Date:	8/25/2003	8/25/2003	10/3/2003	10/3/2003
	Units	NYSDEC Ambient Water Quality[a]			
Lead (Dissolved)	mg/L	0.025	ND(0.005)	--	--	ND(0.005)
Magnesium (Total)	mg/L	NS	--	51.6	48.2	--
Magnesium (Dissolved)	mg/L	NS	43.5	--	--	53.7
Manganese (Total)	mg/L	0.3	--	**0.455**	**0.587**	--
Manganese (Dissolved)	mg/L	0.3	**0.858**	--	--	**0.469**
Mercury (Total)	mg/L	0.0007	--	ND(0.0004)	ND(0.0004)	--
Mercury (Dissolved)	mg/L	0.0007	ND(0.0004)	--	--	ND(0.0004)
Nickel (Total)	mg/L	0.1	--	ND(0.02)	0.00262 J	--
Nickel (Dissolved)	mg/L	0.1	ND(0.02)	--	--	0.00232 J
Potassium (Total)	mg/L	NS	--	1.23	1.11 J	--
Potassium (Dissolved)	mg/L	NS	1.1	--	--	1 J
Selenium (Total)	mg/L	0.010	--	ND(0.02)	**0.0228**	--
Selenium (Dissolved)	mg/L	0.010	ND(0.02)	--	--	**0.0223**
Silver (Total)	mg/L	0.050	--	ND(0.01)	ND(0.01)	--
Silver (Dissolved)	mg/L	0.050	ND(0.01)	--	--	ND(0.01)
Sodium (Total)	mg/L	20	--	**139**	**137**	--
Sodium (Dissolved)	mg/L	20	**139**	--	--	**136**
Thallium (Total)	mg/L	NS	--	ND(0.02)	ND(0.02)	--
Thallium (Dissolved)	mg/L	NS	ND(0.02)	--	--	ND(0.02)
Vanadium (Total)	mg/L	NS	--	ND(0.02)	0.00521 J	--
Vanadium (Dissolved)	mg/L	NS	ND(0.02)	--	--	0.00378 J
Zinc (Total)	mg/L	NS	--	0.0284	0.0403	--
Zinc (Dissolved)	mg/L	NS	0.0263	--	--	ND(0.01)
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	6.65	6.65	**12.02**	**12.02**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*MW-105A*	*MW-105A*	*MW-106A*
			Sample ID:	*GW-19867-08-03-PK-020*	*GW-19867-10-03-PK-020*	*GW-19867-08-03-PK-027*
			Sample Date:	*8/28/2003*	*10/22/2003*	*8/28/2003*
	Units	*NYSDEC Ambient Water Quality*[a]				
Metals						
Aluminum (Total)	mg/L	NS		1.89	ND(0.2)	16.1
Aluminum (Dissolved)	mg/L	NS		--	--	--
Antimony (Total)	mg/L	0.003		ND(0.01)	ND(0.01)	ND(0.01)
Antimony (Dissolved)	mg/L	0.003		--	--	--
Arsenic (Total)	mg/L	0.025		0.0159 J	ND(0.025)	**0.0251**
Arsenic (Dissolved)	mg/L	0.025		--	--	--
Barium (Total)	mg/L	1		0.125	0.107	0.121
Barium (Dissolved)	mg/L	1		--	--	--
Beryllium (Total)	mg/L	NS		ND(0.005)	ND(0.005)	0.000608 J
Beryllium (Dissolved)	mg/L	NS		--	--	--
Cadmium (Total)	mg/L	0.005		ND(0.005)	ND(0.005)	ND(0.005)
Cadmium (Dissolved)	mg/L	0.005		--	--	--
Calcium (Total)	mg/L	NS		120	108	172
Calcium (Dissolved)	mg/L	NS		--	--	--
Chromium (Total)	mg/L	0.05		0.0438	0.00347 J	0.0239
Chromium (Dissolved)	mg/L	0.05		--	--	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05		**0.0590**	ND(0.01)	ND(0.01)
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05		--	--	--
Cobalt (Total)	mg/L	NS		0.00222	ND(0.02)	0.00608 J
Cobalt (Dissolved)	mg/L	NS		--	--	--
Copper (Total)	mg/L	0.2		0.0172	ND(0.02)	0.0186
Copper (Dissolved)	mg/L	0.2		--	--	--
Cyanide (Dissolved)	mg/L	0.2		--	--	--
Cyanide (Total)	mg/L	0.2		ND(0.01)	ND(0.01)	**0.00195**
Iron (Total)	mg/L	0.3		**2.21**	ND(0.2)	**20.5**
Iron (Dissolved)	mg/L	0.3		--	--	--
Lead (Total)	mg/L	0.025		0.0088	0.00551	**0.0261**

			Sample Location:	*MW-106A*
			Sample ID:	*GW-19867-10-03-PK-023*
			Sample Date:	*10/22/2003*
Metals				
Aluminum (Total)	mg/L	NS		1.06
Aluminum (Dissolved)	mg/L	NS		--
Antimony (Total)	mg/L	0.003		**0.00828 J**
Antimony (Dissolved)	mg/L	0.003		--
Arsenic (Total)	mg/L	0.025		0.0119 J
Arsenic (Dissolved)	mg/L	0.025		--
Barium (Total)	mg/L	1		0.0425
Barium (Dissolved)	mg/L	1		--
Beryllium (Total)	mg/L	NS		ND(0.005)
Beryllium (Dissolved)	mg/L	NS		--
Cadmium (Total)	mg/L	0.005		ND(0.005)
Cadmium (Dissolved)	mg/L	0.005		--
Calcium (Total)	mg/L	NS		104
Calcium (Dissolved)	mg/L	NS		--
Chromium (Total)	mg/L	0.05		0.00148 J
Chromium (Dissolved)	mg/L	0.05		--
Chromium VI (Hexavalent) (Total)	mg/L	0.05		0.0290
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05		--
Cobalt (Total)	mg/L	NS		ND(0.02)
Cobalt (Dissolved)	mg/L	NS		--
Copper (Total)	mg/L	0.2		ND(0.02)
Copper (Dissolved)	mg/L	0.2		--
Cyanide (Dissolved)	mg/L	0.2		--
Cyanide (Total)	mg/L	0.2		ND(0.01)
Iron (Total)	mg/L	0.3		**0.843**
Iron (Dissolved)	mg/L	0.3		--
Lead (Total)	mg/L	0.025		ND(0.005)

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		MW-105A	MW-105A	MW-106A	MW-106A
	Sample ID:		GW-19867-08-03-PK-020	GW-19867-10-03-PK-020	GW-19867-08-03-PK-027	GW-19867-10-03-PK-023
	Sample Date:		8/28/2003	10/22/2003	8/28/2003	10/22/2003
	Units	NYSDEC Ambient Water Quality[a]				
Lead (Dissolved)	mg/L	0.025	--	--	--	--
Magnesium (Total)	mg/L	NS	66.7	60.1	78.6	33.5
Magnesium (Dissolved)	mg/L	NS	--	--	--	--
Manganese (Total)	mg/L	0.3	**0.675**	**0.651**	**0.473**	0.0456
Manganese (Dissolved)	mg/L	0.3	--	--	--	--
Mercury (Total)	mg/L	0.0007	ND(0.0004) J	ND(0.0004)	ND(0.0004) J	ND(0.0004)
Mercury (Dissolved)	mg/L	0.0007	--	--	--	--
Nickel (Total)	mg/L	0.1	0.00887 J	0.00447 J	0.0129 J	ND(0.02)
Nickel (Dissolved)	mg/L	0.1	--	--	--	--
Potassium (Total)	mg/L	NS	3.41	2.89	4.31	1.81
Potassium (Dissolved)	mg/L	NS	--	--	--	--
Selenium (Total)	mg/L	0.010	**0.0303**	**0.0392**	**0.0411**	**0.0259**
Selenium (Dissolved)	mg/L	0.010	--	--	--	--
Silver (Total)	mg/L	0.050	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Silver (Dissolved)	mg/L	0.050	--	--	--	--
Sodium (Total)	mg/L	20	**117**	**118**	**7.93**	7.18
Sodium (Dissolved)	mg/L	20	--	--	--	--
Thallium (Total)	mg/L	NS	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
Thallium (Dissolved)	mg/L	NS	--	--	--	--
Vanadium (Total)	mg/L	NS	0.00345 J	0.0161 J	0.0289	0.0137 J
Vanadium (Dissolved)	mg/L	NS	--	--	--	--
Zinc (Total)	mg/L	NS	0.357	0.237	0.829	0.059
Zinc (Dissolved)	mg/L	NS	--	--	--	--
General Chemistry						
pH (water)	S.U.	6.5 - 8.5	6.70	6.93	6.76	7.29

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*MW-107A*
	Sample ID:		*GW-19867-08-03-PK-028*
	Sample Date:		*8/28/2003*
	Units	*NYSDEC Ambient Water Quality*[a]	
Metals			
Aluminum (Total)	mg/L	NS	28.4
Aluminum (Dissolved)	mg/L	NS	--
Antimony (Total)	mg/L	0.003	ND(0.01)
Antimony (Dissolved)	mg/L	0.003	--
Arsenic (Total)	mg/L	0.025	0.0249 J
Arsenic (Dissolved)	mg/L	0.025	--
Barium (Total)	mg/L	1	0.345
Barium (Dissolved)	mg/L	1	--
Beryllium (Total)	mg/L	NS	0.00112 J
Beryllium (Dissolved)	mg/L	NS	--
Cadmium (Total)	mg/L	0.005	0.00177 J
Cadmium (Dissolved)	mg/L	0.005	--
Calcium (Total)	mg/L	NS	254
Calcium (Dissolved)	mg/L	NS	--
Chromium (Total)	mg/L	0.05	0.0414
Chromium (Dissolved)	mg/L	0.05	--
Chromium VI (Hexavalent) (Total)	mg/L	0.05	ND(0.01)
Chromium VI (Hexavalent) (Dissolved)	mg/L	0.05	--
Cobalt (Total)	mg/L	NS	0.0177 J
Cobalt (Dissolved)	mg/L	NS	--
Copper (Total)	mg/L	0.2	0.0521
Copper (Dissolved)	mg/L	0.2	--
Cyanide (Dissolved)	mg/L	0.2	--
Cyanide (Total)	mg/L	0.2	ND(0.01)
Iron (Total)	mg/L	0.3	**40.9**
Iron (Dissolved)	mg/L	0.3	--
Lead (Total)	mg/L	0.025	**0.23**

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*MW-107A*
		Sample ID:	*GW-19867-08-03-PK-028*
		Sample Date:	*8/28/2003*
	Units	*NYSDEC Ambient Water Quality*[a]	
Lead (Dissolved)	mg/L	0.025	--
Magnesium (Total)	mg/L	NS	157
Magnesium (Dissolved)	mg/L	NS	--
Manganese (Total)	mg/L	0.3	**1.8**
Manganese (Dissolved)	mg/L	0.3	--
Mercury (Total)	mg/L	0.0007	ND(0.0004) J
Mercury (Dissolved)	mg/L	0.0007	--
Nickel (Total)	mg/L	0.1	0.03
Nickel (Dissolved)	mg/L	0.1	--
Potassium (Total)	mg/L	NS	7.85
Potassium (Dissolved)	mg/L	NS	--
Selenium (Total)	mg/L	0.010	**0.0503**
Selenium (Dissolved)	mg/L	0.010	--
Silver (Total)	mg/L	0.050	ND(0.01)
Silver (Dissolved)	mg/L	0.050	--
Sodium (Total)	mg/L	20	**28.6**
Sodium (Dissolved)	mg/L	20	--
Thallium (Total)	mg/L	NS	ND(0.02)
Thallium (Dissolved)	mg/L	NS	--
Vanadium (Total)	mg/L	NS	0.0574
Vanadium (Dissolved)	mg/L	NS	--
Zinc (Total)	mg/L	NS	1.05
Zinc (Dissolved)	mg/L	NS	--
General Chemistry			
pH (water)	S.U.	6.5 - 8.5	--

TABLE 2.4

SHALLOW GROUNDWATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

Notes:

ND ( ) - Non detect at associated value.
J - Estimated Value
NS - No Standard
-- - Not Applicable.
a - New York State Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Source of Drinking Water (Groundwater), June 1998.

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SS-10*	*SS-11*	*SS-12*	*SS-13*	*SS-14*
				Sample ID:	*SS-19867-0703-PK-027*	*SS-19867-0703-PK-014*	*SS-19867-0703-PK-026*	*SS-19867-0703-PK-029*	*SS-19867-0703-PK-030*
				Sample Date:	*7/21/2003*	*7/18/2003*	*7/21/2003*	*7/21/2003*	*7/21/2003*
		Eastern USA Background	*TAGM*[a]						
Metals	***Units***	*Concentration*	*Values*						
Aluminum	mg/kg	33000	SB	13000	14200	14700	16500	14900
Antimony	mg/kg	NS	SB	ND (0.926) J	R	ND (0.962) J	ND (1.03) J	ND (0.962) J
Arsenic	mg/kg	3 - 12	7.5 or SB	4.86	5.59	3.04	4.41	4.44
Barium	mg/kg	15 - 600	300 or SB	99.8 J	83.1	81.4 J	107 J	104 J
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.468**	**0.440 J**	**0.439 J**	**0.615**	**0.569**
Cadmium	mg/kg	0.1 -1.0	1 or SB	0.427 J	0.114 J	0.239 J	0.276 J	0.235 J
Calcium	mg/kg	130 - 35000	SB	6370	3170	10900	4030	6470
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	**60.1 J**	**70.5**	**85.5 J**	35.7 J	36.1 J
Chromium VI (Hexavalent)	mg/kg	NS	NS	1.4 J	ND (6.7) J	ND (6.6)	ND (5.1)	ND (4.7)
Cobalt	mg/kg	2.5 or 60	30 or SB	5.31	5.86	4.08	7.99	8.05
Copper	mg/kg	1.0 - 50	25 or SB	**29.2**	**71.2**	**25.1**	20.4	18.4
Cyanide (total)	mg/kg		NS	0.311 J	ND (0.626)	0.368 J	ND (0.635)	0.273 J
Iron	mg/kg	2000 - 550000	2000 or SB	**15100**	**17800**	**11000**	**20800**	**19800**
Lead	mg/kg	NS	SB	70.8	50.9	35.9	37.2	25.7
Magnesium	mg/kg	100 - 5000	SB	4010	3030	2780	4890	5440
Manganese	mg/kg	50 - 5000	SB	239	270	134	663	527
Mercury	mg/kg	0.001 - 0.2	0.1	**0.162**	0.100	**0.296**	**0.114**	0.0802
Nickel	mg/kg	0.5 - 25	13 or SB	**23.8**	**26.8**	**23.0**	**23.4**	**21.0**
Potassium	mg/kg	8500 - 43000	SB	1670	1260	2200	2360	2380
Selenium	mg/kg	0.1 - 3.9	2 or SB	ND (23.1)	ND (1.37)	ND (0.962)	ND (2.36)	ND (2.40)
Silver	mg/kg	NS	SB	0.182 J	0.285 J	0.147 J	0.221 J	0.151 J
Sodium	mg/kg	6000 - 8000	SB	ND (92.6)	ND (137)	ND (96.2)	ND (94.3)	ND (96.2)
Thallium	mg/kg	NS	SB	0.762 J	1.21 J	0.715 J	0.486 J	0.603 J
Vanadium	mg/kg	1.0 - 300	150 or SB	26.0	35.3 J	22.5	31.9	30.5
Zinc	mg/kg	9.0 - 50.0	20 or SB	**109**	**84.8**	**80.2**	**515**	**121**
General Chemistry									
pH (soil)	S.U.		NS	7.4	6.7 J	7.0	7.4	7.4

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SS-15*	*SS-16*	*SS-16*	*SS-17*	*SS-18*
				Sample ID:	*SS-19867-0703-PK-013*	*SS-19867-0703-PK-024*	*SS-19867-0703-PK-025*	*SS-19867-0703-PK-031*	*SS-19867-0703-PK-028*
				Sample Date:	*7/18/2003*	*7/18/2003*	*7/18/2003*	*7/21/2003*	*7/21/2003*
							Duplicate		
		Eastern USA Background	*TAGM*[a]						
Metals	***Units***	*Concentration*	*Values*						
Aluminum	mg/kg	33000	SB		16100	11700	13400	16700	15900
Antimony	mg/kg	NS	SB		R	ND (0.980) J	ND (2.12)	ND (0.997) J	ND (0.943) J
Arsenic	mg/kg	3 - 12	7.5 or SB		11.7	37.8	45.3	5.44	4.16
Barium	mg/kg	15 - 600	300 or SB		209	215 J	278	118 J	94.2 J
Beryllium	mg/kg	0 - 1.75	0.16 or SB		**0.301 J**	**0.347 J**	**0.706**	**0.665**	**0.578**
Cadmium	mg/kg	0.1 -1.0	1 or SB		ND (1.67)	ND (0.490)	ND (0.519)	0.386 J	0.313 J
Calcium	mg/kg	130 - 35000	SB		193000	80800	89800	2940	4210
Chromium Total	mg/kg	1.5 - 40	50[b] or SB		**5140**	**997 J**	**1260**	**57.8 J**	29.6 J
Chromium VI (Hexavalent)	mg/kg	NS	NS		5.6 J	ND (4.7)	ND (4.7)	ND (5.0)	ND (5.0)
Cobalt	mg/kg	2.5 or 60	30 or SB		19.8	14.4	26.8	12.2	8.05
Copper	mg/kg	1.0 - 50	25 or SB		**97.2**	**60.9**	**76.4**	20.6	17.9
Cyanide (total)	mg/kg		NS		0.302 J	0.303 J	0.176 J	0.421 J	ND (0.535) J
Iron	mg/kg	2000 - 550000	2000 or SB		**23100**	**24400**	**25200**	**28300**	**20500**
Lead	mg/kg	NS	SB		86.3	75.0	92.0	26.8	22.0
Magnesium	mg/kg	100 - 5000	SB		21300	15900	17700	4120	4360
Manganese	mg/kg	50 - 5000	SB		8990	1470	1610	808	514
Mercury	mg/kg	0.001 - 0.2	0.1		0.0413	**0.295**	**0.266**	0.0836	0.0738
Nickel	mg/kg	0.5 - 25	13 or SB		**637**	**443**	555	**25.7**	**21.2**
Potassium	mg/kg	8500 - 43000	SB		460	1140	1380	2340	2560
Selenium	mg/kg	0.1 - 3.9	2 or SB		**26.3**	**6.33**	**12.0**	ND (4.63)	ND (0.943)
Silver	mg/kg	NS	SB		4.38	ND (0.980)	0.428 J	0.173 J	ND (0.943)
Sodium	mg/kg	6000 - 8000	SB		ND (333)	ND (98.0)	ND (132)	ND (92.6)	ND (94.3)
Thallium	mg/kg	NS	SB		2.04 J	ND (0.980)	0.792 J	0.922 J	0.511 J
Vanadium	mg/kg	1.0 - 300	150 or SB		**191 J**	69.3	81.8	37.5	31.3
Zinc	mg/kg	9.0 - 50.0	20 or SB		**170**	**133**	**154**	**114**	**93.6**
General Chemistry									
pH (soil)	S.U.		NS		8.2 J	7.5 J	7.7 J	7.0	7.5

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SS-19*	*SS-20*	*SS-21*	*SS-22*	*SS-23*
				Sample ID:	*SS-19867-0703-PK-032*	*SS-19867-0703-PK-023*	*SS-19867-0703-PK-022*	*SS-19867-0703-PK-012*	*SS-19867-0703-PK-010*
				Sample Date:	*7/21/2003*	*7/18/2003*	*7/18/2003*	*7/18/2003*	*7/18/2003*
		Eastern USA Background	*TAGM*[a]						
Metals	***Units***	*Concentration*	*Values*						
Aluminum	mg/kg	33000	SB	15800	20800	20900	21800	21000
Antimony	mg/kg	NS	SB	ND (0.909) J	ND (2.20)	ND (3.03)	R	R
Arsenic	mg/kg	3 - 12	7.5 or SB	4.91	4.04	7.53	2.53	ND (2.06)
Barium	mg/kg	15 - 600	300 or SB	97.5 J	170	133	120	175
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.596**	ND (0.550)	**0.868**	ND (0.629)	ND (0.560)
Cadmium	mg/kg	0.1 -1.0	1 or SB	0.311 J	ND (0.550)	0.259 J	ND (0.629)	ND (0.560)
Calcium	mg/kg	130 - 35000	SB	2830	193000	3620	212000	215000
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	44.5 J	**6780**	46.6	**7540**	**10300**
Chromium VI (Hexavalent)	mg/kg	NS	NS	ND (4.9)	8.4	1.6 J	15 J	16 J
Cobalt	mg/kg	2.5 or 60	30 or SB	10.2	**31.7**	14.0	**30.2**	**34.1**
Copper	mg/kg	1.0 - 50	25 or SB	18.1	**72.1**	20.2	**92.3**	**83.8**
Cyanide (total)	mg/kg		NS	0.255 J	ND (0.587) J	0.193 J	0.257 J	ND (0.536)
Iron	mg/kg	2000 - 550000	2000 or SB	**22200**	**22300**	**29300**	**21300**	**21800**
Lead	mg/kg	NS	SB	25.4	44.9	22.3	32.2	42.6
Magnesium	mg/kg	100 - 5000	SB	4020	29900	5050	20300	24700
Manganese	mg/kg	50 - 5000	SB	657	3050	831	3510	4000
Mercury	mg/kg	0.001 - 0.2	0.1	0.0560	0.0241 J	0.0609	0.0469	0.0380
Nickel	mg/kg	0.5 - 25	13 or SB	**22.9**	**779**	**25.7**	**1210**	**1150**
Potassium	mg/kg	8500 - 43000	SB	2140	538	2570	436	336
Selenium	mg/kg	0.1 - 3.9	2 or SB	ND (2.27)	**22.9**	ND (1.19)	**20.3**	**21.4**
Silver	mg/kg	NS	SB	ND (0.909)	1.23	0.451 J	1.44	1.88
Sodium	mg/kg	6000 - 8000	SB	ND (90.9)	ND (110)	ND (119)	ND (126)	209
Thallium	mg/kg	NS	SB	ND (0.909)	ND (1.10)	1.60	31.2	ND (1.12)
Vanadium	mg/kg	1.0 - 300	150 or SB	35.5	**263**	42.9	**202 J**	**227 J**
Zinc	mg/kg	9.0 - 50.0	20 or SB	**94.1**	**181**	**118**	**174**	**118**
General Chemistry									
pH (soil)	S.U.		NS	7.2	7.8 J	7.2 J	8.3 J	7.7 J

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SS-24*	*SS-25*	*SS-26*	*SS-27*	*SS-28*
				Sample ID:	*SS-19867-0703-PK-011*	*SS-19867-0703-PK-033*	*SS-19867-0703-PK-021*	*SS-19867-0703-PK-009*	*SS-19867-0703-PK-020*
				Sample Date:	*7/18/2003*	*7/21/2003*	*7/18/2003*	*7/18/2003*	*7/18/2003*
		Eastern USA Background	*TAGM*[a]						
Metals	***Units***	*Concentration*	*Values*						
Aluminum	mg/kg	33000	SB	16300	18500	18000	13400	18700
Antimony	mg/kg	NS	SB	R	ND (0.893) J	ND (1.26)	R	R
Arsenic	mg/kg	3 - 12	7.5 or SB	ND (1.97)	4.59	4.06	ND (1.05)	6.36
Barium	mg/kg	15 - 600	300 or SB	675	118 J	133	88.3	126
Beryllium	mg/kg	0 - 1.75	0.16 or SB	**0.632**	**0.729**	**0.602 J**	**0.222 J**	**0.802**
Cadmium	mg/kg	0.1 -1.0	1 or SB	ND (0.536)	0.262 J	ND (0.631)	ND (0.525)	0.304 J
Calcium	mg/kg	130 - 35000	SB	121000	3870	74200	148000	3690
Chromium Total	mg/kg	1.5 - 40	50[b] or SB	**807**	45.5 J	**326**	**1740**	**58.7**
Chromium VI (Hexavalent)	mg/kg	NS	NS	2.0 J	ND (4.8)	1.8 J	10 J	ND (4.9) J
Cobalt	mg/kg	2.5 or 60	30 or SB	7.44	10.6	8.54	3.79	12.5
Copper	mg/kg	1.0 - 50	25 or SB	**36.4**	19.4	23.0	**29.4**	24.0
Cyanide (total)	mg/kg		NS	0.201 J	0.254 J	ND (0.604) J	ND (0.561)	0.359 J
Iron	mg/kg	2000 - 550000	2000 or SB	**15100**	**25100**	**18600**	**7630**	**25800**
Lead	mg/kg	NS	SB	26.8	21.4	47.1	28.1	31.2
Magnesium	mg/kg	100 - 5000	SB	26100	4940	16900	56200	4820
Manganese	mg/kg	50 - 5000	SB	2050	649	594	615	863
Mercury	mg/kg	0.001 - 0.2	0.1	0.0218 J	0.0555	0.0298 J	0.0115 J	0.0800
Nickel	mg/kg	0.5 - 25	13 or SB	**86.3**	**23.4**	**25.0**	**64.4**	**31.3**
Potassium	mg/kg	8500 - 43000	SB	1850	2450	2620	602	2390
Selenium	mg/kg	0.1 - 3.9	2 or SB	**6.16**	ND (2.68)	**5.06**	**3.98**	ND (1.01)
Silver	mg/kg	NS	SB	0.414 J	ND (0.893)	0.379 J	0.383 J	0.429 J
Sodium	mg/kg	6000 - 8000	SB	ND (144)	ND (89.3)	ND (150)	ND (152)	ND (101)
Thallium	mg/kg	NS	SB	ND (1.07)	0.587 J	ND (1.26)	17.7	1.46
Vanadium	mg/kg	1.0 - 300	150 or SB	44.5 J	38.5	36.5	42.9 J	40.4 J
Zinc	mg/kg	9.0 - 50.0	20 or SB	**129**	**87.8**	**418**	**103**	**138**
General Chemistry								
pH (soil)	S.U.		NS	8.0 J	7.5	7.2 J	8.8 J	6.5 J

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SS-29*	*SS-30*	*SS-31*	*SS-32*	*SS-33*
				Sample ID:	*SS-19867-0703-PK-017*	*SS-19867-0703-PK-008*	*SS-19867-0703-PK-004*	*SS-19867-0703-PK-007*	*SS-19867-0703-PK-018*
				Sample Date:	*7/18/2003*	*7/18/2003*	*7/18/2003*	*7/18/2003*	*7/18/2003*
	Units	*Eastern USA Background Concentration*	*TAGM[a] Values*						
Metals									
Aluminum	mg/kg	33000	SB		31900	12800	12800	19000	18800
Antimony	mg/kg	NS	SB		R	R	R	R	R
Arsenic	mg/kg	3 - 12	7.5 or SB		16.6	5.09	5.05	7.52	7.11
Barium	mg/kg	15 - 600	300 or SB		102	192	116	164	141
Beryllium	mg/kg	0 - 1.75	0.16 or SB		**0.726**	**0.186 J**	ND (0.613)	**0.849**	**0.840**
Cadmium	mg/kg	0.1 -1.0	1 or SB		0.213 J	ND (0.630)	ND (0.613)	0.295 J	0.354 J
Calcium	mg/kg	130 - 35000	SB		16100	157000	141000	31500	3370
Chromium Total	mg/kg	1.5 - 40	50[b] or SB		46.7	**2550**	**3130**	**278**	**64.5**
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (6.0) J	3.2 J	4.3 J	ND (4.8) J	ND (4.9) J
Cobalt	mg/kg	2.5 or 60	30 or SB		11.1	**33.9**	17.0	13.1	13.0
Copper	mg/kg	1.0 - 50	25 or SB		**37.5**	**95.6**	**80.7**	**29.1**	**25.3**
Cyanide (total)	mg/kg		NS		0.398 J	0.229 J	0.289 J	0.309 J	0.334 J
Iron	mg/kg	2000 - 550000	2000 or SB		**23800**	**26100**	**17800**	**27300**	**26900**
Lead	mg/kg	NS	SB		26.2	40.4	72.2	38.5	30.1
Magnesium	mg/kg	100 - 5000	SB		8840	21400	52700	11300	4950
Manganese	mg/kg	50 - 5000	SB		620	2900	1930	846	943
Mercury	mg/kg	0.001 - 0.2	0.1		0.0849	0.0422	0.0589	0.0696	0.0666
Nickel	mg/kg	0.5 - 25	13 or SB		**31.4**	**1200**	**1570**	**36.9**	**32.9**
Potassium	mg/kg	8500 - 43000	SB		2500	892	611	2730	2540
Selenium	mg/kg	0.1 - 3.9	2 or SB		0.998 J	**14.3**	**8.96**	2.00	1.17 J
Silver	mg/kg	NS	SB		0.285 J	0.768 J	0.843 J	0.484 J	0.490 J
Sodium	mg/kg	6000 - 8000	SB		ND (108)	519	ND (123)	ND (126)	ND (121)
Thallium	mg/kg	NS	SB		1.37	ND (1.26)	ND (1.23)	1.81	1.66
Vanadium	mg/kg	1.0 - 300	150 or SB		33.8 J	86.6 J	82.2 J	40.7 J	41.3 J
Zinc	mg/kg	9.0 - 50.0	20 or SB		**126**	**111**	**130**	**289**	**132**
General Chemistry									
pH (soil)	S.U.		NS		7.7 J	8.4 J	8.0 J	7.8 J	7.3 J

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SS-34*	*SS-35*	*SS-36*	*SS-37*	*SS-37*
				Sample ID:	*SS-19867-0703-PK-019*	*SS-19867-0703-PK-016*	*SS-19867-0703-PK-015*	*SS-19867-0703-PK-005*	*SS-19867-0703-PK-006*
				Sample Date:	*7/18/2003*	*7/18/2003*	*7/18/2003*	*7/18/2003*	*7/18/2003*
									Duplicate
Metals	*Units*	*Eastern USA Background Concentration*	*TAGM[a] Values*						
Aluminum	mg/kg	33000	SB		17700	19800	29700	16000	16500
Antimony	mg/kg	NS	SB		R	R	R	R	R
Arsenic	mg/kg	3 - 12	7.5 or SB		6.25	6.89	14.0	ND (1.15)	ND (1.22)
Barium	mg/kg	15 - 600	300 or SB		117	126	91.8	90.8	88.4
Beryllium	mg/kg	0 - 1.75	0.16 or SB		**0.784**	**0.833**	**0.675**	**0.332 J**	**0.339 J**
Cadmium	mg/kg	0.1 -1.0	1 or SB		0.312 J	0.160 J	0.0696 J	ND (0.577)	ND (0.609)
Calcium	mg/kg	130 - 35000	SB		6470	13800	23700	147000	145000
Chromium Total	mg/kg	1.5 - 40	50[b] or SB		41.4	**101**	40.8	**846**	**825**
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (4.2) J	ND (5.5) J	ND (5.3) J	ND (5.6) J	2.0 J
Cobalt	mg/kg	2.5 or 60	30 or SB		11.3	12.5	10.1	4.96	4.32
Copper	mg/kg	1.0 - 50	25 or SB		23.3	23.2	**32.5**	19.0	17.8
Cyanide (total)	mg/kg		NS		ND (0.536) J	0.323 J	0.258 J	0.227 J	0.299 J
Iron	mg/kg	2000 - 550000	2000 or SB		**24500**	**27000**	**22000**	**10400**	**10400**
Lead	mg/kg	NS	SB		29.9	33.2	23.4	27.1	27.0
Magnesium	mg/kg	100 - 5000	SB		6120	7410	11000	40000	42200
Manganese	mg/kg	50 - 5000	SB		651	795	543	450	444
Mercury	mg/kg	0.001 - 0.2	0.1		0.0762	0.0860	**0.123**	0.0267 J	0.0278 J
Nickel	mg/kg	0.5 - 25	13 or SB		**28.1**	**29.3**	**27.7**	**27.3**	**26.1**
Potassium	mg/kg	8500 - 43000	SB		2610	2480	2100	1100	1070
Selenium	mg/kg	0.1 - 3.9	2 or SB		0.980 J	0.950 J	1.40	**6.66**	**5.82**
Silver	mg/kg	NS	SB		0.368 J	0.412 J	0.306 J	0.215 J	0.231 J
Sodium	mg/kg	6000 - 8000	SB		ND (111)	ND (115)	ND (123)	ND (115)	ND (122)
Thallium	mg/kg	NS	SB		1.69	1.78	1.54	16.2 J	ND (1.22) J
Vanadium	mg/kg	1.0 - 300	150 or SB		37.1 J	41.3 J	30.0 J	36.3 J	38.4 J
Zinc	mg/kg	9.0 - 50.0	20 or SB		**127**	**205**	**114**	**102**	**98.9**
General Chemistry									
pH (soil)	S.U.		NS		7.6 J	8.0 J	7.6 J	8.2 J	8.3 J

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SS-38*	*SS-39*	*SS-40*
				Sample ID:	*SS-19867-0703-PK-003*	*SS-19867-0703-PK-002*	*SS-19867-0703-PK-001*
				Sample Date:	*7/18/2003*	*7/18/2003*	*7/18/2003*
Metals	*Units*	*Eastern USA Background Concentration*	*TAGM[a] Values*				
Aluminum	mg/kg	33000	SB		9390	7310	6560
Antimony	mg/kg	NS	SB		R	R	R
Arsenic	mg/kg	3 - 12	7.5 or SB		10.6	5.16	2.46
Barium	mg/kg	15 - 600	300 or SB		144	82.9	70.1
Beryllium	mg/kg	0 - 1.75	0.16 or SB		**0.495 J**	**0.317 J**	**0.224 J**
Cadmium	mg/kg	0.1 -1.0	1 or SB		0.198 J	ND (0.521)	0.191 J
Calcium	mg/kg	130 - 35000	SB		61400	56900	149000
Chromium Total	mg/kg	1.5 - 40	50[b] or SB		**207**	15.4	**1100**
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (4.2) J	ND (4.5) J	ND (4.7) J
Cobalt	mg/kg	2.5 or 60	30 or SB		6.85	5.86	8.43
Copper	mg/kg	1.0 - 50	25 or SB		**39.3**	**38.4**	**462**
Cyanide (total)	mg/kg		NS		0.288 J	ND (0.532)	ND (0.509)
Iron	mg/kg	2000 - 550000	2000 or SB		**17800**	**14900**	**11600**
Lead	mg/kg	NS	SB		130	95.4	70.7
Magnesium	mg/kg	100 - 5000	SB		29600	12200	61500
Manganese	mg/kg	50 - 5000	SB		1060	797	690
Mercury	mg/kg	0.001 - 0.2	0.1		**0.784**	**0.131**	**0.375**
Nickel	mg/kg	0.5 - 25	13 or SB		**19.5**	**13.8**	**658**
Potassium	mg/kg	8500 - 43000	SB		1660	1150	1060
Selenium	mg/kg	0.1 - 3.9	2 or SB		**2.70**	**3.28**	**2.65**
Silver	mg/kg	NS	SB		0.393 J	0.191 J	0.432 J
Sodium	mg/kg	6000 - 8000	SB		249	ND (104)	ND (168)
Thallium	mg/kg	NS	SB		0.921 J	0.934 J	ND (1.03)
Vanadium	mg/kg	1.0 - 300	150 or SB		21.2 J	17.1 J	19.7 J
Zinc	mg/kg	9.0 - 50.0	20 or SB		**203**	**114**	**191**
General Chemistry							
pH (soil)	S.U.		NS		8.0 J	6.9 J	8.0 J

TABLE 2.5

SURFACE SOIL ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

Notes:

NS - No Standard
SB - Site Background
ND ( ) - Non detect at associated value.
J - Estimated Value
R - Rejected
a - New York State Technical and Administrative Guidance, Recommended Soil Cleanup Objectives, January 1994.
b - Telephone Conversation, Jim Harrington, NYSDEC, February 2, 2004.

