# NEW YORK STATE 36035 DEPARTMENT OF TRANSPORTATION

# Albany, New York

# POST-CLOSURE QUARTERLY LANDFILL MONITORING Second Quarter



# **Harrison Subresidency**

D008873 P.I.N. 8806.51.101 Town of Harrison Westchester County, New York

**January 2001** 

Prepared By

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# NEW YORK STATE DEPARTMENT OF TRANSPORTATION ALBANY, NEW YORK

# HARRISON SUBRESIDENCY WESTCHESTER COUNTY POST-CLOSURE MONITORING RESULTS

D008873, PIN 8806.51.101



SECOND QUARTERLY REPORT January 2001

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#### D008873, PIN 8806.51.101

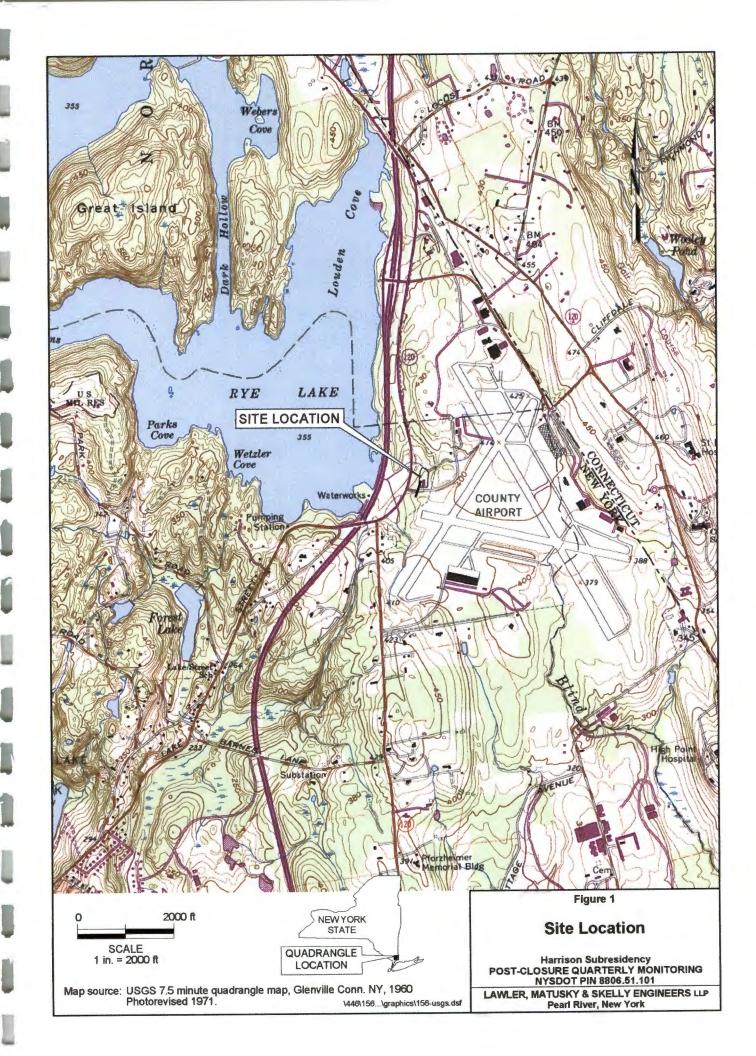
#### **1.0 INTRODUCTION**

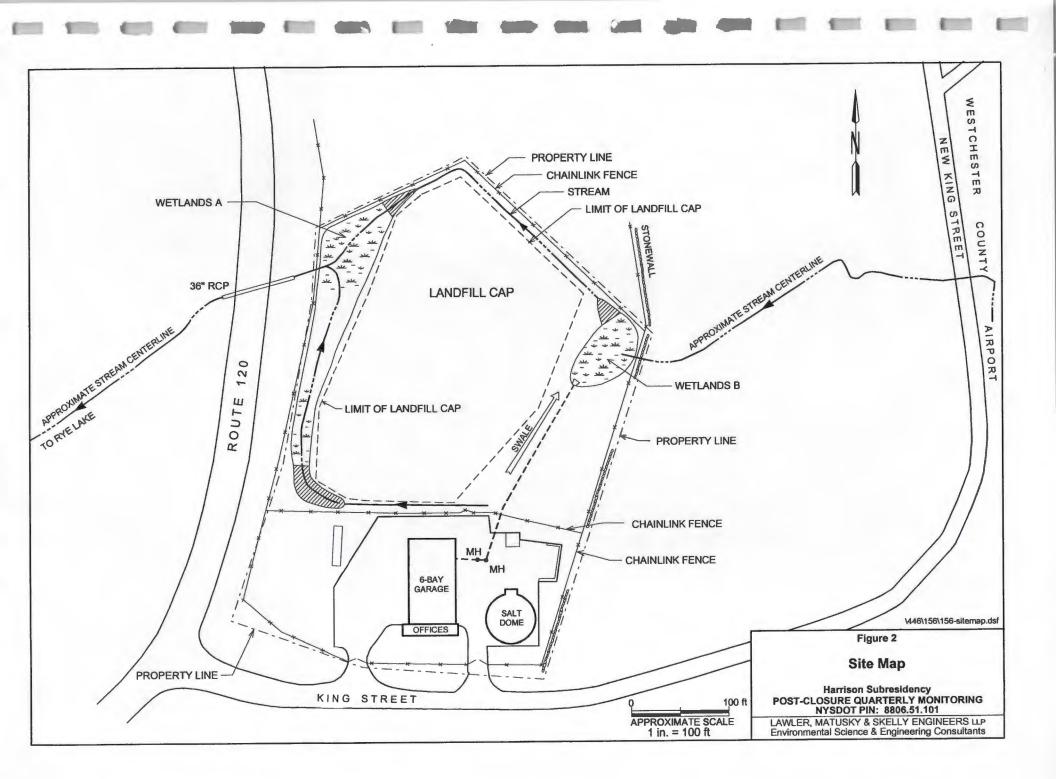
#### 1.1 Background

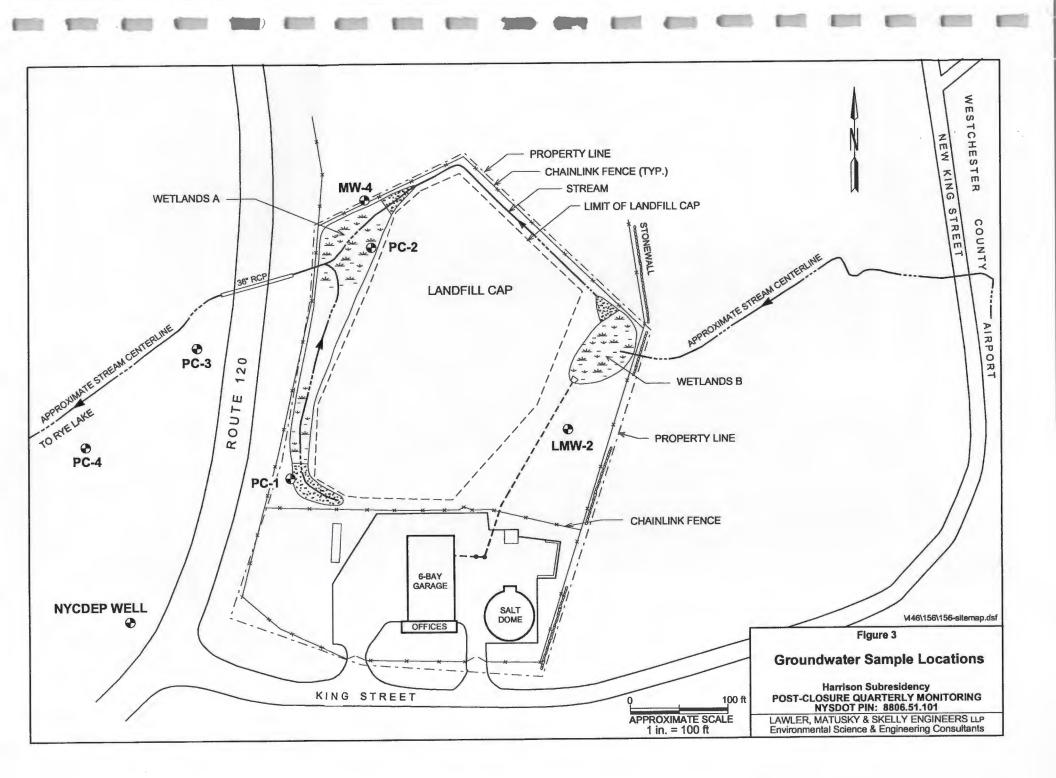
This report presents the results of the January 2001 post-closure sampling and monitoring conducted at the Harrison Subresidency site located in the town of Harrison, Westchester County, New York (Figure 1). The site, a seasonal highway maintenance support and salt storage facility operated by the New York State Department of Transportation (NYSDOT), includes approximately 2.6 acres of landfill area (Figure 2) that was closed in December 1998 in compliance with New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Part 360 regulations. The second quarter sampling and monitoring was conducted to evaluate the environmental impacts of landfill closure through groundwater, surface water and sediment sampling, gas monitoring and a landfill inspection. The quarterly sampling and monitoring program was established to conform to the requirements of 6 NYCRR Part 360 2.15 (K).

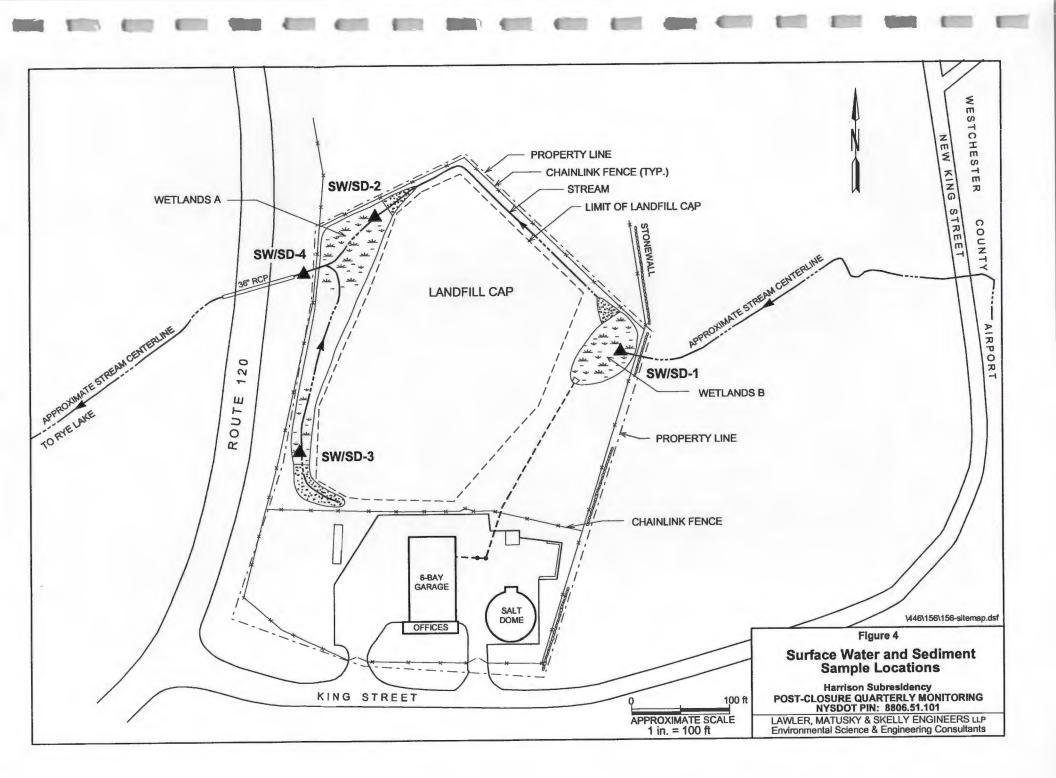
#### **1.2 First Quarter Post-Closure Monitoring**

In October 2000, LMS conducted the first quarterly post-closure monitoring of the groundwater, surface water and sediment at the landfill (LMS January 2000). Samples were collected from four on-site and two off-site monitoring wells (Figure 3), three on-site surface water locations and four corresponding sediment locations (Figure 4) and analyzed for TAL metals and chloride. Analytical results indicate that concentrations of several TAL metals (iron, magnesium, manganese, mercury, selenium and sodium) exceeded the Class GA standards or guidance values in unfiltered and filtered groundwater and surface water samples. Beryllium, chromium, copper and nickel exceeded the Class GA standards or guidance values in the unfiltered samples only. Chloride was detected, above the Class GA standard of 250 ppm, in a groundwater sample collected from the off-site well PC-3. Lead, magnesium and silver were detected above the Lowest Effect Level (LEL) in three sediment samples collected on-site. It was concluded that, with two exceptions, elevated levels of TAL metals were being released to the groundwater and









surface water downgradient of the landfill. Elevated levels of magnesium and sodium were detected in a groundwater sample collected from the upgradient well LMW-2 in concentrations exceeding those detected in two downgradient wells (MW-4 and PC-2) which suggests an additional off-site source of these metals. The majority of the elevated concentrations of metals detected in the groundwater were associated with suspended particulates greater than 0.45 microns as was noted in the pre-construction and post-closure sampling data.

#### **1.2 Monitoring Objectives**

The objectives of the post-closure sampling and monitoring program are to; 1) evaluate the environmental impacts of the landfill; 2) meet the post-closure monitoring requirements of the NYSDEC and; 3) provide NYSDEC with data after one full year to evaluate and/or modify the existing sampling and monitoring program.

#### 2.0 FIELD INVESTIGATION

#### 2.1 Groundwater Investigation

Prior to landfill closure there were four wells on site; one upgradient well (LMW-2), and three downgradient wells (LMW-1, MW-3, and MW-4). Both LMW-1 and MW-3 were removed during the regrading of the landfill. Four new monitoring wells were installed in October 1998 to assist in the monitoring downgradient of the landfill. PC-1 and PC-2 were located in the wetlands area at the base of the western toe of the landfill slope while PC-3 and PC-4 were located on New York City Department of Environmental Protection (NYCDEP) property on the western side of Route 120 (Figure 3).

