INVESTIGATION REPORT
for
LAP WEST SOIL ICM

Lucas Avenue Plant
Dunkirk, NY

June 2001 | 0041-002-100

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INVESTIGATION REPORT FOR
LAP WEST SOIL ICM
Lucas Avenue Plant
Dunkirk, NY

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Appendices

1.0 INTRODUCTION

An investigation of the north end of the LAP West Pickling Facility at the Lucas Avenue Plant was performed to sample soil and groundwater in the vicinity of former Kolene and Sodium Hydride process tanks. A limited investigation of the subsurface soils below this area was previously performed during the Phase I RFI. Four Phase I soil borings were completed (LWB-01, LWB-02, LWB-03, LWB-04) to a maximum depth of 8 feet below grade. Analysis of the soil samples collected from these borings indicated elevated levels of several metals. It was also observed that the concentration of total and hexavalent chromium increased with depth in all four boreholes.

The NYSDEC requested that a supplemental investigation of the subsurface soils and groundwater proximate to these process tanks be performed to further delineate the nature and extent of contamination and the degree of contaminant partitioning that may be occurring between the vadose and saturated zones.

The LAP West Soil ICM investigation mainly focused on collection and analysis of soil samples below the LAP floor to the north, south, east and west of the former process tanks. Soil samples were collected for analyses from discrete depths in the vadose zone at each boring location to assess the lateral and vertical extent of contamination and to determine the leaching potential of the unsaturated soil.

Field activities were performed on May 10, 2001. Groundwater was not encountered in the borings to completion depth (refusal), therefore, groundwater was not sampled.

2.0 INVESTIGATION PROGRAM

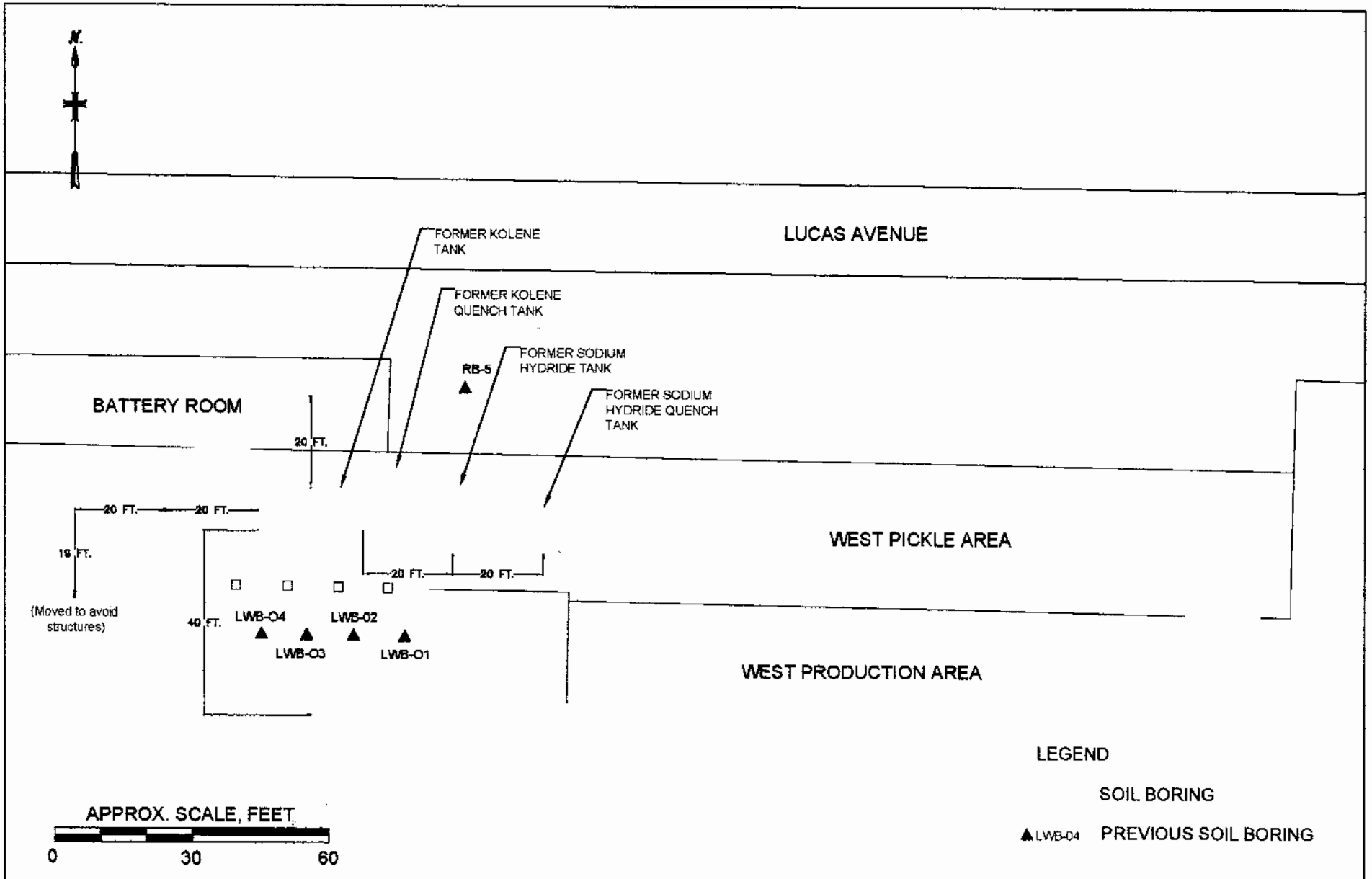
This supplemental investigation at the north end of the West Pickle Process Area at the LAP was performed in general accordance with the April 2001 ICM Work Plan. Collection and analysis of groundwater was not performed because groundwater was not encountered in the boreholes to completion depth (ie. refusal @ 6'-9' below grade). The investigation work included:

- Completion of six soil borings located in four compass directions from the former Kolene pit.
- Collection and laboratory analysis of soil samples from discrete depths in each of the six soil borings.
- Collection of rainwater for the performance of a Synthetic Precipitation Leaching Procedure (SPLP).
- Selection of four soil samples consisting of the highest, lowest, and two intermediate concentrations of total hexavalent chromium for SPLP testing to assess the potential for rain to leach hexavalent chromium from unsaturated soil beneath the building floor into the groundwater.

A description of the specific supplemental field investigation activities performed is presented in Sections 2.1 through 2.4 below.

2.1 Soil Borings

As shown on Figure 2-1, a series of soil borings were advanced inside of the Lucas Avenue Plant near the former Kolene Pit. At each location, a direct-push borehole was advanced using 1.5-inch diameter samplers to the desired depth. At boring locations where concrete flooring was present, a carbide bit corer was used ahead of the probe to facilitate sample collection and borehole advancement. Continuous 4-foot sample cores were retrieved from the boring locations in clear PVC sleeves to allow for visual characterization of the soil/fill materials by an experienced Project Hydrogeologist. For each four-foot core



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LAP WEST SOIL ICM INVESTIGATION

SOIL BORING LOCATIONS

FIGURE 2-1

of soil a new sleeve was used. All non-dedicated drilling tools were decontaminated between boring locations using tap water and Alconox (soap).

The depths to native soil, characteristics of soil/fill (color, content, etc.), and moisture conditions were recorded at each boring location on field borehole logs (see Appendix A).

As shown on Figure 2-1, two borings BH1 and BH2 were located approximately 20 and 40 feet, respectively, to the west of the former Kolene tank.locations. Boring BH1 was located 19 feet south of the planned location due to large tank foundations. Borings, BH3 and BH4, were located approximately 20 feet and 40 feet, respectively, to the east of the former Kolene tank. Borings BH5 and BH6 were located approximately 20 feet north and 40 feet, respectively, south of the former Kolene tank. Refusal was encountered in each borehole ranging from 6 to 9 feet below grade. At several locations refusal was noted to occur due to weathered shale bedrock. Approximately 0.5 to 2 feet of fill was encountered at each boring location with the exception of BH4 where fill extended to 6 feet below grade.

Saturated conditions were not encountered in any of the borings. Native soil near or at refusal was generally described as being slightly moist to dry. Borings BH3, BH-4, BH5 and BH6 contained wet soil and/or fill indicative of shallow perched water adjacent to the former tank locations, possibly from rainwater leaking through the roof and infiltrating through the floor where the concrete was compromised or absent .

Samples were collected of soil/fill in discrete layers to refusal depth from each borehole. Four samples were collected from BH1, BH3, BH4, and BH6. Three samples were collected from each of the remaining borehole locations, BH2 and BH5. Samples were submitted for analysis of RCRA metals plus copper, hexavalent chromium and total cyanide.

Once soil analytical results were received and reviewed, four of the soil samples containing the highest, lowest, and two intermediate concentrations of total hexavalent chromium were further analyzed for SPLP using locally collected rain water. The leachate was analyzed for hexavalent chromium.

2.2 Soil Analyses

A total of 22 samples were collected for analysis. All soil samples were analyzed for RCRA metals, copper, hexavalent chromium and total cyanide. Samples were submitted to a New York State Department of Health (NYSDOH) ELAP-certified analytical laboratory in accordance with USEPA Method SW-846 methodology. One duplicate soil sample was collected from BH-5, 4-5.2 feet and analyzed for the parameters listed above.