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*SW-9*	*SW-9*	*SW-11*	*SW-11*	*SW-11*
		Sample ID:	*SW-19867-1203-009*	*SW-19867-0504-009*	*SW-19867-08-03-011*	*SW-19867-10-03-PK-011*	*SW-19867-1203-011*
		Sample Date:	*12/17/2003*	*5/12/2004*	*8/21/2003*	*10/7/2003*	*12/17/2003*
Metals	*Units*	*NYSDEC Ambient Water Quality*[a]					
Aluminum	mg/L	NS	1.55	0.183	0.887	66.7	0.912
Antimony	mg/L	NS	ND(0.01)	ND(0.02)	ND(0.01)	ND(0.011)	ND(0.01)
Arsenic	mg/L	0.340	0.023 J	0.0158	0.029	0.0648	0.0203 J
Barium	mg/L	NS	0.103	0.076	0.171	2.53	0.14
Beryllium	mg/L	NS	0.000294 J	ND(0.005)	ND(0.005)	0.00304 J	0.000156 J
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	ND(0.005)	0.00463 J	ND(0.005)
Calcium	mg/L	NS	143	130	86.1	338	66.5
Chromium Total	mg/L	NCV[2]	0.0531	0.0264	0.157	6.39	0.135
Chromium VI (Hexavalent)	mg/L	0.016	0.0160	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Cobalt	mg/L	0.110	0.00462 J	0.00118	0.000612 J	0.0753	0.00618 J
Copper	mg/L	NCV[3]	0.097	0.0174	0.0264	1.09	0.0157 J
Cyanide (total)	mg/L	0.022	ND(0.01)	ND(0.01)	0.00316 J	ND(0.01) UJ	ND(0.01)
Iron	mg/L	0.300	**2.52**	**1.37**[a]	**2.51**	**151**	**2.19**
Lead	mg/L	NCV[4]	0.0591	0.0114	0.0203	0.865	0.0101
Magnesium	mg/L	NS	35.9	33.2	30.4	103	61.7
Manganese	mg/L	NS	0.551	0.533	3.28	19.2	4.63
Mercury	mg/L	0.0014	0.00032 J	ND(0.0002)	ND(0.0004)	0.0013	ND(0.0004)
Nickel	mg/L	NCV[5]	0.0113 J	0.00577	0.0134 J	0.544	ND(0.02)
Potassium	mg/L	NS	8.29	10.6	8.85	27.1	13.3
Selenium	mg/L	NS	ND(0.02)	0.0251	ND(0.02)	0.0957	0.0164 J
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	ND(0.01)	0.0016 J	ND(0.01)
Sodium	mg/L	NS	140	223	36.2	33.7	21
Thallium	mg/L	0.020	ND(0.02)	ND(0.04)	**0.0664**	0.0183 J	ND(0.02)
Vanadium	mg/L	0.190	ND(0.02)	0.00474	ND(0.02)	**0.231**	ND(0.02)
Zinc	mg/L	NCV[7]	0.313	0.0464	0.0597 B	2.84	0.0316
General Chemistry							
Hardness	mg/L	NS	--	505	--	--	--
pH Field	S.U.	6.5 - 8.5	--	7.74	--	8.19	--

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*SW-11*	*SW-11*	*SW-12*	*SW-12*	*SW-12*	*SW-13*	
		Sample ID:	*SW-11*	*SW-19867-0504-011*	*SW-19867-1203-012*	*SW-12*	*SW-19867-0504-012*	*SW-19867-08-03-013*	
		Sample Date:	*4/1/2004*	*5/12/2004*	*12/17/2003*	*4/1/2004*	*5/12/2004*	*8/21/2003*	
Metals	*Units*	*NYSDEC Ambient Water Quality* [a]							
Aluminum	mg/L	NS	--	2.13	0.0879 J	--	ND(0.2)	5.13	
Antimony	mg/L	NS	--	ND(0.02)	ND(0.01)	--	ND(0.02)	0.0169	
Arsenic	mg/L	0.340	--	0.0139	0.0191 J	--	0.00868	0.0439	
Barium	mg/L	NS	--	0.193	0.0457	--	0.0393	0.404	
Beryllium	mg/L	NS	--	ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)	
Cadmium	mg/L	NCV[1]	--	ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)	
Calcium	mg/L	NS	--	59.2	56.7	--	33.9	675	
Chromium Total	mg/L	NCV[2]	--	0.611	0.008 J	--	0.00171	0.379	
Chromium VI (Hexavalent)	mg/L	0.016	--	ND(0.01)	ND(0.01)	--	ND(0.01)	**0.102**	
Cobalt	mg/L	0.110	--	0.00244	0.00124 J	--	ND(0.02)	0.00194 J	
Copper	mg/L	NCV[3]	--	0.0471	ND(0.02)	--	ND(0.02)	0.013 J	
Cyanide (total)	mg/L	0.022	--	ND(0.01)	ND(0.01)	--	ND(0.01)	0.00664 J	
Iron	mg/L	0.300	--	**4.04**[a]	ND(0.2)	--	0.0533	**6.44**	
Lead	mg/L	NCV[4]	--	0.0473	ND(0.005)	--	ND(0.005)	0.0191	
Magnesium	mg/L	NS	--	54.1	27.3	--	13.7	12.8	
Manganese	mg/L	NS	--	1.94	0.00807 J	--	0.119	0.203	
Mercury	mg/L	0.0014	--	ND(0.0002)	ND(0.0004)	--	ND(0.0002)	ND(0.0004)	
Nickel	mg/L	NCV[5]	--	0.0187	ND(0.02)	--	0.00295	0.0079 J	
Potassium	mg/L	NS	--	9.65	11.8	--	13.6	27.9	
Selenium	mg/L	NS	--	0.0434	ND(0.02)	--	0.00904	ND(0.02)	
Silver	mg/L	NCV[6]	--	ND(0.01)	ND(0.01)	--	ND(0.01)	ND(0.01)	
Sodium	mg/L	NS	--	27.7	28.1	--	38	56.8	
Thallium	mg/L	0.020	--	ND(0.02)	ND(0.02)	--	ND(0.03)	0.00866 J	
Vanadium	mg/L	0.190	--	0.0138	ND(0.02)	--	ND(0.02)	0.00464 J	
Zinc	mg/L	NCV[7]	--	0.129	0.00498 J	--	0.00519	0.0567 B	
General Chemistry									
Hardness	mg/L	NS	--	416	--	--	198	--	
pH Field	S.U.	6.5 - 8.5	**6.35**	7.58	--	**6.16**	**8.55**	--	

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*SW-13*	*SW-13*	*SW-13*	*SW-13*	*SW-13*	*SW-14*
		Sample ID:	*SW-19867-10-03-PK-013*	*SW-19867-1203-013*	*SW-13*	*SW-19867-0504-013*	*SW-19867-08-03-014*
		Sample Date:	*10/7/2003*	*12/17/2003*	*4/1/2004*	*5/12/2004*	*8/21/2003*
Metals	*Units*	*NYSDEC Ambient Water Quality*[a]					
Aluminum	mg/L	NS	2.15	1.33	--	0.312	4.28
Antimony	mg/L	NS	0.0108	ND(0.01)	--	ND(0.02)	0.0112
Arsenic	mg/L	0.340	ND(0.025)	0.0317	--	ND(0.025)	0.0305
Barium	mg/L	NS	0.217	0.0545	--	0.0301	0.769
Beryllium	mg/L	NS	ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)
Calcium	mg/L	NS	412	180	--	31.1	378
Chromium Total	mg/L	NCV[2]	0.122	0.0219	--	0.00365	0.514
Chromium VI (Hexavalent)	mg/L	0.016	ND(0.01)	ND(0.01)	--	ND(0.01)	**0.364**
Cobalt	mg/L	0.110	ND(0.02)	0.00253 J	--	ND(0.02)	0.00109 J
Copper	mg/L	NCV[3]	0.00566 J	ND(0.02)	--	ND(0.02)	0.013 J
Cyanide (total)	mg/L	0.022	ND(0.01) UJ	ND(0.01)	--	ND(0.01)	0.00869 J
Iron	mg/L	0.300	**2.96**	**8.26**	--	**0.848**[a]	**3.72**
Lead	mg/L	NCV[4]	0.00853	ND(0.005)	--	ND(0.005)	0.00807
Magnesium	mg/L	NS	6.56	19.1	--	9.6	3.08
Manganese	mg/L	NS	0.107	0.272	--	0.031	0.121
Mercury	mg/L	0.0014	ND(0.0004)	ND(0.0004)	--	ND(0.0002)	ND(0.0004)
Nickel	mg/L	NCV[5]	0.0112 J	ND(0.02)	--	0.00332	0.00483 J
Potassium	mg/L	NS	72.3	13	--	10	7.63
Selenium	mg/L	NS	0.0232	ND(0.02)	--	ND(0.02)	ND(0.02)
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	--	ND(0.01)	ND(0.01)
Sodium	mg/L	NS	66.2	29.4	--	29.7	48.9
Thallium	mg/L	0.020	ND(0.02)	ND(0.02)	--	ND(0.02)	**0.0679**
Vanadium	mg/L	0.190	0.00865 J	ND(0.02)	--	ND(0.02)	0.0061 J
Zinc	mg/L	NCV[7]	0.0194 J	0.0124 J	--	0.00559	0.0394 B
General Chemistry							
Hardness	mg/L	NS	--	--	--	166	--
pH Field	S.U.	6.5 - 8.5	**12.41**	--	**11.87**	8.41	--

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*SW-14*	*SW-14*	*SW-14*	*SW-14*	*SW-15*	
	Sample ID:		*SW-19867-10-03-PK-014*	*SW-19867-1203-014*	*SW-14*	*SW-19867-0504-014*	*SW-19867-08-03-015*	
	Sample Date:		*10/7/2003*	*12/17/2003*	*4/1/2004*	*5/12/2004*	*8/21/2003*	
Metals	*Units*	*NYSDEC Ambient Water Quality*[a]						
Aluminum	mg/L	NS	2.34	0.0426 J	--	0.0493	6.98	
Antimony	mg/L	NS	0.00744 J	ND(0.01)	--	ND(0.02)	ND(0.01)	
Arsenic	mg/L	0.340	ND(0.025)	0.0211 J	--	0.0108	0.0345	
Barium	mg/L	NS	1.24	0.0609	--	0.0868	0.141	
Beryllium	mg/L	NS	ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)	
Cadmium	mg/L	NCV(1)	ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)	
Calcium	mg/L	NS	615	137	--	166	144	
Chromium Total	mg/L	NCV(2)	0.617	0.0812	--	0.114	0.1	
Chromium VI (Hexavalent)	mg/L	0.016	**0.571**	**0.0650**	--	**0.107**[a]	ND(0.01)	
Cobalt	mg/L	0.110	ND(0.02)	0.00662 J	--	ND(0.02)	0.0043 J	
Copper	mg/L	NCV(3)	0.00803 J	ND(0.02)	--	ND(0.02)	0.0383	
Cyanide (total)	mg/L	0.022	ND(0.01) UJ	ND(0.01)	--	0.00464	0.00342 J	
Iron	mg/L	0.300	**2.11**	ND(0.2)	--	ND(0.2)	**8.27**	
Lead	mg/L	NCV(4)	0.00516	ND(0.005)	--	ND(0.005)	0.0256	
Magnesium	mg/L	NS	1.86	0.429 J	--	0.194	15.2	
Manganese	mg/L	NS	0.0695	0.00247 J	--	ND(0.01)	1.55	
Mercury	mg/L	0.0014	ND(0.0004)	ND(0.0004)	--	ND(0.0002)	ND(0.0004)	
Nickel	mg/L	NCV(5)	0.00532 J	ND(0.02)	--	0.00181	0.0156 J	
Potassium	mg/L	NS	9.16	2.75	--	3.6	7.34	
Selenium	mg/L	NS	0.03	ND(0.02)	--	ND(0.02)	ND(0.02)	
Silver	mg/L	NCV(6)	ND(0.01)	ND(0.01)	--	ND(0.01)	ND(0.01)	
Sodium	mg/L	NS	45.8	43.7	--	67.6	52.3	
Thallium	mg/L	0.020	0.0107 J	ND(0.02)	--	ND(0.03)	**0.0826**	
Vanadium	mg/L	0.190	0.00682 J	ND(0.02)	--	ND(0.02)	0.0162 J	
Zinc	mg/L	NCV(7)	0.0139 J	0.00657 J	--	0.0059	0.0554 B	
General Chemistry								
Hardness	mg/L	NS	--	--	--	436	--	
pH Field	S.U.	6.5 - 8.5	**12.11**	--	**11.91**	**11.22**	--	

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*SW-15*	*SW-15*	*SW-15*	*SW-15*	*SW-16*	*SW-16*
			Sample ID:	*SW-19867-10-03-PK-015*	*SW-19867-1203-015*	*SW-15*	*SW-19867-0504-015*	*SW-19867-1203-016*	*SW-16*
			Sample Date:	*10/7/2003*	*12/17/2003*	*4/1/2004*	*5/12/2004*	*12/17/2003*	*4/1/2004*
Metals	***Units***	***NYSDEC Ambient Water Quality*** [a]							
Aluminum	mg/L	NS		2.02	2.07	--	2.01	0.618	--
Antimony	mg/L	NS		ND(0.01)	ND(0.025)	--	ND(0.02)	ND(0.05)	--
Arsenic	mg/L	0.340		0.0249 J	0.0285	--	ND(0.025)	0.0191 J	--
Barium	mg/L	NS		0.321	0.0763	--	0.048	0.266	--
Beryllium	mg/L	NS		ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)	--
Cadmium	mg/L	NCV[1]		ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)	--
Calcium	mg/L	NS		343	187	--	294	600	--
Chromium Total	mg/L	NCV[2]		0.586	0.372	--	0.347	0.0887	--
Chromium VI (Hexavalent)	mg/L	0.016		**0.289**	**0.204**	--	**0.292**[a]	**0.0350**	--
Cobalt	mg/L	0.110		ND(0.02)	0.00139 J	--	ND(0.02)	0.00198 J	--
Copper	mg/L	NCV[3]		0.0343	0.0395	--	0.0368	0.0061 J	--
Cyanide (total)	mg/L	0.022		0.00364 J	ND(0.01)	--	ND(0.01)	ND(0.01)	--
Iron	mg/L	0.300		**0.691**	**1.03**	--	ND(0.2)	ND(0.2)	--
Lead	mg/L	NCV[4]		0.00982	0.00523	--	ND(0.005)	ND(0.005)	--
Magnesium	mg/L	NS		2.69	1.14 J	--	ND(1.5)	0.324 J	--
Manganese	mg/L	NS		0.0562	0.193	--	0.00165	0.0229	--
Mercury	mg/L	0.0014		ND(0.0004)	ND(0.0004)	--	ND(0.0002)	ND(0.0004)	--
Nickel	mg/L	NCV[5]		0.00719 J	0.00255 J	--	0.00645	ND(0.02)	--
Potassium	mg/L	NS		7.47	5.58	--	6.27	12.1	--
Selenium	mg/L	NS		0.0194 J	ND(0.02)	--	ND(0.02)	0.0254 J	--
Silver	mg/L	NCV[6]		ND(0.01)	ND(0.01)	--	ND(0.01)	ND(0.01)	--
Sodium	mg/L	NS		43.7	34.3	--	39.5	22.3	--
Thallium	mg/L	0.020		0.00776 J	ND(0.02)	--	ND(0.02)	ND(0.02)	--
Vanadium	mg/L	0.190		0.0136 J	0.0122 J	--	0.00391	ND(0.02)	--
Zinc	mg/L	NCV[7]		0.00972 J	0.0148 J	--	0.00697	0.0192 J	--
General Chemistry									
Hardness	mg/L	NS		--	--	--	776	--	--
pH Field	S.U.	6.5 - 8.5		**12.02**	--	**12.05**	**11.98**	--	**11.28**

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*SW-16*	*SW-17*	*SW-17*	*SW-17*	*SW-18*	*SW-18*
	Sample ID:		*SW-19867-0504-016*	*SW-19867-1203-017*	*SW-17*	*SW-19867-0504-017*	*SW-19867-1203-018*	*SW-18*
	Sample Date:		*5/12/2004*	*12/17/2003*	*4/1/2004*	*5/12/2004*	*12/17/2003*	*4/1/2004*
Metals	*Units*	*NYSDEC Ambient Water Quality*[a]						
Aluminum	mg/L	NS	0.656	21.9	--	0.541	0.0415 J	--
Antimony	mg/L	NS	ND(0.02)	ND(0.01)	--	ND(0.02)	ND(0.02)	--
Arsenic	mg/L	0.340	ND(0.025)	0.0155 J	--	0.0151	0.0254	--
Barium	mg/L	NS	0.299	0.173	--	0.0238	0.0569	--
Beryllium	mg/L	NS	ND(0.005)	0.000916 J	--	ND(0.005)	ND(0.005)	--
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	--	ND(0.005)	ND(0.005)	--
Calcium	mg/L	NS	662	28.5	--	63.1	140	--
Chromium Total	mg/L	NCV[2]	0.0727	0.0432	--	0.000768	0.0783	--
Chromium VI (Hexavalent)	mg/L	0.016	**0.0580**[a]	0.0120	--	ND(0.01)	**0.0290**	--
Cobalt	mg/L	0.110	ND(0.02)	0.00821 J	--	ND(0.02)	ND(0.02)	--
Copper	mg/L	NCV[3]	0.0118	0.0313	--	ND(0.02)	ND(0.02)	--
Cyanide (total)	mg/L	0.022	ND(0.01)	ND(0.01)	--	ND(0.01)	ND(0.01)	--
Iron	mg/L	0.300	0.148	**23.4**	--	**3.06**[a]	ND(0.2)	--
Lead	mg/L	NCV[4]	ND(0.005)	0.0451	--	0.00531	ND(0.005)	--
Magnesium	mg/L	NS	0.227	13.3	--	22.4	0.56 J	--
Manganese	mg/L	NS	0.00608	0.564	--	0.267	0.00347 J	--
Mercury	mg/L	0.0014	ND(0.0002)	ND(0.0004)	--	ND(0.0002)	ND(0.0004)	--
Nickel	mg/L	NCV[5]	0.00329	0.0186 J	--	0.00291	ND(0.02)	--
Potassium	mg/L	NS	14.8	10.7	--	6.95	2.88	--
Selenium	mg/L	NS	ND(0.02)	0.0123 J	--	0.024	ND(0.04)	--
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	--	ND(0.01)	ND(0.01)	--
Sodium	mg/L	NS	23.3	1.47 J	--	2.36	43.7	--
Thallium	mg/L	0.020	ND(0.02)	ND(0.02)	--	ND(0.02)	ND(0.02)	--
Vanadium	mg/L	0.190	ND(0.02)	0.037	--	ND(0.02)	ND(0.02)	--
Zinc	mg/L	NCV[7]	0.0169	0.333	--	0.0171	0.00773 J	--
General Chemistry								
Hardness	mg/L	NS	1600	--	--	319	--	--
pH Field	S.U.	6.5 - 8.5	**12.03**	--	**9.4**	7.83	--	**11.94**

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:	SW-18	SW-19	SW-19	SW-19	SW-19
	Sample ID:	SW-19867-0504-018	SW-19867-08-03-019	SW-19867-10-03-PK-019	SW-19867-1203-019	SW-19
	Sample Date:	5/12/2004	8/21/2003	10/7/2003	12/17/2003	4/1/2004
Metals	*Units*	*NYSDEC Ambient Water Quality*[a]				
Aluminum	mg/L	NS	0.125	0.181 J	1.75	0.0277 J	--
Antimony	mg/L	NS	ND(0.02)	ND(0.01)	ND(0.01)	ND(0.02)	--
Arsenic	mg/L	0.340	0.0095	0.0258	0.0213 J	0.0219 J	--
Barium	mg/L	NS	0.055	0.0415	0.129	0.0413	--
Beryllium	mg/L	NS	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Calcium	mg/L	NS	116	58.9	176	109	--
Chromium Total	mg/L	NCV[2]	0.0803	0.0213	0.0648	0.0396	--
Chromium VI (Hexavalent)	mg/L	0.016	**0.0650**[a]	**0.018**	0.0120	**0.0240**	--
Cobalt	mg/L	0.110	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Copper	mg/L	NCV[3]	ND(0.02)	0.00638 J	0.014 J	ND(0.02)	--
Cyanide (total)	mg/L	0.022	ND(0.01)	ND(0.01)	ND(0.01) UJ	ND(0.01)	--
Iron	mg/L	0.300	0.146	**0.309**	**2.64**	ND(0.2)	--
Lead	mg/L	NCV[4]	0.00535	ND(0.005)	0.018	ND(0.005)	--
Magnesium	mg/L	NS	1.79	35.3	74.3	1.58	--
Manganese	mg/L	NS	0.0143	0.078	0.317	0.00847 J	--
Mercury	mg/L	0.0014	ND(0.0002)	ND(0.0004)	ND(0.0004)	ND(0.0004)	--
Nickel	mg/L	NCV[5]	ND(0.02)	0.00589 J	ND(0.02)	ND(0.02)	--
Potassium	mg/L	NS	3.36	8.28	4.08	2.56	--
Selenium	mg/L	NS	ND(0.02)	ND(0.02)	0.0371	ND(0.02)	--
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	--
Sodium	mg/L	NS	66.4	75.1	81.5	41.4	--
Thallium	mg/L	0.020	ND(0.03)	**0.0601**	ND(0.02)	ND(0.02)	--
Vanadium	mg/L	0.190	ND(0.02)	ND(0.02)	0.0124 J	ND(0.02)	--
Zinc	mg/L	NCV[7]	0.013	0.0206 B	0.102	0.00887 J	--
General Chemistry							
Hardness	mg/L	NS	356	--	--	--	--
pH Field	S.U.	6.5 - 8.5	**11.38**	--	**9.06**	--	**11.74**

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*SW-19*	*SW-20*	*SW-20*	*SW-20*	*SW-20*
	Sample ID:		*SW-19867-0504-019*	*SW-19867-08-03-020*	*SW-19867-10-03-PK-020*	*SW-19867-1203-020*	*SW-20*
	Sample Date:		*5/12/2004*	*8/21/2003*	*10/7/2003*	*12/17/2003*	*4/1/2004*
Metals	***Units***	***NYSDEC Ambient Water Quality*** [a]					
Aluminum	mg/L	NS	ND(0.2)	0.62	0.516	0.218	--
Antimony	mg/L	NS	ND(0.02)	ND(0.01)	ND(0.01)	ND(0.02)	--
Arsenic	mg/L	0.340	0.00985	0.0296	0.0143 J	0.0239 J	--
Barium	mg/L	NS	0.0433	0.0815	0.0611	0.0455	--
Beryllium	mg/L	NS	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Calcium	mg/L	NS	101	189	128	131	--
Chromium Total	mg/L	NCV[2]	0.048	0.0265	0.0543	0.0292	--
Chromium VI (Hexavalent)	mg/L	0.016	**0.0300**[a]	ND(0.01)	**0.0350**	0.00800 J	--
Cobalt	mg/L	0.110	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Copper	mg/L	NCV[3]	ND(0.02)	0.00609 J	0.0143 J	ND(0.02)	--
Cyanide (total)	mg/L	0.022	ND(0.01)	0.00349 J	ND(0.01)	ND(0.01)	--
Iron	mg/L	0.300	ND(0.2)	0.22	ND(0.2)	0.0727 J	--
Lead	mg/L	NCV[4]	0.0051	ND(0.005)	ND(0.005)	ND(0.005)	--
Magnesium	mg/L	NS	0.833	0.477 J	0.167 J	1.45 J	--
Manganese	mg/L	NS	0.00467	0.0182	0.00465 J	0.0136	--
Mercury	mg/L	0.0014	ND(0.0002)	ND(0.0004)	ND(0.0004)	ND(0.0004)	--
Nickel	mg/L	NCV[5]	ND(0.02)	0.00178 J	0.00241 J	ND(0.02)	--
Potassium	mg/L	NS	3.14	4.37	5.67	2.12	--
Selenium	mg/L	NS	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.04)	--
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	--
Sodium	mg/L	NS	68.6	75.7	63.8	36.9	--
Thallium	mg/L	0.020	ND(0.03)	**0.0936**	ND(0.02)	ND(0.02)	--
Vanadium	mg/L	0.190	ND(0.02)	ND(0.02)	0.0145 J	ND(0.02)	--
Zinc	mg/L	NCV[7]	0.00691	0.0151 B	0.00529 J	0.0301	--
General Chemistry							
Hardness	mg/L	NS	283	--	--	--	--
pH Field	S.U.	6.5 - 8.5	**11.62**	--	**12.31**	--	**11.79**

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

	Sample Location:		*SW-20*	*SW-21*	*SW-21*	*SW-21*	*SW-21*
	Sample ID:		*SW-19867-0504-020*	*SW-19867-08-03-021*	*SW-19867-10-03-PK-021*	*SW-19867-1203-021*	*SW-21*
	Sample Date:		*5/12/2004*	*8/21/2003*	*10/7/2003*	*12/17/2003*	*4/1/2004*
Metals	***Units***	***NYSDEC Ambient Water Quality*** [a]					
Aluminum	mg/L	NS	0.0258	0.125 J	ND(0.2)	0.221	--
Antimony	mg/L	NS	ND(0.02)	ND(0.01)	ND(0.01)	ND(0.01)	--
Arsenic	mg/L	0.340	0.009	0.0313	0.012 J	0.019 J	--
Barium	mg/L	NS	0.0584	0.0549	0.0391	0.0941	--
Beryllium	mg/L	NS	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Calcium	mg/L	NS	117	146	94.5	63.1	--
Chromium Total	mg/L	NCV[2]	0.0554	0.0385	0.0368	0.00603 J	--
Chromium VI (Hexavalent)	mg/L	0.016	**0.0370**[a]	0.008 J	0.00400 J	ND(0.01)	--
Cobalt	mg/L	0.110	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Copper	mg/L	NCV[3]	0.00343	ND(0.02)	0.0105 J	ND(0.02)	--
Cyanide (total)	mg/L	0.022	ND(0.01)	0.00284 J	ND(0.01)	ND(0.01)	--
Iron	mg/L	0.300	ND(0.2)	0.0781 J	ND(0.2)	**0.409**	--
Lead	mg/L	NCV[4]	0.00601	ND(0.005)	ND(0.005)	0.0159	--
Magnesium	mg/L	NS	0.0581	0.936 J	0.218 J	6.92	--
Manganese	mg/L	NS	ND(0.01)	0.01	0.00227 J	0.0758	--
Mercury	mg/L	0.0014	ND(0.0002)	ND(0.0004)	ND(0.0004)	ND(0.0004)	--
Nickel	mg/L	NCV[5]	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Potassium	mg/L	NS	3.69	3.93	5.4	3.03	--
Selenium	mg/L	NS	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	--
Sodium	mg/L	NS	60.4	83.6	77.7	59.1	--
Thallium	mg/L	0.020	ND(0.03)	**0.0865**	ND(0.02)	ND(0.02)	--
Vanadium	mg/L	0.190	ND(0.02)	ND(0.02)	0.00334 J	ND(0.02)	--
Zinc	mg/L	NCV[7]	0.0129	ND(0.01)	0.00218 J	0.0181 J	--
General Chemistry							
Hardness	mg/L	NS	319	--	--	--	--
pH Field	S.U.	6.5 - 8.5	**11.55**	--	**12.24**	--	**10.00**

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*SW-21*	*SW-22*	*SW-22*	*SW-23*	*SW-23*	
		Sample ID:	*SW-19867-0504-021*	*SW-19867-1203-022*	*SW-19867-0504-022*	*SW-19867-08-03-023*	*SW-19867-08-03-025*	
		Sample Date:	*5/12/2004*	*12/17/2003*	*5/12/2004*	*8/21/2003*	*8/21/2003*	*Duplicate*
Metals	*Units*	*NYSDEC Ambient Water Quality*[a]						
Aluminum	mg/L	NS	ND(0.2)	8.28	0.043	0.196 J	0.2	
Antimony	mg/L	NS	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.01)	ND(0.01)	
Arsenic	mg/L	0.340	0.0077	0.0278	0.00825	0.0122 J	0.0166 J	
Barium	mg/L	NS	0.0525	0.204	0.0412	0.0533	0.0579	
Beryllium	mg/L	NS	ND(0.005)	0.000469 J	ND(0.005)	ND(0.005)	ND(0.005)	
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	
Calcium	mg/L	NS	113	103	32.6	31.4	35	
Chromium Total	mg/L	NCV[2]	0.0547	0.285	0.00208	0.0101	0.00953 J	
Chromium VI (Hexavalent)	mg/L	0.016	**0.0360**[a]	0.00500 J	ND(0.01)	ND(0.01)	ND(0.01)	
Cobalt	mg/L	0.110	ND(0.02)	0.00238 J	ND(0.02)	ND(0.02)	ND(0.02)	
Copper	mg/L	NCV[3]	ND(0.02)	0.0418	0.00389	ND(0.02)	0.00372 J	
Cyanide (total)	mg/L	0.022	ND(0.01)	ND(0.01)	ND(0.01)	0.00216 J	0.00727 J	
Iron	mg/L	0.300	0.226	**11.1**	0.146	**1.21**	**1.29**	
Lead	mg/L	NCV[4]	0.00594	0.0976	0.00557	ND(0.005)	ND(0.005)	
Magnesium	mg/L	NS	1.6	24.1	3.57	3.93	3.97	
Manganese	mg/L	NS	0.0121	0.38	0.208	0.101	0.125	
Mercury	mg/L	0.0014	ND(0.0002)	ND(0.0004)	ND(0.0002)	ND(0.0004)	ND(0.0004)	
Nickel	mg/L	NCV[5]	ND(0.02)	0.0231	0.00271	0.00204 J	0.00177 J	
Potassium	mg/L	NS	3.13	2.87	1.5	1.83	1.81	
Selenium	mg/L	NS	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	0.00775 J	
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	0.00203 J	
Sodium	mg/L	NS	63.8	25.7	50.1	72.3	75.4	
Thallium	mg/L	0.020	ND(0.02)	ND(0.02)	ND(0.02)	**0.0403**	**0.0419**	
Vanadium	mg/L	0.190	ND(0.02)	0.0229	ND(0.02)	ND(0.02)	ND(0.02)	
Zinc	mg/L	NCV[7]	0.00536	0.247	0.0351	0.0121 B	0.0124 B	
General Chemistry								
Hardness	mg/L	NS	311	--	166	--	--	
pH Field	S.U.	6.5 - 8.5	**11.47**	--	8.18	--	--	

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

		Sample Location:	*SW-23*	*SW-23*	*SW-23*	*SW-23*	*SW-23*
		Sample ID:	*SW-19867-10-03-PK-023*	*SW-19867-10-03-PK-025*	*SW-19867-1203-023*	*SW-19867-1203-025*	*SW-23*
		Sample Date:	*10/7/2003*	*10/7/2003*	*12/17/2003*	*12/17/2003*	*4/1/2004*
				Duplicate		*Duplicate*	
Metals	*Units*	*NYSDEC Ambient Water Quality* [a]					
Aluminum	mg/L	NS	0.125 J	0.0969 J	0.264 J	0.512 J	--
Antimony	mg/L	NS	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	--
Arsenic	mg/L	0.340	0.00722 J	ND(0.025)	0.0147 J	0.014 J	--
Barium	mg/L	NS	0.0236	0.0241	0.0298	0.0307	--
Beryllium	mg/L	NS	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Cadmium	mg/L	NCV[1]	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Calcium	mg/L	NS	22.3	22.2	30.5	32.4	--
Chromium Total	mg/L	NCV[2]	0.13	0.117	0.104	0.0958	--
Chromium VI (Hexavalent)	mg/L	0.016	**0.110**	**0.100**	**0.0560**	**0.0720**	--
Cobalt	mg/L	0.110	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Copper	mg/L	NCV[3]	0.00645 J	0.00555 J	ND(0.02)	ND(0.02)	--
Cyanide (total)	mg/L	0.022	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	--
Iron	mg/L	0.300	0.076 J	ND(0.2)	0.2 J	**0.513 J**	--
Lead	mg/L	NCV[4]	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--
Magnesium	mg/L	NS	3.82	3.59	6.57	6.64	--
Manganese	mg/L	NS	0.00907 J	0.00401 J	0.0201	0.0295	--
Mercury	mg/L	0.0014	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	--
Nickel	mg/L	NCV[5]	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Potassium	mg/L	NS	2.74	2.28	1.72	1.83	--
Selenium	mg/L	NS	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Silver	mg/L	NCV[6]	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	--
Sodium	mg/L	NS	38.8	36.7	35.5	35	--
Thallium	mg/L	0.020	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	--
Vanadium	mg/L	0.190	0.00578 J	0.00542 J	ND(0.02)	ND(0.02)	--
Zinc	mg/L	NCV[7]	0.0214	0.017 J	0.0277	0.0356	--
General Chemistry							
Hardness	mg/L	NS	--	--	--	--	--
pH Field	S.U.	6.5 - 8.5	**9.60**	**9.60**	--	--	**9.25**

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*SW-23*	*SW-23*	*SW-24*	*SW-24*	*SW-24*
			Sample ID:	*SW-19867-0504-023*	*SW-19867-0504-025*	*SW-19867-08-03-024*	*SW-19867-10-03-PK-024*	*SW-19867-1203-024*
			Sample Date:	*5/12/2004*	*5/12/2004*	*8/21/2003*	*10/7/2003*	*12/17/2003*
					Duplicate			
Metals	*Units*	*NYSDEC Ambient Water Quality*[a]						
Aluminum	mg/L	NS		0.407	0.459	1.23	0.215	0.164 J
Antimony	mg/L	NS		ND(0.02)	ND(0.02)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic	mg/L	0.340		0.00793	0.00974	0.024 J	0.0207 J	0.0115 J
Barium	mg/L	NS		0.0603	0.0611	0.0809	0.0483	0.0369
Beryllium	mg/L	NS		ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium	mg/L	NCV[1]		ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Calcium	mg/L	NS		83.8	86.9	66.1	39.1	42.3
Chromium Total	mg/L	NCV[2]		0.158	0.167	0.0117	0.00241 J	0.00783 J
Chromium VI (Hexavalent)	mg/L	0.016		**0.124**[a]	**0.156**[a]	ND(0.01)	ND(0.01)	ND(0.01)
Cobalt	mg/L	0.110		ND(0.02)	ND(0.02)	0.000834 J	ND(0.02)	ND(0.02)
Copper	mg/L	NCV[3]		0.00729	0.0073	0.0142 J	0.0456	ND(0.02)
Cyanide (total)	mg/L	0.022		ND(0.01)	ND(0.01)	0.0066 J	ND(0.01)	ND(0.01)
Iron	mg/L	0.300		0.233	0.252	**6.05**	**1**	0.113 J
Lead	mg/L	NCV[4]		0.00676	0.00941	0.0389	0.0085	ND(0.005)
Magnesium	mg/L	NS		2.23	2.21	18.9	12.6	13.6
Manganese	mg/L	NS		0.0284	0.0278	0.499	0.286	0.0154
Mercury	mg/L	0.0014		ND(0.0002)	ND(0.0002)	ND(0.0004)	ND(0.0004)	ND(0.0004)
Nickel	mg/L	NCV[5]		0.00261	0.0025	0.0053 J	ND(0.02)	ND(0.02)
Potassium	mg/L	NS		3.28	3.39	0.327 J	8.4	0.341 J
Selenium	mg/L	NS		ND(0.02)	ND(0.02)	ND(0.02)	0.00994 J	ND(0.02)
Silver	mg/L	NCV[6]		ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Sodium	mg/L	NS		110	112	27.9	8.6	41.9
Thallium	mg/L	0.020		ND(0.03)	ND(0.025)	**0.0628**	ND(0.02)	ND(0.02)
Vanadium	mg/L	0.190		0.00363	ND(0.02)	ND(0.02)	0.00369 J	ND(0.02)
Zinc	mg/L	NCV[7]		0.0288	0.0289	0.148 B	0.0583	0.0569
General Chemistry								
Hardness	mg/L	NS		259	287	--	--	--
pH Field	S.U.	6.5 - 8.5		**10.69**	8.01	--	8.20	--

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*SW-24*	*SW-24*
			Sample ID:	*SW-24*	*SW-19867-0504-024*
			Sample Date:	*4/1/2004*	*5/12/2004*
Metals	*Units*	*NYSDEC Ambient Water Quality* [a]			
Aluminum	mg/L	NS		--	0.339
Antimony	mg/L	NS		--	ND(0.02)
Arsenic	mg/L	0.340		--	0.00964
Barium	mg/L	NS		--	0.0698
Beryllium	mg/L	NS		--	ND(0.005)
Cadmium	mg/L	NCV[(1)]		--	ND(0.005)
Calcium	mg/L	NS		--	60
Chromium Total	mg/L	NCV[(2)]		--	0.00199
Chromium VI (Hexavalent)	mg/L	0.016		--	ND(0.01)
Cobalt	mg/L	0.110		--	0.00133
Copper	mg/L	NCV[(3)]		--	0.0038
Cyanide (total)	mg/L	0.022		--	ND(0.01)
Iron	mg/L	0.300		--	**3.37**[a]
Lead	mg/L	NCV[(4)]		--	0.0127
Magnesium	mg/L	NS		--	18.3
Manganese	mg/L	NS		--	0.559
Mercury	mg/L	0.0014		--	ND(0.0002)
Nickel	mg/L	NCV[(5)]		--	0.00257
Potassium	mg/L	NS		--	1.35
Selenium	mg/L	NS		--	0.0148
Silver	mg/L	NCV[(6)]		--	ND(0.01)
Sodium	mg/L	NS		--	70.3
Thallium	mg/L	0.020		--	ND(0.03)
Vanadium	mg/L	0.190		--	0.00539
Zinc	mg/L	NCV[(7)]		--	0.062
General Chemistry					
Hardness	mg/L	NS		--	275
pH Field	S.U.	6.5 - 8.5		**8.89**	8.01