#### 2.1.1 Monitoring Well Sampling

As part of the quarterly post-closure sampling and monitoring program, six monitoring wells (LMW-2, MW-4, PC-1, PC-2, PC-3 and PC-4) were purged and sampled for Target Analyte List (TAL) metals and chloride from 22 January 2001 to 24 January 2001.

MW-4 was purged dry after five gallons and was allowed to recharge to approximately 90% before sampling. LMW-2, PC-1, PC-2, PC-3 and PC-4 were each purged of three well volumes prior to sampling. Purging of each well was performed by using either a small submersible pump, a peristaltic pump or by hand using a dedicated bailer. PC-2 was purged with a peristaltic pump because of a damaged casing (the well casing at PC-2 had sheared sideways allowing only a gap of about 2 cm down the well). After purging, samples were collected using dedicated disposable bailers. The samples were preserved on ice to 4°C and sent, under chain of custody, to a New York State Department of Health (NYSDOH)-approved laboratory for TAL metals and chloride analyses.

Groundwater chemistry measurements (temperature, pH, conductivity, and turbidity) were recorded before, during, and after purging, with a measurement recorded for approximately every well volume (with the exception of MW-4). Static water level measurements were also taken prior to and after purging each well. Groundwater purging information is recorded on the groundwater well sampling logs included in Attachment A.

#### 2.2 Surface Water Sampling

On 24 January two downstream surface water sampling points, SW-2 and SW-4 (Figure 4), were sampled. SW-2 was collected from a point located at the northern portion of wetlands A (western side of the landfill). The flow at SW-2 was very low (<1 cfs) and limited to a small channel approximately 3 inches deep. SW-4 was collected from a point located approximately 17 feet northeast of the 36-inch reinforced concrete pipe (RCP) culvert that diverts the stream southwest under Route 120 to Rye Lake. Both surface water samples were collected from approximately the same location staked out during the first quarterly sampling event. The surface water in the upstream surface water points SW-1 and SW-3 was frozen solid and samples were not collected from these locations. A duplicate sample, SW-5, was collected from the same location as SW-4.

The surface water samples were collected by dipping a dedicated laboratory-cleaned stainless steel ladle into the water and transferring the sample to the appropriate pre-cleaned laboratory-supplied container. The containers were iced to 4°C and sent, under chain of custody, to a

NYSDOH-approved laboratory for TAL metals and chloride analyses. Water chemistry measurements (temperature, pH, conductivity, and turbidity) were recorded during sample collection and are included in Attachment B.

#### 2.3 Sediment Sampling

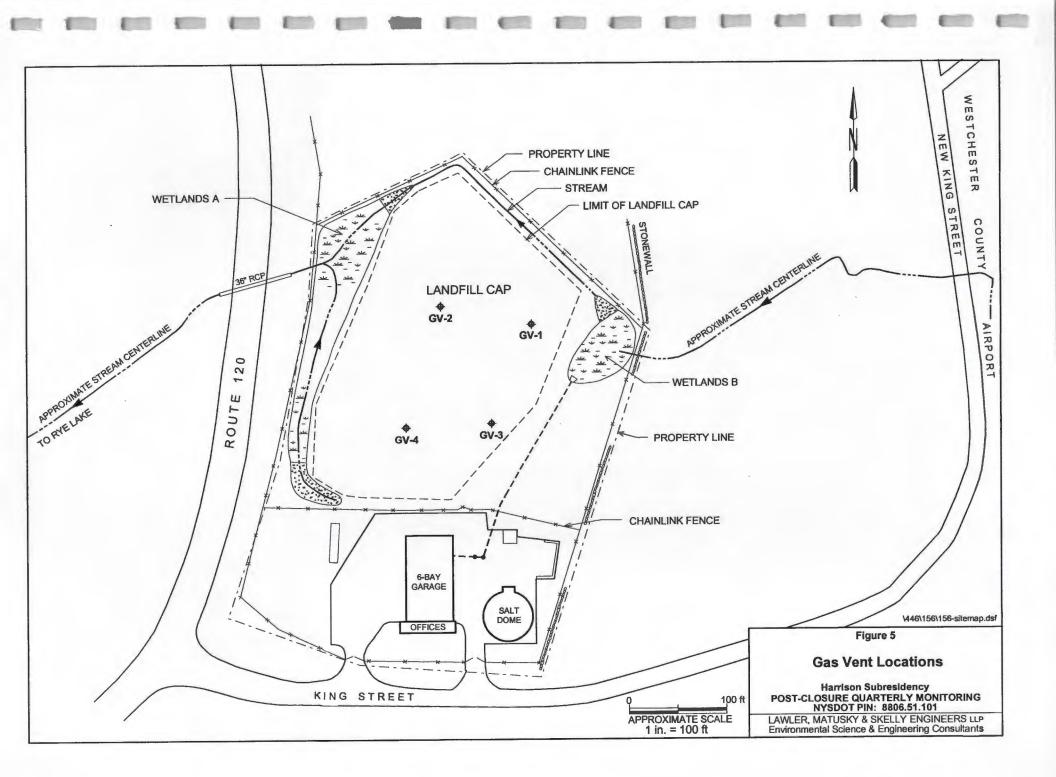
Two sediment samples (SD-2 and SD-4) were collected for TAL metals and chloride analyses. Each sediment sample was collected subsequent to, and at the same location as, its corresponding surface water sample (Figure 4). The samples were collected using a dedicated laboratorycleaned stainless steel trowel and placed directly into the appropriate pre-cleaned laboratorysupplied sample container. Each sample container was iced to 4°C and sent, under chain of custody, to a NYSDOH-approved laboratory for analysis. The sample depth, texture, color and odor were noted and are included in Attachment B.

#### 2.4 Gas Monitoring

In conformance with the June 2000 Post-Closure Operations and Maintenance Manual, a gas monitoring program was instituted to verify that any gases, produced as a result of the natural decomposition of waste, do not pose a hazard to health or safety. The program includes the measurement of concentrations of methane or other explosive gases, hydrogen sulfide and volatile organic compounds (VOCs) at each of four gas vents and around the perimeter of the landfill (Figure 5).

Methane and other explosive gases were measured with a combustible gas indicator (CGI) around the perimeter of landfill and gas vents. Gas vent readings were obtained by inserting the instrument detector probe into the vent. The CGI was set to sound an alarm if the readings exceeded 10 % of the lower explosive limit (LEL) of methane. In addition, alarms were set at 10% of the LEL of hydrogen sulfide, 25 parts per million (ppm) of carbon monoxide and 19.5% and 23.5% of oxygen. No readings were detected above the preset alarm levels at the gas vents or the perimeter of the site.

VOCs were measured with a photoionization detector (PID) and a flame ionization detector (FID) (with and without the methane filter) at the perimeter of the landfill and at each of the four gas vents. There were no readings, above background, at the vents or the perimeter of the landfill. An air monitoring field data sheet is included in Attachment C.