3.0 ANALYTICAL RESULTS

3.1 Soil Sample Analytical Results

Analytical results from investigation soil samples are presented on Table 3-1. Parameters analyzed and analytical results are compared to Eastern USA background soil concentrations, "Recommended Soil Cleanup Objectives" as published in NYSDEC TAGM HWR-94-4046 and site specific background concentrations (95 upper confidence limits) established during the Phase I RFI from seven background borings. The listed NYSDEC guidance values represent average "background" concentrations in New York State based upon a 1984 NYSDEC survey. Any concentrations detected in soil samples from the LAP with concentrations above listed NYSDEC recommended soil cleanup objectives or site specific background (whichever was higher) are highlighted on Table 3-1.

A copy of the investigation laboratory analytical data is included in Appendix B. Results from the soils analyses are discussed below.

As summarized in Table 3-1, all six boreholes contained samples concentrations exceeding Recommended Soil Cleanup Objectives for several inorganic compounds, predominantly chromium, copper and lead. For comparison purposes, the results of the four soil borings performed during the Phase I RFI in October of 1996 (LWB-01, LWB-02, LWB-03 and LWB-04) are also presented on Table 3-1.

Each inorganic compound of concern is discussed separately below.

3.1.1 Total Chromium

Total chromium was detected in every soil sample analyzed. Total chromium concentrations exceeded the site specific background concentration (i.e., 52.7 mg/kg) in 17 of 23 samples. Concentrations of total chromium in soils ranged from 16.2 to 6040 mg/kg and varied with depth in each borehole. Concentrations trended to be higher in the upper two feet (ie. in granular fill beneath the concrete) and/or at the bottom of the borehole (i.e., top of bedrock). Concentrations were highest in BH4, approximately 40 feet east of the former Kolene Tank, suggesting that the lateral extent of impact extends more than 40 feet

Table 3-1
LAP West Soil ICM

Summary of Inorganic Analytical Results in Soil[1]

Parameter mg/kg	Eastern USA Soils Backgrnd	NYSDEC Rec. Soil Cleanup Objective [2]	95 UCL Site Back-ground [3]	Location/Depth																							
				BH1				BH2			BH3				BH4				BH5				BH6					
				0-2' -1	2-4' -2	4-8' -3	8-9' -4	0.5-2' -1	2-4' -2	4-6' -3	0-2' -1	2-4' -2	4-5.5' -3	5.5-6.5' -4	0-2' -1	2-4' -2	4-5.2' -3	5.2-6.5' -4	0-4' -1	4-5.2' -2	4-5.2' (Dup)	5.2-6.5' -3	0.5-2' -1	2-4' -2	4-8' -3	8-9' -4
Arsenic	3 - 12	7.5 or SB		13.8	4.3	3.4	10.3	7.7	4.0	3.6	4.5	4.0	4.2	2.1	6.7	6.8	8.5	7.9	34.1	6.7	7.2	6.5	12.4	6.5	4.8	8.9
Barium	15 - 600	300 or SB		147	108	118	149	393	57.6	92.6	114	98.3	98.4	100	238	135	146	140	1200	96.0	104	107	284	138	124	131
Cadmium	0.1 - 1.0	1 or SB		<0.6	<0.63	<0.55	<0.55	<0.72	<0.62	<0.57	<0.63	<0.62	<0.57	<0.55	<0.56	<0.56	<0.58	<0.60	<0.62	<0.55	<0.57	<0.56	<0.61	<0.64	<0.58	<0.53
Chromium	1.5 - 40	10 or SB	52.7	44.3	16.4	16.2	188	537	260	357	468	195	635	280	2450	2560	3070	6040	1550	90.9	86.7	138	37.5	19.4	18.8	173
Hex. Chromium	NA	NA	15	<1.2	<1.3	<1.1	149	2.0	9.0	85.3	580	58.4	35.0	51.9	<1.1	1.1	<1.2	<1.2	<1.3	31.8	30.2	36.9	<1.2	<1.3	<1.2	117
Copper	1 - 50	25 or SB		69.5	10.5	18.5	34.7	85.6	12.2	18.7	22.0	19.6	17.1	15.9	117	93.3	100	651	472	38.5	20.3	25.3	672	30.1	17.3	19.7
Lead	200 - 500	SB	30.93	1840	10.7	6.7	74.2	21800	11.7	7.5	51.6	11.6	<5.7	<5.5	103	89.2	104	191	2740	5.9	7.4	9.4	130000	10.6	10	<5.3
Mercury	0.001 - 0.2	0.1 or SB		<0.11	<0.13	<0.11	<0.11	<0.13	<0.12	<0.12	<0.12	<0.12	<0.12	<0.11	<0.11	<0.11	<0.12	<0.12	<0.12	<0.11	<0.12	<0.11	<0.12	<0.13	<0.12	<0.11
Selenium	0.1 - 3.9	2.0 or SB		<3.6	<3.8	<3.3	<3.3	<4.3	<3.7	<3.4	<3.8	<3.7	<3.4	<3.3	3.4	3.9	6.1	5.8	11.4	<3.3	<3.4	<3.4	<3.7	<3.8	<3.5	<3.2
Silver	NA	SB		<1.2	<1.2	<1.1	<1.1	<1.4	<1.2	<1.1	<1.3	<1.2	<1.1	<1.1	<1.1	<1.1	<1.2	<1.2	<1.2	<1.1	<1.1	<1.1	<1.2	<1.3	<1.2	<1.0
Cyanide	NA	NA		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.7	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Summary of Phase I RFI Inorganic Analytical Results in Soil (Oct. 1996)

Parameter mg/kg	Eastern USA Soils Backgrnd	NYSDEC Rec. Soil Cleanup Objective [2]	95 UCL Site Back-ground [3]	Location/Depth							
				LWB-01		LWB-02		LWB-03		LWB-04	
				2-4'	6-8'	0-2'	6-8'	0-2'	6-8'	0-2'	6-8'
Arsenic	3 - 12	7.5 or SB		3.6	9.9	11	4.7	4.6	5.3	7.6	9.6
Barium	15 - 600	300 or SB		110	180	94	290	83	180	130	260
Cadmium	0.1 - 1.0	1 or SB		13	3.4	4.9	3.4	3.9	4.4	9.2	4.3
Chromium	1.5 - 40	10 or SB	52.7	170	180	77	300	22	510	24	450
Hex. Chromium	NA	NA	15	11.5	61.6	11.4	1900	<2.49	3510	<2.31	280
Copper	1 - 50	25 or SB		24	34	22	110	13	48	45	44.0
Lead	200 - 500	SB	30.93	8.3	14	13	9	32	82	19	15
Mercury	0.001 - 0.2	0.1 or SB		<0.09	<0.09	<0.08	<0.08	<0.10	<0.1	0.12	<0.10
Selenium	0.1 - 3.9	2.0 or SB		<0.26	<0.27	<0.26	<0.21	<0.26	<0.23	<0.26	<0.27
Silver	NA	SB		<0.81	<0.83	1.5	<0.66	<0.81	0.96	1.1	0.92
Cyanide	NA	NA		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

NOTES:

(1) Sample collected by Benchmark & analyzed by STL Laboratory

(2) Average background concenttration from NYSDEC TAGM HWR-94-4046

(3) Site background (SB) concentrations from Oct. 1998 Phase I RFI Report (Table 4-1), values listed only where the SB concentration exceeds TAGM 4046 value.

< Indicates compound was not detected above quantitation limit

SB - Site Background

NA - Not Available

- Indicates concentration exceeds the higher of the site background or TAGM 4046 value

in an eastward direction from the former Kolene tank. The chromium concentrations were lowest in BH1 and BH6 located approximately 40 west and 40 feet south, respectively, from the former Kolene tank. Chromium concentration in soil at BH3 located approximately 20 feet east of the former Kolene tank were elevated from 0-6.5 feet below grade.

3.1.2 Hexavalent Chromium

Hexavalent chromium in soil samples beneath the concrete floor of the LAP West production area ranged from non-detect to 580 mg/kg. Hexavalent chromium concentrations exceeded the site specific background concentration (i.e., 15 mg/kg) in 10 of 23 samples. Concentrations were highest in the upper two feet of BH-3, but demonstrated no apparent trends when compared to the total chromium values.

3.1.3 Lead

Concentrations of total lead in soils beneath the concrete floors in LAP West ranged from non-detect to 130,000 mg/kg. Concentrations of lead exceeded the site specific background concentration (i.e., 30.93 mg/kg) in 10 of 23 samples. The concentration of lead reported in upper two feet of BH6 was by far the highest and appears to be anomalous based on the results of the other borings and the concentrations of lead observed in the Phase I RFI borings (e.g. LWB-01 etc.) performed approximately fifteen feet north of BH6.

3.1.4 Copper

Similar to lead, concentrations of total copper in soils beneath the concrete floor in LAP West exceeded the NYSDEC Recommended Soil Cleanup Objective in the upper two feet of BH1, BH2, BH5 BH6 and in BH4 at 0-6.5 feet.

3.2 SPLP Analytical Results

Leaching analytical results are summarized on Table 3-2. NY State Class GA Groundwater Quality Standards and Guidance Values are presented for comparison.