TABLE 2.6

SURFACE WATER ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

Notes:

NS	- No Standard	
ND ( )	- Non Detect at associated value	
NCV	- No calculated value. Criteria depends on hardness values	
J	- Estimated Value	
-	- No Measurement	
a	- New York State Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Human Consumption of Fish (fresh water), June 1998	
(1)	- AWQC for cadmium	= (0.85) exp (1.128 [ln (ppm hardness)] - 3.6876)
(2)	- AWQC for chromium (total)	= (0.316) exp (0.819 [ln (ppm hardness)] + 3.7256)
(3)	- AWQC for copper	= (0.96) exp (0.9422 [ln (ppm hardness)] - 1.7)
(4)	- AWQC for lead	= {1.46203 - [ln (hardness) (0.145712]} exp (1.273 [ln (ppm hardness)] - 1.052)
(5)	- AWQC for nickel	= (0.998) exp (0.846 [ln (hardness)] +2.255)
(6)	- AWQC for silver	= exp (1.72 [ln (ppm hardness)] - 6.52)
(7)	- AWQC for zinc	= (0.978) exp (0.8473 [ln (ppm hardness)] +0.884)

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SW-8*	*SW-8*	*SW-9*	*SW-9*
				Sample ID:	*S-19867-08-03-PK-008*	*SD-19867-0504-008*	*S-19867-08-03-PK-009*	*SD-19867-0504-009*
				Sample Date:	*8/14/2003*	*5/12/2004*	*8/14/2003*	*5/12/2004*
	Units	*NYSDEC Lowest Effect Level*[c]	*NYSDEC Severe Effect Level*[c]					
Metals								
Aluminum	mg/kg	NS	NS		9380	7250	10200	8320
Antimony	mg/kg	2.0	25.0		**16.9**[a]	ND (2.21)	1.05	**3.79**[a]
Arsenic	mg/kg	6.0	33.0		**14.9**[a]	**8.58**[a]	**16.2**[a]	ND (3.42)
Barium	mg/kg	NS	NS		402	328	204	209
Beryllium	mg/kg	NS	NS		0.375	0.575	0.520	0.420
Cadmium	mg/kg	0.6	9.0		**25.3**[ab]	**7.55**[a]	**3.37**[a]	**6.95**[a]
Calcium	mg/kg	NS	NS		41300	38000	66500	220000
Chromium Total	mg/kg	26.0	110.0		**312**[ab]	**297**[ab]	**125**[ab]	**167**[ab]
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (4.9)	ND (5.1)	ND (7.1)	ND (8.4)
Cobalt	mg/kg	NS	NS		13.5	13.0	10.3	7.36
Copper	mg/kg	16.0	110.0		**162**[ab]	**122**[ab]	**228**[ab]	**323**[ab]
Cyanide (total)	mg/kg	NS	NS		0.924	0.847	0.465	ND (1.13)
Iron	mg/kg	20000	40000		**23000**[a]	**25500**[a]	**42500**[ab]	13800
Lead	mg/kg	31.0	110.0		**1710**[ab]	**1490**[ab]	**194**[ab]	**257**[ab]
Magnesium	mg/kg	NS	NS		22100	20400	7920	7440
Manganese	mg/kg	460.0	1100.0		**1320**[ab]	**1390**[ab]	**738**[a]	**669**[a]
Mercury	mg/kg	0.15	1.3		**2.02**[ab]	**0.959**[a]	**1.71**[ab]	**2.77**[ab]
Nickel	mg/kg	16.0	50.0		**158**[ab]	**188**[ab]	**59.3**[ab]	**51.2**[ab]
Potassium	mg/kg	NS	NS		1170	775	1860	1340
Selenium	mg/kg	NS	NS		7.58	ND (2.21)	10.3	ND (5.47)
Silver	mg/kg	1.0	2.2		0.545	0.985	0.868	**4.79**[ab]
Sodium	mg/kg	NS	NS		372	267	276	824
Thallium	mg/kg	NS	NS		ND (1.04)	0.988	ND (1.42)	ND (8.21)
Vanadium	mg/kg	NS	NS		36.9	37.0	35.5	32.4
Zinc	mg/kg	120.0	270.0		**972**[ab]	**1060**[ab]	**778**[ab]	**2220**[ab]
General Chemistry								
pH (soil)	S.U.	NS	NS		--	8.2	--	7.1

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SW-10*	*SW-11*	*SW-12*
				Sample ID:	*SED-19867-08-03-PK-010*	*SED-19867-08-03-PK-011*	*SD-19867-0504-012*
				Sample Date:	*8/21/2003*	*8/21/2003*	*5/12/2004*
	Units	*NYSDEC Lowest Effect Level*[c]	*NYSDEC Severe Effect Level*[c]			
Metals						
Aluminum	mg/kg	NS	NS		15900	25000	846
Antimony	mg/kg	2.0	25.0		ND (1.17)	ND (3.66)	**4.20**[a]
Arsenic	mg/kg	6.0	33.0		**8.9**[a]	**27.9**[a]	ND (17.2)
Barium	mg/kg	NS	NS		181	666	109
Beryllium	mg/kg	NS	NS		0.633	0.989 J	ND (0.686)
Cadmium	mg/kg	0.6	9.0		0.23 J	**0.955 J**[a]	0.0526
Calcium	mg/kg	NS	NS		17500	53000	319000
Chromium Total	mg/kg	26.0	110.0		**335 J**[ab]	**1840 J**[ab]	**46.0**[a]
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (5.1)	ND (15)	ND (7.4)
Cobalt	mg/kg	NS	NS		13.2	27.8	ND (2.75)
Copper	mg/kg	16.0	110.0		**185**[ab]	**307**[ab]	2.65
Cyanide (total)	mg/kg	NS	NS		0.361 J	ND (1.78)	ND (0.988)
Iron	mg/kg	20000	40000		**24600**[a]	**42600**[ab]	1020
Lead	mg/kg	31.0	110.0		**81.8**[a]	**240**[ab]	17.2
Magnesium	mg/kg	NS	NS		8870 J	16700 J	1850
Manganese	mg/kg	460.0	1100.0		**1180 J**[ab]	**6330 J**[ab]	47.5
Mercury	mg/kg	0.15	1.3		**0.197**[a]	**0.264**[a]	ND (0.0599)
Nickel	mg/kg	16.0	50.0		**81.4**[ab]	**209**[ab]	ND (2.75)
Potassium	mg/kg	NS	NS		2350 J	3200 J	279
Selenium	mg/kg	NS	NS		7.01	25.1	ND (5.49)
Silver	mg/kg	1.0	2.2		ND (1.17)	**3.36 J**[ab]	**1.80**[a]
Sodium	mg/kg	NS	NS		145	327 J	213
Thallium	mg/kg	NS	NS		ND (1.17)	ND (3.66)	ND (13.7)
Vanadium	mg/kg	NS	NS		41.8	88.6	3.62
Zinc	mg/kg	120.0	270.0		**203**[a]	**798**[ab]	16.5
General Chemistry							
pH (soil)	S.U.	NS	NS		8.7	7.3	8.2

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SW-13*	*SW-14*	*SW-15*
				Sample ID:	*SED-19867-08-03-PK-013*	*SED-19867-08-03-PK-014*	*SED-19867-08-03-PK-015*
				Sample Date:	*8/21/2003*	*8/21/2003*	*8/21/2003*
	Units	*NYSDEC Lowest Effect Level*[c]	*NYSDEC Severe Effect Level*[c]				
Metals							
Aluminum	mg/kg	NS	NS		11400	10900	20000
Antimony	mg/kg	2.0	25.0		1.63 J	0.971 J	ND (1.56)
Arsenic	mg/kg	6.0	33.0		4.28	4.95	**18.1**[a]
Barium	mg/kg	NS	NS		150	199	194
Beryllium	mg/kg	NS	NS		0.421 J	0.414 J	0.952
Cadmium	mg/kg	0.6	9.0		ND (0.939)	ND (0.799)	ND (0.779)
Calcium	mg/kg	NS	NS		180000	157000	37400
Chromium Total	mg/kg	26.0	110.0		**90.3 J**[a]	**97.7 J**[a]	**266 J**[ab]
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (8.5)	ND (7.1)	ND (7.1)
Cobalt	mg/kg	NS	NS		4.53	5.7	14.5
Copper	mg/kg	16.0	110.0		10.6	12.4	**69.4**[a]
Cyanide (total)	mg/kg	NS	NS		ND (0.947)	ND (0.916)	ND (0.879)
Iron	mg/kg	20000	40000		14800	14500	**41000**[ab]
Lead	mg/kg	31.0	110.0		15.6	21.8	**67**[a]
Magnesium	mg/kg	NS	NS		11300 J	8890 J	5390 J
Manganese	mg/kg	460.0	1100.0		246 J	**564 J**[a]	**979 J**[a]
Mercury	mg/kg	0.15	1.3		ND (0.0585)	0.0129 J	**0.216**[a]
Nickel	mg/kg	16.0	50.0		12.8	15.4	**56.3**[ab]
Potassium	mg/kg	NS	NS		2130 J	1740 J	2840 J
Selenium	mg/kg	NS	NS		12.7	13	8.76
Silver	mg/kg	1.0	2.2		ND (1.88)	ND (1.6)	ND (1.56)
Sodium	mg/kg	NS	NS		175 J	273	204
Thallium	mg/kg	NS	NS		ND (1.88)	ND (1.6)	ND (1.56)
Vanadium	mg/kg	NS	NS		22.2	22.7	57.9
Zinc	mg/kg	120.0	270.0		63	77.3	**133**[a]
General Chemistry							
pH (soil)	S.U.	NS	NS		12	11	8.2

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

			Sample Location:	*SW-16*	*SW-16*	*SW-17*	*SW-17*
			Sample ID:	*S-19867-08-03-PK-016*	*SD-19867-0504-016*	*S-19867-08-03-PK-017*	*SD-19867-0504-017*
			Sample Date:	*8/14/2003*	*5/12/2004*	*8/14/2003*	*5/12/2004*
	Units	*NYSDEC Lowest Effect Level*[c]	*NYSDEC Severe Effect Level*[c]				
Metals							
Aluminum	mg/kg	NS	NS	593	334	16800	17500
Antimony	mg/kg	2.0	25.0	**3.55**[a]	**6.21**[a]	ND (1.08)	ND (2.66)
Arsenic	mg/kg	6.0	33.0	4.55	ND (15.6)	5.60	5.63
Barium	mg/kg	NS	NS	121	98.9	106	113
Beryllium	mg/kg	NS	NS	0.120	ND (0.623)	0.665	0.847
Cadmium	mg/kg	0.6	9.0	ND (0.700)	ND (0.623)	0.136	0.542
Calcium	mg/kg	NS	NS	342000	353000	4980	4870
Chromium Total	mg/kg	26.0	110.0	11.8	7.17	**46.9**[a]	**48.7**[a]
Chromium VI (Hexavalent)	mg/kg	NS	NS	ND (6.0)	ND (6.8)	ND (5.3)	ND (5.9)
Cobalt	mg/kg	NS	NS	0.183	ND (2.49)	12.6	10.9
Copper	mg/kg	16.0	110.0	ND (2.80)	ND (4.99)	**29.0**[a]	**26.8**[a]
Cyanide (total)	mg/kg	NS	NS	ND (0.770)	ND (0.986)	0.242	ND (0.790)
Iron	mg/kg	20000	40000	763	417	**31400**[a]	**26200**[a]
Lead	mg/kg	31.0	110.0	8.55	10.4	**33.1**[a]	**33.1**[a]
Magnesium	mg/kg	NS	NS	721	385	4680	4980
Manganese	mg/kg	460.0	1100.0	47.3	20.4	**679**[a]	**514**[a]
Mercury	mg/kg	0.15	1.3	ND (0.0524)	ND (0.0572)	0.101	0.0766
Nickel	mg/kg	16.0	50.0	1.63	ND (4.99)	**28.9**[a]	**26.2**[a]
Potassium	mg/kg	NS	NS	223	73.3	2020	2290
Selenium	mg/kg	NS	NS	10.7	ND (4.99)	4.34	ND (2.66)
Silver	mg/kg	1.0	2.2	ND (1.40)	**2.18**[a]	ND (1.08)	ND (1.33)
Sodium	mg/kg	NS	NS	205	243	22.5	79.8
Thallium	mg/kg	NS	NS	3.26	ND (12.5)	ND (1.08)	2.51
Vanadium	mg/kg	NS	NS	2.30	1.72	36.7	35.5
Zinc	mg/kg	120.0	270.0	47.2	23.7	**148**[a]	**232**[a]
General Chemistry							
pH (soil)	S.U.	NS	NS	–	11	–	7.3

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SW-18*	*SW-19*	*SW-20*
				Sample ID:	*SED-19867-08-03-PK-018*	*SED-19867-08-03-PK-019*	*SED-19867-08-03-PK-020*
				Sample Date:	*8/21/2003*	*8/21/2003*	*8/21/2003*
	Units	*NYSDEC Lowest Effect Level*[c]	*NYSDEC Severe Effect Level*[c]			
Metals						
Aluminum	mg/kg	NS	NS		12400	19100	7240
Antimony	mg/kg	2.0	25.0		ND (1.3)	ND (1.47)	**4.16**[a]
Arsenic	mg/kg	6.0	33.0		**6.16**[a]	**6.41**[a]	ND (2.09)
Barium	mg/kg	NS	NS		120	134	165
Beryllium	mg/kg	NS	NS		0.538 J	0.864	0.103 J
Cadmium	mg/kg	0.6	9.0		ND (0.651)	ND (0.734)	ND (1.05)
Calcium	mg/kg	NS	NS		95200	57200	267000
Chromium Total	mg/kg	26.0	110.0		**65.4 J**[a]	**49.1 J**[a]	**483 J**[ab]
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (5.3)	ND (5.8)	ND (7.9)
Cobalt	mg/kg	NS	NS		6.61	11.5	4.03 J
Copper	mg/kg	16.0	110.0		12.4	**24.9**[a]	**22.9**[a]
Cyanide (total)	mg/kg	NS	NS		ND (0.638)	ND (0.699)	ND (1.06)
Iron	mg/kg	20000	40000		**21300**[a]	**28500**[a]	8070
Lead	mg/kg	31.0	110.0		22.7	12.3	**65.3**[a]
Magnesium	mg/kg	NS	NS		8000 J	13000 J	10700 J
Manganese	mg/kg	460.0	1100.0		**583 J**[a]	**690 J**[a]	**606 J**[a]
Mercury	mg/kg	0.15	1.3		0.062	0.00865 J	0.0526 J
Nickel	mg/kg	16.0	50.0		12.6	**27.7**[a]	**30.2**[a]
Potassium	mg/kg	NS	NS		1700 J	4580 J	1010 J
Selenium	mg/kg	NS	NS		9.08	10.1	18.6
Silver	mg/kg	1.0	2.2		ND (1.3)	ND (1.47)	ND (2.09)
Sodium	mg/kg	NS	NS		178	297	399
Thallium	mg/kg	NS	NS		ND (1.3)	ND (1.47)	ND (2.09)
Vanadium	mg/kg	NS	NS		28.5	40.9	25.2
Zinc	mg/kg	120.0	270.0		97.7	72	**312**[ab]
General Chemistry							
pH (soil)	S.U.	NS	NS		8.2	8.3	11

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SW-21*	*SW-22*	*SW-23*
				Sample ID:	*SED-19867-08-03-PK-021*	*SED-19867-08-03-PK-022*	*SED-19867-08-03-PK-023*
				Sample Date:	*8/21/2003*	*8/28/2003*	*8/21/2003*
	Units	*NYSDEC Lowest Effect Level*[c]	*NYSDEC Severe Effect Level*[c]			
Metals						
Aluminum	mg/kg	NS	NS		2300	18800	8390
Antimony	mg/kg	2.0	25.0		**3.57**[a]	**2.67**[a]	**2.07**[a]
Arsenic	mg/kg	6.0	33.0		ND (1.79)	ND (1.34)	4.54
Barium	mg/kg	NS	NS		160	174	146
Beryllium	mg/kg	NS	NS		0.0558 J	0.306 J	0.23 J
Cadmium	mg/kg	0.6	9.0		ND (0.897)	0.213 J	ND (0.917)
Calcium	mg/kg	NS	NS		277000	127000	186000
Chromium Total	mg/kg	26.0	110.0		**63.5 J**[a]	**1120**[ab]	**364 J**[ab]
Chromium VI (Hexavalent)	mg/kg	NS	NS		ND (7.7)	2.3 J	–
Cobalt	mg/kg	NS	NS		0.779 J	6.97	3.05 J
Copper	mg/kg	16.0	110.0		6.43	**37.6**[a]	**26**[a]
Cyanide (total)	mg/kg	NS	NS		ND (0.948)	0.358 J	1.16
Iron	mg/kg	20000	40000		3110	**20100**[a]	9170
Lead	mg/kg	31.0	110.0		25.9	**89.0**[a]	**75.5**[a]
Magnesium	mg/kg	NS	NS		9620 J	32300	26900 J
Manganese	mg/kg	460.0	1100.0		215 J	**731**[a]	**558 J**[a]
Mercury	mg/kg	0.15	1.3		ND (0.0559)	0.0482	ND (0.0624)
Nickel	mg/kg	16.0	50.0		3.16 J	**52.6**[ab]	12.4
Potassium	mg/kg	NS	NS		300 J	1740	779 J
Selenium	mg/kg	NS	NS		16.7	14.2	17.8
Silver	mg/kg	1.0	2.2		ND (1.79)	ND (1.34)	ND (1.83)
Sodium	mg/kg	NS	NS		366	156	396
Thallium	mg/kg	NS	NS		1.42 J	ND (4.01)	ND (1.83)
Vanadium	mg/kg	NS	NS		5.86	48.7	17.2
Zinc	mg/kg	120.0	270.0		85.6	**227**[a]	**296**[ab]
General Chemistry							
pH (soil)	S.U.	NS	NS		12	7.7 J	11

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

				Sample Location:	*SW-23*	*SW-23*	*SW-24*
				Sample ID:	*SED-19867-08-03-PK-023RA*	*SED-19867-08-03-PK-025*	*SED-19867-08-03-PK-024*
				Sample Date:	*8/21/2003*	*8/21/2003*	*8/21/2003*
						Duplicate	
	Units	*NYSDEC Lowest Effect Level*[c]	*NYSDEC Severe Effect Level*[c]				
Metals							
Aluminum	mg/kg	NS	NS		--	15900	23300
Antimony	mg/kg	2.0	25.0		--	ND (1.97)	ND (1.45)
Arsenic	mg/kg	6.0	33.0		--	**8.88**[a]	**7.89**[a]
Barium	mg/kg	NS	NS		--	125	182
Beryllium	mg/kg	NS	NS		--	0.288 J	1.09
Cadmium	mg/kg	0.6	9.0		--	ND (0.985)	ND (0.726)
Calcium	mg/kg	NS	NS		--	142000	15200
Chromium Total	mg/kg	26.0	110.0		--	**289 J**[ab]	**55.1 J**[a]
Chromium VI (Hexavalent)	mg/kg	NS	NS		4.9 J	ND (8.2)	ND (5.8)
Cobalt	mg/kg	NS	NS		--	4.46	15.9
Copper	mg/kg	16.0	110.0		--	**25.6**[a]	**27.5**[a]
Cyanide (total)	mg/kg	NS	NS		--	0.563 J	ND (0.68)
Iron	mg/kg	20000	40000		--	10300	**32200**[a]
Lead	mg/kg	31.0	110.0		--	**64.5**[a]	28.4
Magnesium	mg/kg	NS	NS		--	28100 J	11900 J
Manganese	mg/kg	460.0	1100.0		--	**562 J**[a]	**923 J**[a]
Mercury	mg/kg	0.15	1.3		--	0.0256 J	0.0354 J
Nickel	mg/kg	16.0	50.0		--	**18**[a]	**33.3**[a]
Potassium	mg/kg	NS	NS		--	1070 J	3520 J
Selenium	mg/kg	NS	NS		--	14.9	8.16
Silver	mg/kg	1.0	2.2		--	ND (1.97)	ND (1.45)
Sodium	mg/kg	NS	NS		--	382	181
Thallium	mg/kg	NS	NS		--	ND (1.97)	ND (1.45)
Vanadium	mg/kg	NS	NS		--	19	47.8
Zinc	mg/kg	120.0	270.0		--	**248**[a]	**170**[a]
General Chemistry							
pH (soil)	S.U.	NS	NS		--	11	7.7

TABLE 2.7

SEDIMENT ANALYTICAL RESULTS
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

Notes:

ND ( ) - Non detect at associated value.
NS - No Standard.
J - Estimated value.
-- - Not Applicable.
a - Indicates an exceedance of the NYSDEC Lowest Effect Level.
b - Indicates an exceedance of the NYSDEC Severe Effect Level.
c - Technical Guidance for Screening Contaminated Sediments, NYSDEC, January 25, 1999.

TABLE 2.8

pH MEASUREMENTS - APRIL 7, 2004
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK

Surface Water Location	*pH Measurement*
SW-8	DRY
SW-9	7.07
SW-10	DRY
SW-11	6.35
SW-12	6.16*
SW-13	11.87
SW-14	11.91
SW-15	12.05
SW-16	11.28*
SW-17	9.40*
SW-18	11.94
SW-19	11.74
SW-20	11.79
SW-21	10.00
SW-22	DRY
SW-23	9.25
SW-24	8.89

Note:

* - Measurement taken from approximate location as stake/marker not found.

TABLE 2.9

CAP MATERIAL ANALYSIS SUMMARY
VANADIUM CORPORATION OF AMERICA SITE
NIAGARA FALLS, NEW YORK

Location	*Depth (bgs)*	*Percent Components (%)*				*Liquid Limit*	*Plastic Limit*	*Plasticity Index*	*Maximum Dry Density (pcf)*	*Optimum Moisture (%)*	*Hydraulic Conductivity (cm/sec)*
		Gravel	*Sand*	*Silt*	*Clay*						
MW-23	0-6 inches	1.2	28.1	44.8	25.9	38	30	8	99.4	17.1	$5.77 \times 10^{-7(1)}$
MW-24	0-6 inches	2.6	19.3	39.2	38.9	37	22	15	104.8	15.0	$7.52 \times 10^{-8(2)}$
MW-21	0-6 inches	2.3	25.0	39.1	33.6	44	27	17	103.9	15.6	$8.72 \times 10^{-8(3)}$

Notes:

(1) - 95.4% compaction at 17.2% moisture.
(2) - 94.1% compaction at 14.8% moisture.
(3) - 94.6% compaction at 15.3% moisture.

TABLE 2.10

COMMUNITY AIR MONITORING SUMMARY - MONITORING WELLS
VANADIUM CORPORATION OF AMERICA SITE
NIAGARA FALLS, NEW YORK

Monitoring Well ID	*Date*	*Time Elapsed (1) (minute)*	*Concentration (mg/m^3)*	*TWA (mg/m^3)*	*Distance Downwind of MW (feet)*	*Temperature (°F)*	*Relative Humidity (%)*	*Wind*	
								Speed (mph)	*Direction*
Monitoring Well Installation									
MW-22	7/22/2003	18	0.022	0.038	20	73.7	73	5.6	From NE
MW-25	7/23/2003	5.9	0.029	0.034	20	65	94	2.5	From E
		60	0.012	0.017					
MW-26	7/23/2003	3	0.002	0.005	25				
		50	0.006	0.002					
		83	0.009	0.004					
BH-12	7/23/2003	2	0.025	0.039	15	67.2	85	5.4	From SSE
		68	0.070	0.000					
MW-19	7/23/2003	59	0.000	0.000	15				
MW-15	7/24/2003	7	0.093	0.028	25	73.5	77	5.6	From SW
		57	0.014	0.028					
MW-16	7/24/2003	1	0.017	0.012	15				
MW-20	7/25/2003	15	0.021	0.020	45	66.8	80	4.9	From S
		58	0.018	0.018					
MW-23	7/25/2003	10	0.016	0.018	20				
		135	0.015	0.018					
		218	0.016	0.018					
MW-24	7/28/2003	60	0.004	0.006	25	75	NM	NM	NM
		100	0.003	0.005					
MW-18	7/28/2003	10	0.003	0.007	25				
MW-27	7/29/2003	1	0.029	0.000	25	80	NM	NM	NM
		25	0.025	0.022					
Cap Sampling									
MW-23	8/19/2003	2	0.005	NA	25	77	NM	NM	NM

Notes:

(1) - Time elapsed since start of drilling at a particular monitoring well location.
NM - No measurement recorded.

TABLE 2.11

COMMUNITY AIR MONITORING SUMMARY - TEST PITS
VANADIUM CORPORATION OF AMERICA SITE
NIAGARA FALLS, NEW YORK

Monitoring Well ID	*Date*	*Time*	*Concentration (mg/m^3)*	*TWA (mg/m^3)*	*Distance Downwind of MW[1] (feet)*	*Weather Conditions*
TP-1	7/30/2003	9:51	0.024	0.030	25	Sunny; approx. 80°F; very light breeze from SSW; humidity approx. 60%
		10:02	0.028	0.028	20	
		10:06	0.033	0.110	20	
		10:23	0.048	0.042	10	
TP-2	7/30/2003	10:51	0.039	0.038	20	
		11:07	0.040	0.058	20	
		11:15	0.060	0.047	20	
TP-3	7/30/2003	11:45	0.045	--	20	
TP-6	7/30/2003	13:05	0.035	--	25	
TP-7	7/30/2003	14:05	0.022	--	25	
TP-8	7/30/2003	14:45	NR	--	NA	
TP-9	7/30/2003	15:30	NR	--	NA	
TP-21	7/31/2003	8:46	0.062	--	20	Overcast with breaks; approx. 75°F
TP-20	7/31/2003	9:50	0.070	--	20	
TP-10	7/31/2003	10:45	0.060	--	20	
TP-11	7/31/2003	14:10	0.080	--	20	
TP-12	7/31/2003	15:20	0.071	--	20	
TP-13	8/1/2003	7:55	0.101	--	25	Sunny (hazy in am); approx. 75-80°F; humidity approx. 40%; wind from SE
		9:00	0.090	--	25	
TP-14	8/1/2003	12:40	NM	--	NA	
TP-17	8/18/2003	9:46	0.054	--	25	Sunny; approx. 72°F
		10:27	0.065	--	25	
TP-16	8/18/2003	10:37	0.048	--	25	
		11:35	0.076	--	25	
TP-15	8/18/2003	15:10	0.096	--	25	
TP-18	8/18/2003	15:23	0.072	--	25	
TP-19	8/18/2003	15:52	0.068	--	25	
		16:55	0.057	--	25	
TP-5	8/19/2003	8:18	0.043	--	25	Sunny; approx. 72°F
		9:20	0.035	--	25	

TABLE 2.11

COMMUNITY AIR MONITORING SUMMARY - TEST PITS
VANADIUM CORPORATION OF AMERICA SITE
NIAGARA FALLS, NEW YORK

Monitoring Well ID	*Date*	*Time*	*Concentration (mg/m^3)*	*TWA (mg/m^3)*	*Distance Downwind of MW[(1)] (feet)*	*Weather Conditions*
TP-4	8/19/2003	10:20	0.026	--	25	
		11:25	0.040	--	25	
TP-2	8/19/2003	13:12	0.054	--	25	
(Attempt 3)		14:10	0.066	--	25	

Notes:

(1) - Several distances may exist for one Test Pit location. Relocated meter to compensate for additional attempts at delineating slag.
(2) - Stopped taking TWA readings due to frequent movement and relocation.
TWA - TWA - Time Weighted Average
NA - NA - Not Applicable
NM - NM - No measurement taken
NR - NR- No reading because battery dead; replaced

ATTACHMENT A

WELL INSPECTION LOGS

19867
FIELD FILE

WELL INSPECTION LOG

Project No. 19867

Well ID: MW105A

Well Depth: 4.74 + tip (8.4 cm) BTOR

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap		✓	
Locking Device	✓		
Surface Seal	✓		
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: Water level = 2.327 m ~~+ 0.084m~~ BTOR

+ 8.4 cm

Inspected By: Jamie Puskas / John Hoffman

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW105B

Well Depth: 9.73 m + 8.4 cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓	~~✓~~	
Locking Device	✓		
Surface Seal	✓		
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL=3.211 m BTOR

Inspected By: Jamie Puskas/John Hoffman

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW104A

Well Depth: 6.45m + 8.4cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal	✓		
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL = 3.977m

Inspected By: Jamie P. / John H.

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW104B

Well Depth: 11.435 m + 8.4 cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal	✓		
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL = 3.899 m BTOR

Inspected By: Jamie P. / John H.

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW102B

Well Depth: 16.480 m + 8.4 cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal		✓	- cracked
Sampling Device		✓	
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL = 11.951 m

Inspected By: Jamie Puskar / John Hoffman

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW102A

Well Depth: 3.635 m + 8.4 cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal	✓		
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL = 3.613 m

Inspected By: Jamie P. / John H.

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: _ _ _ MW-7A

Well Depth: 3.52 m +8.4cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal		✓	none
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓ ~~X~~	~~X~~	

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments WL= ~~2.75~~ 2.744m

Inspected By: Jamie P. / John H.

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW-7B

Well Depth: 7.38m + 8.4cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal		✓	none
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL = 2.215 m

Inspected By: Jamie P. / John H.

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW-6B

Well Depth: 7.345 m + 8.4cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal		✓	None
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL= 2.304 m

Inspected By: Jamie P./John H.

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW-6A

Well Depth: 4.245m + 8.4cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal		✓	none
Sampling Device	✓		teflon
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL = 1.565 m

Inspected By: Jamie P. / John H.

Date: 1/9/03

WELL INSPECTION LOG

Project No. 19867

Well ID: MW-103

Well Depth: 10.734 m + 8.4 cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal	✓		
Sampling Device	✓		teflon bailer
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL= 3.667 m

Inspected By: Jamie P./John H.

Date: 1/9/13

WELL INSPECTION LOG

Project No. 19867

Well ID: MW-103A

Well Depth: 5.655 m + 8.4

Size and Type of Riser: _____

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal	✓		-but hole in seal by casing
Sampling Device	✓		
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments: WL= 2.175 m

Inspected By: Jamie P. / John H.

Date: 1/9/03

WELL INSPECTION LOG

USGS-6A

Project No. 1C367

Well ID: -1

Well Depth: 2.67 m + 8.4 cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device		✓	
Surface Seal		✓	none
Sampling Device		✓	none
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments - PVC stick-up is ~~date~~ detached from riser section at the ground surface

Inspected By: Jamie P. / John H.

Date: 1/9/13

WELL INSPECTION LOG

USGS - 6B

Project No. 19867

Well ID: ___ - ___

Well Depth: 1.05 m + 8.4 cm

Size and Type of Riser: 2" PVC

Inspection Item	Condition (check)		
	Satisfactory	Unsatisfactory	Comments
Well Cap	✓		
Locking Device	✓		
Surface Seal		✓	none
Sampling Device	—	—	none
Protective Casing	✓		
Identification	✓		

	Yes	No	Comments
Change In Measuring Point Elevation		✓	
Re-survey Required		✓	
Repairs Required		✓	

Comments

Inspected By: Jamie P./John H.