### 2.5 Inspections

All six groundwater monitoring wells were inspected and, with the exception of PC-2, were found to be good condition. As noted in Section 2.1.1 the well casing at PC-2 had sheared sideways allowing only a gap of about 2 cm down the well. The landfill was under approximately one foot of snow and ice which prevented an inspection of the cap and cap vegetation. The drainage swales, that were not under snow and ice (near wetlands A), were inspected and found to be in good condition. All four gas vents were also inspected and were found to be in good condition. No vermin or vector were noted on the landfill.

#### 2.6 Quality Assurance/Quality Control

An additional surface water sample (filtered and unfiltered), SW-5, was collected from the same location as SW-4 to assess laboratory precision and accuracy. The sample was analyzed for TAL metals and chloride. The relative percent difference (RPD) was calculated for each parameter that was detected in both the original and duplicate unfiltered samples. The results indicate that the RPD of three parameters (iron, manganese and chloride) out of eight was greater than 20% but less than 50% and are in the acceptable range of percent difference. The RPD of the remaining parameters ranged from 3.5% to 12.5%. The analytical results are included in Table 2.

#### **3.0 ANALYTICAL RESULTS**

#### 3.1 Groundwater Results

The six filtered and six unfiltered groundwater samples collected on 22, 23 and 24 January 2001, designated as LMW-2, MW-4, PC-1, PC-2, PC-3 and PC-4, were analyzed for TAL metals and chloride. Groundwater samples were analyzed according to NYSDEC Analytical Services Protocol (ASP). Analytical results for the filtered and unfiltered groundwater samples are presented in Table 1 and a copy of the analytical laboratory report is presented in Attachment D. Field parameters for temperature, pH, specific conductance, and turbidity are provided on the groundwater well sampling logs included in Attachment A.

Results of the analyses indicate that eighteen TAL metals were detected in both the filtered and unfiltered groundwater samples.

TABLE 1

#### **GROUNDWATER SUMMARY** Second Quarter (January 2001) Harrison Subresidency Site NYSDOT D008873, PIN 8806.51.101

PARAMETER	LMW-2	FIL LMW-2	MVV-4	FIL MVV-4	PC-1	FIL PC-1	PG-2	FIL. PC-2	PC-3	FIL PG-3	PC-4	FIL PC-4	NATURAL AMBIENT GROUNDWATER RANGES (n)	NYSDEC CLASS GA STANDARDS (a
TAL METALS (ug/L	)													
Aluminum	1800	ND	ND	ND	9400	ND	110	ND	31000	ND	19000	ND	-<5.0 - 1000	NS
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	3
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.0 - 30	25
Barium	200	190	ND	ND	130	42	180	86	400	55	260	71	10 - 500	1000
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<10	3.0 GV
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.0	5
Calcium	96000	100000	6500	5700	49000	51000	75000	74000	61000	62000	25000	24000	1000 - 150000	NS
Chromium	ND	ND	ND	ND	20	ND	ND	ND	74	ND	82	ND	<10-50	50
Cobalt	ND	ND	ND	ND	3.5	ND	ND	ND	40	16	14	ND	<10	NS
Copper	ND	ND	ND	ND ,	18	ND	ND	ND	81	ND	40	ND	<1.0-3	200
Iron	3200	ND	12000	4800 K	17000	ND	80000	40000	49000	520	28000	ND	10 - 10000	300 (m)
Lead	ND	ND	ND	ND	5.9	ND	ND	ND	16	ND	20	ND	<15	25
Magnesium	36000	39000	2100	1800	12000	8900	25000	25000	29000	19000	17000	8500	1000+50000	35000 GV
Manganese	1500	2000	42000	3800	540	7.6	17000	17000	1600	1300	280	27	<1.0 - 1000	300 (m)
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5	ND	<1.0	0.7
Nickel	13	17	ND	ND	12	ND	ND	ND	86	29	71	6.6	<10 - 50	100
Potassium	6400	6200	3100	2800	6800	4300	3200	3600	9800	5600	7400	4000	1000 - 10000	NS
Selenium	ND	ND	ND	ND	ND	ND	17	10	ND	ND	ND	ND	<1.0 + 10	10
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	~5	50
Sodium	43000	50000	30000	28000	47000	57000	63000	60000	95000	99000	38000	41000	500 - 120000	20000
Thallium	ND	ND	ND	ND	ND	ND	6.9	8,9	ND	ND	ND	ND	N/A	0.5.GV
Vanadium	8.3	2.9	ND	ND	36	ND	8	ND	110	ND	61	ND	<1.0 - 10	NS
Zinc	8.7	ND	ND	ND	39	ND	ND	ND	130	7.4	94	ND	<10 - 2000	2000 GV
Chloride (mg/L)	32	*	58	*	30	*	90	*	170	*	64	*	N/Ar	250

a - NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1). June 1998, revised April 2000.

GV - Guidance value.

NS - No standard. \* - Not analyzed.

(m) - Sum of Iron and Manganese not to exceed 500 ug/L.
(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.

N/A - Not applicable. ND - Not detected at analytical detection limit.

Aluminum was detected in several unfiltered groundwater samples. The concentrations range from 110 parts per billion (ppb) in the on-site well PC-2 to 31000 ppb in the off-site well PC-3. Aluminum was not detected in any of the filtered samples.

Barium was detected in unfiltered samples collected from five wells (LMW-2, PC-1, PC-2, PC-3 and PC-4). The concentrations range from 130 ppb in the on-site well PC-1 to 400 ppb in the off-site well PC-3. Barium was also detected in the filtered samples although at lower concentrations than detected in the unfiltered samples.

Calcium was detected in all the unfiltered and filtered samples. The concentrations range from 5700 ppb in the filtered sample collected from the onsite well MW-4 to 100000 ppb in the filtered sample collected from the on-site upgradient well LMW-2.

Chromium was detected in three unfiltered samples collected from PC-1 (20 ppb), PC-3 (74 ppb) and PC-4 (82 ppb). Chromium was not detected in any of the filtered samples.

Cobalt was detected in the unfiltered samples collected from PC-1, PC-3 and PC-4 with concentrations ranging from 3.5 ppb in the sample collected from the on-site well PC-1 to 40 ppb in the sample collected from the off-site well PC-3. Cobalt was also detected in the filtered sample collected from PC-3 at 16 ppb.

Copper was detected in the unfiltered samples collected from PC-1, PC-3 and PC-4. The highest concentrations of copper were detected in the off-site wells PC-3 (81 ppb) and PC-4 (40 ppb). Copper was not detected in any of the filtered samples.

Iron was detected in the unfiltered samples collected from all six wells. The concentrations range from 3200 ppb in the upgradient well LMW-2 to 80000 ppb in the on-site well PC-2. Iron was also detected in several filtered samples (MW-4, PC-2 and PC-3) although at lower concentrations than detected in the unfiltered samples.