Table 3-2
LAP West Soil ICM

Summary of SPLP Analytical Results[1]

Parameter mg/l	Class GA Groundwater Quality Standard	High BH3 - 1 0-2'	Intermed BH1- 4 8-9'	Intermed BH6 - 4 8-9'	Low BH4 - 2 2-4'
Hexavalent Chromium	0.05	15	3.24	2.39	<0.01

NOTES:
(1) Sample collected by Benchmark & analyzed by STL Laboratory
(2) From NYSDEC Ambient Water Quality Standards and Guidance Values
(3) < Indicates compound was not detected above quantitation limit

As indicated on Table 3-2, soil samples from BH3-1 (0-2 feet), BH1-4 (8-9 feet), BH6-4 (8-9 feet), and BH4-2 (2-4 feet) were analyzed for rainwater leaching potential of hexavalent chromium. Analytical results for hexavalent chromium in these soil samples were 580 mg/kg (highest hex chrome value), 149 mg/kg (intermediate hex chrome value), 117 mg/kg (intermediate hex chrome value), 1.1 mg/kg respectively (lowest hex chrome value). Results of the SPLP were 15.0 mg/l, 3.24 mg/l, 2.39 mg/l, and non detect, respectively. These SPLP results consistently demonstrate that approximately 41 to 52 percent (average 45.4%) of the hexavalent chromium in soil was leachable. As such, concentrations of hexavalent chromium in site-specific soil below 2.2 mg/kg would not be expected to adversely impact groundwater quality at the site. The SPLP results for BH3-1, BH1-4 and BH6-4 were above the Class GA Groundwater Quality Standard for hexavalent chromium.

4.0 CONCLUSION

Total and hexavalent chromium is present in subsurface soils beneath the concrete floor of LAP West at elevated concentrations throughout the soil column (ie. down to bedrock).

Based upon SPLP leaching tests these concentrations in soils have the potential to continue to migrate and adversely impact groundwater quality.

Lead, copper, and to a lesser extent arsenic and selenium are present in the upper two feet of subsurface soil beneath the concrete floors of LAP West. These concentrations do not appear to be migrating.

Inorganic contaminant concentrations in subsurface soils tested and the moisture content observed during sample collection suggest that inorganic contaminants are migrating in the shallow granular fill beneath the concrete floors of LAP West. The shallow granular fill apparently acts as a precipitation induced perched water table at least on a seasonal basis.

APPENDIX A
FIELD BOREHOLE LOGS

FIELD BOREHOLE LOG

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Borehole No.:	BH-1	Project:	LAP West ICM	Surface Elev.:	
Location:	40' W. of Edge Rd. Tank 19's & Map Loc.	Project No:	0041-002-100	Ref. Elev.	
Date(s):	5/10/01	Logged By:	JMM		
Drilling Method:	Geoprobe	Drilling Co.:	SLC		

Depth (bgs)	Sample No.	Blows (per 6")	Recovery	PID Scan (ppm)	SOIL DESCRIPTION: Color, Moisture Condition, Texture, Soil Type, Plasticity, Fabric, Bedding, Other	PID HDSP (ppm)	Samples	Moisture %
0			26"		Pushed 4'			
					11" Reddish dark brown mostly medium & coarse sand, loose when disturbed, some fill (cinders?..)		BH-1-1	
					15" Dark gray clayey silt, "disturbed soil", moist, trace fine sand		BH-1-2	
2								
4			32"		Pushed 4-8'			
					32" Gray very hard clayey sandy silt, massive, moist		BH-1-3	
6								
8			12"		Pushed 8-9' (Refusal)		BH-1-4	
					12" Brown Sandy Silt, little gravel, slightly moist, very compact to hard			
					Refusal at 9' on 1" of weathered shale			

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FIELD BOREHOLE LOG

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Borehole No.:	BH-2	Project:	LAP West, ICM	Surface Elev.:	
Location:	as Shown in Work Plan	Project No:	0041-002-100	Ref. Elev.	
Date(s):	5/10/01	Logged By:	JWM		
Drilling Method:	Geoprobe	Drilling Co.:	SLC		

Depth (bgs)	Sample No.	Blows (per 6")	Recovery	PID Scan (ppm)	SOIL DESCRIPTION: Color, Moisture Condition, Texture, Soil Type, Plasticity, Fabric, Bedding, Other	PID HDSP (ppm)	Samples	Moisture %
0			30"		Pushed 0-4'			
					7" Loose, gray broken concrete, dry			
					5" Light & dark brown sand, silt, gravel, slag, cinders, FILL, extremely moist		BH-2-1	
2					6" Dark brown ext. moist Sandy clayey silt, little very fine sand, blocky		↓	
					12" Brown sandy clayey silt, trace-little v. fine sand, moist to extremely moist, blocky		BH-2-2 ↓	
4			18"		Pushed 4-8' (Refusal at 6')			
					18" Brown sandy silt, very hard, massive, trace gravel, slightly moist		BH-2-3 ↓	
6					Refused at 6'			

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FIELD BOREHOLE LOG

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Borehole No.:	BH-3	Project:	LAP West CCM	Surface Elev.:	
Location:	As shown @ Work Plan	Project No:	0041-002-100	Ref. Elev.	
Date(s):	5/10/01	Logged By:	JMA		
Drilling Method:	Geoprobe	Drilling Co.:	SLC		

Depth (bgs)	Sample No.	Blows (per 6")	Recovery	PID Scan (ppm)	SOIL DESCRIPTION: Color, Moisture Condition, Texture, Soil Type, Plasticity, Fabric, Bedding, Other	PID HDSP (ppm)	Samples	Moisture %	
0	-1		28"		Pushed 0 to 4'				
					11" Brown SAND, Gravel, CINDERS, FILL, Wet from 5-10", loose		BH-3-1		
2	-2				17" Brown w/ orange mottling, clayey Silt, mottling to 21" Stiff, blocky		BH-3-2		
4	-3		26"		16" Grayish brown Sandy Silt, v. compact, massive moist to Slightly Moist		BH-3-3		16"
	-4						BH-3-4		10"
					Refusal @ 6.5'				

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FIELD BOREHOLE LOG

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Borehole No.:	BH-4	Project:	LAP West ICM	Surface Elev.:	
Location:	As shown in Work Plan	Project No:	0041-002-100	Ref. Elev.	
Date(s):	5/10/01	Logged By:	JWD		
Drilling Method:	Geoprobe	Drilling Co.:	SCC		

Depth (bgs)	Sample No.	Blows (per 6")	Recovery	PID Scan (ppm)	SOIL DESCRIPTION: Color, Moisture Condition, Texture, Soil Type, Plasticity, Fabric, Bedding, Other	PID HDSP (ppm)	Samples	Moisture %
					Same 5 Refused Locations prior to this one			
0			25"		25" Pushed 0 to 4'.			
					25" Dark brown coarse SAND & GRAVEL, loose, wet, FILL		BH-4-1	(13")
							BH-4-2	(12")
2								
4			30"		Pushed 4-6.5' (Refused @ 6.5')			
					30" Dark brown coarse SAND & GRAVEL, loose, wet, FILL		BH-4-3	(15")
							BH-4-4	(15")
6								
					Refused at 6.5', on 0.01" Weathered Shale rock @ bottom of Sleeve.			

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FIELD BOREHOLE LOG

Page _____ of _____

Borehole No.:	BH-5	Project:	LAP West ICM	Surface Elev.:	
Location:	as shown in Work Plan	Project No:	0041-002-100	Ref. Elev.	
Date(s):	3/10/01	Logged By:	JMA		
Drilling Method:	Geoprobe	Drilling Co.:	SLC		

Depth (bgs)	Sample No.	Blows (per 6")	Recovery	PID Scan (ppm)	SOIL DESCRIPTION: Color, Moisture Condition, Texture, Soil Type, Plasticity, Fabric, Bedding, Other	PID HDSP (ppm)	Samples	Moisture %
0			14"		Pushed 0 - 4'			
					4" Brown wet medium & coarse SAND & GRAVEL, wet, loose		BH-S-1	
					10" Brown wet Silt w/trace clay & v. fine SAND, Slightly stratified			
2								
4			30"		Pushed 4 to 6.5'		BH-S-2	(15") Duplicate (all S-4 (15")
					30" Brown SANDY SILT w/ trace to little gravel, Slightly moist to moist		BH-S-3	
6					Refusal at 6.5', very hard till in shoe, Slightly moist to dry			

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FIELD BOREHOLE LOG

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Borehole No.:	BH-6	Project:	LAP West, ICM	Surface Elev.:	
Location:	as shown in Work Plan	Project No:	0041-002-100	Ref. Elev.	
Date(s):	5/10/01	Logged By:	JMA		
Drilling Method:	Geoprobe	Drilling Co.:	SLC		