Date: 1/9/03

ATTACHMENT B

TEST PIT LOGS

TEST PIT STRATIGRAPHY LOG

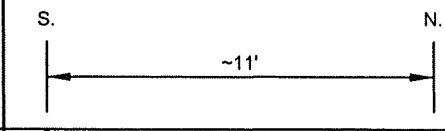
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALS, NY)

CONTRACTOR: SJB / JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

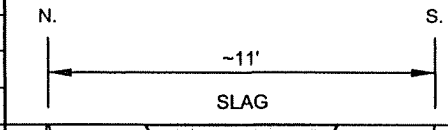
TEST PIT DESIGNATION: TP-1
DATE/TIME STARTED: 07 / 30 / 03 09:45
DATE/TIME COMPLETED: 07 / 30 / 03 10:35
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		1	SLAG ON SOUTH 1/2 OF PIT ON WEST WALL OF PIT			
1		3	CLAY (NATIVE)			
0		1.5	SLAG IN MIDDLE SECTION N. 1/3 OF PIT ON EAST WALL - TAPERS OUT ON EITHER END			
1.5		3	CLAY (NATIVE), MEDIUM BROWN			

GEOLOGIC PROFILE



LOOKING WEST



LOOKING EAST

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

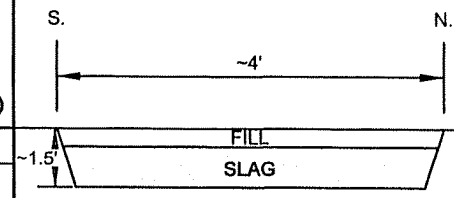
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

CONTRACTOR: SJB / ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

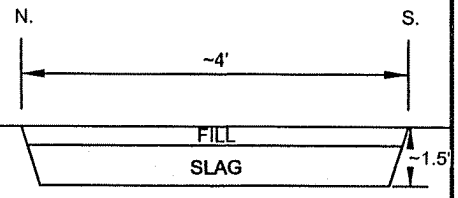
TEST PIT DESIGNATION: TP-2
DATE/TIME STARTED: 08 / 19 / 03 13:10
DATE/TIME COMPLETED: 08 / 19 / 03 13:40
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS / P. KRYGER

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		0.5	FILL - DARK BROWN, TRACE ORGANICS				
0.5		1.0	FILL - WITH LIGHT GREY SLAG				
			SAME LOG DESCRIPTION AS ABOVE				

GEOLOGIC PROFILE



LOOKING WEST



LOOKING EAST

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

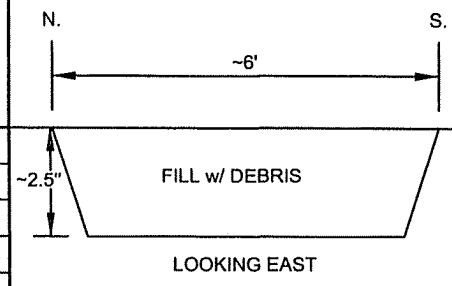
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

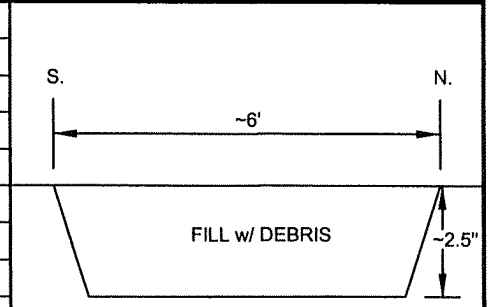
CONTRACTOR: SJB JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-3
DATE/TIME STARTED: 07 / 30 / 03 11:20
DATE/TIME COMPLETED: 07 / 30 / 03 14:50
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		2.5	FILL - MEDIUM BROWN WITH DEBRIS (BRICK, CONCRETE, ETC.), NO SLAG PRESENT			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE





NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

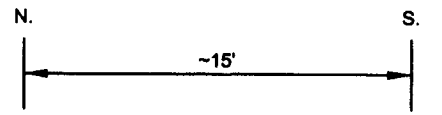
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

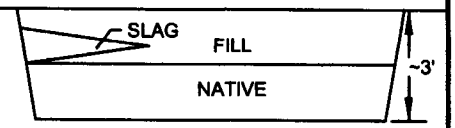
CONTRACTOR: SJB / ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-4
DATE/TIME STARTED: 08 / 19 / 03 10:15
DATE/TIME COMPLETED: 08 / 19 / 03 11:20
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

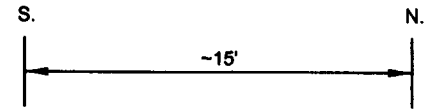
STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		1.5	FILL AND SLAG - DARK BROWN FILL AND LIGHT GREY-WHITE SLAG (SLAG ~1ft. THICK)				
1.0		3.0	CLAY (NATIVE) - MEDIUM BROWN, CLAYEY (VISIBLE BUCKET MARKS), GRAY AND BROWN MOTTLING				
			SAME LOG DESCRIPTION AS ABOVE, BUT SLAG EXTENDS TO APPROX. 7ft.				
NOTES AND COMMENTS							

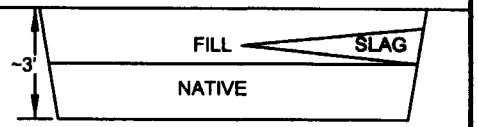
GEOLOGIC PROFILE





LOOKING SOUTH





LOOKING NORTH

TEST PIT STRATIGRAPHY LOG

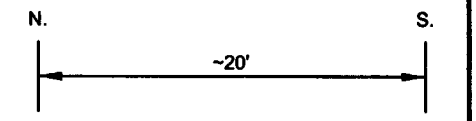
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

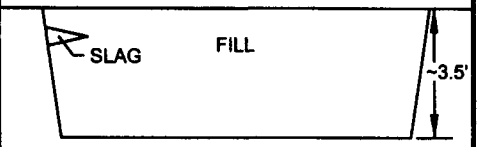
CONTRACTOR: SJB / ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-5
DATE/TIME STARTED: 08 / 19 / 03 08:15
DATE/TIME COMPLETED: 08 / 19 / 03 10:05
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

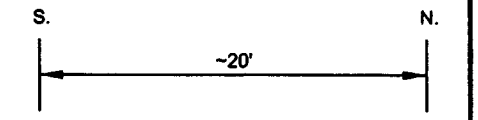
STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		1.0	FILL - MEDIUM BROWN WITH SOME GREY SLAG, TRACE ORGANICS,			
			MORE THAN TRACE AMOUNTS OF SLAG, BUT NOT SUBSTANIAL			
1.0		3.0	FILL - MEDIUM BROWN, APPEARS CLAYEY, CAN SEE BUCKET MARKS FROM BACK HOE.			
			(CAN SEE BUCKET MARKS FROM BACK HOE)			
			SAME LOG DESCRIPTION AS ABOVE			

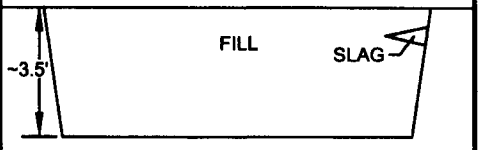
GEOLOGIC PROFILE





LOOKING SOUTH-EAST





LOOKING SOUTH-WEST

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

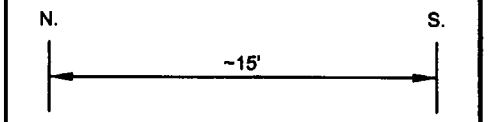
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

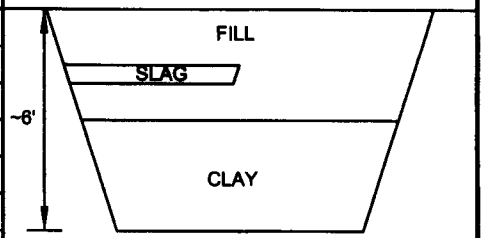
CONTRACTOR: SJB JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-6
DATE/TIME STARTED: 07 / 30 / 03 13:00
DATE/TIME COMPLETED: 07 / 30 / 03 13:30
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

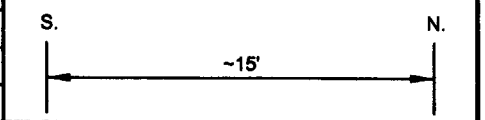
STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		1.5	FILL - TRACE SLAG, TRACE ORGANIC MATTER				
1.5		2.5	SLAG ALONG EACH WALL FOR ABOUT 7' FROM NORTH END				
			OF PIT. TRACE SLAG ALONG REST OF LENGTH OF PIT.				
2.5		3	FILL				
~3			CLAY (NATIVE) ALONG ENTIRE WALLS OF PIT				
			SAME LOG DESCRIPTION AS ABOVE				

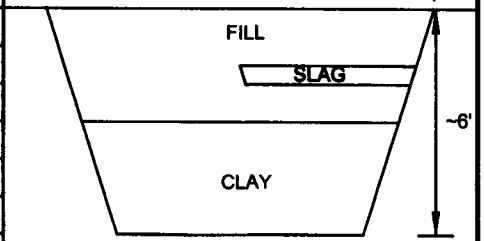
GEOLOGIC PROFILE





LOOKING EAST





LOOKING WEST

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

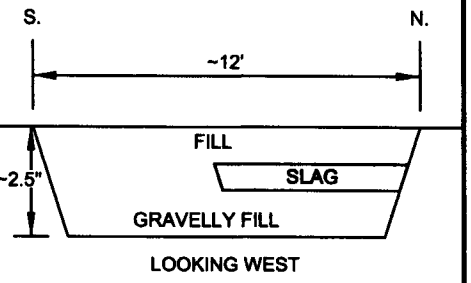
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

CONTRACTOR: SJB / JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

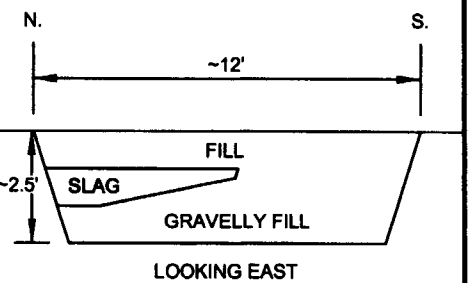
TEST PIT DESIGNATION: TP-7
DATE/TIME STARTED: 07 / 30 / 03 13:40
DATE/TIME COMPLETED: 07 / 30 / 03 14:30
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		1	FILL - TRACE ORGANICS, MEDIUM TO DARK BROWN				
1		1.5	SLAG - GREY, EXTENDS N. HALF WAY ALONG PIT (ABOUT 6' FROM NORTH END OF PIT)				
1.5		2.5	FILL - LARGE BOULDER IN CENTRE OF PIT FLOOR ; DID NOT EXCAVATE FURTHER				
0		1	FILL - TRACE ORGANICS				
1.5		2.0	SLAG - TAPERS TO MIDDLE OF LENGTH OF PIT. RUNS ALONG ~5' OF WALL OF PIT				
			~1' THICK ON NORTH END OF PIT; TAPERING TO ALMOST 2" AT 5' FROM NORTH END				
2.0		2.5	FILL - GRAVELLY				

GEOLOGIC PROFILE



LOOKING WEST



LOOKING EAST

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

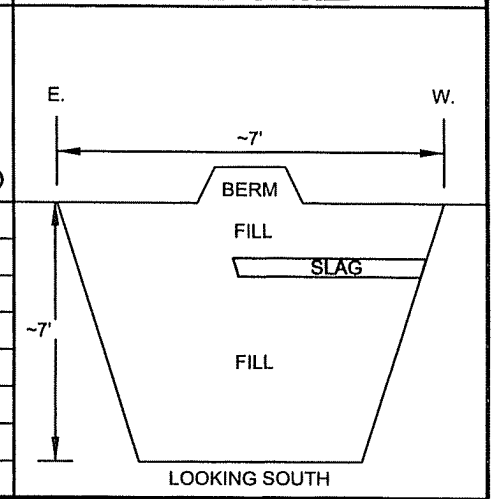
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

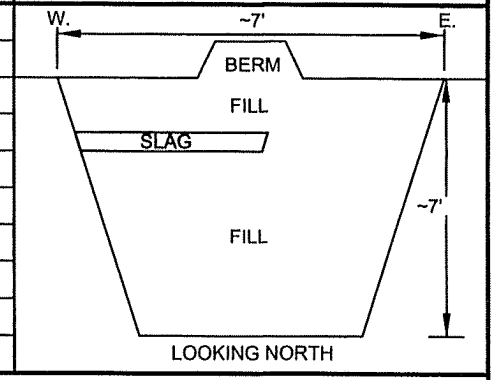
CONTRACTOR: SJB / JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-8
DATE/TIME STARTED: 07 / 30 / 03 14:40
DATE/TIME COMPLETED: 07 / 30 / 03 15:00
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		1.5	FILL - TRACE ORGANIC MATTER				
1.5		2.0	SLAG - GREY; ~6" THICK, RUNS FROM WEST END OF PIT ~1/2 LENGTH				
			OF PIT (~3.5 ft. IN LENGTH)				
2.0		7.0	FILL - TRACE SLAG				
			SAME LOG DESCRIPTION AS ABOVE				

GEOLOGIC PROFILE





NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

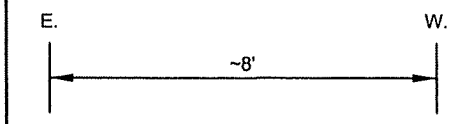
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

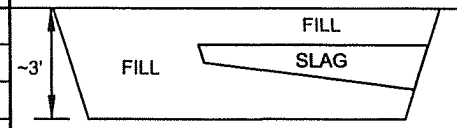
CONTRACTOR: SJB / JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-9
DATE/TIME STARTED: 07 / 30 / 03 15:30
DATE/TIME COMPLETED: 07 / 30 / 03 15:55
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

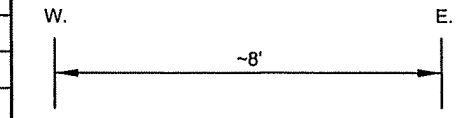
STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		1.0	FILL - TRACE ORGANIC MATERIAL				
1.0		2.0	SLAG - GREY, RUNNING FROM WEST END OF PIT ~5ft.				
2.0		3.0	FILL - MEDIUM TO DARK BROWN				
			SAME LOG DESCRIPTION AS ABOVE				

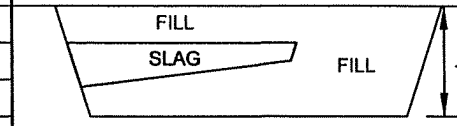
NOTES AND COMMENTS





LOOKING SOUTH





LOOKING NORTH

TEST PIT STRATIGRAPHY LOG

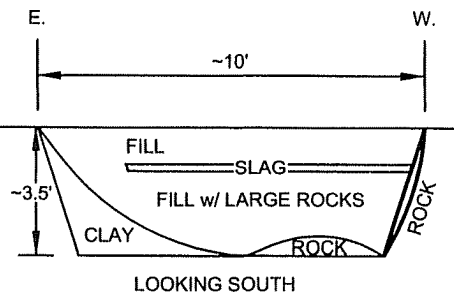
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

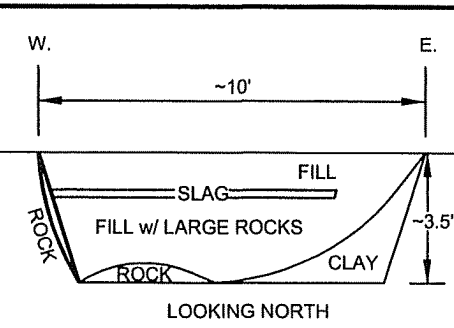
CONTRACTOR: SJB / JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-10
DATE/TIME STARTED: 07 / 31 / 03 10:40
DATE/TIME COMPLETED: 07 / 31 / 03 11:55
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		1.0	FILL - TRACE ORGANIC MATTER, MEDIUM BROWN			
1.0		1.2	SLAG - VERY THIN, RUNNING FROM WEST END OF PIT ~1/4 OF LENGTH OF PIT,			
			TRACE SLAG			
1.2		3.5	FILL - WITH LARGE ROCK PIECES, SOLID ROCK AT WEST END OF PIT UNTIL			
			~ 5 ft FROM WEST END			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE





NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

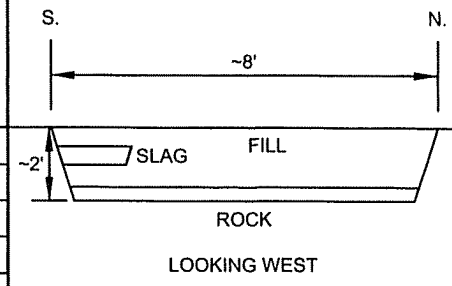
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

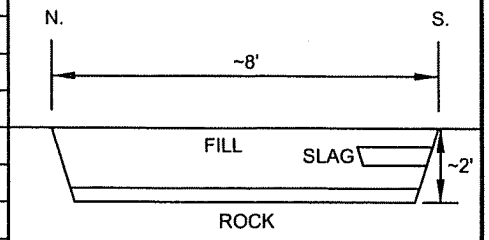
CONTRACTOR: SJB / JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-11
DATE/TIME STARTED: 07 / 31 / 03 13:10
DATE/TIME COMPLETED: 07 / 31 / 03 14:15
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		0.5	FILL - TRACE ORGANICS AND TRACE SLAG			
0.5		1.0	SLAG - LIGHT GREY, FROM SOUTH END IT RUNS APPROX. 1.5 ft.			
1.0		1.7	FILL - MEDIUM BROWN			
1.7		2.0	ROCK - LIGHT BLUISH-GREY, TOO HARD TO DIG THROUGH			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE





NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

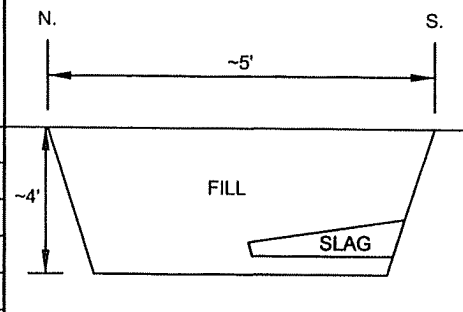
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

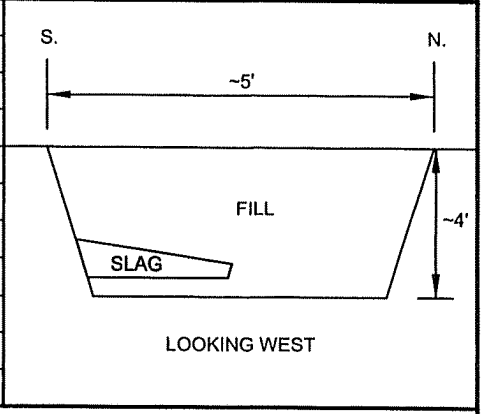
CONTRACTOR: SJB JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-12
DATE/TIME STARTED: 07 / 31 / 03 14:25
DATE/TIME COMPLETED: 07 / 31 / 03 15:45
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		2.5	FILL - MEDIUM BROWN, w/ TRACE ORGANICS AND LIGHT GREY SLAG				
2.5		3.5	SLAG - LIGHT BLUISH-GREY, HARDER THAN THE SLAG FOUND AT THE EASTERN				
			PORTION OF SITE. RUNS ~2.5 ft. FROM SOUTH END OF PIT				
			SLAG IS LOCATED ~2.5ft. BGS, ~1ft. THICK, AND RUNS FROM SOUTH END OF PIT.				
3.5		4.0	FILL				
			SAME LOG DESCRIPTION AS ABOVE				

GEOLOGIC PROFILE





NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

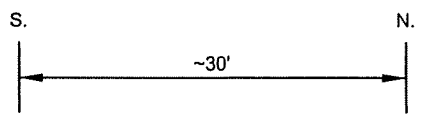
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

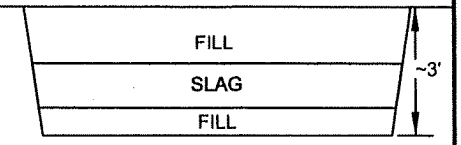
CONTRACTOR: SJB / ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-13
DATE/TIME STARTED: 08 / 01 / 03 07:50
DATE/TIME COMPLETED: 08 / 01 / 03 11:30
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

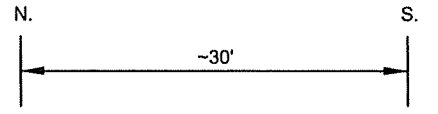
STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		1.5	FILL - MEDIUM BROWN, TRACE ORGANIC MATERIAL, TRACE SLAG			
1.5		2.5	SLAG - LIGHT BLUISH - GREY, HARDER THAN SLAG FOUND AT SOUTH-EASTERN PORTION OF SITE			
2.5		3	FILL			
			SAME LOG DESCRIPTION AS ABOVE			

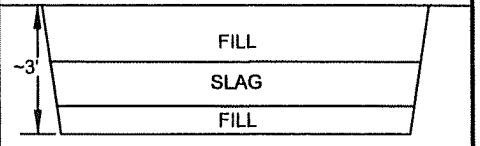
GEOLOGIC PROFILE





LOOKING WEST





LOOKING EAST

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

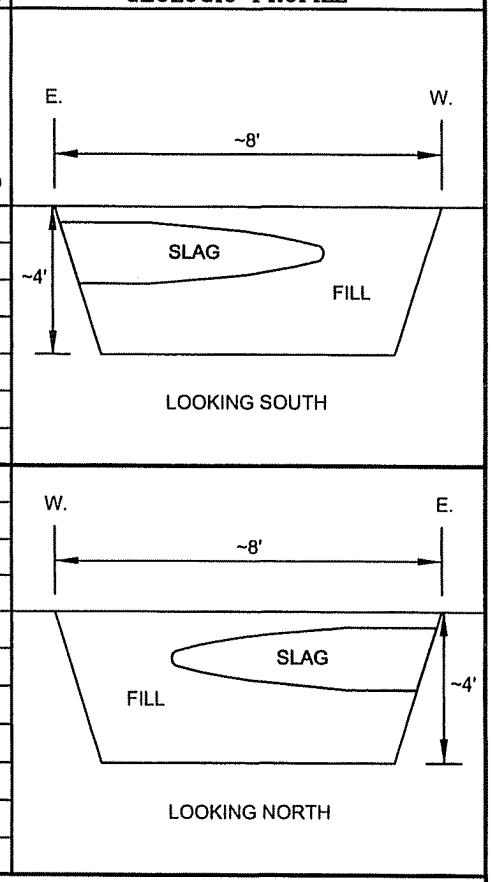
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

CONTRACTOR: SJB / JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-14
DATE/TIME STARTED: 08 / 01 / 03 12:40
DATE/TIME COMPLETED: 08 / 01 / 03 15:40
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		0.5	FILL - MEDIUM BROWN w/ TRACE ORGANICS				
0		2.5	SLAG - LIGHT GREY SLAG				
2.5		4.0	FILL - MEDIUM BROWN				
			SAME LOG DESCRIPTION AS ABOVE				

GEOLOGIC PROFILE



NOTES AND COMMENTS

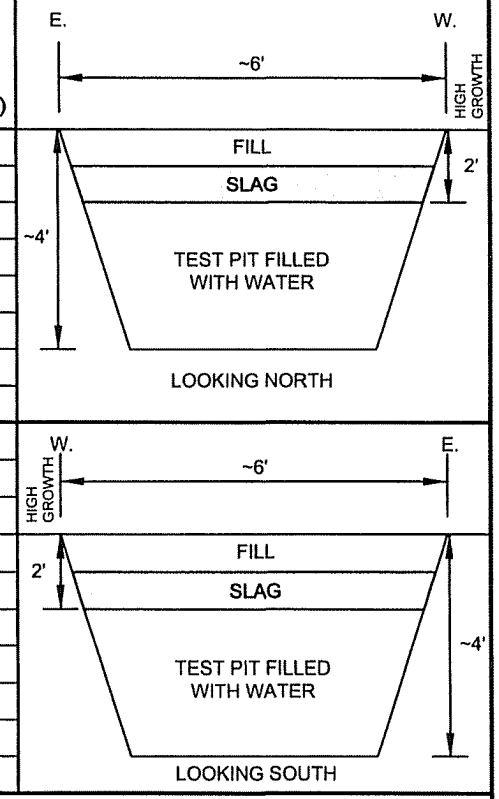
TEST PIT STRATIGRAPHY LOG

PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY.)

CONTRACTOR: SJB / ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-15
DATE/TIME STARTED: 08 / 18 / 03 13:00
DATE/TIME COMPLETED: 08 / 18 / 03 15:00
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)	GEOLOGIC PROFILE
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).					
0		1.0	FILL - MEDIUM BROWN, TRACE ORGANICS					
1.0		2.0	SLAG - LIGHT GRAY					
2.0		4.0	WATER - UNKNOWN IF SLAG IS THICKER THAN 1ft.					
			SAME LOG DESCRIPTION AS ABOVE					



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

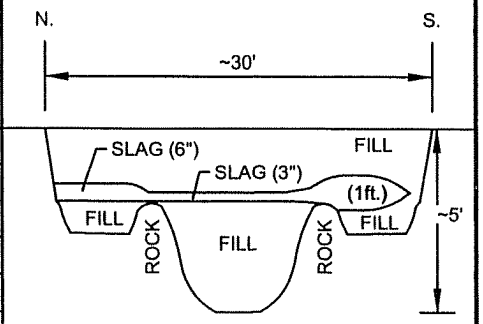
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

CONTRACTOR: SJB ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

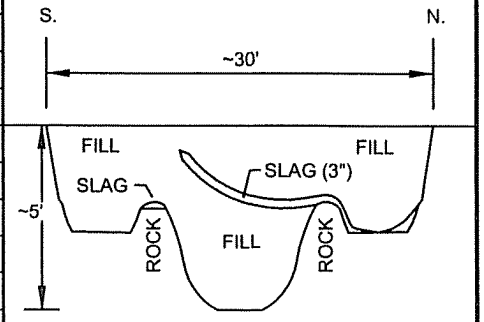
TEST PIT DESIGNATION: TP-15A
DATE/TIME STARTED: 08 / 18 / 03 13:00
DATE/TIME COMPLETED: 08 / 18 / 03 15:00
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		1.0	FILL - MEDIUM BROWN, TRACE ORGANICS			
1.0		~2	SLAG - LIGHT GRAY			
~2		5.0	FILL - MOST OF THE TEST PIT TO 5ft BGS; SOME AREAS ONLY TO 2 OR 3ft. BGS			
			(SEE GEOLOGIC PROFILE)			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE



LOOKING SOUTH



LOOKING NORTH

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

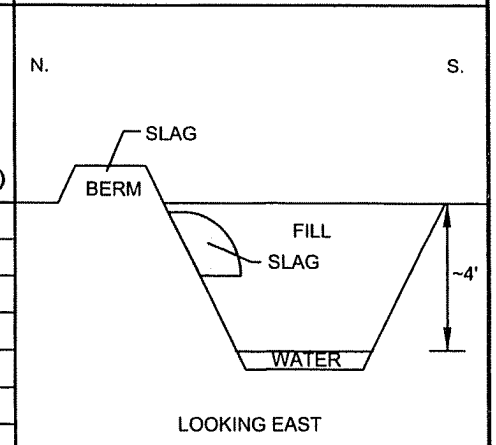
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

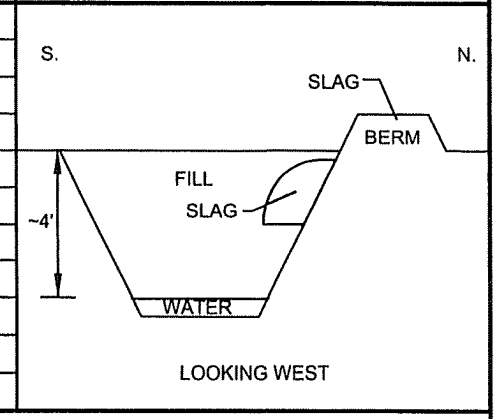
CONTRACTOR: SJB ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-16
DATE/TIME STARTED: 08 / 18 / 03 10:35
DATE/TIME COMPLETED: 08 / 18 / 03 11:35
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		2.0	SLAG - LIGHT GREY , SMALL LAYER OF FILL ON TOP w/PLANTS, ONLY ON NORTH				
			END OF PIT				
2.0		4.0	FILL - MEDIUM BROWN, WATER SEEPING INTO TEST PIT				
			SAME LOG DESCRIPTION AS ABOVE				

GEOLOGIC PROFILE





NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

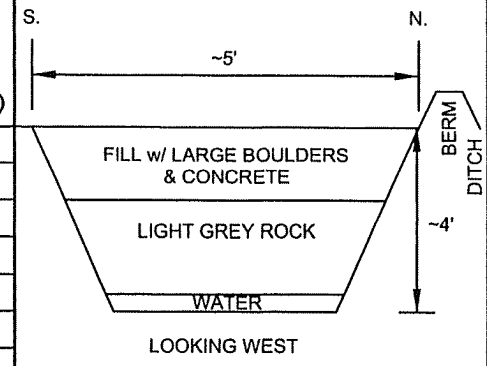
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

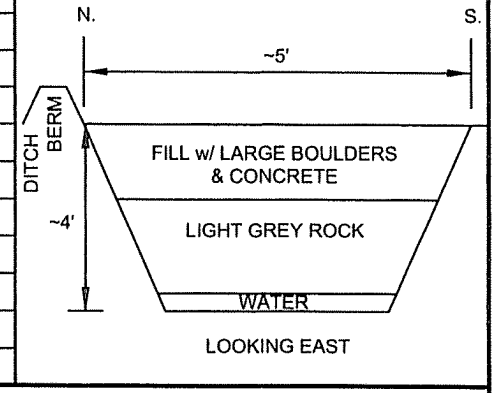
CONTRACTOR: SJB ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-17
DATE/TIME STARTED: 08 / 18 / 03 09:45
DATE/TIME COMPLETED: 08 / 18 / 03 10:25
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		2.0	FILL - MEDIUM BROWN, WITH CONCRETE CHUNKS				
2.0		4.0	ROCK - LIGHT GREY ROCK, HARD PIECES w/ GRAVELLY FILL,				
			DOESN'T HAVE THE APPEARANCE OF "SLAG"				
4.0		6.0	WATER AT BOTTOM OF PIT				
			SAME LOG DESCRIPTION AS ABOVE				

GEOLOGIC PROFILE





NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

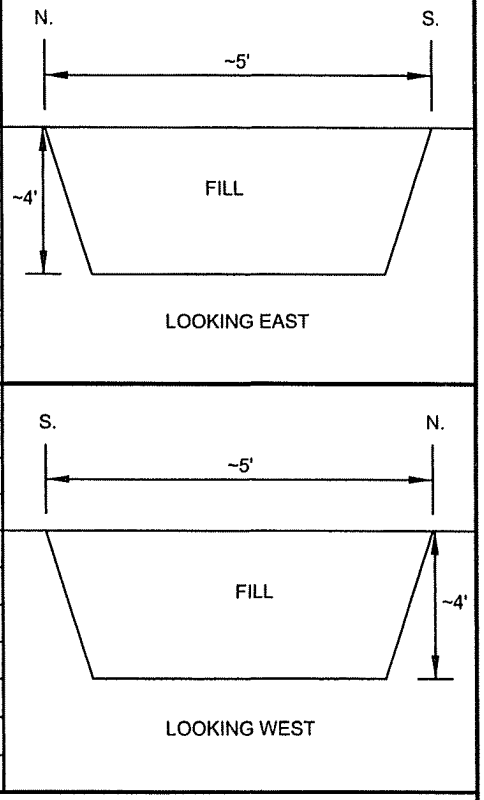
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

CONTRACTOR: SJB ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-18
DATE/TIME STARTED: 08 / 18 / 03 15:20
DATE/TIME COMPLETED: 08 / 18 / 03 15:40
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		4.0	FILL - MEDIUM BROWN , NO SLAG PRESENT			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

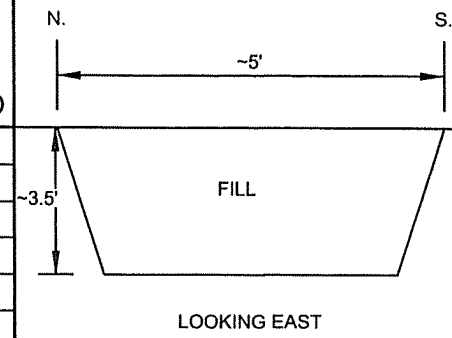
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

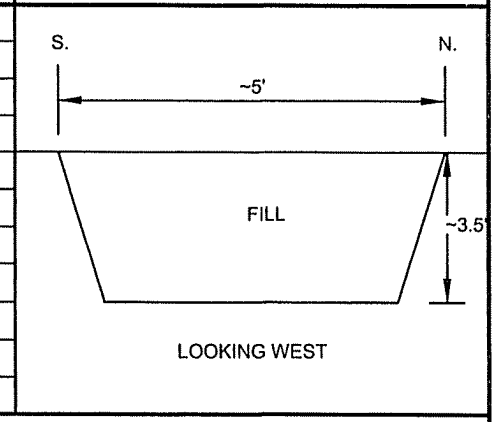
CONTRACTOR: SJB ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-18A
DATE/TIME STARTED: 08 / 18 / 03 15:20
DATE/TIME COMPLETED: 08 / 18 / 03 15:40
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		3.5	FILL - MEDIUM BROWN , NO SLAG PRESENT			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE





NOTES AND COMMENTS

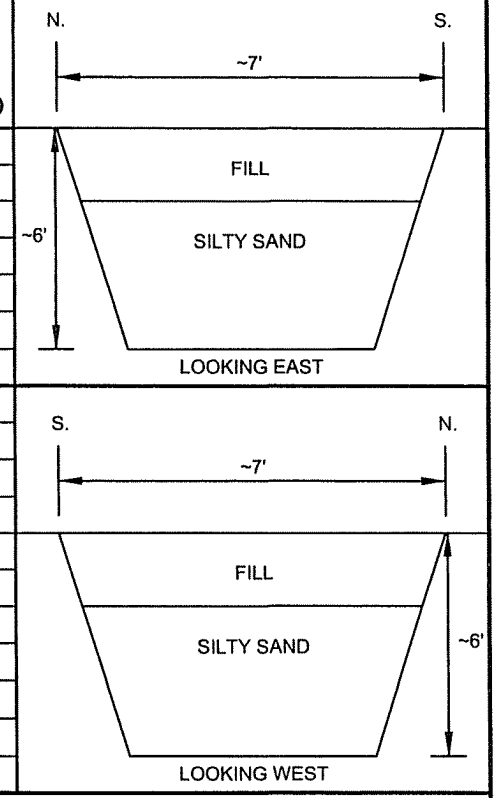
TEST PIT STRATIGRAPHY LOG

PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

CONTRACTOR: SJB / ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-19
DATE/TIME STARTED: 08 / 18 / 03 15:50
DATE/TIME COMPLETED: 08 / 18 / 03 16:55
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: J. RABY / C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE	INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).				
0		2.0	FILL - GREYISH BROWN, TRACE ORGANICS IN TOP 1ft. BGS.				
2.0		6.0	SILTY SAND - MEDIUM BROWN w/ GREY MOTTLING				
			SAME LOG DESCRIPTION AS ABOVE				



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

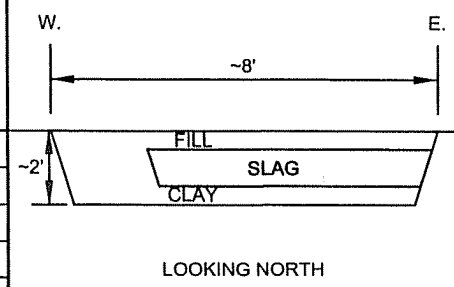
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

CONTRACTOR: SJB JEFF
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

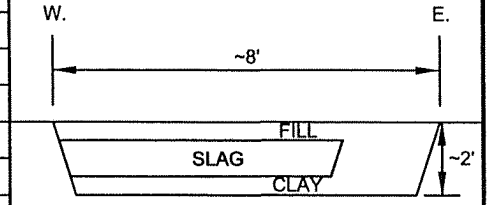
TEST PIT DESIGNATION: TP-20
DATE/TIME STARTED: 07 / 31 / 03 9:30
DATE/TIME COMPLETED: 07 / 31 / 03 10:15
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		0.5	FILL - ORGANIC MATTER, SOME DEBRIS (METAL, WOOD)			
0.5		1.5	SLAG - WHITE TO GREY, LARGE ROCKS TO COARSE GRAVEL IN SIZE, DRY,			
			ALSO A METALLIC "SLAG" (DARK GREY)			
1.5		2.0	CLAY (NATIVE), MEDIUM BROWN			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE



LOOKING NORTH



LOOKING SOUTH

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

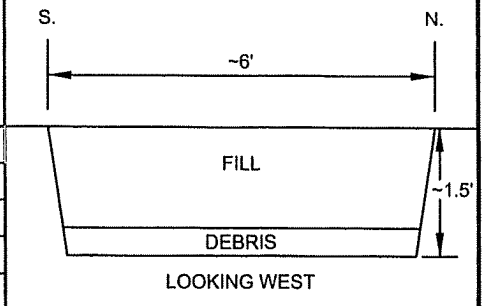
PROJECT NAME: VANADIUM
PROJECT NUMBER: 19867
CLIENT: PHELPS DODGE
LOCATION: AS PER PLAN (NIAGARA FALLS, NY)

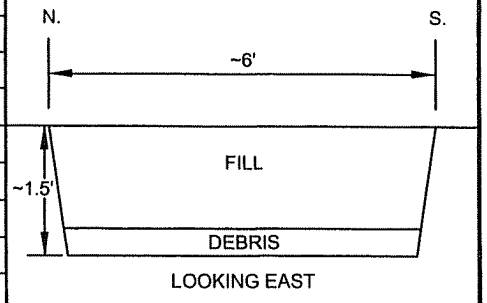
CONTRACTOR: SJB ANDY
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-21
DATE/TIME STARTED: 07 / 31 / 03 08:40
DATE/TIME COMPLETED: 07 / 31 / 03 09:25
TEST PIT METHOD: BACK HOE
CRA SUPERVISOR: C. SIMMONS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLE INTERVAL	PID / FID (ppm)
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).			
0		1.0	FILL - MEDIUM BROWN, TRACE ORGANIC MATERIAL, TRACE DEBRIS (WOOD, BRICKS)			
1.0		1.5	FILL - WITH SIGNIFICANT AMOUNTS OF DEBRIS (BRICKS, WOOD, METAL, ETC.),			
			NO SLAG OBSERVED			
			SAME LOG DESCRIPTION AS ABOVE			

GEOLOGIC PROFILE





NOTES AND COMMENTS

ATTACHMENT C

MONITORING WELL/BOREHOLE STRATIGRAPHIC LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: BH-12
DATE COMPLETED: July 23, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger/ C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Borehole	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	TOPSOIL - silty material with roots and other organics, non-plastic, slightly cohesive, dark brown, dry, no odor	0.50		1		50	10
2	SLAG (FILL) - silt sized particles, fine to coarse grained, non-cohesive, yellow to gray, dry, no odor	2.00	8" Ø Borehole	2		29	>50
4	FILL - silt to sand sized grains, with clayey silt inclusions, trace fine gravel, dark brown with trace yellow coloring, trace slightly metallic silt	4.00					
	SLAG (FILL) - fine to coarse grained, non-cohesive, medium to dark gray, dry			(3)		25	43
6			Bentonite				
	FILL - fine grained, poorly graded, non-cohesive, medium brown, dry, no odor	6.50		4		75	57
8	- silt to coarse gravel sized particles, non-cohesive, dry, fracturing like a shale at 6.8ft BGS			(5)		46	>50
10	- silt with sand, trace fine gravel, non-cohesive, medium brown, very slightly damp at 7.2ft BGS						
	- trace clay, light to medium brown, very slightly moist, no odor, with pieces of rock at 8.0ft BGS			6		25	>50
12	END OF BOREHOLE @ 10.0ft BGS	12.00					
	Refusal at 10 ft bgs.						
14							
16							
18							
20							
22							
24							
26							
28							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/23/2003
CHEMICAL ANALYSIS (3)

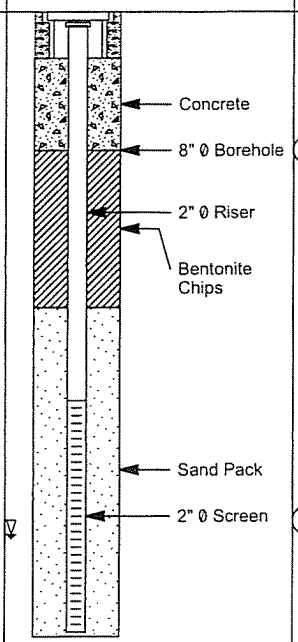
OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-15
DATE COMPLETED: July 24, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger/ C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING GROUND SURFACE TOP OF RISER	601.51 601.35 601.19
0	CL - SILTY CLAY - trace sand and gravel, non-cohesive, medium brown, slightly moist, no odor, trace organics	
2	- no trace sand or gravel, slightly plastic, cohesive, light to medium brown at 0.5ft BGS	
4	CL - SILTY CLAY - slightly plastic, cohesive, medium to reddish brown with gray mottling, very slightly moist, no odor	597.35
6	CL - CLAY - plastic, cohesive, light to medium reddish brown with gray mottling, slightly moist, no odor, malleable	595.35
8		
10	- very plastic, trace organics at 10.0ft BGS	
12	CH - SANDY CLAY - with gravel, plastic, cohesive, medium brown with gray mottling, very moist, no odor - wet at 12.0ft BGS	590.05
14	- with fractured bedrock, dark brown, non-plastic, non-cohesive at 12.5ft BGS END OF BOREHOLE @ 14.0ft BGS	587.35
16		
18		
20		
22		
24		
26		
28		