Lead was detected in three unfiltered samples collected from PC-1 (5.9 ppb), PC-3 (16 ppb) and PC-4 (20 ppb). Lead was not detected in any of the filtered samples.

Magnesium was detected in both the filtered and unfiltered samples collected from all six wells. The concentrations range from 1800 ppb in the filtered sample collected from MW-4 to 39000 ppb in the filtered sample collected from the upgradient well LMW-2. With the exception of the concentration of magnesium detected in LMW-2 (39000 ppb), all the concentrations detected in

the filtered samples were either lower, or the same as, the concentrations detected in the unfiltered samples.

Manganese was detected in both the filtered and unfiltered samples collected from all six wells. The highest concentration was detected in the unfiltered sample collected from the on-site well MW-4 at 42000 ppb. The lowest concentration, 7.6 ppb was detected in the filtered sample collected from the on-site well PC-1. With the exception of the concentration of manganese detected in filtered sample collected from the upgradient well LMW-2 (2000 ppb), all the concentrations of manganese, detected in the filtered samples, were either lower than, or the same as, the concentrations detected in the unfiltered samples.

Mercury was detected in the unfiltered sample collected from the off-site well PC-4 at 0.5 ppb.

Nickel was detected in the unfiltered samples collected from LMW-2, PC-1, PC-3, and PC-4 in concentrations that range from 12 ppb in the sample collected from PC-1 to 86 ppb in the sample collected from the off-site well PC-3. With the exception of the concentration of nickel detected in the filtered sample collected from the upgradient well LMW-2, the concentrations of nickel detected detected in the filtered samples were lower than the concentrations detected in the unfiltered samples.

Potassium was detected in both the filtered and unfiltered samples collected from all six wells. The concentrations range from 3100 ppb (LMW-2) to 9800 ppb (PC-3) in the unfiltered samples. With the exception of the concentration of potassium detected in the filtered sample collected from PC-2, the concentrations of potassium detected in the filtered samples were lower than the concentrations detected in the unfiltered samples.

Selenium was detected in both the filtered and unfiltered samples collected from PC-2 at 10 ppb and 17 ppb respectively.

Sodium was detected in both the filtered and unfiltered samples collected from all six wells. The concentrations range from 28000 ppb in the filtered sample collected from MW-4 to 99000 ppb in the filtered sample collected from the off-site well PC-3. In general, the concentrations of sodium detected in the filtered samples were higher than those detected in the unfiltered samples.

Thallium was detected in both the filtered and unfiltered samples collected from PC-2 at 8.9 ppb and 6.9 ppb respectively.

Vanadium was detected in the unfiltered samples collected from LMW-2, PC-1, PC-2, PC-3 and PC-4. The concentrations range from 8 ppb in PC-2 to 110 ppb in the sample collected from the off-site well PC-3. Vanadium concentrations detected in the filtered samples were lower than the concentrations detected in the unfiltered samples.

Zinc was detected in four unfiltered samples (LMW-2, PC-1, PC-3 and PC-4). The concentrations range from 8.7 ppb in the sample collected from the upgradient well LMW-2 to 130 ppb in the sample collected from the off-site well PC-3. Zinc was also detected in the filtered sample collected from PC-3 at 7.4 ppb.

Chloride was detected in the unfiltered samples collected from all six wells. The concentrations range from 30 ppm in the sample collected from PC-1 to 170 ppm in the sample collected from the off-site well PC-3.

The filtered and unfiltered analytical results suggest that, with some exceptions, a large portion of the TAL metals, detected in the samples, are associated with the suspended solids portion of the groundwater. Field-measured groundwater turbidities ranged from 5 to > 1000 nephelometric turbidity units. Turbidity data is included in the well sampling logs located in Attachment A. Concentrations of the metals detected in the groundwater are presented on Table 1.

#### 3.2 Surface Water Results

Two surface water samples and one duplicate surface water sample were collected on 24 January 2001 and analyzed for TAL metals and chloride. Surface water samples were analyzed according to NYSDEC ASP. Analytical results for surface water samples are presented in Table 2, and a copy of the analytical laboratory report is presented in Attachment D. Field parameters for temperature, pH, specific conductance, and turbidity are provided on the surface water sampling logs included in Attachment B.

Results of the TAL metals analyses indicate that nine metals were detected in the surface water samples.

Aluminum was detected in the two unfiltered samples collected from SW-2 (1400 ppb) and SW-4 (400 ppb). There were no concentrations of aluminum detected in any of the filtered samples or in the filtered and unfiltered duplicate sample SW-5.

TABLE 2 SURFACE WATER SUMMARY Second Quarter (January 2001) **Harrison Subresidency** NYSDOT

D008873, PIN 8806.51.101

PARAMETER	SW-2	FIL SW-2	SW-4	FIL SW-4	SW-5	FIL SW-5	NATURAL AMBIENT GROUNDWATER RANGES (n)	NYSDEC CLASS GA STANDARDS (a
TAL METALS (ug/L)								
Aluminum	1400	ND	400	ND	ND	ND	<5.0 - 1000	NS
Antimony	ND	ND	ND	ND	ND	ND	N/A	3
Arsenic	ND	ND	ND	ND	ND	ND	<1.0 - 30	25
Barium	23	25	34	26	30	28	10 - 500	1000
Beryllium	ND	ND	ND	ND	ND	ND	<10	3.0 GV
Cadmium	ND	ND	ND	ND	ND	ND	<1.0	5
Calcium	29000	33000	35000	34000	37000	36000	1000 - 150000	NS
Chromium	ND	ND	ND	ND	ND	ND	<1.0 - 5.0	50
Cobalt	ND	ND	ND	ND	ND	ND	<10	NS
Copper	ND	ND	ND	ND	ND	ND	<1,0-3	200
Iron	140	69	1400	ND	180	ND	10 - 10000	300 (m)
Lead	ND	ND	ND	ND	ND	ND	<15	25
Magnesium	9000	10000	11000	10000	11000	11000	1000 - 50000	35000 GV
Manganese	350	99	230	59	140	96	<1.0 - 1000	300 (m)
Mercury	ND	ND	ND	ND	ND	0.56	<1.0	0.7
Nickel	ND	ND	ND	ND	ND	ND	<10 - 50	100
Potassium	2300	3900	2600	2500	2600	2700	1000 - 10000	NS
Selenium	ND	ND	ND	ND	ND	ND	<1.0 - 10	10
Silver	ND	ND	ND	ND	ND	ND	<5	50
Sodium	22000	28000	29000	30000	28000	27000	500 - 120000	20000
Thallium	ND	ND	ND	ND	ND	ND	N/A	0.5 GV
Vanadium	ND	ND	ND	ND	ND	ND	<1.0 - 10	NS
Zinc	ND	ND	ND	ND	ND	ND	<10 - 2000	2000 GV
Chloride (mg/L)	54	*	50	*	40	*	N/A	250

a - NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1). June 1998, revised April 2000.

GV - Guidance value.

n - Dragun, J., The Soil Chemistry of Hazardous Materials. N/A - Not applicable. ND - Not detected at analytical detection limit.

NS - No standard. \*

- Not analyzed.