Depth (bgs)	Sample No.	Blows (per 6")	Recovery	PID Scan (ppm)	SOIL DESCRIPTION: Color, Moisture Condition, Texture, Soil Type, Plasticity, Fabric, Bedding, Other	PID HDSP (ppm)	Samples	Moisture %
0	-1		35"		5" Gray crushed concrete, dry, Pushed 4'		BH-6-1	
					5" Gray sand, gravel, slag, cinders, extremely moist Fill, loose when disturbed.			
					3" Brown & light brown clayey silt, extremely moist, compact			
2					5" Dark gray-black loam, old topsoil layer-w/roots compact, moist			
	-2				5" Olive gray, orange mottling silty clay, laminated, moist		BH-6-2	
					12" Gray, clayey silt, trace sand, extremely moist, massive			
					Refusal @ 4.3' bg			
4			42"		Pushed 4-8' (after moving to new borehole location, 2')			
	-3				12" Gray to dark gray clayey silt, extremely moist, laminated, trace to little sand		BH-6-3	
					18" Gray moist massive, clayey silt, little sand, trace gravel			
6					12" Brown slightly moist, clayey sandy silt, trace to little gravel, brittle			
8	-4		16"		Pushed 8-9' (Refusal)			
					7" Brown slightly moist, clayey sandy silt, trace to little gravel brittle		BH-6-4	
					9" Olive gray dry weathered rock, Shale			
					Refusal at 9'			
					Installed 1" PVC into borehole, dry			

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APPENDIX B

LABORATORY ANALYTICAL DATA

SEVERN
TRENT
SERVICES

STL Buffalo
10 Hazelwood Drive
Suite 106
Amherst, NY 14228

Tel: 716 691 2600
Fax: 716 691 7991
www.stl-inc.com

May 29, 2001

Mr. Patrick Martin
Key Tower
50 Fountain Plaza, Suite 1350
Buffalo, NY 14202

RE: Analytical Results A01-4452

Dear Mr. Martin:

Please find enclosed analytical results concerning the samples recently submitted by your firm. The pertinent information regarding these analyses is listed below:

Quote #:	NY00-344
Project Name:	Realco Soils & Water
Matrix:	Soil
Samples Received:	05/10/01
Sample Date:	05/10/01

If you have any questions concerning these data, please contact the Program Manager at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Turnkey Environmental Restoration, LLC. with environmental testing services. We look forward to serving you in the future.

Sincerely,

STL Buffalo

Kenneth P. Kinecki
Program Manager

KPK/klk
Enclosure

I.D. #A01-4452
#NY1A8687

This report contains 39 pages which are individually numbered.

SEVERN TRENT SERVICES

STL Buffalo

METHODOLOGY

The specific methodology employed in obtaining the enclosed analytical results is indicated on the specific data tables. The method number presented refers to the following U.S. Environmental Protection Agency reference:

- "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846), Third Edition, Update III, December 1996, U.S. Environmental Protection Agency Office of Solid Waste.

COMMENTS

The enclosed data has been reported utilizing data qualifiers (Q) as defined on the Data Comment Page.

Sample dilutions were performed as indicated on the attached Dilution Log. The rationale for dilution is specified by the 3-digit code and definition.

Deviations from protocol were encountered for:

METALS

Sample BH-1-2 MS exhibited spike recovery results below quality control limits for Selenium, and samples BH-1-2 MS and BH-1-2 SD exhibited spike recovery results above quality control limits for Barium. The RPD for spike recovery between the samples was outside the quality control limits for Barium.

WET CHEMISTRY

Due to software limitations, Hexavalent Chromium analyses are listed as not having met holding time requirements. All samples were prepped and analyzed within holding times.

Samples BH-1-2 MS and BH-1-2 SD exhibited spike recovery results below quality control limits for Hexavalent Chromium. However, the Laboratory Control Sample was compliant.

The Laboratory Control Sample (A1B0411402) exhibited spike recovery results above quality control limits for Cyanide.

Client Sample ID	Lab Sample ID	Parameter (Inorganic)/Method (Organic)	Dilution	Code
BH-3-2	A1445201	Hexavalent Chromium - Total	5.00	001
BH-3-3	A1445202	Hexavalent Chromium - Total	5.00	001
BH-3-4	A1445203	Hexavalent Chromium - Total	5.00	001
BH-4-4	A1445207	Chromium - Total	10.00	001
BH-5-2	A1445209	Hexavalent Chromium - Total	5.00	001
BH-5-3	A1445210	Hexavalent Chromium - Total	5.00	001
BH-5-4	A1445211	Hexavalent Chromium - Total	5.00	001
BH-6-1	A1445212	Lead - Total	100.00	001
BH-6-4	A1445215	Hexavalent Chromium - Total	50.00	001
BH-2-1	A1445216	Lead - Total	50.00	001
BH-2-3	A1445218	Hexavalent Chromium - Total	5.00	001
BH-1-2	A1445220MS	Hexavalent Chromium - Total	100.00	008
BH-1-2	A1445220SD	Hexavalent Chromium - Total	100.00	008
BH-1-4	A1445222	Hexavalent Chromium - Total	50.00	001
BH-3-1	A1445223	Hexavalent Chromium - Total	50.00	001
LCS CLP Soils	A1B0410501	Copper - Total	2.00	001

Dilution Code Definition:

001 - analyte over the linear range of the calibration
002 - sample matrix effects
003 - excessive foaming
004 - non-target compounds (TICS) exceeded 5X the total response of one of the Internal Standards
005 - sample matrix resulted in method non-compliance for an Internal Standard
006 - sample matrix resulted in method non-compliance for Surrogate
007 - nature of the TCLP matrix
008 - high concentration of target analyte(s)
009 - sample turbidity
010 - sample color
011 - insufficient volume for lower dilution
012 - sample viscosity
013 - other

DATA COMMENT PAGE

ORGANIC DATA QUALIFIERS

ND or U	Indicates compound was analyzed for, but not detected.
J	Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
B	This flag is used when the analyte is found in the associated blank, as well as in the sample.
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at the secondary dilution factor.
N	Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds, where the identification is based on the Mass Spectral library search. It is applied to all TIC results.
P	This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on the data page and flagged with a "P".
A	This flag indicates that a TIC is a suspected aldol-condensation product.
[1]	Indicates coelution.
*	Indicates analysis is not within the quality control limits.

INORGANIC DATA QUALIFIERS

ND or U	Indicates element was analyzed for, but not detected. Report with the detection limit value.
J or B	Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
N	Indicates spike sample recovery is not within the quality control limits.
K	Indicates the post digestion spike recovery is not within the quality control limits.
S	Indicates value determined by the Method of Standard Addition.
M	Indicates duplicate injection results exceeded quality control limits.
W	Post digestion spike for Furnace AA analysis is out of quality control limits (85-115%) while sample absorbance is less than 50% of spike absorbance.
E	Indicates a value estimated or not reported due to the presence of interferences.
H	Indicates analytical holding time exceedance. The value obtained should be considered an estimate.
*	Indicates analysis is not within the quality control limits.
+	Indicates the correlation coefficient for the Method of Standard Addition is less than 0.995.

Sample Data Package

Client ID		BH-1-1		BH-1-2		BH-1-3		BH-1-4	
Job No	Lab ID	A01-4452	A1445219	A01-4452	A1445220	A01-4452	A1445221	A01-4452	A1445222
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Arsenic - Total	MG/KG	13.8	1.2	4.3	1.2	3.4	1.1	10.3	1.1
Barium - Total	MG/KG	147	1.2	108	1.2	118	1.1	149	1.1
Cadmium - Total	MG/KG	ND	0.60	ND	0.63	ND	0.55	ND	0.55
Chromium - Total	MG/KG	44.3	2.4	16.4	2.5	16.2	2.2	188	2.2
Lead - Total	MG/KG	1840	6.0	10.7	6.3	6.7	5.5	74.2	5.5
Mercury - Total	MG/KG	ND	0.11	ND	0.13	ND	0.11	ND	0.11
Selenium - Total	MG/KG	ND	3.6	ND	3.8	ND	3.3	ND	3.3
Silver - Total	MG/KG	ND	1.2	ND	1.2	ND	1.1	ND	1.1

Client ID		BH-2-1		BH-2-2		BH-2-3		BH-3-1	
Job No	Lab ID	A01-4452	A1445216	A01-4452	A1445217	A01-4452	A1445218	A01-4452	A1445223
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Arsenic - Total	MG/KG	7.7	1.4	4.0	1.2	3.6	1.1	4.5	1.3
Barium - Total	MG/KG	393	1.4	57.6	1.2	92.6	1.1	114	1.3
Cadmium - Total	MG/KG	ND	0.72	ND	0.62	ND	0.57	ND	0.63
Chromium - Total	MG/KG	537	2.9	260	2.5	357	2.3	468	2.5
Lead - Total	MG/KG	21800	358	11.7	6.2	7.5	5.7	51.6	6.3
Mercury - Total	MG/KG	ND	0.13	ND	0.12	ND	0.12	ND	0.12
Selenium - Total	MG/KG	ND	4.3	ND	3.7	ND	3.4	ND	3.8
Silver - Total	MG/KG	ND	1.4	ND	1.2	ND	1.1	ND	1.3

500005

NA = Not Applicable ND = Not Detected

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REALCO SOILS & WATERS
RCRA TOTAL METALS

Client ID		BH-3-2		BH-3-3		BH-3-4		BH-4-1	
Job No / Lab ID		A01-4452	A1445201	A01-4452	A1445202	A01-4452	A1445203	A01-4452	A1445204
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Arsenic - Total	MG/KG	4.0	1.2	4.2	1.1	2.1	1.1	6.7	1.1
Barium - Total	MG/KG	98.3	1.2	98.4	1.1	100	1.1	238	1.1
Cadmium - Total	MG/KG	ND	0.62	ND	0.57	ND	0.55	ND	0.56
Chromium - Total	MG/KG	195	2.5	635	2.3	280	2.2	2450	2.3
Lead - Total	MG/KG	11.6	6.2	ND	5.7	ND	5.5	103	5.6
Mercury - Total	MG/KG	ND	0.12	ND	0.12	ND	0.11	ND	0.11
Selenium - Total	MG/KG	ND	3.7	ND	3.4	ND	3.3	3.4	3.4
Silver - Total	MG/KG	ND	1.2	ND	1.1	ND	1.1	ND	1.1