WELL DETAILS
Screened interval:
592.95 to 587.95ft AMSL
8.40 to 13.40ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
598.35 to 594.95ft AMSL
3.00 to 6.40ft BGS
Material: Bentonite Chips
Sand Pack:
594.95 to 587.85ft AMSL
6.40 to 13.50ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		42	7
2		50	29
3		100	14
4		100	22
5		33	3
6		100	7
7		50	28

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/24/2003
CHEMICAL ANALYSIS (6)

OVERBURDEN LOG 19867 BH AND MW GPJ CRA_CORP GDT 7/13/04

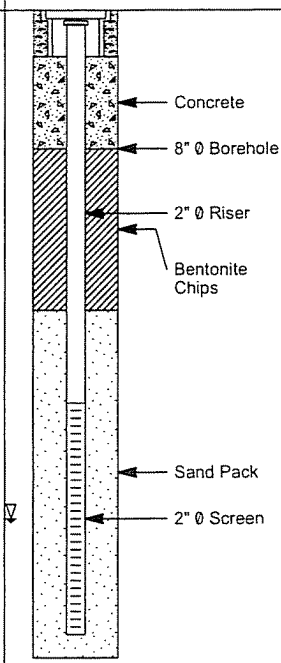
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-16
DATE COMPLETED: July 23, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	601.06
	GROUND SURFACE	600.94
	TOP OF RISER	600.09
0	TOPSOIL - clay with silt, trace fine gravel, plastic, medium brown, very slightly moist, no odor, trace organics	
2	CL - SILTY CLAY - trace very fine gravel, slightly plastic, cohesive, light to medium brown with gray mottling, dry, no odor	598.94
4	CL - CLAY - with silt, very slightly plastic, cohesive, light to medium brown with light beige to gray mottling, very slightly moist, no odor	596.94
6	- slight plasticity at 6.0ft BGS	
	- slighly moist at 7.5ft BGS	
8	- trace silt, trace gray mottling at 8.0ft BGS	
	- moist at 9.5ft BGS	
10	CH - CLAY - plastic, cohesive, medium reddish brown with trace faint mottling, moist, no odor	590.44
12	- with bedrock pieces at 12.3ft BGS	
14	END OF BOREHOLE @ 14.0ft BGS	586.94
16		
18		
20		
22		
24		
26		
28		

Monitoring Well



WELL DETAILS
Screened interval:
592.44 to 587.44ft AMSL
8.50 to 13.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
597.94 to 594.44ft AMSL
3.00 to 6.50ft BGS
Material: Bentonite Chips
Sand Pack:
594.44 to 586.94ft AMSL
6.50 to 14.00ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		25	6
2		37.5	10
3		83	12
4		87.5	20
5		83	8
6		75	8
7		42	26

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/23/2003
CHEMICAL ANALYSIS (6)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

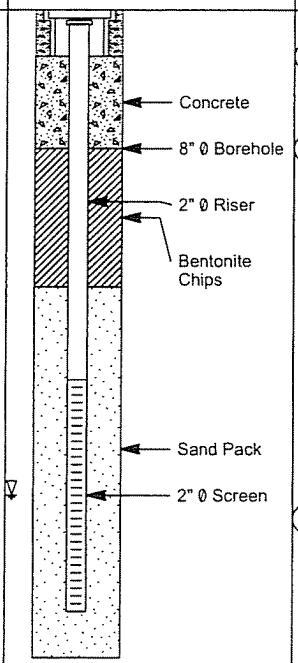
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-17
DATE COMPLETED: August 20, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	601.69
	GROUND SURFACE	601.68
	TOP OF RISER	601.01
0	FILL - silty clay, trace fine gravel, low plasticity, cohesive, medium brown with gray mottling, dry, no odor, trace organics	
4	CL - SILTY CLAY - slightly plastic, cohesive, medium brown with gray mottling, very slightly moist, no odor	597.68
6	- slightly moist at 7.2ft BGS	
10	- plastic, very moist at 10.6ft BGS	
12	- wet at 12.0ft BGS - with rounded rock fragments that are coarse gravel in size at 12.6ft BGS	
14	END OF BOREHOLE @ 14.0ft BGS	587.68

Monitoring Well



WELL DETAILS
Screened interval:
593.68 to 588.68ft AMSL
8.00 to 13.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
598.68 to 595.68ft AMSL
3.00 to 6.00ft BGS
Material: Bentonite Chips
Sand Pack:
595.68 to 587.68ft AMSL
6.00 to 14.00ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		17	7
2		25	26
3		50	22
4		83	28
5		75	13
6		58	14
7		92	9

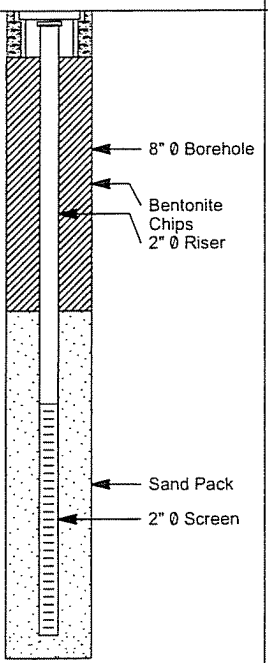
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/20/2003
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-18
DATE COMPLETED: July 28, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: J. Raby

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	Monitoring Well	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE TOP OF RISER	613.02 612.94 611.98					
0	TOPSOIL	612.34		1		45	27
	SLAG (FILL)			2		10	20
4				3		15	7
				4		15	>50
8				5		10	11
10				6		55	19
12							
	CL - CLAY	599.94		7		40	13
14	END OF BOREHOLE @ 14.0ft BGS	598.94					
16							
18							
20							
22							
24							
26							
28							

WELL DETAILS
Screened interval:
604.44 to 599.44ft AMSL
8.50 to 13.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
611.94 to 606.44ft AMSL
1.00 to 6.50ft BGS
Material: Bentonite Chips
Sand Pack:
606.44 to 598.94ft AMSL
6.50 to 14.00ft BGS
Material: #2 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

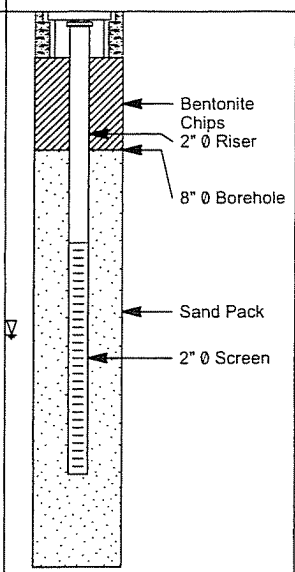
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-19
DATE COMPLETED: July 23, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger/ C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	605.63
	GROUND SURFACE	605.50
	TOP OF RISER	605.39
0	TOPSOIL - with slag and sand sized grains, trace gravel, non-cohesive, medium brown to gray, dry, no odor, with organics	605.25
2	SLAG (FILL) - sand sized with graved sized particles, non-cohesive, light to medium bray with trace brown, dry, no odor	
4	- becomes wet at 3.8ft BGS	601.50
	CL - SILTY CLAY - trace fine gravel, non-plastic, cohesive, gray, very slightly moist, trace organics	600.50
6	CL - CLAY - trace silt, non-plastic, cohesive, medium brown to gray, dry, no odor	
8	- medium brown with trace gray mottling, moist to slightly wet (more moisture from 9 to 10 ft), slightly pliable at 8.0ft BGS	
10	- trace fine gravel, medium to reddish brown with trace gray to light beige mottling, moist, pliable at 10.8ft BGS	
12	END OF BOREHOLE @ 12.0ft BGS	593.50
14		
16		
18		
20		
22		
24		
26		
28		

Monitoring Well



WELL DETAILS
Screened interval:
600.50 to 595.50ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
604.50 to 602.50ft AMSL
1.00 to 3.00ft BGS
Material: Bentonite Chips
Sand Pack:
602.50 to 593.50ft AMSL
3.00 to 12.00ft BGS
Material: #2 Sand

SAMPLE

NUMBER	INTERVAL	REC (%)	'N' VALUE
1		79	43
2		100	50
3		100	42
4		12.5	>50
5		67	26
6		100	13

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/23/2003
CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

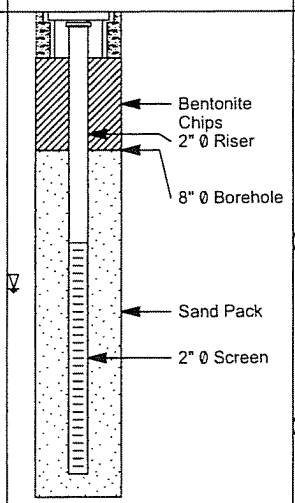
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-20
DATE COMPLETED: July 25, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	607.38
	GROUND SURFACE	607.32
	TOP OF RISER	607.17
0	FILL - sand and gravel, with slag, well graded, non-cohesive, medium brown and gray, dry, no odor	
2	FILL - silt, with sand and gravel, trace clay, pieces of slag throughout, non-cohesive, light to medium brown with some gray, dry, no odor	605.32
4	- trace clay, sand, and fine gravel, slightly cohesive, non-plastic, medium reddish brown changing to dark gray to black at base of return, dry, no odor at 4.5ft BGS	
6	- wet at 6.0ft BGS	601.07
	CL - CLAY - with silt, trace sand, slight plasticity, stiff, medium brown, wet at contact with above silt layer	
8	- trace silt, plastic, cohesive, medium to reddish brown, moist, no odor, malleable at 8.0ft BGS	599.32
10	END OF BOREHOLE @ 10.0ft BGS	
12		
14		
16		
18		
20		
22		
24		
26		
28		

Monitoring Well



WELL DETAILS
Screened interval:
602.32 to 597.32ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
606.32 to 604.32ft AMSL
1.00 to 3.00ft BGS
Material: Bentonite Chips
Sand Pack:
604.32 to 596.82ft AMSL
3.00 to 10.50ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		37.5	22
2		79	19
3		75	83
4		50	32
5		50	23

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/25/2003
CHEMICAL ANALYSIS (VOC)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-21
DATE COMPLETED: July 28, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: J. Raby

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	Monitoring Well	SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
	TOP OF CASING GROUND SURFACE TOP OF RISER	620.02 619.97 619.50					
0	TOPSOIL	619.77					
	FILL - silt with slag, with clay and coarse sand, non-plastic, light gray, dry			1		35	31
2			8" Ø Borehole	2		55	24
4			Bentonite Chips 2" Ø Riser	3		65	15
6				4		90	17
8				5		65	51
10				6		45	37
12				7		50	18
14			Sand Pack 2" Ø Screen	8		30	>50
16				9		40	>50
18				10		30	16
	CL - CLAY	600.47					
20	END OF BOREHOLE @ 20.0ft BGS	599.97					
22							
24							
26							
28							

WELL DETAILS
Screened interval:
610.47 to 600.47ft AMSL
9.50 to 19.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
618.97 to 612.47ft AMSL
1.00 to 7.50ft BGS
Material: Bentonite Chips
Sand Pack:
612.47 to 599.97ft AMSL
7.50 to 20.00ft BGS
Material: #2 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (10)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

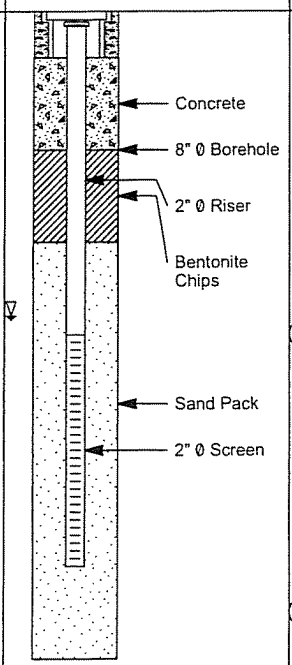
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-22
DATE COMPLETED: July 22, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger/ C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	606.54
	GROUND SURFACE	606.45
	TOP OF RISER	605.53
0	FILL - silt sized particles, non-plastic, non-cohesive, dark brown to gray, no odor, metallic grains	605.95
2	SLAG (FILL) - gravel sized, non-plastic, cohesive, gray, dry, no odor	
4	- silt sized particles, fine grained, poorly graded, with trace gravel sized particles, non-cohesive at 4.0ft BGS	
6	- trace clay, saturated at 6.0ft BGS	
8	CL - SILTY CLAY - trace gravel and pebbles, plastic, cohesive, dark brown, saturated	597.75
10	- trace fine gravel, medium to dark brown with gray mottling, saturated, no odor at 10.0ft BGS	
12	- non-plastic, cohesive, medium to reddish brown with gray mottling, slightly moist at 13.0ft BGS	
14		
16	END OF BOREHOLE @ 16.0ft BGS	590.45
18		
20		
22		
24		
26		
28		

Monitoring Well



WELL DETAILS
Screened interval:
599.45 to 594.45ft AMSL
7.00 to 12.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
603.45 to 601.45ft AMSL
3.00 to 5.00ft BGS
Material: Bentonite Chips
Sand Pack:
601.45 to 592.45ft AMSL
5.00 to 14.00ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		42	12
2		71	40
3		87.5	43
(4)		71	31
5		50	8
6		50	6
(7)		87.5	25
8		58	18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/22/03
CHEMICAL ANALYSIS (4)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

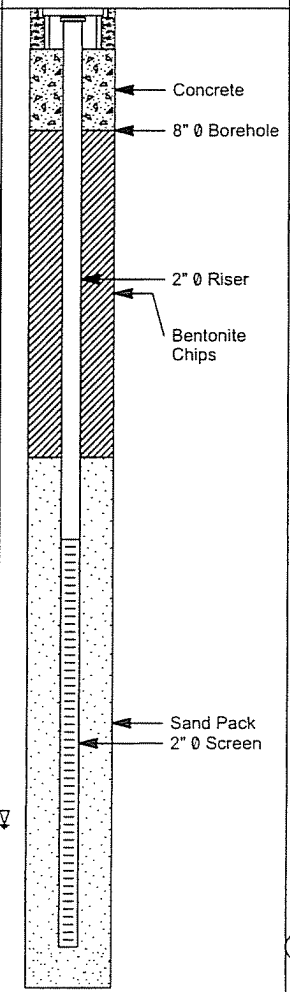
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-23
DATE COMPLETED: July 25, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	620.09
	GROUND SURFACE	619.88
	TOP OF RISER	619.74
0	TOPSOIL - clay with silt, with abundant organic matter, non-cohesive, dry, no odor	619.78
2	FILL - clay, with silt, trace sand and fine gravel, trace organics, soft to firm, very dry, no odor	617.88
4	FILL - slag, non-cohesive, light to medim gray, dry, no odor, breaks into coarse gravel sized particles, porous	
6	- slight moist at 5.5ft BGS	
8		
10	- slightly finer grained when broken up at 10.0ft BGS	
12		
14		
16		
18		
20	- moist at 19.5ft BGS - wet at 20.0ft BGS	
22	- saturated at 22.0ft BGS	
	CL - CLAY - cohesive, stiff, medium to reddish brown, wet, no odor, pliable	597.63
24	END OF BOREHOLE @ 24.0ft BGS	595.88
26		
28		
30		
32		

Monitoring Well



WELL DETAILS
Screened interval:
606.88 to 596.88ft AMSL
13.00 to 23.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
616.88 to 608.88ft AMSL
3.00 to 11.00ft BGS
Material: Bentonite Chips
Sand Pack:
608.88 to 595.88ft AMSL
11.00 to 24.00ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		33	12
2		58	37
(3)		100	27
4		75	48
5		83	48
6		50	44
7		67	50
8		67	67
9		42	26
10		75	70
11		17	12
(12)		100	28

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/25/2003
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

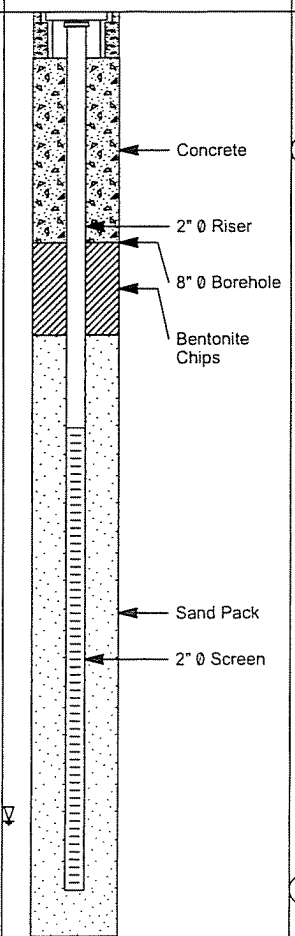
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-24
DATE COMPLETED: July 28, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: J. Raby

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	618.48
	GROUND SURFACE	618.41
	TOP OF RISER	617.58
0	TOPSOIL	
2	FILL - silt with clay and coarse sand sized particles, with slag, non-plastic, light gray, dry	616.41
10	- slightly moist at 10.0ft BGS	
12	- with clay, with slag at 12.0ft BGS	
18	CL - CLAY - trace silt, plastic, brown to brownish-green, dry, some vegetative matter	600.71
20	END OF BOREHOLE @ 20.0ft BGS	598.41

Monitoring Well



WELL DETAILS
Screened interval:
609.41 to 599.41ft AMSL
9.00 to 19.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
613.41 to 611.41ft AMSL
5.00 to 7.00ft BGS
Material: Bentonite Chips
Sand Pack:
611.41 to 598.41ft AMSL
7.00 to 20.00ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		40	16
2		80	>50
3		90	38
4		90	35
5		100	59
6		55	>50
7		90	18
8		85	14
9		20	18
10		50	12

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/28/2003
CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

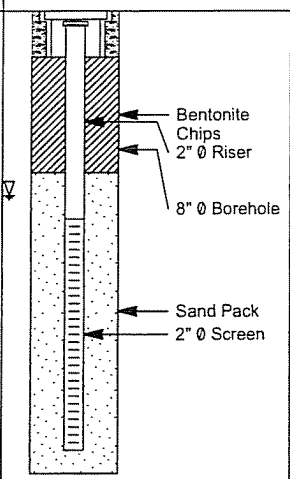
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-25
DATE COMPLETED: July 23, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger/ C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	606.05
	GROUND SURFACE	605.96
	TOP OF RISER	605.31
0	FILL - silty clay, trace fine gravel, non-plastic, cohesive, dry, no odor, some gray fine to coarse grained gray slag, some organic matter	
2	SLAG (FILL) - sand to fine gravel sized particles, non-cohesive, moist, no odor, slight metallic sheen at base of slag	603.96 / 603.66
4	FILL - silty clay, trace fine to coarse grained gravel, dark brown, slightly moist, no odor, trace organics	601.96
6	CL - SILTY CLAY - trace sand and gravel, high plasticity, slightly cohesive, dark gray to brown, saturated, no odor, trace organics	
	- cohesive, dark brown, at 5.1ft BGS	599.16
8	CL - CLAY - trace silt, slightly plastic, cohesive, dark brown, saturated	
	- trace fine gravel, no silt, with gray mottling, slightly moist, no odor at 8.0ft BGS	
10	END OF BOREHOLE @ 10.0ft BGS	595.96
12		
14		
16		
18		
20		
22		
24		
26		
28		

Monitoring Well



WELL DETAILS
Screened interval:
601.46 to 596.46ft AMSL
4.50 to 9.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
604.96 to 602.46ft AMSL
1.00 to 3.50ft BGS
Material: Bentonite Chips
Sand Pack:
602.46 to 595.96ft AMSL
3.50 to 10.00ft BGS
Material: #2 Sand

SAMPLE

NUMBER	INTERVAL	REC (%)	'N' VALUE
1		29	5
2		54	37
3		71	WOH
4		71	6
5		92	20

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/23/2003
CHEMICAL ANALYSIS (2)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

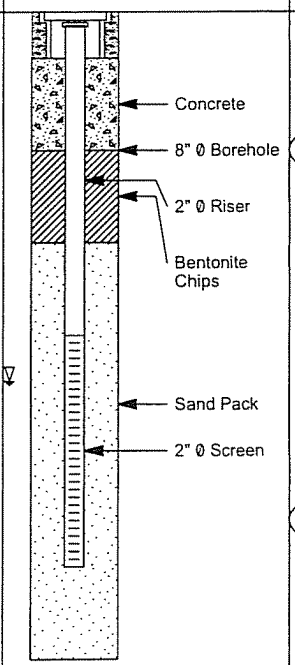
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-26
DATE COMPLETED: July 23, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: P. Kryger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING GROUND SURFACE TOP OF RISER	614.54 614.38 614.33
0	TOPSOIL (FILL) - fine grained, poorly graded, with silt and sand, trace fine gravel, non-cohesive, medium brown, dry, no odor, abundant roots and organics	
2		612.38
4	FILL - very fine silt and sand with large gravel pieces, with light gray porous slag, dry - sand to fine gravel sized particles, trace silt, non-cohesive, dark brown, very slightly moist, no odor at 4.0ft BGS - fine grained, medium to dark gray at 4.2ft BGS	
6		
8		606.18
10	CL - SILTY CLAY - trace fine gravel, medium to dark brown, moist, no odor, malleable, ductile, pliable - with large pieces of broken rock, with abundant fine gravel at 10.0ft BGS	
12		601.48
14	END OF BOREHOLE @ 12.9ft BGS Refusal at 12.9 ft bgs.	
16		
18		
20		
22		
24		
26		
28		

Monitoring Well



WELL DETAILS
Screened interval:
607.38 to 602.38ft AMSL
7.00 to 12.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
611.38 to 609.38ft AMSL
3.00 to 5.00ft BGS
Material: Bentonite Chips
Sand Pack:
609.38 to 602.38ft AMSL
5.00 to 12.00ft BGS
Material: #2 Sand

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1		25	17
2		25	30
3		17	15
4		37.5	18
5		50	10
6		54	26
7		8	>50

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/23/2003
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-27
DATE COMPLETED: July 29, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: J. Raby/ C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	Monitoring Well	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE TOP OF RISER	607.02 606.72 606.19					
0	FILL - silt-sized particles, trace fine gravel, slightly plastic, medium to dark brown, dry, no odor	605.62	Bentonite Chips 2" Ø Riser	1		62.5	8
2	SLAG (FILL) - with silt to fine gravel-sized particles, non-plastic, gray, dry, no odor - light brown mottling at 2.0ft BGS		8" Ø Borehole	2		67	7
4	- slightly moist at 4.0ft BGS		Sand Pack 2" Ø Screen	3		12.5	7
6	- saturated at 6.0ft BGS						
	CL - SILTY CLAY - plastic, cohesive, dark brown, moist, no odor	600.22		4		83	13
8	- medium to dark brown, less moisture at 7.6ft BGS			5		83	25
10	END OF BOREHOLE @ 10.0ft BGS	596.72					
12							
14							
16							
18							
20							
22							
24							
26							
28							

WELL DETAILS
Screened interval:
603.72 to 598.72ft AMSL
3.00 to 8.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
605.72 to 604.72ft AMSL
1.00 to 2.00ft BGS
Material: Bentonite Chips
Sand Pack:
604.72 to 597.72ft AMSL
2.00 to 9.00ft BGS
Material: #2 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 07/29/2003

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PHASE I RFI
PROJECT NUMBER: 19867-00
CLIENT: Vanadium Corporation of America
LOCATION: Niagara Falls, New York

HOLE DESIGNATION: MW-28
DATE COMPLETED: July 29, 2003
DRILLING METHOD: 4 1/4 Inch HSA
FIELD PERSONNEL: J. Raby/ C. Simmons

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	Monitoring Well	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE TOP OF RISER	606.22 606.16 605.96					
0	CL - SILTY CLAY (FILL) - with trace vegetative matter, moderately plastic, medium to dark brown, dry, no odor	605.66	Bentonite Chips 2" Ø Riser	1		62.5	14
2	SLAG (FILL) - silt-sized particles with fine grained gravel, non-plastic, gray with brown mottling, dry, no odor		8" Ø Borehole	2		46	54
4		601.16	Sand Pack 2" Ø Screen	3		0	13
6	FILL - silty clay, trace slag, plastic, medium to dark brown, very slightly moist, no odor	599.46		4		75	20
8	CL - CLAY - trace silt, plastic, gray to light brown, slightly moist, no odor			5		75	7
10	END OF BOREHOLE @ 10.0ft BGS	596.16					
12							
14							
16							
18							
20							
22							
24							
26							
28							

WELL DETAILS
Screened interval:
603.16 to 598.16ft AMSL
3.00 to 8.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
605.16 to 604.16ft AMSL
1.00 to 2.00ft BGS
Material: Bentonite Chips
Sand Pack:
604.16 to 597.66ft AMSL
2.00 to 8.50ft BGS
Material: #2 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 19867 BH AND MW.GPJ CRA_CORP.GDT 7/13/04

ATTACHMENT D

SOIL COVER MATERIAL ANALYSIS LABORATORY REPORT

SJB SERVICES, INC.
Contract Drilling and Testing

BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Vanadium Corp. of America**

CLIENT: **CRA**

DATE: **September 29, 2003** **PROJECT NO.: BD-03-006**

Attached are the results of laboratory testing conducted on various samples from the above referenced project. P. Kryger representing CRA, chose samples contained in this report.

The testing conducted was as follows:

ASTM D-422: Particle Size Analysis of Soils

ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

ASTM D-5084: Measurement of Hydraulic Conductivity of Saturated Porous Material Using a Flexible Wall Permeameter

Samples were received at the SJB Services, Inc. laboratory on August 21, 2003 where they were processed for testing.

If the reviewer should have any questions concerning this report, please do not hesitate to contact our office at any time.

SJB Services, Inc.

Paul Gregorczyk
Laboratory Manager

SJB SERVICES, INC.
Contract Drilling and Testing

BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: Vanadium Corp. of America

CLIENT: CRA

DATE: September 29, 2003

PROJECT NO.: BD-03-006
REPORT NO.: LTR-1

SJB Sample Number: 03-1763
CRA Sample Number: GT-19867-08-03-PK-001

ASTM D-422: Particle Size Analysis of Soils

Sieve Size	*Percent Passing*
1 ½"	100.0
1"	99.9
¾"	99.6
½"	99.3
¼"	99.0
#4	98.8
#10	93.4
#20	90.0
#40	85.4
#100	77.4
#200	70.7

PERCENT COMPONENTS

GRAVEL	SAND	SILT	CLAY
1.2 %	28.1 %	44.8 %	25.9 %

ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Liquid Limit	Plastic Limit	Plasticity Index
38	30	8

ASTM D-1557-91: Laboratory Compaction Characteristics of Soil Using Method C Modified Effort

Maximum Dry Density: 99.4 pcf
Optimum Moisture: 17.1 %

ASTM D-5084: Measurement of Hydraulic Conductivity of Saturated Porous Material Using a Flexible Wall Permeameter

Coefficient of Permeability: 5.77 x 10^{-7} cm/sec (95.4% compaction at 17.2% moisture)

SERVICES, INC.

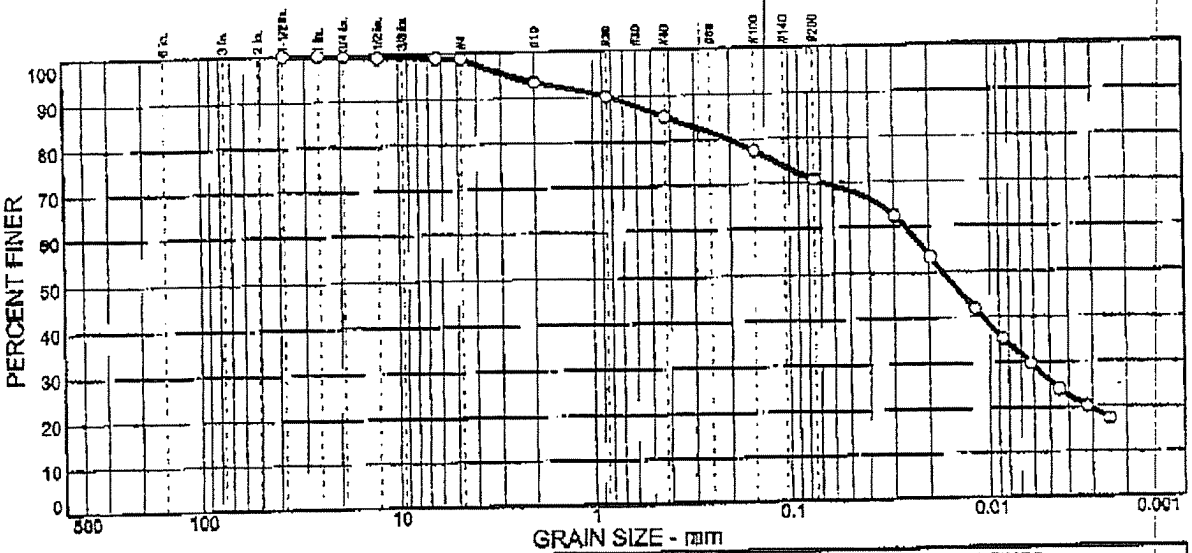
Particle Size Distribution Report

Project: VANADIUM CORP. OF AMERICA **Project No.:** BD-03-006

Client: CRA

Sample No: 03-1763 **Source of Sample:** PK-001 **Date:** 9/29/03

Location: GT-19867-08-03-PK-001 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.4	0.8	5.4	8.0	14.7	44.8	25.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	99.9		
.75 in.	99.6		
.5 in.	99.3		
.25 in.	99.0		
#4	98.8		
#10	93.4		
#20	90.0		
#40	85.4		
#100	77.4		
#200	70.7		

* (no specification provided)

Soil Description

GT-19867-08-03-PK-001

Atterberg Limits

PL= 30 LL= 38 PI= 8

Coefficients

D_{85}= 0.402 D_{60}= 0.0263 D_{50}= 0.0171

D_{30}= 0.0063 D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= AASHTO=

Remarks

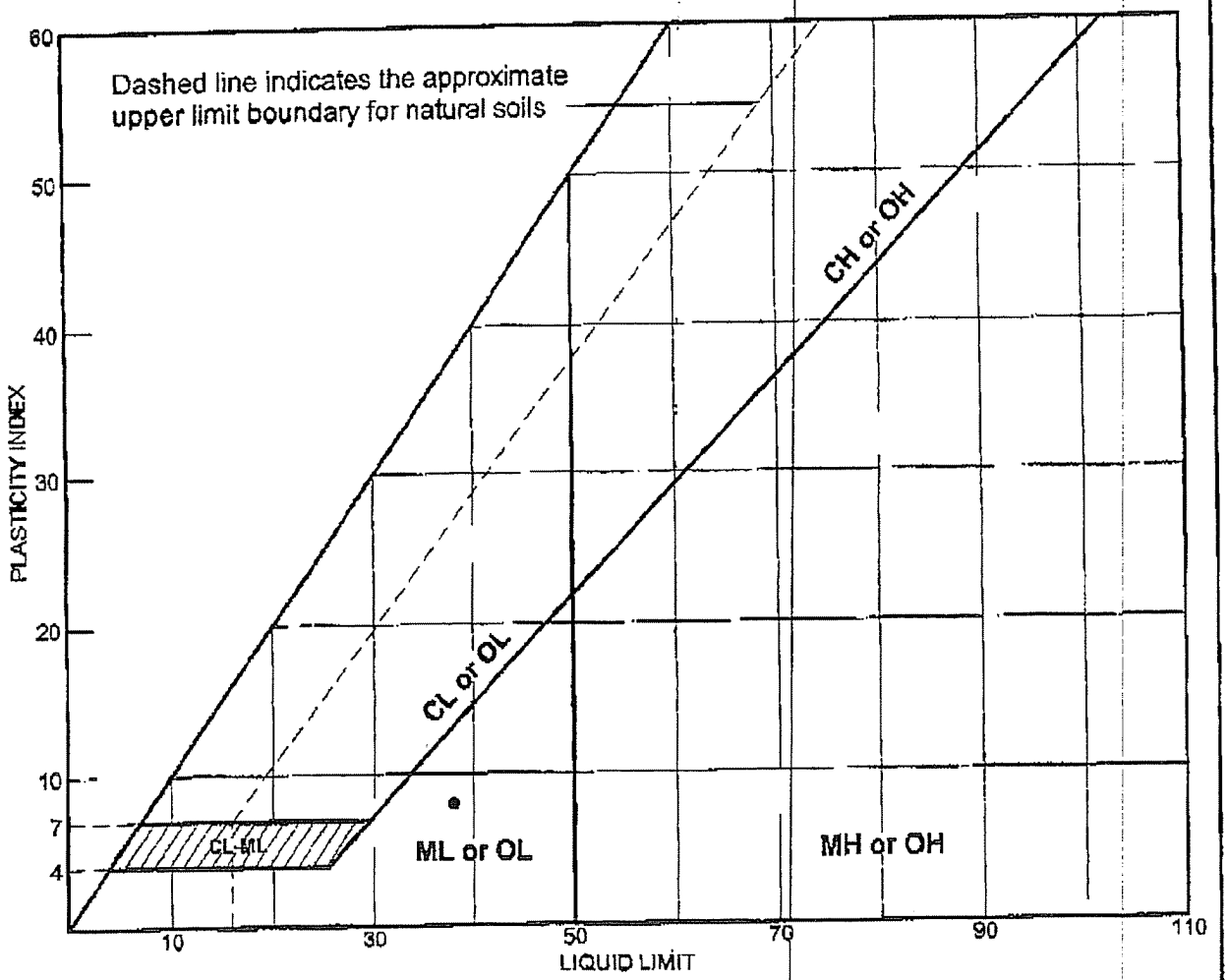
LTR: 1

DATE RECEIVED: 8/19/03

SAMPLED BY: SJB

Plate

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	PK-001	03-1763			30	38	8	

LIQUID AND PLASTIC LIMITS TEST REPORT

SJB SERVICES, INC.

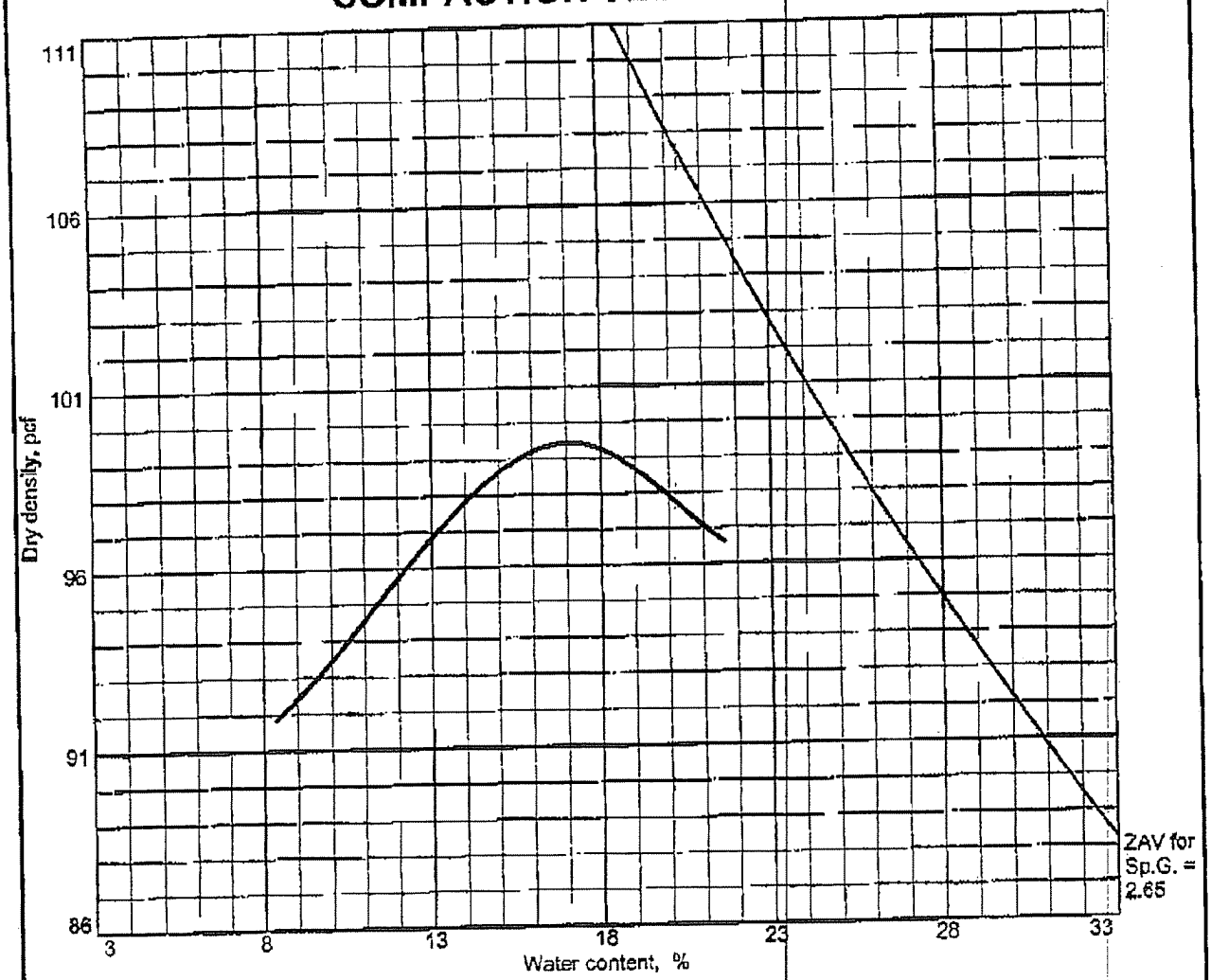
Client: CRA

Project: VANADIUM CORP. OF AMERICA

Project No.: BD-03-006

Plate

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
				2.65	38	8	1.2	70.7

TEST RESULTS

Maximum dry density = 99.4 pcf

Optimum moisture = 17.1 %

MATERIAL DESCRIPTION

GT-19867-08-03-PK-001

Project No. BD-03-006 **Client:** CRA

Project: VANADIUM CORP. OF AMERICA

• **Location:** GT-19867-08-03-PK-001

Remarks:

LTR-1
SAMPLE NUMBER: 03-1763

COMPACTION TEST REPORT

SJB SERVICES, INC.