Lawler, Matusky Skelly Engineers LLP

Barium was detected in both the unfiltered and filtered samples collected from SW-2 and SW-4. The concentrations range from 23 ppb/25 ppb to 34 ppb/26 pbb respectively. Barium was also detected in the unfiltered and filtered duplicate sample SW-5 at 30 ppb/28 ppb respectively.

Calcium was detected in both the unfiltered and filtered samples collected from SW-2 and SW-4 at 29000 ppb/33000 ppb and 35000 ppb/34000 ppb respectively. Calcium was also detected in the unfiltered and filtered sample SW-5 at 37000 ppb/36000 ppb respectively.

Iron was detected at 140 ppb and 1400 ppb in the unfiltered samples collected from SW-2 and SW-4 respectively. Iron was also detected in the filtered sample collected from SW-2 at 69 ppb and in the unfiltered sample SW-5 at 180 ppb. Iron was not detected in the filtered sample collected from SW-4 or the duplicate sample SW-5.

Magnesium was detected in both the unfiltered and filtered samples collected from SW-2 and SW-4 at 9000 ppb/10000 ppb and 11000 ppb/10000 ppb respectively. Magnesium was also detected in the unfiltered and filtered sample SW-5 at 11000 ppb/11000 ppb respectively.

Manganese was detected in both the unfiltered and filtered samples collected from SW-2 and SW-4 at 350 ppb/99 ppb and 230 ppb/59 ppb respectively. Manganese was also detected in the unfiltered and filtered sample SW-5 at 140 ppb/96 ppb respectively.

Mercury was detected in the filtered duplicated sample SW-5 at 0.56 ppb. Mercury was not detected in SW-4.

Potassium was detected in both the unfiltered and filtered samples collected from SW-2 and SW-4 at 2300 ppb/ 3900 ppb and 2600 ppb/2500 ppb respectively. Potassium was also detected in both the unfiltered and filtered sample SW-5 at 2600 ppb/2700 ppb respectively.

Sodium was detected in both the unfiltered and filtered samples collected from SW-2 and SW-4 at 22000 ppb/28000 ppb and 29000 ppb/30000 ppb respectively. Sodium was also detected in both the unfiltered and filtered samples collected from SW-5 at 28000 ppb/27000 ppb respectively.

Chloride was detected in the unfiltered samples collected from SW-2 (54 ppm) and SW-4 (50 ppm) and in the unfiltered duplicate sample SW-5 (40 ppm).

### 3.3 Sediment Data Results

The two sediment samples collected on 24 January, designated as SD-2 and SD-4, were analyzed for TAL metals and chloride. Sediment samples were analyzed according to NYSDEC ASP. Analytical results for sediment samples are presented in Table 3, and a copy of the analytical laboratory report is presented in Attachment D. Sample depths and field observations are provided on the sediment sampling logs included in Attachment B.

Nineteen TAL metals were detected in the sediment samples collected from SD-2 and SD-4. Concentrations of the metals detected in the sediment samples are presented on Table 3.

Concentrations of aluminum (4600 ppm/4800 ppm), arsenic (2.6 ppm/2.6 ppm), barium (33 ppm/37 ppm), calcium (54000 ppm/56000 ppm), chromium (8 ppm/7.7 ppm), cobalt (4.6 ppm/3.7 ppm), copper (13 ppm/10 ppm), iron (13000 ppm/13000 ppm), lead (31 ppm/23 ppm), magnesium (28000 ppm/28000 ppm), manganese (290 ppm/600 ppm), nickel (12 ppm/9.2 ppm), potassium (1200 ppm/1300 ppm), selenium (0.92 ppm/1 ppm), vanadium (14 ppm/14 ppm) and zinc (53 ppm/48 ppm) were detected in samples collected from both SD-2 and SD-4 respectively. Antimony (0.64 ppm), cadmium (0.16 ppm) and silver (0.14 ppm) were detected in the sample collected from SD-2.

Chloride was not detected in either of the sediment samples.

### 4.0 COMPARISON TO APPLICABLE CRITERIA

#### 4.1 Groundwater

The results of the groundwater analyses were compared to current NYSDEC Ambient Water Quality Class GA Standards and Guidance Values (April 2000 Revision).

The results of the TAL metals analyses indicate that seven metals, detected in the unfiltered and filtered samples, occurred at concentrations exceeding their representative groundwater criteria (Table 1). As stated in section 3.1, with some exceptions, a large portion of the TAL metals, detected in the samples, are associated with the suspended solids portion of the groundwater.

Chromium, detected in the unfiltered samples, PC-3 (74 ppb), and PC-4 (82 ppb), exceeded the Class GA standard of 50 ppb. However, chromium was not detected in the corresponding filtered samples. Iron and manganese exceeded the combined Class GA standard of 500 ppb in

SEDIMENT DATA SUMMARY Second Quarter (January 2001) Harrison Subresidency NYSDOT D008873, PIN 8806.51.101

TADLE 3

PARAMETER	SD-Z	SD-4	Sedin LEL <sup>1</sup>	nent Criteria (a) SEL <sup>3</sup>
	[DL 1:100]	[DL 1:100]		
TAL METALS (mg/	kg)			
Aluminum	4600	4800		
Antimony	0.64	ND	2	25
Arsenic	2.6	2.6	6	33
Barium	33	37		
Beryllium	ND	ND		
Cadmium	0.16	ND	0.6	9
Calcium	54000	56000		
Chromium	8	7.7	26	110
Cobalt	4.6	3.7		
Copper	13	10	16	110
Iron	13000	13000	20000	40000
Lead	31	23	31.0	110
Magnesium	28000	28000		
Manganese	290	600	460	1100
Mercury [DL 1:167]	ND	ND	0.15	1.3
Nickel	12	9.2	15	50
Potassium	1200	1300		
Selenium	0.92	1		
Silver	0.14	ND	1	2.2
Sodium	ND	ND		
Thallium	ND	ND		
Vanadium	14	14		
Zinc	53	48	120	270
Chloride (mg/kg)	ND	ND		

(a) - NYSDEC Technical Guidance for Screening Contaminated Sediments.

November 1993, revised January 1999.

1 - Lowest Effect Level

2 - Severe Effect Level

DL - Dilution factor.

ND - Not detected at analytical detection limit.

all unfiltered and four of the filtered samples (LMW-2, MW-4, PC-2 and PC-3). However, all the concentrations of iron and manganese detected in the corresponding filtered samples were lower than those detected in the unfiltered samples. Magnesium exceeded the Class GA guidance value of 35000 ppb in both the unfiltered and filtered samples collected from LMW-2 at 36000 ppb and 39000 ppb respectively. The concentration detected in the corresponding filtered sample was higher than that detected in the unfiltered sample. Selenium was detected above the Class GA standard of 10 ppb in the unfiltered sample collected from PC-2 at 17 ppb. However, selenium was detected at a lower concentration (10 ppb) in the filtered sample collected from this well. Sodium exceeded the standard of 20000 ppb in all filtered and unfiltered samples. With the exception of the samples collected from MW-4 and PC-2 the concentrations of sodium detected in the filtered samples were higher than those detected in the unfiltered samples. Thallium concentrations detected in the unfiltered and filtered samples collected from PC-2 (6.9 ppb/8.9 ppb) exceeded the guidance value of 0.5 ppb. The concentration of thallium detected in the filtered sample was higher than that detected in the unfiltered sample. Iron, magnesium, manganese, and sodium were detected above the Class GA standards in the upgradient background well LMW-2.