Client ID		BH-4-2		BH-4-3		BH-4-4		BH-5-1	
Job No / Lab ID		A01-4452	A1445205	A01-4452	A1445206	A01-4452	A1445207	A01-4452	A1445208
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Arsenic - Total	MG/KG	6.8	1.1	8.5	1.2	7.9	1.2	34.1	1.2
Barium - Total	MG/KG	135	1.1	146	1.2	140	1.2	1200	1.2
Cadmium - Total	MG/KG	ND	0.56	ND	0.58	ND	0.60	ND	0.62
Chromium - Total	MG/KG	2560	2.2	3070	2.3	6040	24.2	1550	2.5
Lead - Total	MG/KG	89.2	5.6	104	5.8	191	6.0	2740	6.2
Mercury - Total	MG/KG	ND	0.11	ND	0.12	ND	0.12	ND	0.12
Selenium - Total	MG/KG	3.9	3.4	6.1	3.5	5.8	3.6	11.4	3.7
Silver - Total	MG/KG	ND	1.1	ND	1.2	ND	1.2	ND	1.2

NA = Not Applicable ND = Not Detected

Client ID		BH-5-2		BH-5-3		BH-5-4		BH-6-1	
Job No	Lab ID	A01-4452	A1445209	A01-4452	A1445210	A01-4452	A1445211	A01-4452	A1445212
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	

Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Arsenic - Total	MG/KG	6.7	1.1	6.5	1.1	7.2	1.1	12.4	1.2
Barium - Total	MG/KG	96.0	1.1	107	1.1	104	1.1	284	1.2
Cadmium - Total	MG/KG	ND	0.55	ND	0.56	ND	0.57	ND	0.61
Chromium - Total	MG/KG	90.9	2.2	138	2.2	86.7	2.3	37.5	2.4
Lead - Total	MG/KG	5.9	5.5	9.4	5.6	7.4	5.7	130000	612
Mercury - Total	MG/KG	ND	0.11	ND	0.11	ND	0.12	ND	0.12
Selenium - Total	MG/KG	ND	3.3	ND	3.4	ND	3.4	ND	3.7
Silver - Total	MG/KG	ND	1.1	ND	1.1	ND	1.1	10.1	1.2

Client ID		BH-6-2		BH-6-3		BH-6-4			
Job No	Lab ID	A01-4452	A1445213	A01-4452	A1445214	A01-4452	A1445215		
Sample Date		05/10/2001		05/10/2001		05/10/2001			

Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Arsenic - Total	MG/KG	6.5	1.3	4.8	1.2	8.9	1.0	NA	
Barium - Total	MG/KG	138	1.3	124	1.2	131	1.0	NA	
Cadmium - Total	MG/KG	ND	0.64	ND	0.58	ND	0.53	NA	
Chromium - Total	MG/KG	19.4	2.6	18.8	2.3	173	2.1	NA	
Lead - Total	MG/KG	10.6	6.4	10	5.8	ND	5.3	NA	
Mercury - Total	MG/KG	ND	0.13	ND	0.12	ND	0.11	NA	
Selenium - Total	MG/KG	ND	3.8	ND	3.5	ND	3.2	NA	
Silver - Total	MG/KG	ND	1.3	ND	1.2	ND	1.0	NA	

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NA = Not Applicable ND = Not Detected

Client ID		BH-1-1		BH-1-2		BH-1-3		BH-1-4	
Job No	Lab ID	A01-4452	A1445219	A01-4452	A1445220	A01-4452	A1445221	A01-4452	A1445222
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Copper - Total	MG/KG	69.5	2.4	10.5	2.5	18.5	2.2	34.7	2.2

Client ID		BH-2-1		BH-2-2		BH-2-3		BH-3-1	
Job No	Lab ID	A01-4452	A1445216	A01-4452	A1445217	A01-4452	A1445218	A01-4452	A1445223
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Copper - Total	MG/KG	85.6	2.9	12.2	2.5	18.7	2.3	22.0	2.5

Client ID		BH-3-2		BH-3-3		BH-3-4		BH-4-1	
Job No	Lab ID	A01-4452	A1445201	A01-4452	A1445202	A01-4452	A1445203	A01-4452	A1445204
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Copper - Total	MG/KG	19.6	2.5	17.1	2.3	15.9	2.2	117	2.3

Client ID		BH-4-2		BH-4-3		BH-4-4		BH-5-1	
Job No	Lab ID	A01-4452	A1445205	A01-4452	A1445206	A01-4452	A1445207	A01-4452	A1445208
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Copper - Total	MG/KG	93.3	2.2	100	2.3	651	2.4	472	2.5

000008

NA = Not Applicable ND = Not Detected

Client ID		BH-5-2		BH-5-3		BH-5-4		BH-6-1	
Job No	Lab ID	A01-4452	A1445209	A01-4452	A1445210	A01-4452	A1445211	A01-4452	A1445212
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	

Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Copper - Total	MG/KG	38.5	2.2	25.3	2.2	20.3	2.3	672	2.4

Client ID		BH-6-2		BH-6-3		BH-6-4			
Job No	Lab ID	A01-4452	A1445213	A01-4452	A1445214	A01-4452	A1445215		
Sample Date		05/10/2001		05/10/2001		05/10/2001			

Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Copper - Total	MG/KG	30.1	2.6	17.3	2.3	19.7	2.1	NA	

000009

NA = Not Applicable ND = Not Detected

Client ID		BH-1-1		BH-1-2		BH-1-3		BH-1-4	
Job No / Lab ID		A01-4452	A1445219	A01-4452	A1445220	A01-4452	A1445221	A01-4452	A1445222
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Cyanide - Total	UG/G	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Hexavalent Chromium - Total	MG/KG	ND	1.2	ND	1.3	ND	1.1	149	1.1

Client ID		BH-2-1		BH-2-2		BH-2-3		BH-3-1	
Job No / Lab ID		A01-4452	A1445216	A01-4452	A1445217	A01-4452	A1445218	A01-4452	A1445223
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Cyanide - Total	UG/G	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Hexavalent Chromium - Total	MG/KG	2.0	1.4	9.0	1.2	85.3	1.1	580	1.2

Client ID		BH-3-2		BH-3-3		BH-3-4		BH-4-1	
Job No / Lab ID		A01-4452	A1445201	A01-4452	A1445202	A01-4452	A1445203	A01-4452	A1445204
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Cyanide - Total	UG/G	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Hexavalent Chromium - Total	MG/KG	58.4	6.2	35.0	5.7	51.9	5.6	ND	1.1

Client ID		BH-4-2		BH-4-3		BH-4-4		BH-5-1	
Job No / Lab ID		A01-4452	A1445205	A01-4452	A1445206	A01-4452	A1445207	A01-4452	A1445208
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Cyanide - Total	UG/G	4.7	0.50	ND	0.50	ND	0.50	1.2	0.50
Hexavalent Chromium - Total	MG/KG	1.1	1.1	ND	1.2	ND	1.2	ND	1.3

NA = Not Applicable ND = Not Detected

Client ID		BH-5-2		BH-5-3		BH-5-4		BH-6-1	
Job No	Lab ID	A01-4452	A1445209	A01-4452	A1445210	A01-4452	A1445211	A01-4452	A1445212
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Cyanide - Total	UG/G	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Hexavalent Chromium - Total	MG/KG	31.8	5.6	36.9	5.6	30.2	5.6	ND	1.2

Client ID		BH-6-2		BH-6-3		BH-6-4			
Job No	Lab ID	A01-4452	A1445213	A01-4452	A1445214	A01-4452	A1445215		
Sample Date		05/10/2001		05/10/2001		05/10/2001			
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Cyanide - Total	UG/G	ND	0.50	ND	0.50	ND	0.50	NA	
Hexavalent Chromium - Total	MG/KG	ND	1.3	ND	1.2	117	1.1	NA	

0C0011

NA = Not Applicable ND = Not Detected

Chronology and QC Summary Package

Client ID Job No Sample Date	Lab ID	Method Blank A01-4452	A1B0405202	Method Blank A01-4452	A1B0409802	Method Blank A01-4452	A1B0410502		
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Arsenic - Total	MG/KG	ND	1.0	NA		ND	1.0	NA	
Mercury - Total	MG/KG	NA		ND	0.10	NA		NA	
Barium - Total	MG/KG	ND	1.0	NA		ND	1.0	NA	
Cadmium - Total	MG/KG	ND	0.50	NA		ND	0.50	NA	
Chromium - Total	MG/KG	ND	2.0	NA		ND	2.0	NA	
Lead - Total	MG/KG	ND	5.0	NA		ND	5.0	NA	
Selenium - Total	MG/KG	ND	3.0	NA		ND	3.0	NA	
Silver - Total	MG/KG	ND	1.0	NA		ND	1.0	NA	

NA = Not Applicable ND = Not Detected

Client ID Job No Sample Date	Lab ID	Method Blank A01-4452	A1B0405202	Method Blank A01-4452	A1B0410502				
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Copper - Total	MG/KG	ND	2.0	ND	2.0	NA		NA	