Plate

PERMEABILITY TEST REPORT

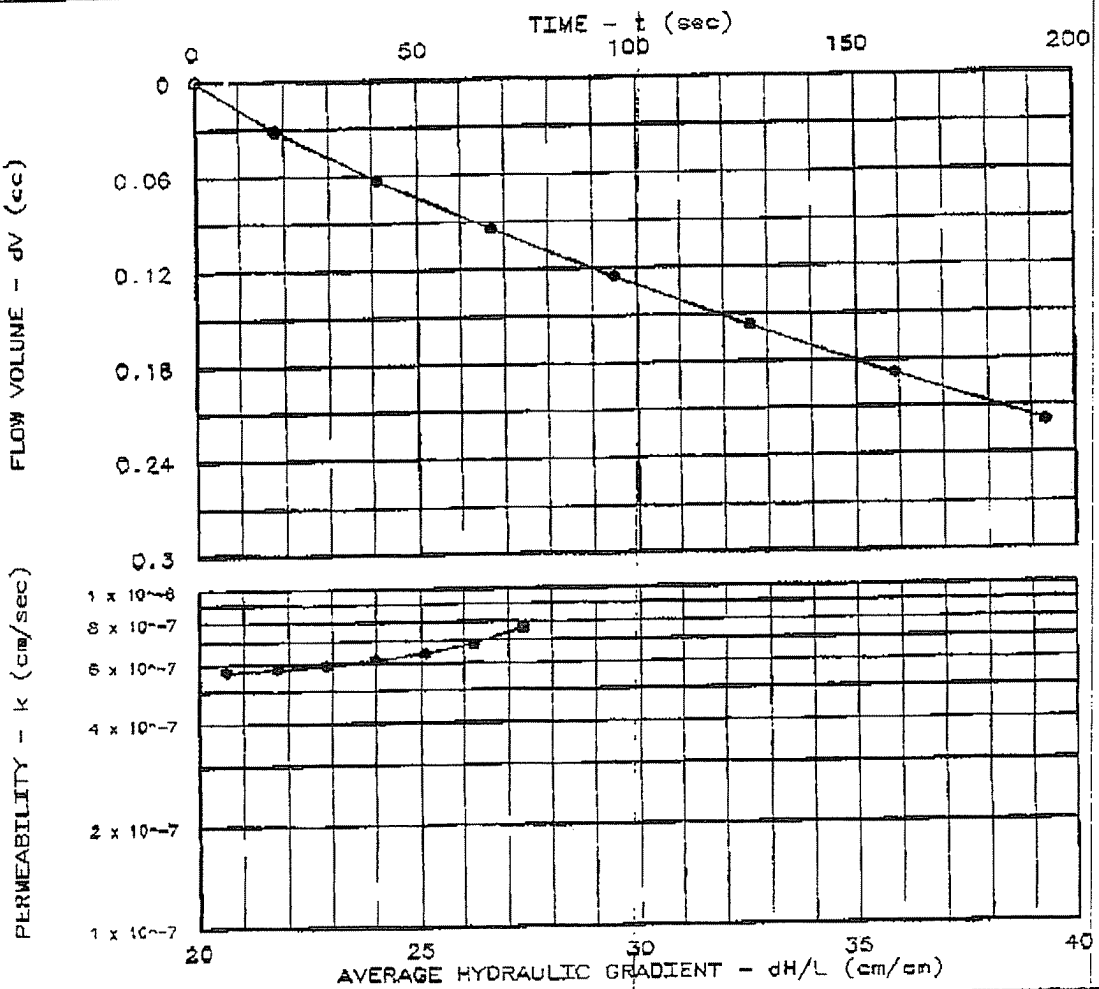
TEST DATA:
Specimen Height (cm): 11.67
Specimen Diameter (cm): 10.21
Dry Unit Weight (pcf): 94.9
Moisture Before Test (%): 17.2
Moisture After Test (%): 25.3
Run Number: 1 ● 2 ▲
Cell Pressure (psi): 95.0

Sat. Pressure (psi): 90.0
Diff. Head (psi): 4.1

Perm. (cm/sec): 5.77 x 10^-7

SAMPLE DATA:
Sample Identification:
GT-19887-08-03-PK-001
Visual Description: Silt, some sand & clay trace gravel
Remarks: ASTM D5084

Maximum Dry Density (pcf): 99.4
Optimum Moisture Content (%): 17.1
ASTM(D1557)
Percent Compaction: 95.4%
Permeameter type: FLEXIBLE WALL
Sample type: REMOLDED



Project: Vanadium Corp. of America
Location:
Date: 9/1/03

PERMEABILITY TEST REPORT

SJB SERVICES, INC.

Project No.: 8D-03-006
File No.: LTR-1
Lab No.: 03-1763
Tested by: pg
Checked by: pg
Test: CV - Constant volume

SJB SERVICES, INC.
Contract Drilling and Testing

BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
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Fax: (716) 649-8051

Laboratory Test Report

PROJECT: Vanadium Corp. of America

CLIENT: CRA

DATE: September 29, 2003

PROJECT NO.: BD-03-006
REPORT NO.: LTR-2

SJB Sample Number: 03-1764
CRA Sample Number: GT-19867-08-03-PK-002

ASTM D-422: Particle Size Analysis of Soils

Sieve Size	*Percent Passing*
2"	100.0
1 ½"	99.6
1"	99.3
¾"	99.2
½"	99.0
¼"	98.3
#4	97.4
#10	94.4
#20	91.5
#40	89.3
#100	83.6
#200	78.1

PERCENT COMPONENTS

GRAVEL	SAND	SILT	CLAY
2.6 %	19.3 %	39.2 %	38.9 %

ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Liquid Limit	Plastic Limit	Plasticity Index
37	22	15

ASTM D-1557-91: Laboratory Compaction Characteristics of Soil Using Method C Modified Effort

Maximum Dry Density: 104.8 pcf
Optimum Moisture: 15.0 %

ASTM D-5084: Measurement of Hydraulic Conductivity of Saturated Porous Material Using a Flexible Wall Permeameter

Coefficient of Permeability: 7.52×10^{-8} cm/sec (94.1% compaction at 14.8% moisture)

SJB SERVICES, INC.
Contract Drilling and Testing

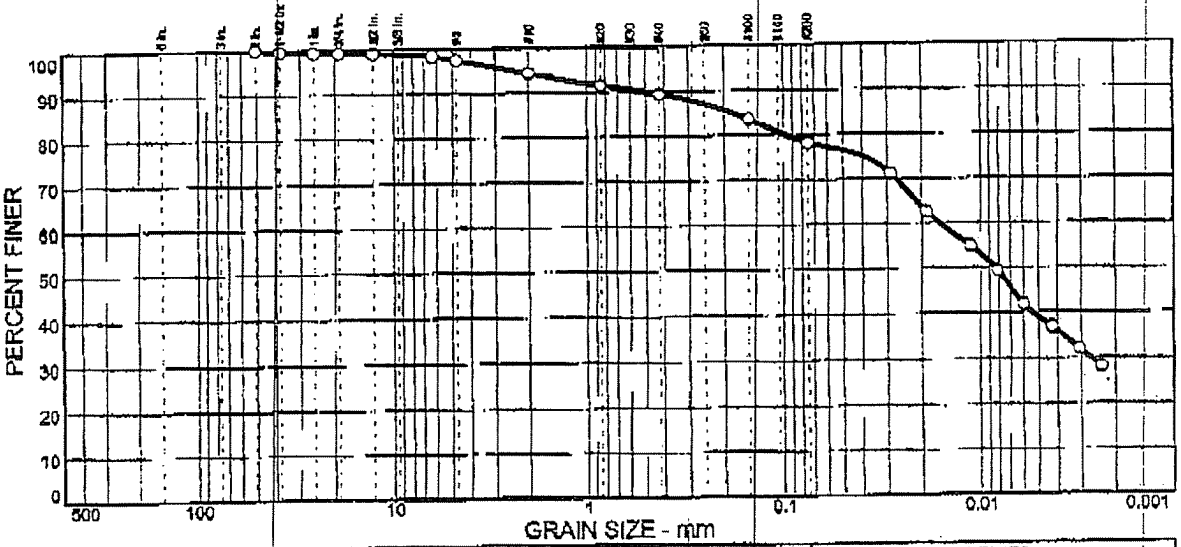
BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Particle Size Distribution Report

Project: VANADIUM CORP. OF AMERICA **Project No.:** BD-03-006

Client: CRA

Sample No: 03-1764 **Source of Sample:** PK-002 **Date:** 9/29/03
Location: GT-19867-08-03-PK-002 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.8	1.8	3.0	5.1	11.2	39.2	38.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2 in.	100.0		
1.5 in.	99.6		
1 in.	99.3		
.75 in.	99.2		
.5 in.	99.0		
.25 in.	98.3		
#4	97.4		
#10	94.4		
#20	91.5		
#40	89.3		
#100	83.6		
#200	78.1		

* (no specification provided)

Soil Description
GT-19867-08-03-PK-002

Atterberg Limits
PL= 22 LL= 37 PI= 15

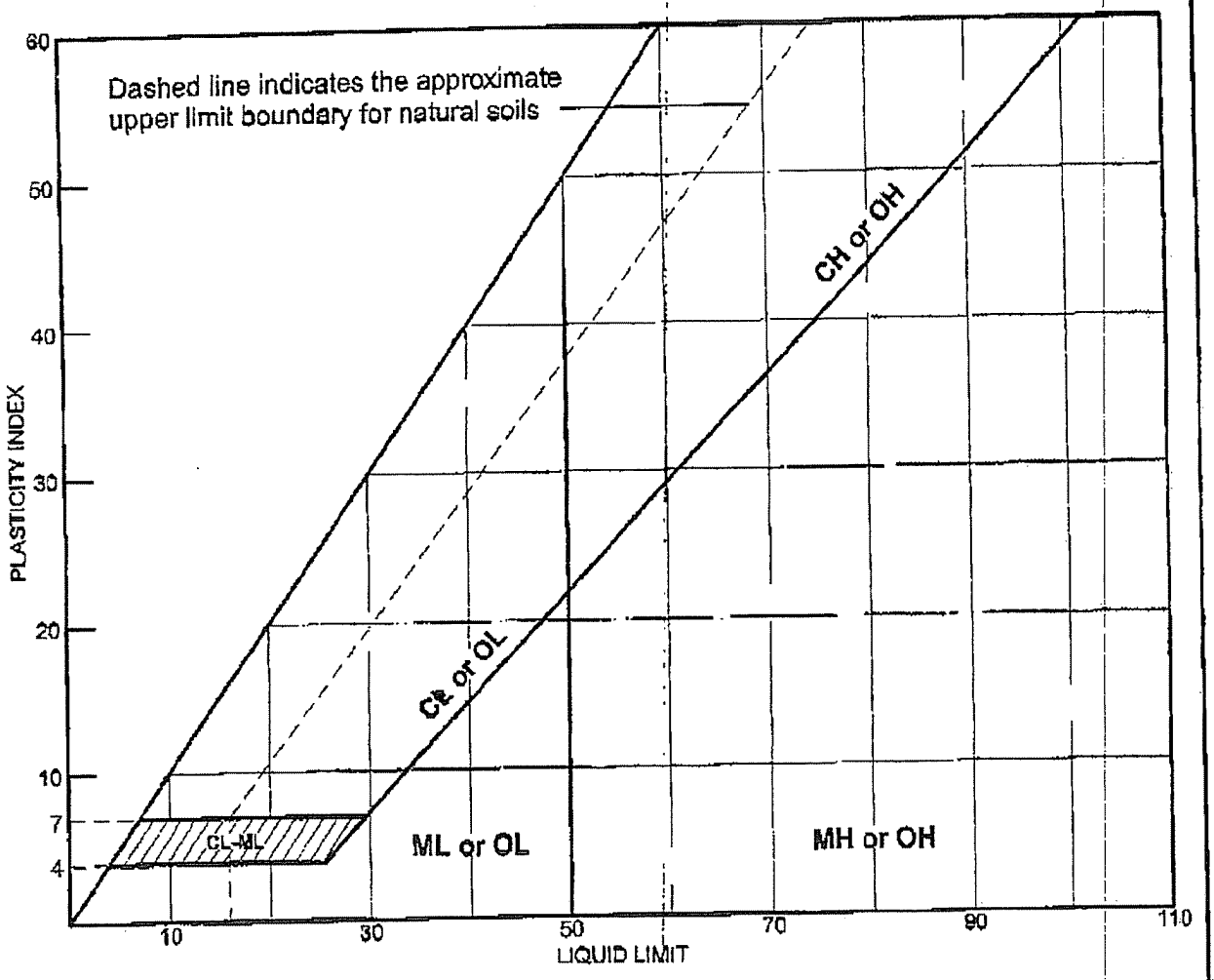
Coefficients
D_{85}= 0.181 D_{60}= 0.0162 D_{50}= 0.0084
D_{30}= 0.0027 D_{15}= D_{10}=
C_u= C_c=

Classification
USCS= AASHTO=

Remarks
LTR: 1
DATE RECEIVED: 8/19/03
SAMPLED BY: SJB

Plate

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	PK-002	03-1764			22	37	15	

LIQUID AND PLASTIC LIMITS TEST REPORT

SJB SERVICES, INC.

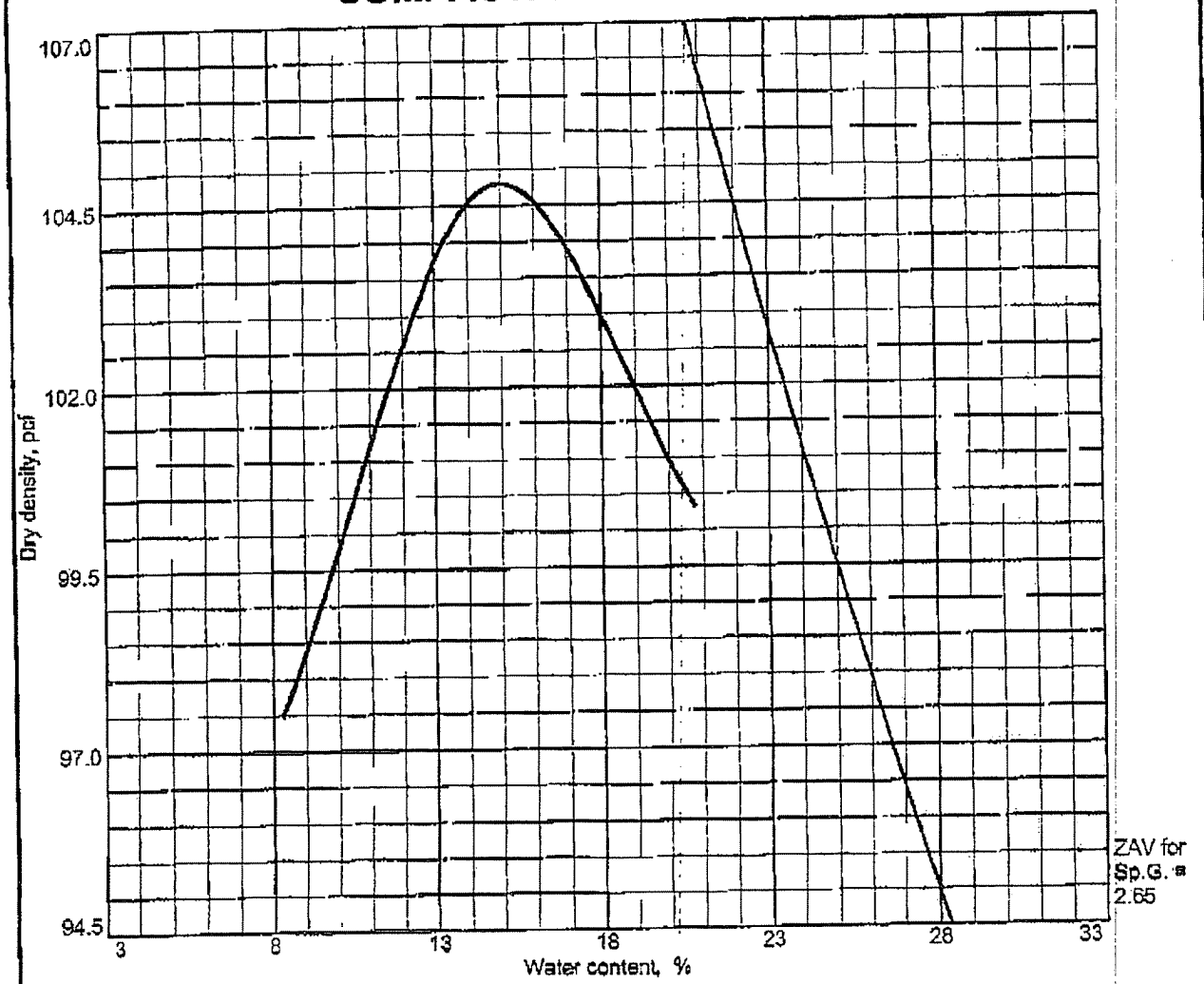
Client: CRA

Project: VANADIUM CORP. OF AMERICA

Project No.: BD-03-006

Plate

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
				2.65	37	15	2.6	78.1

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 104.8 pcf Optimum moisture = 15.0 %	GT-19867-08-03-PK-002

Project No. BD-03-006 Client: CRA
Project: VANADIUM CORP. OF AMERICA
Location: GT-19867-08-03-PK-002

Remarks:
LTR-2
SAMPLE NUMBER: 03-1764

COMPACTION TEST REPORT

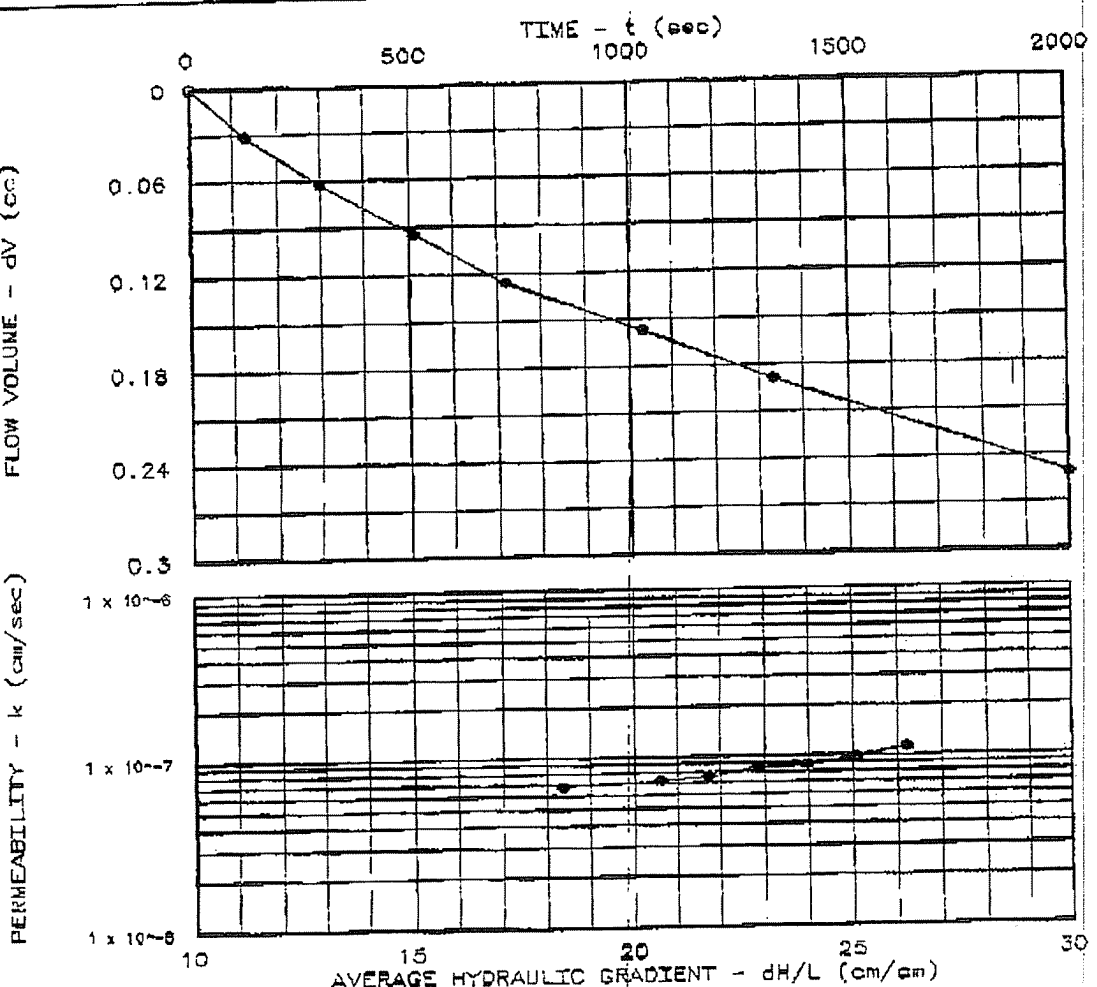
SJB SERVICES, INC.

Plate

PERMEABILITY TEST REPORT

TEST DATA:
Specimen Height (cm): 11.68
Specimen Diameter (cm): 10.23
Dry Unit Weight (pcf): 98.6
Moisture Before Test (%): 14.8
Moisture After Test (%): 22.6
Run Number: 1 2
Cell Pressure (psi): 85.0
Sat. Pressure (psi): 80.0
Diff. Head (psi): 3.8
Perm. (cm/sec): 7.52 x 10^-8

SAMPLE DATA:
Sample Identification:
QT-19867-08-03-PK-002
Visual Description: Silt & clay, little sand, trace gravel
Remarks: ASTM D5084
Maximum Dry Density (pcf): 104.8
Optimum Moisture Content (%): 18.0
ASTM(D1557)
Percent Compaction: 94.1%
Permeameter type: FLEXIBLE WALL
Sample type: REMOLDED



Project: Vanadium Corp. of America
Location:
Date: 9/6/03

PERMEABILITY TEST REPORT

SJB SERVICES, INC.

Project No.: BD-03-006
File No.: LTR-2
Lab No.: 03-1764
Tested by: pg
Checked by: ps
Test: CV - Constant volume

SJB SERVICES, INC.
Contract Drilling and Testing

BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
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Fax: (716) 649-8051

Laboratory Test Report

PROJECT: Vanadium Corp. of America

CLIENT: CRA

DATE: September 29, 2003

PROJECT NO.: BD-03-006
REPORT NO.: LTR-3

SJB Sample Number: 03-1765
CRA Sample Number: GT-19867-08-03-PK-003

ASTM D-422: Particle Size Analysis of Soils

Sieve Size	*Percent Passing*
1"	100.0
¾"	99.7
½"	99.5
¼"	98.6
#4	97.7
#10	82.8
#20	80.5
#40	78.3
#100	75.2
#200	72.7

PERCENT COMPONENTS

GRAVEL	SAND	SILT	CLAY
2.3 %	25.0 %	39.1 %	33.6 %

ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Liquid Limit	Plastic Limit	Plasticity Index
44	27	17

ASTM D-1557-91: Laboratory Compaction Characteristics of Soil Using Method C Modified Effort

Maximum Dry Density: 103.9 pcf
Optimum Moisture: 15.6 %

ASTM D-5084: Measurement of Hydraulic Conductivity of Saturated Porous Material Using a Flexible Wall Permeameter

Coefficient of Permeability: 8.72×10^{-8} cm/sec (94.6% compaction at 15.3% moisture)

SJB SERVICES, INC.
Contract Drilling and Testing

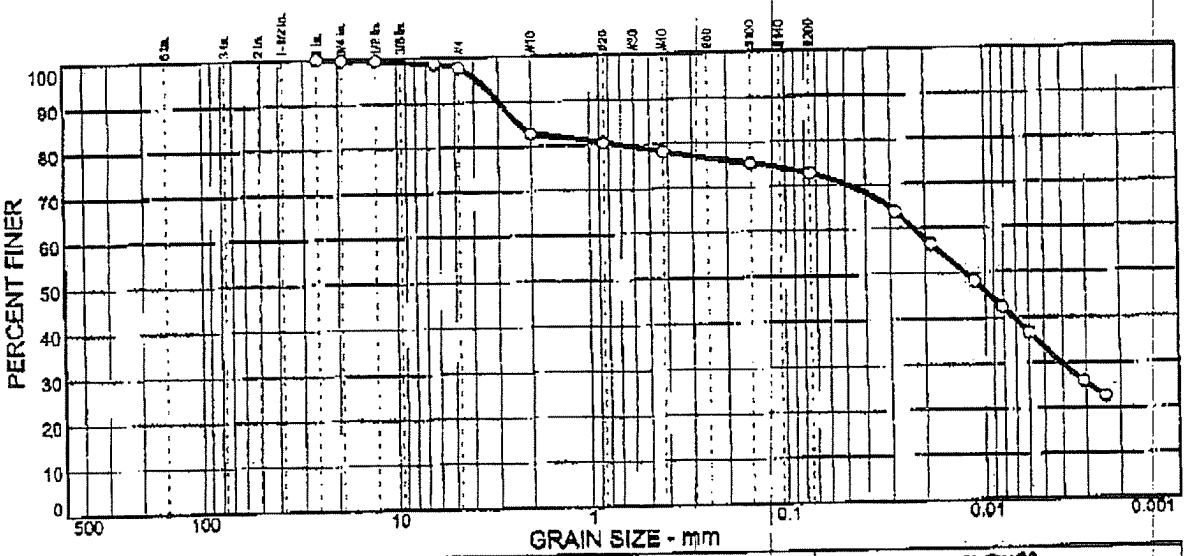
BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Particle Size Distribution Report

Project: VANADIUM CORP. OF AMERICA **Project No.:** BD-03-006

Client: CRA

Sample No: 03-1765 **Source of Sample:** PK-003 **Date:** 9/29/03
Location: GT-19867-08-03-PK-003 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.3	2.0	14.9	4.5	5.6	39.1	33.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
.75 in.	99.7		
.5 in.	99.5		
.25 in.	98.6		
#4	97.7		
#10	82.8		
#20	80.5		
#40	78.3		
#100	75.2		
#200	72.7		

* (no specification provided)

Soil Description

GT-19867-08-03-PK-003

Atterberg Limits
PL= 27 LL= 44 PI= 17

Coefficients
D_{85}= 2.31 D_{60}= 0.0229 D_{50}= 0.0126
D_{30}= 0.0041 D_{16}= D_{10}=
C_u= C_c=

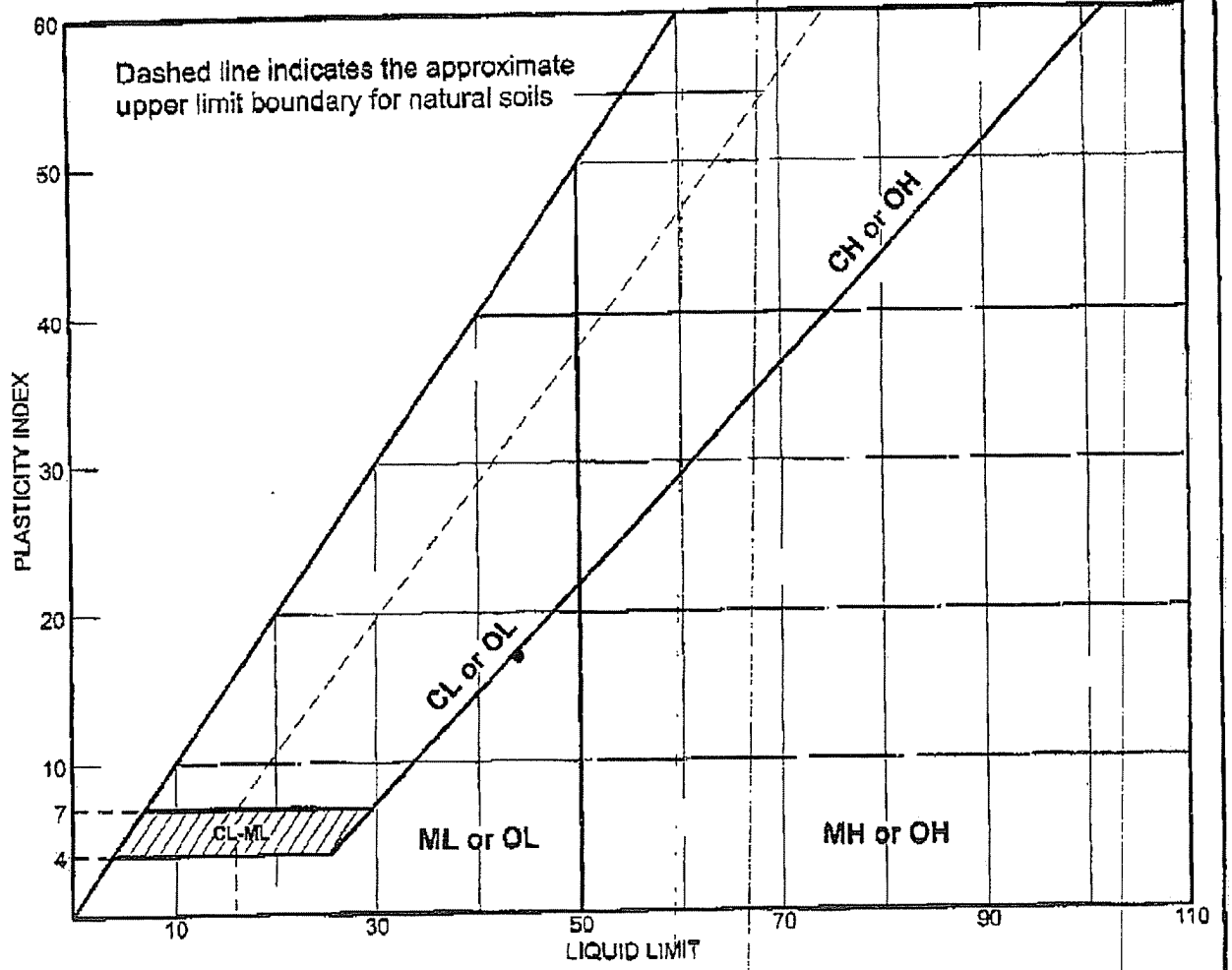
Classification
USCS= AASHTO=

Remarks

LTR: 3
DATE RECEIVED: 9/19/03
SAMPLED BY: SJB

Plate

LIQUID AND PLASTIC LIMITS TEST REPORT

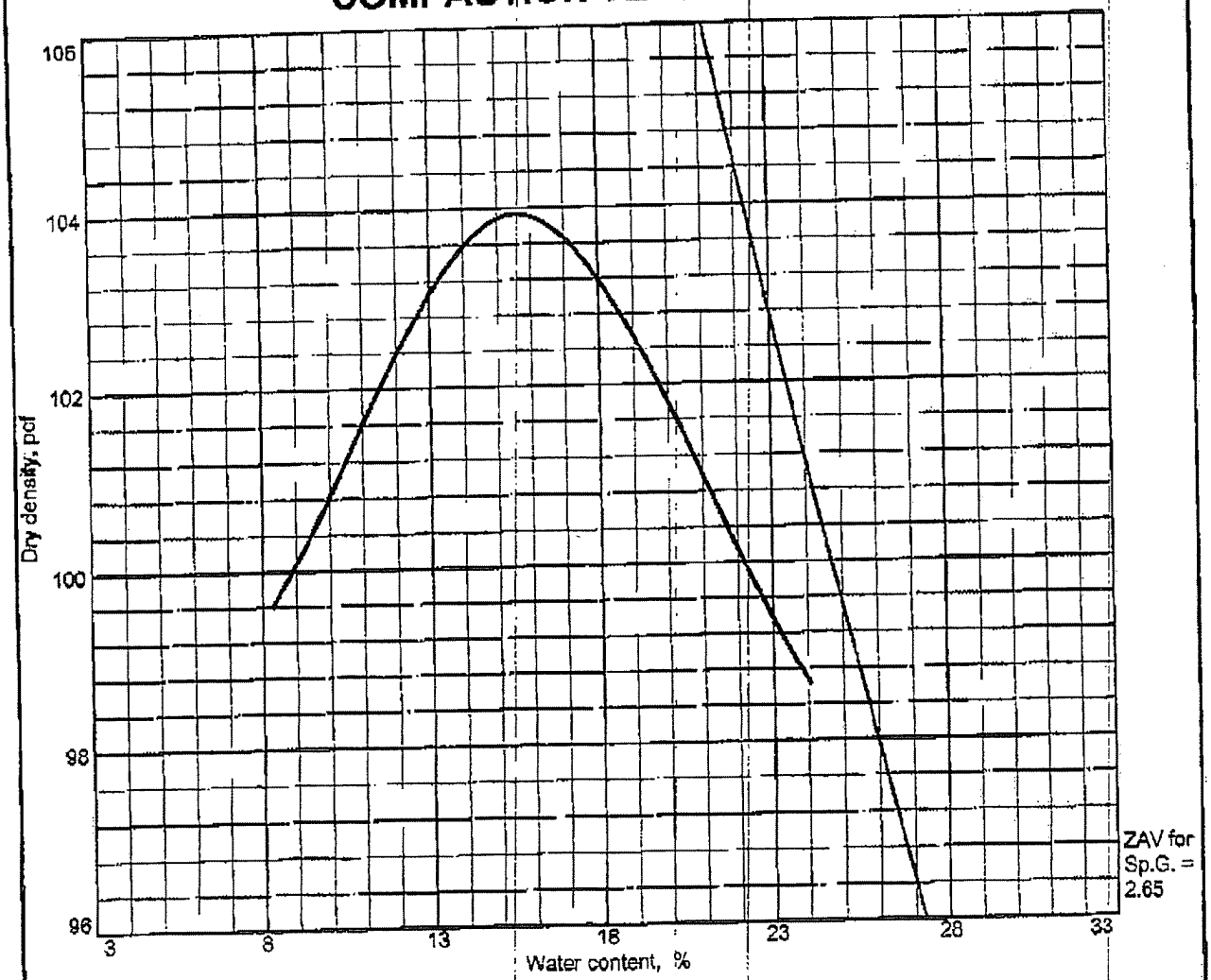


SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	PK-003	03-1765			27	44	17	

LIQUID AND PLASTIC LIMITS TEST REPORT **SJB SERVICES, INC.**	**Client:** CRA **Project:** VANADIUM CORP. OF AMERICA **Project No.:** BD-03-006 Plate

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
			5.9	2.65	44	17	2.3	72.7

TEST RESULTS

Maximum dry density = 103.9 pcf

Optimum moisture = 15.6 %

MATERIAL DESCRIPTION

GT-19867-08-03-PK-003

Project No. BD-03-006 **Client:** CRA

Project: VANADIUM CORP. OF AMERICA

Location: GT-19867-08-03-PK-003

Remarks:

LTR-3
SAMPLE NUMBER: 03-1765

COMPACTION TEST REPORT

SJB SERVICES, INC.