There were no concentrations of chloride, detected above the Class GA standard of 250 ppm, in the groundwater samples.

#### 4.2 Surface Water

The results of the surface water analyses were compared to current NYSDEC Ambient Water Quality Class GA Standards and Guidance Values (April 2000 Revision).

The results of the TAL metals analyses indicate that three metals, detected in the surface water samples, occurred at concentrations exceeding their respective criteria (Table 2). Iron and manganese exceeded the combined Class GA standard of 500 ppb in the unfiltered samples collected from SW-2 and SW-4 and in the duplicate sample SW-5. Sodium exceeded the Class GA standard of 20000 ppb in both the unfiltered and filtered samples collected from SW-2, SW-4 and SW-5. With the exception of the duplicate sample SW-5, sodium concentrations detected in the filtered samples were higher than those detected in the unfiltered samples.

Chloride was not detected above the Class GA standard of 250 ppm in the surface water samples.

### 4.3 Sediment

The results of the sediment analyses (Table 3) were compared to current NYSDEC Technical Guidance for Screening Contaminated Sediment (January 1999 Revision).

The results of the TAL metals analyses indicate that manganese exceeded the lowest effect level (LEL) sediment criteria in SD-4. No other metals, detected in either sediment sample, exceeded the LEL or SEL sediment criteria established for those respective metals. Chloride was not detected in the sediment samples.

#### 5.0 COMPARISON WITH PREVIOUS STUDIES

### 5.1 Groundwater

Results of the first quarter groundwater sampling (October 2000) indicate that the concentrations of TAL metals of concern (i.e., those metals exceeding NYSDEC standards or guidance values) in the samples collected in January 2001 generally show a decrease in concentration. However, manganese, detected at 34000 ppb in the unfiltered sample collected from MW-4 in October 2000, was detected at 42000 ppb in the unfiltered sample from the same well in January 2001. Thallium, which was undetected in the groundwater in October 2000 was detected in unfiltered and filtered samples collected from this well in January 2001.

#### 5.2 Surface Water

Between October 2000 and January 2001 the concentrations of iron and manganese in the surface water samples collected from SW-2 and SW-4 decreased. However, the concentrations of sodium in the filtered samples increased from 23000 ppb to 28000 ppb in SW-2 and from 23000 ppb to 30000 ppb in SW-4. There was also an increase of 3000 ppb of sodium in the unfiltered samples collected from SW-4 from October 2000 (26000 ppb) to January 2001 (29000 ppb).

#### **5.3 Surface Sediments**

Between October 2000 and January 2001 there was a decrease of 90 ppm in the manganese concentration detected in SD-4 (from 690 ppm to 600 ppm).

#### 6.0 CONCLUSIONS

Groundwater samples collected downgradient of the landfill indicate that the landfill is releasing, and/or mobilizing from the soil, elevated levels of iron, manganese, magnesium and sodium (which are not hazardous or RCRA constituents). Elevated levels of iron, manganese, sodium and magnesium in the samples collected from the upgradient well LMW-2 suggest there may be a contributing external source to the concentrations detected in the downgradient wells. The concentration of manganese detected in LMW-2 exceeded the concentrations detected at two downgradient wells, PC-1 and PC-4, by an order of magnitude. In addition, the concentration of sodium detected in the upgradient well LMW-2 was higher than that detected in the downgradient wells MW-4 and PC-4. Magnesium was detected in the upgradient well at a concentration exceeding those detected in the downgradient wells, which suggests an off-site source for this metal. The elevated levels of sodium and chloride detected in the sample collected from the off-site well PC-3, which is located close to Route 120, may be related to the salt dome south of the landfill or runoff from the highway.

In addition chromium, selenium and thallium were detected in the groundwater above the Class GA standards. However, chromium and selenium were either not detected the corresponding filtered samples or detected at a lower concentration. Thallium was detected above the Class GA guidance value of 0.5 ppb in one filtered sample (PC-2) at 8.9 ppb. Although thallium was not detected in the groundwater in October 2000, it was detected in the groundwater in August 1999 at a higher concentration (16 ppb).

Of the TAL metals detected in the groundwater, only iron, manganese and sodium were detected above the Class GA standards and guidance values in the surface water and only manganese was detected in one sediment sample above its corresponding LEL. Manganese is not hazardous or a RCRA constituent and its presence in the sediment above the LEL is considered a moderate impact.

Results from the filtered and unfiltered groundwater and surface water samples indicate that the majority of metals detected in the samples are associated with suspended particulates greater than 0.45 µm in size.

ATTACHMENT A

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# .MS

Well Sampling L	.og
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Date:	1/23/01		METERS	USED
Crew:	TMS/MP	Temp.:	TLC # 11	
Job No:	446-156	pH:	98-16	naren en
Project:	NYSDOT	Cond.:	TLC # 11	
Project Site:	Harrison SR Landfill	Turb.:	LMS # 001	
Well ID No.:	LMW-2	DTW Be	fore Sampling:	
Well Condition:	Good		Date/Time:	1/23
Well Depth/Diameter:	23.95/2"	Sampling	Method:	Ded
Well Casing Type:	SS Stickup/PVC	Sampling	g Depth(s):	All
Screened Interval:	Unknown	DTW Aft	er Sampling:	
Casing Ht./Lock No.:	2246	Chain-of	-Custody No.(s)	:
Reference Pt.:	Top of PVC	Analytica	l Lab(s):	Veri
Depth to Water (DTW)	11.54	Sampling	Observations:	Wat
Water Column Ht./Vol.	12.41/6.8			
Purge Est.:	20 gal.			
Purge Method(s):	e Method(s): Pump w/ded. tubing		SAMPLE CHE	MISTR
Purge Date/Time(s):	-		Temp. (°C) p	H Sp.

Depth(s):	All
Rates (gpm):	1
Purged Volume:	20 gal.
DTW After Purging:	12.63
Yield Rate: L - M	- H
Purge Observations:	Water clear then
	turbid then clear
	again.

	SAMPLE C	HEMI	STRIES	
	Temp. (°C)	рН	Sp. Cond.	Turb.
Start	9.3	7.4	0.972	30
End				

12.63 1/23/01 @ 1445 Ded. Poly Tubing

Veritech Water clear

### SAMPLE ANALYSES

Parameters	Pres. Meth.	Filter
TAL Metals - Total	HNO3	No
TAL Metals - Filtered	*Ice @ 4°C	Yes
Chloride	Ice @ 4°C	No
* Proconvod at La	h	

Preserved at Lab.