000014

NA = Not Applicable ND = Not Detected

Client ID Job No Sample Date	Lab ID	Method Blank A01-4452	A1B0411404	Method Blank A01-4452	A1B0417404	Method Blank A01-4452	A1B0439802		
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Cyanide - Total	UG/G	ND	0.50	ND	0.50	NA		NA	
Hexavalent Chromium - Total	MG/KG	NA		NA		ND	1.0	NA	

NA = Not Applicable ND = Not Detected

TURNKEY ENVIRONMENTAL RESTORATION, LLC
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
RCRA TOTAL METALS
LABORATORY CONTROL SAMPLE

Lab Name: STL Buffalo Contract: _____ Lab Samp ID: A1B0405201

Lab Code: RECNY Case No.: SAS No.: _____ SDG No.: _____

Aqueous LCS Source: ERA LOT 246

Analyte	Aqueous True	Aqueous Found	Aqueous %R	Solid True	Solid Found	Solid C	Solid Limits		Solid %R
Silver				90.00	83.40		67.00	113.00	93.0
Lead				119.00	108.00		90.90	148.00	91.0
Selenium				150.00	140.00		111.00	188.00	93.0
Chromium				143.00	134.00		114.00	171.00	94.0
Barium				177.00	156.00		137.00	218.00	88.0
Arsenic				185.00	171.00		138.00	233.00	92.0
Cadmium				64.00	58.30		49.20	78.70	91.0

TURNKEY ENVIRONMENTAL RESTORATION, LLC
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
TOTAL METALS
LABORATORY CONTROL SAMPLE

000017

Lab Name: STL Buffalo Contract: _____ Lab Samp ID: A1B0405201

Lab Code: RECNY Case No.: SAS No.: _____ SDG No.: _____

Aqueous LCS Source: ERA LOT 246

Analyte	Aqueous True	Aqueous Found	Aqueous %R	Solid True	Solid Found	Solid C	Solid Limits		Solid %R
Copper				92.70	81.40		75.90	109.00	88.0

TURNKEY ENVIRONMENTAL RESTORATION, LLC
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
RCRA TOTAL METALS
LABORATORY CONTROL SAMPLE

000018

Lab Name: STL Buffalo Contract: _____ Lab Samp ID: A1B0409801

Lab Code: RECNY Case No.: SAS No.: _____ SDG No.: _____

Aqueous LCS Source: ERA

Analyte	Aqueous True	Aqueous Found	Aqueous %R	Solid True	Solid Found	Solid C	Solid Limits		Solid %R
Mercury				2.17	1.80		1.48	2.86	83.0

TURNKEY ENVIRONMENTAL RESTORATION, LLC
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
RCRA TOTAL METALS
LABORATORY CONTROL SAMPLE

Lab Name: STL Buffalo Contract: _____ Lab Samp ID: A1B0410501

Lab Code: RECNY Case No.: SAS No.: _____ SDG No.: _____

Aqueous LCS Source: ERA LOT 246

Analyte	Aqueous True	Aqueous Found	Aqueous %R	Solid True	Solid Found	Solid C	Solid Limits		Solid %R
Silver				90.00	96.20		67.00	113.00	107.0
Lead				119.00	129.00		90.90	148.00	108.0
Selenium				150.00	149.00		111.00	188.00	99.0
Chromium				143.00	156.00		114.00	171.00	109.0
Barium				177.00	195.00		137.00	218.00	110.0
Arsenic				185.00	192.00		138.00	233.00	104.0
Cadmium				64.00	66.50		49.20	78.70	104.0

TURNKEY ENVIRONMENTAL RESTORATION, LLC
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
TOTAL METALS
LABORATORY CONTROL SAMPLE

000020

Lab Name: STL Buffalo Contract: _____ Lab Samp ID: A1B0410501

Lab Code: RECNY Case No.: SAS No.: _____ SDG No.: _____

Aqueous LCS Source: ERA LOT 246

Analyte	Aqueous True	Aqueous Found	Aqueous %R	Solid True	Solid Found	Solid C	Solid Limits		Solid %R
Copper				92.70	92.70		75.90	109.00	100.0

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
SAMPLE DATE 05/10/2001

Client Sample ID: BH-1-2 | BH-1-2 | BH-1-2
Lab Sample ID: A1445220 | A1445220MS | A1445220SD

Analyte	Units of Measure	Concentration			Spike Amount		% Recovery			%	QC LIMITS	
		Sample	Matrix Spike	Spike Duplicate	MS	MSD	MS	MSD	Avg	RPD	RPD	REC.
RCRA TOTAL METALS												
TOTAL ARSENIC	MG/KG	4.30	27.13	26.89	24.8	25.8	92	87	90	5	20.0	80-120
TOTAL BARIUM	MG/KG	107.7	147.4	165.7	24.8	25.8	160 *	224 *	192	34 *	20.0	80-120
TOTAL CADMIUM	MG/KG	0	22.22	23.08	24.8	25.8	89	89	89	0.	20.0	80-120
TOTAL CHROMIUM	MG/KG	16.42	40.77	42.39	24.8	25.8	98	100	99	2	20.0	80-120
TOTAL LEAD	MG/KG	10.74	31.29	31.48	24.8	25.8	82	80	81	3	20.0	80-120
TOTAL MERCURY	MG/KG	0.0344	0.430	0.428	0.40	0.40	98	98	98	0.	20.0	80-120
TOTAL SELENIUM	MG/KG	1.84	21.57	22.49	24.8	25.8	79 *	80	80	0.	20.0	80-120
TOTAL SILVER	MG/KG	0	5.41	5.87	6.2	6.5	87	90	89	3	20.0	80-120
TOTAL METALS ANALYSIS												
TOTAL COPPER	MG/KG	10.51	36.04	35.73	24.8	25.8	102	97	100	5	20.0	80-120

* Indicates Result is outside QC Limits
NC = Not Calculated ND = Not Calculated

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
SAMPLE DATE 05/10/2001

Client Sample ID: BH-3-3	BH-3-3	BH-3-3
Lab Sample ID: A1445202	A1445202MS	A1445202SD

Analyte	Units of Measure	Concentration			Spike Amount		% Recovery			% RPD	QC LIMITS RPD	QC LIMITS REC.
		Sample	Matrix Spike	Spike Duplicate	MS	MSD	MS	MSD	Avg			
RCRA TOTAL METALS												
TOTAL MERCURY	MG/KG	0	0.395	0.401	0.38	0.38	102	103	103	0.	20.0	80-120

* Indicates Result is outside QC Limits
NC = Not Calculated ND = Not Calculated

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
SAMPLE DATE 05/10/2001

Client Sample ID: BH-1-2 | BH-1-2 | BH-1-2
Lab Sample ID: A1445220 | A1445220MS | A1445220SD

Analyte	Units of Measure	Concentration			Spike Amount		% Recovery			% RPD	QC LIMITS	
		Sample	Matrix Spike	Spike Duplicate	MS	MSD	MS	MSD	Avg		RPD	REC.
WET CHEMISTRY ANALYSIS TURNKEY - METHOD 7196A/HEX CHROMIUM	MG/KG	0	468.7	535.3	922	864	50	61	56	20	20.0	47-129

* Indicates Result is outside QC Limits
NC = Not Calculated ND = Not Calculated

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE
SAMPLE DATE 05/10/2001

Client Sample ID: BH-1-2 BH-1-2 BH-1-2
Lab Sample ID: A1445220F1 A1445220C A1445220D

Analyte	Units of Measure	Concentration			Spike Amount		% Recovery			% RPD	QC LIMITS RPD	QC LIMITS REC.
		Sample	Matrix Spike	Spike Duplicate	MS	MSD	MS	MSD	Avg			
WET CHEMISTRY ANALYSIS TURNKEY - METHOD 7196A/HEX CHROMIUM	MG/KG	0	0	0	40.0	40.0	0 *	0 *	0	0	20.0	47-129

000024

* Indicates Result is outside QC Limits
NC = Not Calculated ND = Not Calculated

Client Sample ID: Method Blank LCS
Lab Sample ID: A1B0411404 A1B0411402

Analyte	Units of Measure	Concentration Blank Spike	Spike Amount	% Recovery Blank Spike	QC LIMITS
WET CHEMISTRY ANALYSIS TURNKEY - METHOD 9010 - TOTAL CYANIDE	UG/G	137.2	117	117 *	90-110

000325

* Indicates Result is outside QC Limits
NC = Not Calculated ND = Not Calculated

Client Sample ID: Method Blank
Lab Sample ID: A1B0417404

LCS
A1B0417403

Analyte	Units of Measure	Concentration Blank Spike	Spike Amount	% Recovery Blank Spike	QC LIMITS
WET CHEMISTRY ANALYSIS TURNKEY - METHOD 9010 - TOTAL CYANIDE	UG/G	127.8	117	109	90-110

* Indicates Result is outside QC Limits
NC = Not Calculated ND = Not Calculated

Client Sample ID: Method Blank | LCS
Lab Sample ID: A1B0439802 | A1B0439801

Analyte	Units of Measure	Concentration Blank Spike	Spike Amount	% Recovery Blank Spike	QC LIMITS
WET CHEMISTRY ANALYSIS TURNKEY - METHOD 7196A/HEX CHROMIUM	MG/KG	36.00	40.0	90	17-193