Plate

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 11.63
Specimen Diameter (cm): 10.21
Dry Unit Weight (pcf): 98.3
Moisture Before Test (%): 15.3
Moisture After Test (%): 21.9
Run Number: 1 ● 2 ▲
Cel Pressure (psi): 95.0

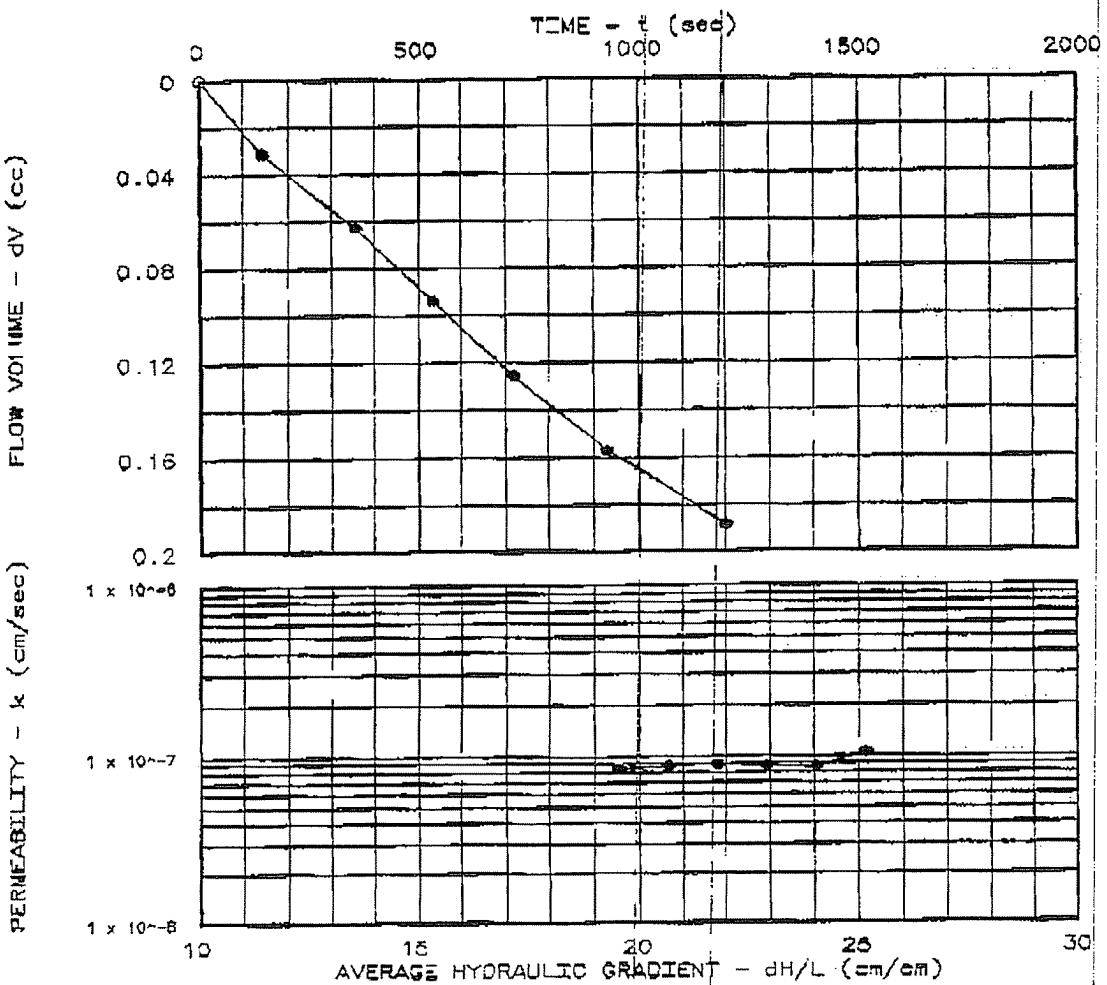
Sat. Pressure (psi): 80.0
Diff. Head (psi): 3.8

Perm. (cm/sec): 8.72 x 10^-8

SAMPLE DATA:

Sample Identification:
GT-19867-08-03-PK-003
Visual Description: Silt & clay, some sand trace gravel
Remarks: ASTM D5084

Maximum Dry Density (pcf): 103.9
Optimum Moisture Content (%): 15.6
ASTM(D1557)
Percent Compaction: 94.6%
Permeameter type: FLEXIBLE WALL
Sample type: REMOLDED



Project: Vanadium Corp. of America
Location:
Date: 9/15/03

PERMEABILITY TEST REPORT

SJB SERVICES, INC.

Project No.: SD-03-006
File No.: LTR-3
Lab No.: 03-1755
Tested by: pg
Checked by: pg
Test: CV - Constant volume

ATTACHMENT E

ANALYTICAL DATA ASSESSMENT AND VALIDATION

ANALYTICAL DATA ASSESSMENT AND VALIDATION
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY TO AUGUST 2003

PREPARED BY:
CONESTOGA-ROVERS & ASSOCIATES

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Date: November 6, 2003
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TABLE 4	QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
TABLE 5	QUALIFIED SAMPLE DATA DUE TO VARIABILITY IN FIELD DUPLICATE RESULTS
TABLE 6	QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE RINSE BLANKS

1.0 INTRODUCTION

The following document details an assessment and validation of analytical results reported by Ecology and Environment, Inc. (E&E), located in Lancaster, New York, for samples collected at the Vanadium Site (Site) located in Niagara Falls, New York. Groundwater, surface water, surface soil, sediment, and borehole soils were collected during July and August 2003 to conduct a Remedial Investigation (RI). For sample identification, a sampling and analysis summary is presented in Table 1.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods and the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", February 1994, EPA-540/R-94-013.

The data quality assessment and validation presented in the following subsections were performed based on information from data sheets including matrix spike (MS) recoveries, duplicate results, laboratory control sample (LCS) recoveries, and blank results for all parameters.

All soil, surface soil and sediment results are reported on a dry weight basis.

2.0 SAMPLE HOLDING TIMES

The method-specified holding time criteria for this program were as follows:

Parameter	*Matrix*	*Holding Time*
TAL Metals (except Mercury)	Water	180 days from collection to analysis
TAL Metals (except Mercury)	Soil/Sediment	180 days from collection to analysis
Mercury	Water	28 days from collection to analysis
Mercury	Soil/Sediment	28 days from collection to analysis
Chromium VI	Water	24 hours from collection to analysis
Chromium VI	Soil/Sediment	30 days from collection to extraction 7 days from extraction to analysis
Cyanide	Water	14 days from collection to analysis
Cyanide	Soil/Sediment	14 days from collection to analysis
pH	Soil/Sediment	ASAP

A holding time of 48 hours from collection to analysis was utilized for the pH analysis. All sample analyses were performed within the required holding times with the

exception of various soils/sediments for pH analysis. All associated results were qualified as estimated (see Table 2). All samples were properly preserved and cooled at 4°C (±2°C) after collection and all samples were received by the laboratory in good condition.

3.0 LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analyses is to determine the existence and magnitude of sample contamination introduced during analysis. Laboratory blanks are prepared from deionized water and analyzed as samples.

Most blank results were non-detect for the analytes of interest with the exception of metals and cyanide present at low concentrations. All associated sample results with concentrations similar to the blank concentrations were qualified as non-detect (see Table 3).

For this study, laboratory blanks were analyzed at a minimum frequency of one per analytical batch.

4.0 LABORATORY CONTROL SAMPLE ANALYSES

The LCS serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCSs were analyzed using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples.

LCSs were reported for all inorganic analyses. All LCS samples yielded recoveries within the established control limits, indicating acceptable overall analytical accuracy.

5.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

The recoveries of MS/MSD analyses are used to assess the analytical accuracy achieved on individual sample matrices. The relative percent difference (RPD) between the MS and MSD is used to assess analytical precision.

An MS/MSD was analyzed at the required frequency for all parameters.

Most recoveries were acceptable indicating adequate analytical accuracy and precision with the exception of some outlying results. The associated samples were qualified as follows:

i) where high recoveries were observed, all positive results were qualified as estimated and all non-detect results would not have been impacted by the implied high bias;

ii) where low recoveries were observed, all associated results were qualified as estimated to reflect the implied low bias;

iii) where extremely low recoveries were observed (<30 percent), all positive results were qualified as estimated and all non-detect results were rejected due to the poor analyte efficiency; and

iv) where a high RPD is observed, all positive results were qualified as estimated and all non-detect results would not have been impacted by the implied variability.

A summary of the outlying recoveries and qualified samples is presented in Table 4.

6.0 DUPLICATE ANALYSES

To assess analytical precision, samples were analyzed in duplicate for chromium VI and pH. The results were compared and must agree within 35 percent difference to be acceptable.

All results were acceptable indicating adequate analytical precision.

7.0 FIELD QA/QC

7.1 FIELD DUPLICATES

To assess the analytical and sampling protocol precision, field duplicates (as identified in Table 1) were collected and submitted "blind" to the laboratory. All data outside of estimated regions of detection demonstrated acceptable agreement indicating adequate sampling and analytical procedures with the exception of variability observed between some metal results. The results were qualified as estimated to reflect the implied variability (see Table 5).

7.2 RINSE BLANKS

Rinse blanks were submitted for analysis of all parameters to assess the possibility of cross-contamination during sample collection. Most results were non-detect with the exception of low concentration of metals and cyanide. All associated results with similar concentrations were qualified as non-detect (see Table 6).

8.0 CONCLUSION

Based on the assessment detailed in the foregoing, the data produced by E&E are acceptable with the noted qualifications and exceptions.

TABLES

TABLE 1

COLLECTION AND ANALYSIS SUMMARY
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Analysis/Parameters*	*Comment*
SS-19867-0703-PK-001	SS-40	Surface Soil	07/18/03	10:05	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-002	SS-39	Surface Soil	07/18/03	10:15	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-003	SS-38	Surface Soil	07/18/03	10:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-004	SS-31	Surface Soil	07/18/03	10:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	MS/MSD
SS-19867-0703-PK-005	SS-37	Surface Soil	07/18/03	10:55	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-006	SS-37	Surface Soil	07/18/03	11:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	Duplicate of 005 (from SS-37)
SS-19867-0703-PK-007	SS-32	Surface Soil	07/18/03	11:05	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-008	SS-30	Surface Soil	07/18/03	11:15	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-009	SS-27	Surface Soil	07/18/03	11:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-010	SS-23	Surface Soil	07/18/03	11:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-011	SS-24	Surface Soil	07/18/03	11:35	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-012	SS-22	Surface Soil	07/18/03	11:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-013	SS-15	Surface Soil	07/18/03	11:55	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-014	SS-11	Surface Soil	07/18/03	12:10	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-015	SS-36	Surface Soil	07/18/03	13:25	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-016	SS-35	Surface Soil	07/18/03	13:35	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-017	SS-29	Surface Soil	07/18/03	13:40	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-018	SS-33	Surface Soil	07/18/03	13:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-019	SS-34	Surface Soil	07/18/03	13:55	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-020	SS-28	Surface Soil	07/18/03	14:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-021	SS-26	Surface Soil	07/18/03	14:10	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-022	SS-21	Surface Soil	07/18/03	14:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-023	SS-20	Surface Soil	07/18/03	14:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-024	SS-16	Surface Soil	07/18/03	14:40	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-025	SS-16	Surface Soil	07/18/03	14:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-026	SS-12	Surface Soil	07/21/03	13:10	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-027	SS-10	Surface Soil	07/21/03	9:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-028	SS-18	Surface Soil	07/21/03	12:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-029	SS-13	Surface Soil	07/21/03	12:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	MS/MSD
SS-19867-0703-PK-030	SS-14	Surface Soil	07/21/03	12:40	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-031	SS-17	Surface Soil	07/21/03	12:50	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-032	SS-19	Surface Soil	07/21/03	13:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-033	SS-25	Surface Soil	07/21/03	13:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	

TABLE 1

COLLECTION AND ANALYSIS SUMMARY
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Analysis/Parameters*	*Comment*
SS-19867-0703-PK-RB	Rinsate Blank	-	07/18/03	16:10	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SS-19867-0703-PK-RB	Rinsate Blank	-	07/21/03	13:50	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-001	BH-8/MW-22	6-8' BGS	07/22/03	13:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-002	BH-8/MW-22	13-14' BGS	07/22/03	14:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-003	BH-11/MW-25	2-3' BGS	07/23/03	8:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-004	BH-11/MW-25	8-10' BGS	07/23/03	9:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-005	BH-13/MW-26	2-4' BGS	07/23/03	10:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-006	BH-13/MW-26	10-12' BGS	07/23/03	11:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-007	BH-12	4-6.5' BGS	07/23/03	14:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-008	BH-12	8-10' BGS	07/23/03	15:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-009	BH-5/MW-19	0.5-2' BGS	07/23/03	15:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-010	BH-5/MW-19	10-12' BGS	07/23/03	16:50	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-011	BH-1/MW15	2-4' BGS	07/24/03	15:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	MS/MSD
S-19867-0703-PK-012	BH-1/MW15	10-12' BGS	07/24/03	15:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-013	BH-1/MW15	10-12' BGS	07/24/03	16:15	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	Duplicate of -012
S-19867-0703-PK-014	BH-2/MW-16	2-4' BGS	07/24/03	16:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-015	BH-2/MW-16	10-11' BGS	07/24/03	16:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-016	BH-6/MW-20	4.5-6' BGS	07/25/03	8:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-017	BH-6/MW-20	8-10' BGS	07/25/03	9:15	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-018	BH-9/MW-23	4-6' BGS	07/25/03	11:35	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	MS/MS
S-19867-0703-PK-019	BH-9/MW-23	22-24' BGS	07/25/03	14:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-020	BH-10/MW-24	2-4' BGS	07/28/03	8:25	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-021	BH-10/MW-24	2-4' BGS	07/28/03	8:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	Duplicate of -020
S-19867-0703-PK-022	BH-10/MW-24	18-20' BGS	07/28/03	9:35	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-023	BH-4/MW-18	2-4' BGS	07/28/03	11:50	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-024	BH-4/MW-18	12-14' BGS	07/28/03	11:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-025	BH-7/MW-21	8-10' BGS	07/28/03	14:25	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-026	BH-7/MW-21	18-20' BGS	07/28/03	15:15	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-027	BH-15/MW-28	1-2' BGS	07/29/03	8:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-028	BH-15/MW-28	7-8' BGS	07/29/03	8:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-029	BH-14/MW-27	1.5'-4' BGS	07/29/03	9:50	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-030	BH-14/MW-27	7-8' BGS	07/29/03	10:05	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-031	Next to TP-20	just below surface	08/18/03	17:20	TAL Metals, Cyanide, Hex. Chromium	

TABLE 1

COLLECTION AND ANALYSIS SUMMARY
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Analysis/Parameters*	*Comment*
S-19867-0703-PK-032	BH-3/MW-17	0-4' BGS	08/20/03	11:40	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-033	BH-3/MW-17	11-13' BGS	08/20/03	11:45	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-RB 1	Rinsate Blank	-	07/25/03	15:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0703-PK-RB 2	Rinsate Blank	-	07/25/03	15:05	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
GW-19867-0803-PK-001	MW-22	Groundwater	08/15/03	8:50	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-002	MW-22	Groundwater	08/15/03	9:00	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-0803-PK-003	MW-19	Groundwater	08/15/03	9:30	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-004	MW-15	Groundwater	08/15/03	10:20	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-005	MW-15	Groundwater	08/15/03	10:30	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
RINSATE BLANK	Rinsate Blank	-	08/15/03	-	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-006	MW-25	Groundwater	08/18/03	15:40	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-007	MW-25	Groundwater	08/18/03	15:50	TAL Metals, Hex. Chromium	Field Filtered
GW-19867-0803-PK-008	MW-25	Groundwater	08/18/03	16:00	TAL Metals, Cyanide, Hex. Chromium	Duplicate of 006
GW-19867-0803-PK-009	MW-20	Groundwater	08/18/03	16:40	TAL Metals, Cyanide, Hex. Chromium	MS/MSD
GW-19867-0803-PK-010	MW-20	Groundwater	08/18/03	16:50	TAL Metals, Hex. Chromium	Field Filtered
GW-19867-0803-PK-011	MW-27	Groundwater	08/18/03	17:20	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-012	MW-27	Groundwater	08/18/03	17:30	TAL Metals, Hex. Chromium	Field Filtered
GW-19867-0803-PK-013	MW-26	Groundwater	08/20/03	15:30	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-014	MW-23	Groundwater	08/20/03	16:10	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-015	MW-23	Groundwater	08/20/03	16:30	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-0803-PK-016	MW-24	Groundwater	08/20/03	17:00	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-017	MW-104A	Groundwater	08/25/03	13:00	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-0803-PK-018	MW-104A	Groundwater	08/25/03	13:10	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-019	MW-16	Groundwater	08/25/03	14:30	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-020	MW-105A	Groundwater	08/28/03	11:40	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-021	MW-28	Groundwater	08/28/03	12:00	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-022	MW-21	Groundwater	08/28/03	12:30	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-023	MW-18	Groundwater	08/28/03	12:50	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-024	MW-17	Groundwater	08/28/03	13:10	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-025	MW-103A	Groundwater	08/28/03	14:00	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-026	MW-103A	Groundwater	08/28/03	14:15	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-0803-PK-027	MW-106A	Groundwater	08/28/03	14:45	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-028	MW-107A	Groundwater	08/28/03	15:00	TAL Metals, Cyanide, Hex. Chromium	

TABLE 1

COLLECTION AND ANALYSIS SUMMARY
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Analysis/Parameters*	*Comment*
SW-19867-08-03-011	SW-11	Surface Water	08/21/03	12:20	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-013	SW-13	Surface Water	08/21/03	10:00	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-014	SW-14	Surface Water	08/21/03	10:20	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-015	SW-15	Surface Water	08/21/03	13:00	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-019	SW-19	Surface Water	08/21/03	13:10	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-020	SW-20	Surface Water	08/21/03	10:40	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-021	SW-21	Surface Water	08/21/03	11:00	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-022	SW-22	Surface Water	08/28/03	14:20	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-023	SW-23	Surface Water	08/21/03	11:15	TAL Metals, Cyanide, Hex. Chromium	MS/MSD
SW-19867-08-03-024	SW-24	Surface Water	08/21/03	13:30	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-025	SW-23	Surface Water	08/21/03	13:40	TAL Metals, Cyanide, Hex. Chromium	Duplicate of -023
Rinsate Blank	Rinsate Blank	-	08/28/03	-	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
S-19867-0803-PK-009	SW-9	Soil	08/14/08	8:40	TAL Metals, Cyanide, Hex. Chromium	
S-19867-0803-PK-008	SW-8	Soil	08/14/08	8:50	TAL Metals, Cyanide, Hex. Chromium	
S-19867-0803-PK-017	SW-17	Soil	08/14/08	10:50	TAL Metals, Cyanide, Hex. Chromium	
S-19867-0803-PK-016	SW-16	Soil	08/14/08	11:00	TAL Metals, Cyanide, Hex. Chromium	
SED-19867-08-03-010	SW-10	Sediment	08/21/03	12:10	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-011	SW-11	Sediment	08/21/03	12:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-013	SW-13	Sediment	08/21/03	10:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-014	SW-14	Sediment	08/21/03	10:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-015	SW-15	Sediment	08/21/03	13:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-018	SW-18	Sediment	08/21/03	13:05	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-019	SW-19	Sediment	08/21/03	13:10	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-020	SW-20	Sediment	08/21/03	10:40	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-021	SW-21	Sediment	08/21/03	11:00	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-022	SW-22	Sediment	08/28/03	14:20	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-023	SW-23	Sediment	08/21/03	11:15	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	MS-MSD
SED-19867-08-03-024	SW-24	Sediment	08/21/03	13:30	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	
SED-19867-08-03-025	SW-23	Sediment	08/21/03	13:40	TAL Metals, Cyanide, Hex. Chromium, Corrosivity (pH)	Duplicate of -023

Notes:
' BGS Feet Below Ground Surface.
Hex. Hexavalent.

TABLE 1

COLLECTION AND ANALYSIS SUMMARY
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Analysis/Parameters*	*Comment*

MS Matrix Spike.
MSD Matrix Spike Duplicate.
TAL Target Analyte List.

TABLE 2

QUALIFIED SAMPLE DATA DUE TO HOLDING TIME EXCEEDANCES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Sample ID*	Holding *Time (days)*	*Holding Time Criteria (days)*	*Sample Result*	*Units*	*Qualifier*
pH	SS-19867-0703-PK-003	4	2	8.0	S.U.	J
	S-19867-07-03-PK-006	7	2	11	S.U.	J
	S-19867-07-03-PK-005	7	2	9.9	S.U.	J
	SS-19867-0703-PK-002	4	2	6.9	S.U.	J
	S-19867-07-03-PK-007	7	2	9.1	S.U.	J
	S-19867-07-03-PK-008	7	2	9.8	S.U.	J
	SS-19867-0703-PK-018	4	2	7.3	S.U.	J
	SS-19867-0703-PK-001	4	2	8.0	S.U.	J
	SS-19867-0703-PK-004	4	2	8.0	S.U.	J
	S-19867-07-03-PK-001	8	2	12	S.U.	J
	SS-19867-0703-PK-014	4	2	6.7	S.U.	J
	SS-19867-0703-PK-025	4	2	7.7	S.U.	J
	SS-19867-0703-PK-024	5	2	7.5	S.U.	J
	SS-19867-0703-PK-013	4	2	8.2	S.U.	J
	SS-19867-0703-PK-015	4	2	7.6	S.U.	J
	SS-19867-0703-PK-012	4	2	8.3	S.U.	J
	SS-19867-0703-PK-023	4	2	7.8	S.U.	J
	SS-19867-0703-PK-011	4	2	8.0	S.U.	J
	SS-19867-0703-PK-022	4	2	7.2	S.U.	J
	SS-19867-0703-PK-010	4	2	7.7	S.U.	J
	S-19867-07-03-PK-002	8	2	9.1	S.U.	J
	SS-19867-0703-PK-016	4	2	8.0	S.U.	J
	S-19867-07-03-PK-003	7	2	8.9	S.U.	J
	SS-19867-0703-PK-007	4	2	7.8	S.U.	J
	SS-19867-0703-PK-005	4	2	8.2	S.U.	J
	SS-19867-0703-PK-020	4	2	6.5	S.U.	J
	SS-19867-0703-PK-006	4	2	8.3	S.U.	J
	SS-19867-0703-PK-009	4	2	8.8	S.U.	J
	SS-19867-0703-PK-017	4	2	7.7	S.U.	J
	SS-19867-0703-PK-019	4	2	7.6	S.U.	J
	SS-19867-0703-PK-008	4	2	8.4	S.U.	J
	SS-19867-0703-PK-021	4	2	7.2	S.U.	J
	S-19867-07-03-PK-004	7	2	9.6	S.U.	J
	SED-19867-08-03-PK-022	5	2	7.7	S.U.	J

Notes:
J Estimated.
S.U. Standard Units.

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Blank ID/Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Sample Result*	*Units*
Metals	07/31/03	Sodium	14.24 J	SS-19867-0703-PK-019	68.8 J	ND 68.8	mg/Kg
				SS-19867-0703-PK-016	49.4 J	ND 49.4	mg/Kg
				SS-19867-0703-PK-018	35.6 J	ND 35.6	mg/Kg
				SS-19867-0703-PK-004	58.9 J	ND 58.9	mg/Kg
				SS-19867-0703-PK-007	64.9 J	ND 64.9	mg/Kg
				SS-19867-0703-PK-013	27.0 J	ND 27.0	mg/Kg
				SS-19867-0703-PK-006	64.6 J	ND 64.6	mg/Kg
				SS-19867-0703-PK-031	28.2 J	ND 28.2	mg/Kg
				SS-19867-0703-PK-027	66.8 J	ND 66.8	mg/Kg
				SS-19867-0703-PK-028	41.5 J	ND 41.5	mg/Kg
				SS-19867-0703-PK-029	47.4 J	ND 47.4	mg/Kg
				SS-19867-0703-PK-026	67.0 J	ND 67.0	mg/Kg
				SS-19867-0703-PK-030	27.5 J	ND 27.5	mg/Kg
				SS-19867-0703-PK-032	33.4 J	ND 33.4	mg/Kg
				SS-19867-0703-PK-033	41.4 J	ND 41.4	mg/Kg
				SS-19867-0703-PK-020	35.0 J	ND 35.0	mg/Kg
Metals	08/30/03	Aluminum	27.88	GW-9867-08-03-PK-013	48.5 J	ND 200	µg/L
Metals	09/04/03	Aluminum	85.97	GW-9867-08-03-PK-008	357	ND 400	µg/L
				GW-9867-08-03-PK-005	71.8 J	ND 200	µg/L
				GW-9867-08-03-PK-007	92.7 J	ND 200	µg/L
Metals	08/30/03	Zinc	2.802	GW-9867-08-03-PK-016	3.27 J	ND 10.0	µg/L
				GW-9867-08-03-PK-013	7.77 J	ND 10.0	µg/L
Metals	09/11/03	Iron	46.49	GW-9867-08-03-PK-019	134 J	ND 200	µg/L
Metals	09/11/03	Nickel	2.197	GW-9867-08-03-PK-019	9.02 J	ND 20.0	µg/L
				GW-9867-08-03-PK-018	10.5 J	ND 20.0	µg/L
				GW-9867-08-03-PK-017	10.2 J	ND 20.0	µg/L
Metals	09/12/03	Aluminum	78.93	GW-19867-08-03-PK-026	88.0 J	ND 200	µg/L
Metals	09/12/03	Cobalt	0.7059	GW-19867-08-03-PK-020	2.22 J	ND 20.0	µg/L
				GW-19867-08-03-PK-026	1.34 J	ND 20.0	µg/L
				GW-19867-08-03-PK-021	1.68 J	ND 20.0	µg/L
				GW-19867-08-03-PK-022	1.61 J	ND 20.0	µg/L
Metals	09/12/03	Copper	4.314	GW-19867-08-03-PK-020	17.2 J	ND 20.0	µg/L
				GW-19867-08-03-PK-027	18.6 J	ND 20.0	µg/L
				GW-19867-08-03-PK-021	9.34 J	ND 20.0	µg/L
Metals	09/15/03	Zinc	16.13	GW-19867-08-03-PK-021	19.9 J	ND 19.9	µg/L
				GW-19867-08-03-PK-026	11.3	ND 11.3	µg/L
				GW-19867-08-03-PK-022	18.7	ND 18.7	µg/L
Metals	08/29/03	Zinc	2.257	SW-19867-08-03-021	9.61 J	ND 10	µg/L
Gen Chem	08/22/03	Cyanide	0.004142	GW-9867-08-03-PK-001	0.00613 J	ND 0.01	mg/L
				GW-9867-08-03-PK-002	0.00418 J	ND 0.01	mg/L
				GW-9867-08-03-PK-003	0.00343 J	ND 0.01	mg/L
				GW-9867-08-03-PK-004	0.00334 J	ND 0.01	mg/L

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Blank ID/Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Sample Result*	*Units*
Gen Chem	08/20/03	Cyanide	0.4239	S-9867-08-03-PK-008	0.924	ND 0.924	mg/Kg
				S-9867-08-03-PK-009	0.465	ND 0.862	mg/Kg
				S-9867-08-03-PK-017	0.242	ND 0.607	mg/Kg
				S-9867-08-03-PK-031	0.603	ND 0.603	mg/Kg

Notes:
J Estimated.
ND Non-detect at associated value.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals	Antimony	SS-19867-0703-PK-029	49	50	2	75-125	35	SS-19867-0703-PK-024	ND 0.980	mg/Kg	J
								SS-19867-0703-PK-026	ND 0.962	mg/Kg	J
								SS-19867-0703-PK-027	ND 0.926	mg/Kg	J
								SS-19867-0703-PK-028	ND 0.943	mg/Kg	J
								SS-19867-0703-PK-029	ND 1.03	mg/Kg	J
								SS-19867-0703-PK-030	ND 0.962	mg/Kg	J
								SS-19867-0703-PK-031	ND 0.997	mg/Kg	J
								SS-19867-0703-PK-032	ND 0.909	mg/Kg	J
								SS-19867-0703-PK-033	ND 0.893	mg/Kg	J
Metals	Antimony	SS-19867-0703-PK-004	27	28	4	75-125	35	SS-19867-0703-PK-001	ND 1.03	mg/Kg	R
								SS-19867-0703-PK-002	ND 1.22	mg/Kg	R
								SS-19867-0703-PK-003	ND 1.52	mg/Kg	R
								SS-19867-0703-PK-004	ND 1.23	mg/Kg	R
								SS-19867-0703-PK-006	ND 1.22	mg/Kg	R
								SS-19867-0703-PK-007	ND 2.79	mg/Kg	R
								SS-19867-0703-PK-008	ND 1.26	mg/Kg	R
								SS-19867-0703-PK-011	ND 1.07	mg/Kg	R
								SS-19867-0703-PK-014	ND 1.83	mg/Kg	R
								SS-19867-0703-PK-015	ND 1.30	mg/Kg	R
								SS-19867-0703-PK-016	ND 3.18	mg/Kg	R
								SS-19867-0703-PK-017	ND 2.15	mg/Kg	R
								SS-19867-0703-PK-018	ND 2.62	mg/Kg	R
								SS-19867-0703-PK-019	ND 2.63	mg/Kg	R
								SS-19867-0703-PK-020	ND 2.91	mg/Kg	R
								SS-19867-0703-PK-005	ND 2.31	mg/Kg	R
								SS-19867-0703-PK-009	ND 2.10	mg/Kg	R
								SS-19867-0703-PK-010	ND 2.24	mg/Kg	R
								SS-19867-0703-PK-012	ND 2.52	mg/Kg	R
								SS-19867-0703-PK-013	ND 3.33	mg/Kg	R

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals	Antimony	S-19867-0703-PK-011	50	49	2	75-125	35	S-19867-0703-PK-011	ND 1.22	mg/Kg	J
								S-19867-0703-PK-012	ND 2.03	mg/Kg	J
								S-19867-0703-PK-013	ND 1.21	mg/Kg	J
								S-19867-0703-PK-014	ND 1.13	mg/Kg	J
								S-19867-0703-PK-015	ND 1.33	mg/Kg	J
								S-19867-0703-PK-017	ND 1.19	mg/Kg	J
								S-19867-0703-PK-019	ND 1.92	mg/Kg	J
								S-19867-0703-PK-016	ND 24.2	mg/Kg	J
Metals	Antimony	S-19867-07-03-PK-020	39	41	5	75-125	35	S-19867-0703-PK-001	5.55	mg/Kg	J
								S-19867-0703-PK-002	ND 0.736	mg/Kg	J
								S-19867-0703-PK-003	ND 3.54	mg/Kg	J
								S-19867-0703-PK-004	ND 0.931	mg/Kg	J
								S-19867-0703-PK-005	3.01	mg/Kg	J
								S-19867-0703-PK-006	2.82	mg/Kg	J
								S-19867-0703-PK-007	1.77	mg/Kg	J
								S-19867-0703-PK-008	4.37	mg/Kg	J
								S-19867-0703-PK-009	3.83	mg/Kg	J
								S-19867-0703-PK-018	4.49	mg/Kg	J
								S-19867-0703-PK-020	ND 2.74	mg/Kg	J
								S-19867-0703-PK-021	3.85	mg/Kg	J
								S-19867-0703-PK-022	ND 0.995	mg/Kg	J
								S-19867-0703-PK-023	4.91	mg/Kg	J
								S-19867-0703-PK-024	ND 2.57	mg/Kg	J
								S-19867-0703-PK-025	5.98	mg/Kg	J
								S-19867-0703-PK-026	ND 3.17	mg/Kg	J
								S-19867-0703-PK-027	3.85	mg/Kg	J
								S-19867-0703-PK-028	ND 1.74	mg/Kg	J
								S-19867-0703-PK-029	3.44	mg/Kg	J
								S-19867-0703-PK030	ND 2.58	mg/Kg	J

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals	Barium	SS-19867-0703-PK-029	200	116	53	35	75-125	SS-19867-0703-PK-024	215 J	mg/Kg	*
								SS-19867-0703-PK-026	81.4 J	mg/Kg	*
								SS-19867-0703-PK-027	99.8 J	mg/Kg	*
								SS-19867-0703-PK-028	94.2 J	mg/Kg	*
								SS-19867-0703-PK-029	107 J	mg/Kg	*
								SS-19867-0703-PK-030	104 J	mg/Kg	*
								SS-19867-0703-PK-031	118 J	mg/Kg	*
								SS-19867-0703-PK-032	97.5 J	mg/Kg	*
								SS-19867-0703-PK-033	118 J	mg/Kg	*
Metals	Barium	SS-19867-0703-PK-018	219	95	79	35	75-125	S-19867-0703-PK-018	66.7 J	mg/Kg	*
Metals	Barium	S-19867-07-03-PK-020	207	328	45	35	75-125	S-19867-07-03-PK-001	49.5 J	mg/Kg	*
								S-19867-07-03-PK-002	110 J	mg/Kg	*
								S-19867-07-03-PK-003	169 J	mg/Kg	*
								S-19867-07-03-PK-004	108 J	mg/Kg	*
								S-19867-07-03-PK-005	174 J	mg/Kg	*
								S-19867-07-03-PK-006	37.4 J	mg/Kg	*
								S-19867-07-03-PK-007	131 J	mg/Kg	*
								S-19867-07-03-PK-008	11.3 J	mg/Kg	*
								S-19867-07-03-PK-009	34.4 J	mg/Kg	*
								S-19867-07-03-PK-020	208 J	mg/Kg	*
								S-19867-07-03-PK-021	95.7 J	mg/Kg	*
								S-19867-07-03-PK-022	100 J	mg/Kg	*
								S-19867-07-03-PK-023	19.9 J	mg/Kg	*
								S-19867-07-03-PK-024	158 J	mg/Kg	*
								S-19867-07-03-PK-025	24.7 J	mg/Kg	*
								S-19867-07-03-PK-026	102 J	mg/Kg	*
								S-19867-07-03-PK-027	29.4 J	mg/Kg	*
								S-19867-07-03-PK-028	224 J	mg/Kg	*
								S-19867-07-03-PK-029	62.2 J	mg/Kg	*
								S-19867-07-03-PK-030	159 J	mg/Kg	*

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals	Chromium Total	SS-19867-0703-PK-029	91	146	46	75-125	35	SS-19867-0703-PK-033	45.5 J	mg/Kg	*
								SS-19867-0703-PK-031	57.8 J	mg/Kg	*
								SS-19867-0703-PK-030	36.1 J	mg/Kg	*
								SS-19867-0703-PK-029	35.7 J	mg/Kg	*
								SS-19867-0703-PK-032	44.5 J	mg/Kg	*
								SS-19867-0703-PK-027	60.1 J	mg/Kg	*
								SS-19867-0703-PK-026	85.5 J	mg/Kg	*
								SS-19867-0703-PK-028	29.6 J	mg/Kg	*
								SS-19867-0703-PK-024	997 J	mg/Kg	*
Metals	Manganese	SS-19867-0703-PK-018	425	131	106	75-125	35	SS-19867-0703-PK-018	510	mg/Kg	J
Metals	Nickel	S-19867-07-03-PK-020	64	62	3	75-125	35	S-19867-07-03-PK-001	68.5 J	mg/Kg	*
								S-19867-07-03-PK-006	9.97 J	mg/Kg	*
								S-19867-07-03-PK-005	11.7 J	mg/Kg	*
								S-19867-07-03-PK-002	22.6 J	mg/Kg	*
								S-19867-07-03-PK-004	27.4 J	mg/Kg	*
								S-19867-07-03-PK-003	261 J	mg/Kg	*
								S-19867-07-03-PK-028	28.5 J	mg/Kg	*
								S-19867-07-03-PK-025	33.9 J	mg/Kg	*
								S-19867-07-03-PK-021	21.7 J	mg/Kg	*
								S-19867-07-03-PK-029	21.8 J	mg/Kg	*
								S-19867-07-03-PK-024	34.9 J	mg/Kg	*
								S-19867-07-03-PK-027	9.71 J	mg/Kg	*
								S-19867-07-03-PK-023	7.27 J	mg/Kg	*
								S-19867-07-03-PK-022	27.4 J	mg/Kg	*
								S-19867-07-03-PK-008	6.21 J	mg/Kg	*
								S-19867-07-03-PK-026	26.8 J	mg/Kg	*
								S-19867-07-03-PK-007	51.0 J	mg/Kg	*
								S-19867-07-03-PK-020	51.8 J	mg/Kg	*
								S-19867-07-03-PK-030	32.8 J	mg/Kg	*
								S-19867-07-03-PK-009	42.7 J	mg/Kg	*
								S-19867-07-03-PK-021	21.7 J	mg/Kg	*
								S-19867-07-03-PK-020	51.8 J	mg/Kg	*