* Indicates Result is outside QC Limits
NC = Not Calculated ND = Not Calculated

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445219	BH-1-1	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/15 22:06	Yes	SOIL
A1445220	BH-1-2	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/15 22:11	Yes	SOIL
A1445221	BH-1-3	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 17:48	Yes	SOIL
A1445222	BH-1-4	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 17:52	Yes	SOIL
A1445216	BH-2-1	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15 21:54	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15 21:54	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15 21:54	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15 21:54	Yes	SOIL
		MG/KG	Lead - Total	6010	50.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/17 23:18	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15 21:54	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15 21:54	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/15 21:54	Yes	SOIL
A1445217	BH-2-2	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

TURNKEY ENVIRONMENTAL RESTORATION, LLC
SAMPLE CHRONOLOGY

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445217	BH-2-2	MG/KG	Chromium - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/15 21:58	Yes	SOIL
A1445218	BH-2-3	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/15 22:02	Yes	SOIL
A1445223	BH-3-1	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 17:56	Yes	SOIL
A1445201	BH-3-2	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/15 20:33	Yes	SOIL
A1445202	BH-3-3	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/15 20:37	Yes	SOIL
A1445203	BH-3-4	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

TURNKEY ENVIRONMENTAL RESTORATION, LLC
SAMPLE CHRONOLOGY

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445203	BH-3-4	MG/KG	Selenium - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/15 20:50	Yes	SOIL
A1445204	BH-4-1	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/15 20:54	Yes	SOIL
A1445205	BH-4-2	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/15 20:58	Yes	SOIL
A1445206	BH-4-3	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/15 21:03	Yes	SOIL
A1445207	BH-4-4	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15 21:07	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15 21:07	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15 21:07	Yes	SOIL
		MG/KG	Chromium - Total	6010	10.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/17 23:08	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15 21:07	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15 21:07	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15 21:07	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/15 21:07	Yes	SOIL
A1445208	BH-5-1	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/15 21:11	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

STL Buffalo

TURNKEY ENVIRONMENTAL RESTORATION, LLC
SAMPLE CHRONOLOGY

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445209	BH-5-2	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/15 21:15	Yes	SOIL
A1445210	BH-5-3	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/15 21:20	Yes	SOIL
A1445211	BH-5-4	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/15 21:24	Yes	SOIL
A1445212	BH-6-1	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15 21:28	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15 21:28	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15 21:28	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15 21:28	Yes	SOIL
		MG/KG	Lead - Total	6010	100.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/17 21:28	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15 21:28	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15 21:28	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/15 21:28	Yes	SOIL
A1445213	BH-6-2	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/15 21:41	Yes	SOIL
A1445214	BH-6-3	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

000021

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445214	BH-6-3	MG/KG	Chromium - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/15 21:45	Yes	SOIL
A1445215	BH-6-4	MG/KG	Arsenic - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/15 21:49	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445220MS	BH-1-2	MG/KG	Arsenic - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:49	Yes	SOIL
A1445220SD	BH-1-2	MG/KG	Arsenic - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
		MG/KG	Mercury - Total	7471	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/15 23:54	Yes	SOIL
A1445202MS	BH-3-3	MG/KG	Mercury - Total	7471	1.00	05/11/2001 14:15	05/11 08:00	NA	NA	05/15	Yes	SOIL
A1445202SD	BH-3-3	MG/KG	Mercury - Total	7471	1.00	05/11/2001 14:15	05/11 08:00	NA	NA	05/15	Yes	SOIL
A1B0405202	Method Blank	MG/KG	Arsenic - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	-	- 08:00	NA	NA	05/15 20:24	Yes	SOIL
A1B0409802	Method Blank	MG/KG	Mercury - Total	7471	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
A1B0410502	Method Blank	MG/KG	Arsenic - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:54	Yes	SOIL
A1B0409801	LCS	MG/KG	Mercury - Total	7471	1.00	-	- 08:00	NA	NA	05/16 11:09	Yes	SOIL
A1B0405201	LCS CLP Soils	MG/KG	Arsenic - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Cadmium - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
		MG/KG	Copper - Total	6010	1.00	-	- 08:00	NA	NA	05/15	Yes	SOIL
A1B0410501	LCS CLP Soils	MG/KG	Arsenic - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:59	Yes	SOIL
		MG/KG	Barium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:59	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

TURNKEY ENVIRONMENTAL RESTORATION, LLC
QC CHRONOLOGY

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1B0410501	LCS CLP Soils	MG/KG	Cadmium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:59	Yes	SOIL
		MG/KG	Chromium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:59	Yes	SOIL
		MG/KG	Lead - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:59	Yes	SOIL
		MG/KG	Selenium - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:59	Yes	SOIL
		MG/KG	Silver - Total	6010	1.00	-	- 08:00	NA	NA	05/18 21:59	Yes	SOIL
		MG/KG	Copper - Total	6010	2.00	-	- 08:00	NA	NA	05/16 11:13	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445219	BH-1-1	UG/G	Cyanide - Total	9010	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/17 14:55	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 13:15	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445220	BH-1-2	UG/G	Cyanide - Total	9010	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/17 14:55	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445220F1	BH-1-2	MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445221	BH-1-3	UG/G	Cyanide - Total	9010	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/17 14:55	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 13:22	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445222	BH-1-4	UG/G	Cyanide - Total	9010	1.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/17 14:55	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	50.00	05/10/2001 13:30	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445216	BH-2-1	UG/G	Cyanide - Total	9010	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 11:20	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445217	BH-2-2	UG/G	Cyanide - Total	9010	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/17 14:55	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 11:26	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445218	BH-2-3	UG/G	Cyanide - Total	9010	1.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/17 14:55	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	5.00	05/10/2001 11:40	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445223	BH-3-1	UG/G	Cyanide - Total	9010	1.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/17 14:55	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	50.00	05/10/2001 13:55	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445201	BH-3-2	UG/G	Cyanide - Total	9010	1.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	5.00	05/10/2001 14:10	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445202	BH-3-3	UG/G	Cyanide - Total	9010	1.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	5.00	05/10/2001 14:15	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445203	BH-3-4	UG/G	Cyanide - Total	9010	1.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	5.00	05/10/2001 14:17	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445204	BH-4-1	UG/G	Cyanide - Total	9010	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 14:45	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445205	BH-4-2	UG/G	Cyanide - Total	9010	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 14:50	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445206	BH-4-3	UG/G	Cyanide - Total	9010	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 15:00	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445207	BH-4-4	UG/G	Cyanide - Total	9010	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 15:05	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445208	BH-5-1	UG/G	Cyanide - Total	9010	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 15:10	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445209	BH-5-2	UG/G	Cyanide - Total	9010	1.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	5.00	05/10/2001 15:18	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445210	BH-5-3	UG/G	Cyanide - Total	9010	1.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	5.00	05/10/2001 15:20	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445211	BH-5-4	UG/G	Cyanide - Total	9010	1.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	5.00	05/10/2001 15:40	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445212	BH-6-1	UG/G	Cyanide - Total	9010	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 10:15	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445213	BH-6-2	UG/G	Cyanide - Total	9010	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 10:20	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445214	BH-6-3	UG/G	Cyanide - Total	9010	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 10:50	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445215	BH-6-4	UG/G	Cyanide - Total	9010	1.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/16 15:15	Yes	SOIL
		MG/KG	Hexavalent Chromium - Total	7196A	50.00	05/10/2001 10:55	05/11 08:00	NA	NA	05/22 21:10	No	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1445220C	BH-1-2	MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445220D	BH-1-2	MG/KG	Hexavalent Chromium - Total	7196A	1.00	05/10/2001 13:17	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445220MS	BH-1-2	MG/KG	Hexavalent Chromium - Total	7196A	100.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1445220SD	BH-1-2	MG/KG	Hexavalent Chromium - Total	7196A	100.00	05/11/2001 13:17	05/11 08:00	NA	NA	05/22 21:10	No	SOIL
A1B0411404	Method Blank	UG/G	Cyanide - Total	9010	1.00	-	- 08:00	NA	NA	05/16 15:15	Yes	SOIL
A1B0417404	Method Blank	UG/G	Cyanide - Total	9010	1.00	-	- 08:00	NA	NA	05/17 14:55	Yes	SOIL
A1B0439802	Method Blank	MG/KG	Hexavalent Chromium - Total	7196A	1.00	-	- 08:00	NA	NA	05/22 21:10	Yes	SOIL
A1B0411402	LCS	UG/G	Cyanide - Total	9010	1.00	-	- 08:00	NA	NA	05/16 15:15	Yes	SOIL
A1B0417403	LCS	UG/G	Cyanide - Total	9010	1.00	-	- 08:00	NA	NA	05/17 14:55	Yes	SOIL
A1B0439801	LCS	MG/KG	Hexavalent Chromium - Total	7196A	1.00	-	- 08:00	NA	NA	05/22 21:10	Yes	SOIL

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

Chain of Custody

Chain of Custody Record

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0700)

Client: Benchmark Environmental	Project Manager: Patrick Martin	Date: 5/10/01	Chain of Custody Number: 015943
Address: 50 S Fountain Plaza - Suite 1350	Telephone Number (Area Code)/Fax Number: (716) 856-0583	Lab Number:	Page 1 of 2
City: Buffalo / State: NY / Zip Code: 14202	Site Contact: J. Asquith	Lab Contact:	
Project Name and Location (State): LAP WEST RCM, Dunkirk New York	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: RCRA Metals, Copper, Hexavalent Chromium, Total Cyanide, 8 oz glass
BH-6-1	5/10/01	10:15a				X	1						1
BH-6-2	5/10/01	10:20a				X	1						1
BH-6-3	5/10/01	10:50a				X	1						1
BH-6-4		10:55				X	1						1
BH-2-1		11:20				X	1						1
BH-2-2		11:26				X	1						1
BH-2-3		11:40				X	1						1
BH-1-1		13:15				X	1						1
BH-1-2		13:17				X	1						1
BH-1-3		13:22				X	1						1
BH-1-4		13:30				X	1						1
BH-3-1	↓	13:55				X	1						1

Special Instructions/ Conditions of Receipt

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	5/11/01	0820	1. Received By: James D. Rustin	5/11/01	0800
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

000038

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT SERVICES — **Severn Trent Laboratories, Inc.**

STL-4124 (0700)

Client	Project Manager	Date	Chain of Custody Number
Benchmark Environmental	Patrick Martin	5/10/01	015944
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
50 Fountain Plaza ~ Suite 1350			
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Buffalo / NY / 14202			
Project Name and Location (State)	**Carrier/Waybill Number**		
LAP West ICM, Dunkirk NY			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PCBs Metals, Copper, Hex. Chromium, Total Cyanide	8 oz glass	Hexavalent Chrom Plastic	Special Instructions/ Conditions of Receipt
BH-3-2	5/10/01	14:10				X	1						1			
BH-3-3		14:15				X	1						1			
BH-3-4		14:17				X	1						1			
BH-4-1		14:45				X	1						1			
BH-4-2		14:50				X	1						1			
BH-4-3		15:00				X	1						1			
BH-4-4		15:05				X	1						1			
BH-5-1		15:10				X	1						1			
BH-5-2		15:18				X	1						1			
BH-5-3		15:20				X	1						1			
BH-5-4		15:40				X	1						1			
Lucas Ave. Manhole		15:42		1		SMA	1						SMA		1	24HR HOLDING TIME

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	5/11/01	0800	1. Received By	5/11/01	0800
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

000039

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

SEVERN TRENT SERVICES

STL Buffalo
10 Hazelwood Drive
Suite 106
Amherst, NY 14228

Tel: 716 691 2600
Fax: 716 691 7991
www.stl-inc.com

June 13, 2001

Mr. Patrick Martin
Key Tower
50 Fountain Plaza, Suite 1350
Buffalo, NY 14202

RE: Analytical Results A01-5177

Dear Mr. Martin:

Please find enclosed analytical results concerning the samples recently submitted by your firm. The pertinent information regarding these analyses is listed below:

Quote #:	NY00-344
Project Name:	Realco Soils/SLPL-Hex Chrome
Matrix:	Soil
Samples Received:	06/01/01
Sample Date:	05/10/01

If you have any questions concerning these data, please contact the Program Manager at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Turnkey Environmental Restoration, LLC. with environmental testing services. We look forward to serving you in the future.

Sincerely,

STL Buffalo

Kenneth P. Kinecki
Program Manager

KPK/klk
Enclosure

I.D. #A01-5177
#NY1A8687

This report contains 10 pages which are individually numbered.

SEVERN TRENT SERVICES

STL Buffalo

METHODOLOGY

The specific methodology employed in obtaining the enclosed analytical results is indicated on the specific data tables. The method number presented refers to the following U.S. Environmental Protection Agency reference:

- "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846), Third Edition, Update III, December 1996, U.S. Environmental Protection Agency Office of Solid Waste.

COMMENTS

The enclosed data has been reported utilizing data qualifiers (Q) as defined on the Data Comment Page.

Sample dilutions were performed as indicated on the attached Dilution Log. The rationale for dilution is specified by the 3-digit code and definition.

No deviations from protocol were encountered for Wet Chemistry analyses.

000002

Client Sample ID	Lab Sample ID	Parameter (Inorganic)/Method (Organic)	Dilution	Code
BH-1-4	A1517701	Hexavalent Chromium - Total	10.00	001
BH-3-1	A1517702	Hexavalent Chromium - Total	50.00	001
BH-6-4	A1517704	Hexavalent Chromium - Total	10.00	001

Dilution Code Definition:

001 - analyte over the linear range of the calibration
002 - sample matrix effects
003 - excessive foaming
004 - non-target compounds (TICS) exceeded 5X the total response of one of the Internal Standards
005 - sample matrix resulted in method non-compliance for an Internal Standard
006 - sample matrix resulted in method non-compliance for Surrogate
007 - nature of the TCLP matrix
008 - high concentration of target analyte(s)
009 - sample turbidity
010 - sample color
011 - insufficient volume for lower dilution
012 - sample viscosity
013 - other

DATA COMMENT PAGE

ORGANIC DATA QUALIFIERS

ND or U	Indicates compound was analyzed for, but not detected.
J	Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
B	This flag is used when the analyte is found in the associated blank, as well as in the sample.
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at the secondary dilution factor.
N	Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds, where the identification is based on the Mass Spectral library search. It is applied to all TIC results.
P	This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on the data page and flagged with a "P".
A	This flag indicates that a TIC is a suspected aldol-condensation product.
‡	Indicates coelution.
*	Indicates analysis is not within the quality control limits.

INORGANIC DATA QUALIFIERS

ND or U	Indicates element was analyzed for, but not detected. Report with the detection limit value.
J or B	Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
N	Indicates spike sample recovery is not within the quality control limits.
K	Indicates the post digestion spike recovery is not within the quality control limits.
S	Indicates value determined by the Method of Standard Addition.
M	Indicates duplicate injection results exceeded quality control limits.
W	Post digestion spike for Furnace AA analysis is out of quality control limits (85-115%) while sample absorbance is less than 50% of spike absorbance.
E	Indicates a value estimated or not reported due to the presence of interferences.
H	Indicates analytical holding time exceedance. The value obtained should be considered an estimate.
*	Indicates analysis is not within the quality control limits.
+	Indicates the correlation coefficient for the Method of Standard Addition is less than 0.995.

Sample Data Package

Date: 06/13/2001
Time: 15:13:59

Benchmark Environmental Engineering & Science
REALCO SOILS/SLPL-HEX CHROME
TCLP WET CHEMISTRY ANALYSIS

Rept: AN0326

Client ID		BH-1-4		BH-3-1		BH-4-2		BH-6-4	
Job No	Lab ID	A01-5177	A1517701	A01-5177	A1517702	A01-5177	A1517703	A01-5177	A1517704
Sample Date		05/10/2001		05/10/2001		05/10/2001		05/10/2001	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Hexavalent Chromium - Total	UG/L	3240	100	15000	500	ND	10	2390	100

000005

= Not Applicable ND = Not Detected

STL Buffalo

Chronology and QC Summary Package

Client ID		Method Blank							
Job No	Lab ID	A01-5177	A1B0488102						
Sample Date									
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Hexavalent Chromium - Total	UG/L	ND	10	NA		NA		NA	

400000

= Not Applicable ND = Not Detected

Date: 06/13/2001
Time: 15:13:59

Benchmark Environmental Engineering & Science
REALCO SOILS/SLPL-HEX CHROME
TCLP WET CHEMISTRY ANALYSIS

Rept: AN0326

Client ID		LCS							
Job No	Lab ID	A01-5177	A1B0488101						
Sample Date									
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Hexavalent Chromium - Total	UG/L	50.0	10	NA		NA		NA	

800008

NA = Not Applicable ND = Not Detected

STL Buffalo

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1517701	BH-1-4	UG/L	Hexavalent Chromium - Total	7196A	10.00	05/10/2001	06/01 16:46	06/05	No	06/05 18:30	Yes	SOIL
A1517702	BH-3-1	UG/L	Hexavalent Chromium - Total	7196A	50.00	05/10/2001	06/01 16:46	06/05	No	06/05 18:30	Yes	SOIL
A1517703	BH-4-2	UG/L	Hexavalent Chromium - Total	7196A	1.00	05/10/2001	06/01 16:46	06/05	No	06/05 18:30	Yes	SOIL
A1517704	BH-6-4	UG/L	Hexavalent Chromium - Total	7196A	10.00	05/10/2001	06/01 16:46	06/05	No	06/05 18:30	Yes	SOIL

600009

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

Date: 06/13/2001 15:14:09
Jobno: A01-5177

TURNKEY ENVIRONMENTAL RESTORATION, LLC
QC CHRONOLOGY

Rept: AN0369

Lab ID	Sample ID	Units	Analyte	Method	Dilution Factor	Sample Date	Receive Date	TCLP Date	THT	Analysis Date	AHT	Matrix
A1B0488101	LCS	UG/L	Hexavalent Chromium - Total	7196A	1.00	-	- 16:46	NA	NA	06/05 18:30	Yes	SOIL
A1B0488102	Method Blank	UG/L	Hexavalent Chromium - Total	7196A	1.00	-	- 16:46	NA	NA	06/05 18:30	Yes	SOIL

000010

AHT = Analysis Holding Time Met
THT = TCLP Holding Time Met
NA = Not Applicable

STL Buffalo