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals	Silver	S-19867-07-03-PK-020	126	118	7	75-125	35	S-19867-07-03-PK-001	0.283 J	mg/Kg	*
								S-19867-07-03-PK-003	0.575 J	mg/Kg	*
								S-19867-07-03-PK-021	0.525 J	mg/Kg	*
								S-19867-07-03-PK-025	0.262 J	mg/Kg	*
								S-19867-07-03-PK-023	0.371 J	mg/Kg	*
								S-19867-07-03-PK-008	0.172 J	mg/Kg	*
								S-19867-07-03-PK-007	0.321 J	mg/Kg	*
								S-19867-07-03-PK-020	0.763 J	mg/Kg	*
								S-19867-07-03-PK-009	0.279 J	mg/Kg	*
								S-19867-07-03-PK-007	0.321 J	mg/Kg	*
								S-19867-07-03-PK-003	0.575 J	mg/Kg	*
								S-19867-07-03-PK-001	0.283 J	mg/Kg	*
								S-19867-07-03-PK-008	0.172 J	mg/Kg	*
								S-19867-07-03-PK-025	0.262 J	mg/Kg	*
								S-19867-07-03-PK-023	0.371 J	mg/Kg	*
								S-19867-07-03-PK-020	0.763 J	mg/Kg	*
								S-19867-07-03-PK-009	0.279 J	mg/Kg	*
								S-19867-07-03-PK-021	0.525 J	mg/Kg	*
Metals	Vanadium	SS-19867-0703-PK-004	103	131	24	75-125	35	SS-19867-0703-PK-001	19.7	mg/Kg	J
								SS-19867-0703-PK-002	17.1	mg/Kg	J
								SS-19867-0703-PK-003	21.2	mg/Kg	J
								SS-19867-0703-PK-004	82.2	mg/Kg	J
								SS-19867-0703-PK-005	36.3	mg/Kg	J
								SS-19867-0703-PK-006	38.4	mg/Kg	J
								SS-19867-0703-PK-007	40.7	mg/Kg	J
								SS-19867-0703-PK-008	86.6	mg/Kg	J
								SS-19867-0703-PK-009	42.9	mg/Kg	J
								SS-19867-0703-PK-010	227	mg/Kg	J
								SS-19867-0703-PK-011	44.5	mg/Kg	J
								SS-19867-0703-PK-012	202	mg/Kg	J
								SS-19867-0703-PK-014	35.3	mg/Kg	J
								SS-19867-0703-PK-015	30.0	mg/Kg	J
								SS-19867-0703-PK-016	41.3	mg/Kg	J
								SS-19867-0703-PK-017	33.8	mg/Kg	J

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals (Cont'd.)	Vanadium	SS-19867-0703-PK-004	103	131	24	75-125	35	SS-19867-0703-PK-018	41.3	mg/Kg	J
								SS-19867-0703-PK-019	37.1	mg/Kg	J
								SS-19867-0703-PK-020	40.4	mg/Kg	J
								SS-19867-0703-PK-013	191	mg/Kg	J
Metals	Vanadium	S-19867-0703-PK-018	132	118	11	75-125	35	S-19867-0703-PK-018	80.9	mg/Kg	J
Metals	Vanadium	S-19867-07-03-PK-020	327	74	126	75-125	35	S-19867-07-03-PK-001	82.7	mg/Kg	J
								S-19867-07-03-PK-002	28.9	mg/Kg	J
								S-19867-07-03-PK-003	74.4	mg/Kg	J
								S-19867-07-03-PK-004	32.8	mg/Kg	J
								S-19867-07-03-PK-005	15.7	mg/Kg	J
								S-19867-07-03-PK-006	13.6	mg/Kg	J
								S-19867-07-03-PK-007	29.3	mg/Kg	J
								S-19867-07-03-PK-008	6.48	mg/Kg	J
								S-19867-07-03-PK-009	62.8	mg/Kg	J
								S-19867-07-03-PK-020	107	mg/Kg	J
								S-19867-07-03-PK-021	74.3	mg/Kg	J
								S-19867-07-03-PK-022	31.1	mg/Kg	J
								S-19867-07-03-PK-023	16.3	mg/Kg	J
								S-19867-07-03-PK-024	45.9	mg/Kg	J
								S-19867-07-03-PK-025	73.9	mg/Kg	J
								S-19867-07-03-PK-026	48.1	mg/Kg	J
								S-19867-07-03-PK-027	35.7	mg/Kg	J
								S-19867-07-03-PK-028	38.2	mg/Kg	J
								S-19867-07-03-PK-029	48.9	mg/Kg	J
								S-19867-07-03-PK-030	40.0	mg/Kg	J
Metals	Zinc	S-19867-07-03-PK-020	95	34	94	75-125	35	S-19867-07-03-PK-001	15.0	mg/Kg	J
								S-19867-07-03-PK-002	53.9	mg/Kg	J
								S-19867-07-03-PK-003	106	mg/Kg	J
								S-19867-07-03-PK-004	60.3	mg/Kg	J
								S-19867-07-03-PK-005	1160	mg/Kg	J
								S-19867-07-03-PK-006	387	mg/Kg	J
								S-19867-07-03-PK-007	87.6	mg/Kg	J

TABLE 4

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REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals (Cont'd.)	Zinc	S-19867-07-03-PK-020	95	34	94	75-125	35	S-19867-07-03-PK-008	86.8	mg/Kg	J
								S-19867-07-03-PK-009	24.4	mg/Kg	J
								S-19867-07-03-PK-020	28.1	mg/Kg	J
								S-19867-07-03-PK-021	132	mg/Kg	J
								S-19867-07-03-PK-021	132	mg/Kg	J
								S-19867-07-03-PK-022	52.1	mg/Kg	J
								S-19867-07-03-PK-023	ND 1.86	mg/Kg	J
								S-19867-07-03-PK-024	78.8	mg/Kg	J
								S-19867-07-03-PK-025	26.5	mg/Kg	J
								S-19867-07-03-PK-026	79.5	mg/Kg	J
								S-19867-07-03-PK-027	41.6	mg/Kg	J
								S-19867-07-03-PK-028	225	mg/Kg	J
								S-19867-07-03-PK-029	66.3	mg/Kg	J
								S-19867-07-03-PK-030	323	mg/Kg	J
Metals	Mercury	GW-9867-08-03-PK-017	56	58	4	80-120	20	GW-9867-08-03-PK-019	ND 0.400	ug/L	J
								GW-9867-08-03-PK-018	ND 0.400	ug/L	J
								GW-9867-08-03-PK-017	ND 0.400	ug/L	J
								GW-19867-08-03-PK-025	ND 0.400	ug/L	J
								GW-19867-08-03-PK-028	ND 0.400	ug/L	J
								GW-19867-08-03-PK-020	ND 0.400	ug/L	J
								GW-19867-08-03-PK-022	ND 0.400	ug/L	J
								GW-19867-08-03-PK-027	ND 0.400	ug/L	J
								GW-19867-08-03-PK-026	ND 0.400	ug/L	J
								GW-19867-08-03-PK-024	0.291 J	ug/L	*
								GW-19867-08-03-PK-021	0.144 J	ug/L	*
								GW-19867-08-03-PK-023	0.0911 J	ug/L	*
Metals	Chromium Total	SED-19867-08-03-PK-023	95	13	152	75-125	35	S-19867-08-03-PK-008	312	mg/Kg	J
								S-19867-08-03-PK-009	125	mg/Kg	J
								S-19867-08-03-PK-016	11.8	mg/Kg	J
								S-19867-08-03-PK-017	46.9	mg/Kg	J
								S-19867-08-03-PK-031	317	mg/Kg	J
								S-19867-08-03-PK-032	33.6	mg/Kg	J
								S-19867-08-03-PK-033	18.3	mg/Kg	J

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals (Cont'd.)	Chromium Total	SED-19867-08-03-PK-023	95	13	152	75-125	35	SED-19867-08-03-PK-014	97.7	mg/Kg	J
								SED-19867-08-03-PK-015	266	mg/Kg	J
								SED-19867-08-03-PK-018	65.4	mg/Kg	J
								SED-19867-08-03-PK-019	49.1	mg/Kg	J
								SED-19867-08-03-PK-020	483	mg/Kg	J
								SED-19867-08-03-PK-021	63.5	mg/Kg	J
								SED-19867-08-03-PK-023	364	mg/Kg	J
								SED-19867-08-03-PK-010	335	mg/Kg	J
								SED-19867-08-03-PK-011	1840	mg/Kg	J
								SED-19867-08-03-PK-013	90.3	mg/Kg	J
								SED-19867-08-03-PK-024	55.1	mg/Kg	J
								SED-19867-08-03-PK-025	289	mg/Kg	J
Metals	Magnesium	SED-19867-08-03-PK-023	NA	NA	67	NA	35	S-19867-08-03-PK-008	22100	mg/Kg	J
								S-19867-08-03-PK-009	7920	mg/Kg	J
								S-19867-08-03-PK-016	721	mg/Kg	J
								S-19867-08-03-PK-017	4680	mg/Kg	J
								S-19867-08-03-PK-031	9740	mg/Kg	J
								S-19867-08-03-PK-032	8480	mg/Kg	J
								S-19867-08-03-PK-033	11100	mg/Kg	J
								SED-19867-08-03-PK-014	8890	mg/Kg	J
								SED-19867-08-03-PK-015	5390	mg/Kg	J
								SED-19867-08-03-PK-018	8000	mg/Kg	J
								SED-19867-08-03-PK-019	13000	mg/Kg	J
								SED-19867-08-03-PK-020	10700	mg/Kg	J
								SED-19867-08-03-PK-021	9620	mg/Kg	J
								SED-19867-08-03-PK-023	26900	mg/Kg	J
								SED-19867-08-03-PK-010	8870	mg/Kg	J
								SED-19867-08-03-PK-011	16700	mg/Kg	J
								SED-19867-08-03-PK-013	11300	mg/Kg	J
								SED-19867-08-03-PK-024	11900	mg/Kg	J
								SED-19867-08-03-PK-025	28100	mg/Kg	J

TABLE 4

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REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals	Manganese	SED-19867-08-03-PK-023	85	37	79	75-125	35	S-19867-08-03-PK-008	1320	mg/Kg	J
								S-19867-08-03-PK-009	738	mg/Kg	J
								S-19867-08-03-PK-016	47.3	mg/Kg	J
								S-19867-08-03-PK-017	679	mg/Kg	J
								S-19867-08-03-PK-031	2330	mg/Kg	J
								S-19867-08-03-PK-032	997	mg/Kg	J
								S-19867-08-03-PK-033	597	mg/Kg	J
								SED-19867-08-03-PK-014	564	mg/Kg	J
								SED-19867-08-03-PK-015	979	mg/Kg	J
								SED-19867-08-03-PK-018	583	mg/Kg	J
								SED-19867-08-03-PK-019	690	mg/Kg	J
								SED-19867-08-03-PK-020	606	mg/Kg	J
								SED-19867-08-03-PK-021	215	mg/Kg	J
								SED-19867-08-03-PK-023	558	mg/Kg	J
								SED-19867-08-03-PK-010	1180	mg/Kg	J
								SED-19867-08-03-PK-011	6330	mg/Kg	J
								SED-19867-08-03-PK-013	246	mg/Kg	J
								SED-19867-08-03-PK-024	923	mg/Kg	J
								SED-19867-08-03-PK-025	562	mg/Kg	J
Metals	Mercury	S-19867-08-03-PK-009	162	101	46	83-122	35	S-19867-08-03-PK-008	2.02	mg/Kg	J
								S-19867-08-03-PK-009	1.71	mg/Kg	J
								S-19867-08-03-PK-017	0.101	mg/Kg	J
								S-19867-08-03-PK-031	0.216	mg/Kg	J
Metals	Potassium	SED-19867-08-03-PK-023	132	112	16	75-125	35	S-19867-08-03-PK-008	1170	mg/Kg	J
								S-19867-08-03-PK-009	1860	mg/Kg	J
								S-19867-08-03-PK-016	223	mg/Kg	J
								S-19867-08-03-PK-017	2020	mg/Kg	J
								S-19867-08-03-PK-031	1450	mg/Kg	J
								S-19867-08-03-PK-032	3460	mg/Kg	J
								S-19867-08-03-PK-033	2740	mg/Kg	J
								SED-19867-08-03-PK-014	1740	mg/Kg	J
								SED-19867-08-03-PK-015	2840	mg/Kg	J
								SED-19867-08-03-PK-018	1700	mg/Kg	J

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REMEDIAL INVESTIGATION
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NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Metals (Cont'd.)	Potassium	SED-19867-08-03-PK-023	132	112	16	75-125	35	SED-19867-08-03-PK-019	4580	mg/Kg	J
								SED-19867-08-03-PK-020	1010	mg/Kg	J
								SED-19867-08-03-PK-021	300	mg/Kg	J
								SED-19867-08-03-PK-023	779	mg/Kg	J
								SED-19867-08-03-PK-010	2350	mg/Kg	J
								SED-19867-08-03-PK-011	3200	mg/Kg	J
								SED-19867-08-03-PK-013	2130	mg/Kg	J
								SED-19867-08-03-PK-024	3520	mg/Kg	J
								SED-19867-08-03-PK-025	1070	mg/Kg	J
Gen Chem	Chromium, Hexavalent	S-19867-08-03-PK-009	9	-	-	75-125	-	S-19867-08-03-PK-008	ND 4.9	mg/Kg	R
								S-19867-08-03-PK-009	ND 7.1	mg/Kg	R
								S-19867-08-03-PK-016	ND 6	mg/Kg	R
								S-19867-08-03-PK-017	ND 5.3	mg/Kg	R
								S-19867-08-03-PK-032	ND 4.5	mg/Kg	R
								S-19867-08-03-PK-033	ND 5.7	mg/Kg	R
Gen Chem	Chromium, Hexavalent	SED-19867-08-03-PK-022	43	-	-	75-125	-	SED-19867-08-03-PK-022	2.3 J	mg/Kg	*
Gen Chem	Chromium, Hexavalent	S-19867-07-03-PK-007	24	-	-	75-125	-	S-19867-07-03-PK-007	ND 4.8	mg/Kg	R
Gen Chem	Cyanide (total)	SS-19867-0703-PK-024	77	100	26	79-130	35	SS-19867-0703-PK-026	0.368 J	mg/Kg	*
								SS-19867-0703-PK-017	0.398 J	mg/Kg	*
								SS-19867-0703-PK-028	ND 0.535	mg/Kg	J
								SS-19867-0703-PK-019	ND 0.536	mg/Kg	J
								SS-19867-0703-PK-015	0.258 J	mg/Kg	*
								SS-19867-0703-PK-016	0.323 J	mg/Kg	*
								SS-19867-0703-PK-017	0.398 J	mg/Kg	*
								SS-19867-0703-PK-018	0.334 J	mg/Kg	*
								SS-19867-0703-PK-019	ND 0.536	mg/Kg	J
								SS-19867-0703-PK-020	0.359 J	mg/Kg	*
								SS-19867-0703-PK-021	0.604	mg/Kg	J
								SS-19867-0703-PK-022	0.193 J	mg/Kg	*
								SS-19867-0703-PK-023	ND 0.587	mg/Kg	J
								SS-19867-0703-PK-024	0.303 J	mg/Kg	*

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Analyte*	*Sample ID*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Gen Chem (Cont'd.)	Cyanide (total)	SS-19867-0703-PK-024	77	100	26	79-130	35	SS-19867-0703-PK-025	0.176 J	mg/Kg	*
								SS-19867-0703-PK-026	0.368 J	mg/Kg	*
								SS-19867-0703-PK-027	0.311 J	mg/Kg	*
								SS-19867-0703-PK-028	ND 0.535	mg/Kg	J
Gen Chem	Chromium, Hexavalent	SS-19867-0703-PK-004	40	-	-	75-125	-	SS-19867--0703-PK-001	ND 4.7	mg/Kg	J
								SS-19867--0703-PK-002	ND 4.5	mg/Kg	J
								SS-19867--0703-PK-003	ND 4.2	mg/Kg	J
								SS-19867--0703-PK-004	4.3 J	mg/Kg	*
								SS-19867--0703-PK-005	ND 5.6	mg/Kg	J
								SS-19867--0703-PK-006	2.0 J	mg/Kg	*
								SS-19867--0703-PK-007	ND 4.8	mg/Kg	J
								SS-19867--0703-PK-008	3.2 J	mg/Kg	*
								SS-19867--0703-PK-009	10	mg/Kg	J
								SS-19867--0703-PK-010	16	mg/Kg	J
								SS-19867--0703-PK-011	2.0 J	mg/Kg	*
								SS-19867--0703-PK-012	15	mg/Kg	J
								SS-19867--0703-PK-013	5.6	mg/Kg	J
								SS-19867--0703-PK-014	ND 6.7	mg/Kg	J
								SS-19867--0703-PK-015	ND 5.3	mg/Kg	J
								SS-19867--0703-PK-016	ND 5.5	mg/Kg	J
								SS-19867--0703-PK-017	ND 6.0	mg/Kg	J
								SS-19867--0703-PK-018	ND 4.9	mg/Kg	J
								SS-19867--0703-PK-019	ND 4.2	mg/Kg	J
								SS-19867--0703-PK-020	ND 4.9	mg/Kg	J

Notes:

* Sample results were previously qualified as estimated by the laboratory.
J Estimated.
ND Non-detect at associated value.
R Rejected.
RPD Relative Percent Difference.

TABLE 5

QUALIFIED SAMPLE DATA DUE TO VARIABILITY IN FIELD DUPLICATE RESULTS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

		Original		*Duplicate*				
Parameter	*Analyte*	*Sample ID*	*Result*	*Sample ID*	*Result*	*RPD*	*Units*	*Qualifier* [1]
Metals	Thallium	SS-19867-0703-PK-005	16.2	SS-19867-0703-PK-006	ND 1.22	NA	mg/Kg	J
Metals	Magnesium	S-9867-07-03-PK-020	114000	S-9867-07-03-PK-021	65300	54	mg/Kg	J
	Zinc	S-9867-07-03-PK-020	28.1	S-9867-07-03-PK-021	132	130	mg/Kg	J
	Barium	S-9867-07-03-PK-020	208	S-9867-07-03-PK-021	95.7	74	mg/Kg	J
	Sodium	S-9867-07-03-PK-020	578	S-9867-07-03-PK-021	250	79	mg/Kg	J
	Nickel	S-9867-07-03-PK-020	51.8	S-9867-07-03-PK-021	21.7	82	mg/Kg	J

Notes:
(1)

J Estimated.
NA Not Applicable.
ND Non-detect at associated value.
RPD Relative Percent Difference.

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE RINSE BLANKS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	Rinse Blank Date	Analyte	Blank Result	Sample ID	Sample Result	Qualified Sample Result	Units
Metals	07/18/03	Antimony	0.734	SS-19867-0703-PK-002	1.22	ND 1.04	mg/Kg
				SS-19867-0703-PK-003	1.52	ND 1.04	mg/Kg
				SS-19867-0703-PK-007	2.79	ND 1.26	mg/Kg
				SS-19867-0703-PK-012	1.54	ND 2.52	mg/Kg
				SS-19867-0703-PK-014	1.83	ND 1.37	mg/Kg
				SS-19867-0703-PK-015	1.3	ND 1.23	mg/Kg
				SS-19867-0703-PK-016	3.18	ND 1.15	mg/Kg
				SS-19867-0703-PK-017	2.15	ND 1.08	mg/Kg
				SS-19867-0703-PK-018	2.62	ND 1.21	mg/Kg
				SS-19867-0703-PK-019	2.63	ND 1.11	mg/Kg
				SS-19867-0703-PK-020	2.91	ND 1.01	mg/Kg
				SS-19867-0703-PK-021	1.09	ND 1.26	mg/Kg
				SS-19867-0703-PK-022	3.03	ND 1.19	mg/Kg
				SS-19867-0703-PK-025	2.12	ND 1.04	mg/Kg
Metals	07/21/03	Antimony	0.479	SS-19867-0703-PK-026	0.91	ND 0.962	mg/Kg
				SS-19867-0703-PK-027	0.631	ND 0.926	mg/Kg
				SS-19867-0703-PK-028	0.669	ND 0.943	mg/Kg
				SS-19867-0703-PK-029	1.03	ND 0.943	mg/Kg
				SS-19867-0703-PK-031	0.997	ND 0.926	mg/Kg
				SS-19867-0703-PK-032	0.671	ND 0.909	mg/Kg
				SS-19867-0703-PK-033	0.597	ND 0.893	mg/Kg
Metals	07/24/03	Antimony	0.664	S-19867-0703-PK-011	0.848	ND 1.22	mg/Kg
				S-19867-0703-PK-012	2.03	ND 1.23	mg/Kg
				S-19867-0703-PK-013	1.2	ND 1.21	mg/Kg
				S-19867-0703-PK-014	0.958	ND 1.13	mg/Kg
				S-19867-0703-PK-015	1.33	ND 1.14	mg/Kg
				S-19867-0703-PK-017	1.19	ND 1.06	mg/Kg
				S-19867-0703-PK-019	1.92	ND 1.15	mg/Kg
Metals	07/28/03	Antimony	0.664	S-19867-07-03-PK-010	2.74	ND 1.24	mg/Kg
				S-19867-07-03-PK-020	2.09	ND 1.21	mg/Kg
Metals	07/18/03	Arsenic	0.436	SS-19867-0703-PK-010	2.06	ND 2.06	mg/Kg
				SS-19867-0703-PK-011	1.97	ND 1.97	mg/Kg
				SS-19867-0703-PK-005	0.805	ND 1.15	mg/Kg
				SS-19867-0703-PK-009	0.969	ND 1.05	mg/Kg
				SS-19867-0703-PK-006	1.07	ND 1.22	mg/Kg
Metals	07/18/03	Sodium	35.3	SS-19867-0703-PK-011	144	ND 144	mg/Kg
				SS-19867-0703-PK-015	79.8	ND 123	mg/Kg
				SS-19867-0703-PK-014	92.3	ND 137	mg/Kg
				SS-19867-0703-PK-012	109	ND 126	mg/Kg
				SS-19867-0703-PK-001	168	ND 168	mg/Kg
				SS-19867-0703-PK-005	72.6	ND 115	mg/Kg
				SS-19867-0703-PK-002	87.4	ND 104	mg/Kg
				SS-19867-0703-PK-009	152	ND 152	mg/Kg
				SS-19867-0703-PK-017	83.1	ND 108	mg/Kg
				SS-19867-0703-PK-025	132	ND 132	mg/Kg
				SS-19867-0703-PK-023	69.3	ND 110	mg/Kg
				SS-19867-0703-PK-022	40.6	ND 119	mg/Kg
				SS-19867-0703-PK-021	150	ND 150	mg/Kg

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE RINSE BLANKS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
JULY - AUGUST 2003

Parameter	*Rinse Blank Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Sample Result*	*Units*
Metals	7/18/2003	Thallium	9.46	GW-9867-08-03-PK-007	10.9 J	ND 20.0	µg/L
				GW-9867-08-03-PK-008	10.9 J	ND 20.0	µg/L
				GW-9867-08-03-PK-005	8.34 J	ND 20.0	µg/L
				GW-9867-08-03-PK-010	8.88 J	ND 20.0	µg/L
				GW-9867-08-03-PK-006	7.98 J	ND 20.0	µg/L
Metals	08/28/03	Barium	23.3	GW-19867-08-03-PK-021	82.5	ND 82.5	ug/L
				GW-19867-08-03-PK-023	49.0	ND 49.0	ug/L
				GW-19867-08-03-PK-026	77.6	ND 77.6	ug/L
Metals	08/28/03	Nickel	1.62	GW-19867-08-03-PK-021	2.76 J	ND 20.0	ug/L
Gen Chem	8/15/2003	Cyanide	0.00233	GW-9867-08-03-PK-005	0.00196 J	ND 0.01	mg/L
				GW-9867-08-03-PK-006	0.00528 J	ND 0.01	mg/L
				GW-9867-08-03-PK-014	0.00252 J	ND 0.01	mg/L
				GW-9867-08-03-PK-008	0.00254 J	ND 0.01	mg/L
				GW-9867-08-03-PK-011	0.00283 J	ND 0.01	mg/L
				GW-9867-08-03-PK-015	0.00217 J	ND 0.01	mg/L
Gen Chem	08/28/03	Cyanide	0.00613	GW-19867-08-03-PK-025	0.00211 J	ND 0.01	mg/L
				GW-19867-08-03-PK-027	0.00195 J	ND 0.01	mg/L
				GW-19867-08-03-PK-026	0.00219 J	ND 0.01	mg/L
				GW-19867-08-03-PK-024	0.00331 J	ND 0.01	mg/L

Notes:
J Estimated.
ND Non-detect at associated value.

ANALYTICAL DATA ASSESSMENT AND VALIDATION
SURFACE WATER AND GROUNDWATER SAMPLING EVENT
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
OCTOBER 2003

PREPARED BY:
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1.0 INTRODUCTION

The following document details an assessment and validation of analytical results reported by Ecology and Environment, Inc. (E&E), located in Lancaster, New York, for samples collected at the Vanadium Site (Site) located in Niagara Falls, New York. Groundwater and surface water samples were collected during October 2003. For sample identification, a sampling and analysis summary is presented in Table 1.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods and the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February 1994, EPA-540/R-94-013.

The data quality assessment and validation presented in the following subsections were performed based on information from data sheets including matrix spike (MS) recoveries, duplicate results, laboratory control sample (LCS) recoveries, and blank results for all parameters.

2.0 SAMPLE HOLDING TIMES

The method-specified holding time criteria for this program were as follows:

Parameter	*Matrix*	*Holding Time*
TAL Metals (except Mercury)	Water	180 days from collection to analysis
Mercury	Water	28 days from collection to analysis
Chromium VI	Water	24 hours from collection to analysis
Cyanide	Water	14 days from collection to analysis

All sample analyses were performed within the required holding times. All samples were properly preserved and cooled at 4°C (±2°C) after collection, and all samples were received by the laboratory in good condition.

3.0 LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analyses is to determine the existence and magnitude of sample contamination introduced during analysis. Laboratory blanks are prepared from deionized water and analyzed as samples.

Most blank results were non-detect for the analytes of interest with the exception of metals and cyanide present at low concentrations. All associated sample results with concentrations similar to the blank concentrations were qualified as non-detect (see Table 2).

For this study, laboratory blanks were analyzed at a minimum frequency of one per analytical batch.

4.0 LABORATORY CONTROL SAMPLE ANALYSES

The LCS serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCSs were analyzed using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples.

LCSs were reported for all inorganic analyses. All LCS samples yielded recoveries within the established control limits, indicating acceptable overall analytical accuracy.

5.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

The recoveries of MS/MSD analyses are used to assess the analytical accuracy achieved on individual sample matrices. The relative percent difference (RPD) between the MS and MSD is used to assess analytical precision.

An MS/MSD was analyzed at the required frequency for all parameters.

Most recoveries were acceptable indicating adequate analytical accuracy and precision with the exception of one low cyanide recovery for sample GW-19867-10-03-PK-013. All associated cyanide results were qualified as estimated to reflect the implied low bias (see Table 3).

6.0 DUPLICATE ANALYSES

To assess analytical precision, samples were analyzed in duplicate for chromium VI. The results were compared and must agree within 35 percent difference to be acceptable.

All results were acceptable indicating adequate analytical precision.

7.0 FIELD QA/QC-FIELD DUPLICATES

To assess the analytical and sampling protocol precision, field duplicates (as identified in Table 1) were collected and submitted "blind" to the laboratory. All data outside of estimated regions of detection demonstrated acceptable agreement indicating adequate sampling and analytical procedures with the exception of variability observed between the iron results for sample GW-19867-10-03-PK-012 and its duplicate. The results were qualified as estimated to reflect the implied variability (see Table 4).

8.0 CONCLUSION

Based on the assessment detailed in the foregoing, the data produced by E&E are acceptable with the noted qualifications.

TABLES

TABLE 1

COLLECTION AND ANALYSIS SUMMARY
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
OCTOBER 2003

Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Analysis/Parameters*	*Comment*
GW-19867-1003-PK-001	MW-19	Groundwater	10/01/03	14:20	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-003	MW-22	Groundwater	10/01/03	14:50	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-004	MW-22	Groundwater	10/01/03	14:55	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-1003-PK-005	MW-20	Groundwater	10/01/03	15:20	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-006	MW-20	Groundwater	10/01/03	15:30	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-1003-PK-RB1	Rinsate Blank	-	10/01/03	16:50	Chromium VI	
GW-19867-1003-PK-002	MW-25	Groundwater	10/03/03	12:30	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-007	MW-25	Groundwater	10/03/03	12:45	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-1003-PK-008	MW-27	Groundwater	10/03/03	13:10	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-009	MW-27	Groundwater	10/03/03	13:20	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-1003-PK-010	MW-104A	Groundwater	10/03/03	13:40	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-011	MW-104A	Groundwater	10/03/03	14:00	TAL Metals, Cyanide, Hex. Chromium	Field Filtered
GW-19867-1003-PK-012	MW-103A	Groundwater	10/06/03	14:25	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-014	MW-103A	Groundwater	10/06/03	15:00	TAL Metals, Cyanide, Hex. Chromium	Duplicate of -012
GW-19867-1003-PK-013	MW-103A	Groundwater	10/06/03	14:35	TAL Metals, Cyanide, Hex. Chromium	MS/MSD
GW-19867-1003-PK-015	MW-17	Groundwater	10/06/03	15:50	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-016	MW-28	Groundwater	10/06/03	16:15	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-017	MW-21	Groundwater	10/06/03	16:40	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-018	MW-18	Groundwater	10/06/03	17:00	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-011	SW-11	Surface Water	10/07/03	12:45	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-013	SW-13	Surface Water	10/07/03	14:00	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-014	SW-14	Surface Water	10/07/03	14:05	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-015	SW-15	Surface Water	10/07/03	14:15	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-019	SW-19	Surface Water	10/07/03	14:20	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-020	SW-20	Surface Water	10/07/03	13:50	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-021	SW-21	Surface Water	10/07/03	13:40	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-023	SW-23	Surface Water	10/07/03	13:05	TAL Metals, Cyanide, Hex. Chromium	MS/MSD
SW-19867-08-03-024	SW-24	Surface Water	10/07/03	13:15	TAL Metals, Cyanide, Hex. Chromium	
SW-19867-08-03-025	SW-25	Surface Water	10/07/03	14:30	TAL Metals, Cyanide, Hex. Chromium	Duplicate of -023
GW-19867-1003-PK-019	MW-26	Groundwater	10/22/2003	13:30	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-020	MW-105A	Groundwater	10/22/2003	13:50	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-021	MW-23	Groundwater	10/22/2003	14:15	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-022	MW-24	Groundwater	10/22/2003	14:35	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-023	MW-106A	Groundwater	10/22/2003	15:10	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-1003-PK-024	MW-15	Groundwater	10/22/2003	15:30	TAL Metals, Cyanide, Hex. Chromium	
GW-19867-0803-PK-025	MW-16	Groundwater	10/22/2003	16:00	TAL Metals, Cyanide, Hex. Chromium	

Notes:
MS/MSD Matrix Spike/Matrix Spike Duplicate.
TAL Target Analyte List.

TABLE 1

COLLECTION AND ANALYSIS SUMMARY
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
OCTOBER 2003

TABLE 2

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
OCTOBER 2003

Parameter	*Blank ID/Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Sample Result*	*Units*
Metals	10/14/03	Aluminum	50.25	GW-19867-10-03-PK-013	59.1 J	ND 200	ug/L
				GW-19867-10-03-PK-012	41.0 J	ND 200	ug/L
				GW-19867-10-03-PK-013	59.1 J	ND 200	ug/L
				GW-19867-10-03-PK-012	41.0 J	ND 200	ug/L
Metals	10/07/03	Arsenic	7.768	GW-19867-10-03-PK-011	14.8 J	ND 25.0	ug/L
				GW-19867-10-03-PK-007	14.3 J	ND 25.0	ug/L
				GW-19867-10-03-PK-002	14.7 J	ND 25.0	ug/L
				GW-19867-10-03-PK-010	18.5 J	ND 25.0	ug/L
Metals	10/07/03	Beryllium	0.201	GW-19867-10-03-PK-008	0.196 J	ND 5.00	ug/L
				GW-19867-10-03-PK-007	0.186 J	ND 5.00	ug/L
				GW-19867-10-03-PK-002	0.205 J	ND 5.00	ug/L
Metals	10/09/03	Chromium Total	0.8219	GW-19867-10-03-PK-006	1.17 J	ND 10.0	ug/L
Metals	10/14/03	Chromium Total	0.8593	GW-19867-10-03-PK-016	2.90 J	ND 10.0	ug/L
Metals	10/14/03	Iron	56.95	GW-19867-10-03-PK-017	98.0 J	ND 200	ug/L
Metals	10/09/03	Magnesium	77.33	GW-19867-10-03-PK-003	82.3 J	ND 1500	ug/L
Metals	10/14/03	Magnesium	122.1	GW-19867-10-03-PK-017	121 J	ND 1500	ug/L
Metals	10/14/03	Nickel	2.03	GW-19867-10-03-PK-016	3.54 J	ND 20.0	ug/L
				GW-19867-10-03-PK-018	9.45 J	ND 20.0	ug/L

TABLE 2

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
OCTOBER 2003

Parameter	*Blank ID/Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Sample Result*	*Units*
Metals	10/07/03	Zinc	2.657	GW-19867-10-03-PK-007	6.34 J	ND 10.0	ug/L
				GW-19867-10-03-PK-011	6.44 J	ND 10.0	ug/L
Metals	10/14/03	Zinc	1.908	GW-19867-10-03-PK-013	9.35 J	ND 10.0	ug/L
				GW-19867-10-03-PK-012	6.67 J	ND 10.0	ug/L
				GW-19867-10-03-PK-014	3.30 J	ND 10.0	ug/L
Metals	10/28/03	Aluminum	47.30	GW-19867-10-03-PK-025	92.9 J	ND 200	ug/L
				GW-19867-10-03-PK-020	133 J	ND 200	ug/L
				GW-19867-10-03-PK-019	158 J	ND 200	ug/L
Metals	10/28/03	Iron	79.92	GW-19867-10-03-PK-021	305 J	ND 200	ug/L
				GW-19867-10-03-PK-020	174 J	ND 200	ug/L
Gen Chem	10/15/03	Cyanide (total)	0.0104	SW-19867-10-03-PK-024	0.0107	ND 0.01	mg/L
				SW-19867-10-03-PK-023	0.00805 J	ND 0.01	mg/L
				SW-19867-10-03-PK-021	0.00727 J	ND 0.01	mg/L
				SW-19867-10-03-PK-020	0.0178	ND 0.01	mg/L
				SW-19867-10-03-PK-025	0.0110	ND 0.01	mg/L
				SW-19867-10-03-PK-021	0.00727 J	ND 0.01	mg/L
				SW-19867-10-03-PK-023	0.00805 J	ND 0.01	mg/L

Notes:
J Estimated.
ND Non-detect at associated value.

TABLE 3

QUALIFIED SAMPLED RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
OCTOBER 2003

Parameter	*Analyte*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD*	*Control Limits (percent)*	*RPD Control Limits (percent)*	*Associated Sample ID*	*Sample Result*	*Units*	*Qualifier*
Gen Chem	Cyanide (total)	79	106	29	82-122	20	SW-19867-10-03-PK-019	ND 0.01	mg/L	J
							SW-19867-10-03-PK-014	ND 0.01	mg/L	J
							SW-19867-10-03-PK-013	ND 0.01	mg/L	J
							SW-19867-10-03-PK-011	ND 0.01	mg/L	J
							SW-19867-10-03-PK-015	0.00364 J	mg/L	J

Notes:

J Estimated.
MS Matrix spike.
MSD Matrix spike duplicate.
ND Non-detect at associated value.
RPD Relative percent difference.

TABLE 4

QUALIFIED SAMPLE DATA DUE TO VARIABILITY IN FIELD DUPLICATE RESULTS
REMEDIAL INVESTIGATION
VANADIUM CORPORATION OF AMERICA
NIAGARA FALLS, NEW YORK
OCTOBER 2003

		Original		*Duplicate*				
Parameter	*Analyte*	*Sample ID*	*Result*	*Sample ID*	*Result*	*RPD*	*Units*	*Qualifier* [1]
Metals	Iron	GW-19867-10-03-PK-012	762	GW-19867-10-03-PK-014	544	33	µg/L	J

Notes:
RPD Relative percent difference.
[1] Qualifier is associated with both original and duplicate results.