## **PURGE CHEMISTRIES**

V	ol.	Temp. (°C)	рН	Sp. Cond.	Turb.
	0	8.5	7.3	0.453	20
	6	8.8	7.4	0.98	150
	12	8.6	7.5	0.957	100
	20	9.3	7.4	0.972	30

Comments:

HNU - At background Air Temp: Weather Conditions:

Crew Chief Signature Theresa M. Achreider Date: 1/23/01

# LMS Well Sampling Log

Date:	1/24/01
Crew:	TMS/MP
Job No:	446-156
Project:	NYSDOT
Project Site:	Harrison SR Landfill

	METERS USED	
Temp.:	TLC # 11	······································
pH:	98-16	
Cond.:	TLC # 11	
Turb.:	LMS # 001	

Well ID No .:	MW-4	DTW E
Well Condition:	Good	Sample
Well Depth/Diameter:	15.05/2"	Sampli
Well Casing Type:	SS Stickup/PVC	Sampli
Screened Interval:	Unknown	DTW A
Casing Ht./Lock No.:	2246	Chain-
Reference Pt.:	Top of PVC	Analyti
Depth to Water (DTW)	3.6	Sampli
Water Column Ht./Vol.	11.4/6.27	
Purge Est.:	19 gal.	
Purge Method(s):	Ded. Poly Bailer	
Purge Date/Time(s):	-	

Depth(s):	All
Rates (gpm):	< 1
Purged Volume:	5 gal.
DTW After Purging:	Well dry
Yield Rate: L - M	- H
Purge Observations:	Water clear
	then very turbid

DTW Before Sampling:	4.01
Sample Date/Time:	1/24/01 @ 1400
Sampling Method:	Ded. Poly Bailer
Sampling Depth(s):	All
DTW After Sampling:	-
Chain-of-Custody No.(s):	-
Analytical Lab(s):	Veritech
Sampling Observations:	

	SAMPLE C			<b>T</b>
		рн	Sp. Cond.	l'urb.
Start	6.1	7.1	1.096	90
End	-			

### SAMPLE ANALYSES

Parameters	Pres. Meth.	Filter
TAL Metals - Total	HNO3	No
TAL Metals - Filtered	*lce @ 4°C	Yes
Chloride	Ice @ 4°C	No
* Preserved at La	ab.	

### **PURGE CHEMISTRIES**

Vol.	Temp. (°C)	рН	Sp. Cond.	Turb.
0	6.3	7.1	1.128	50
5	8.6	7	1.107	>1000

Comments:

HNU - At background Air Temp:

Weather Conditions:

Crew Chief Signature Heresa M. Schneider

Date: 1/24/01

Well ID No .:

Well Condition:

Well Depth/Diameter:

Well Casing Type:

Screened Interval:

Reference Pt.:

Purge Est.:

Depth(s):

Rates (gpm):

Purged Volume:

**DTW After Purging:** 

Purge Observations:

Yield Rate: L - M - H

Purge Method(s):

Purge Date/Time(s):

Casing Ht./Lock No.:

Depth to Water (DTW)

Water Column Ht./Vol. 7.09/3.89

# LMS Well Sampling Log

PC-1

Good

2-12'

2402

12gal.

All

< 1

12 gal.

Water turbid

Top of PVC

12.0/2"

SS Stickup/PVC

4.91

Ded. Poly Bailer

5.88

Water brown and silty

0.582

Date:	1/23/01
Crew:	TMS/MP
Job No:	446-156
Project:	NYSDOT
Project Site:	Harrison SR Landfill

	METERS USED	
Temp.: TLC # 11		
pH:	98-16	
Cond.:	TLC # 11	
Turb.:	LMS # 001	

<b>DTW Before Sampling:</b>	5.88
Sample Date/Time:	1/23/01 @ 1545
Sampling Method:	Ded. Poly Bailer
Sampling Depth(s):	All
DTW After Sampling:	-
Chain-of-Custody No.(s):	-
Analytical Lab(s):	Veritech
Sampling Observations:	Water turbid

## SAMPLE CHEMISTRIES

	Temp. (°C)	pН	Sp. Cond.	Turb.
Start	7.2	7.6	0.599	300
End				

## SAMPLE ANALYSES

Parameters	Pres. Meth.	Filter
TAL Metals - Total	HNO3	No
TAL Metals - Filtered	*lce @ 4°C	Yes
Chloride	Ice @ 4°C	No
* Proconvod at L	h	

Preserved at Lab.

PURGE CHEMISTRIES				
Vol.	Temp. (°C)	pН	Sp. Cond.	Turb.
0	6.5	7.7	0.475	150
4	6.5	7.6	0.489	>900
8	7.3	7.6	0.521	>900

7.6

Comments:

12

7.2

HNU - At background

300

Air Temp: Weather Conditions:

Crew Chief Signature Heresa M. Schnider

Date: 1/03/01

Well ID No .:

Well Condition:

Well Depth/Diameter:

Well Casing Type:

Screened Interval:

Reference Pt.:

Casing Ht./Lock No.:

Depth to Water (DTW)

# LMS Well Sampling Log

PC-2

2402

15.05/2"

5.05-15.05

Top of PVC

**Casing Damaged** 

SS Stickup/PVC

3.45

1/24/01
TMS/MP
446-156
NYSDOT
Harrison SR Landfill

	METERS USED	
Temp.:	TLC # 11	
pH:	98-16	
Cond.:	TLC # 11	
Turb.:	LMS # 001	

DTW Before Sampling:	4.14
Sample Date/Time:	1/24/01 @ 1345
Sampling Method:	Ded. Poly tubing.
Sampling Depth(s):	All
DTW After Sampling:	-
Chain-of-Custody No.(s):	-
Analytical Lab(s):	Veritech
Sampling Observations:	Water clear

SA	MF	LE	CH	IEM	IIST	<b>FRII</b>	ES

	Temp. (°C)	рН	Sp. Cond.	Turb.
Start	6.8	7.3	1.12	5
End				

# SAMPLE ANALYSES

Parameters	Pres. Meth.	Filter
TAL Metals - Total	HNO3	No
TAL Metals - Filtered	*ice @ 4°C	Yes
Chloride	Ice @ 4°C	No
* Preserved at L	ab	

erved at lad.

Purge Est.:	20 gal.
Purge Method(s):	Pump w/ded. tubing
Purge Date/Time(s):	-
Depth(s):	All
Rates (gpm):	0.5 gpm
Purged Volume:	20 gal.
DTW After Purging:	4.14
Yield Rate: L - M -	н
Purge Observations:	Water tubid then

Water Column Ht./Vol. 11.60/6.38

# **PURGE CHEMISTRIES**

Vol.	Temp. (°C)	рН	Sp. Cond.	Turb.	
0	5.9	7.3	1.071	150	
7	7.1	7.1	1.16	20	
14	7.2	7.1	1.178	5	
20	7.0	7.1	1.158	5	

clear

Comments:

HNU - At background

Air Temp: Weather Conditions:

Used 0.5 " diam. dedicated tubing to

collect samples.

\*Well is damaged.

Crew Chief Signature Theresa M. Schreider

Date: 1/24/01

Well ID No .:

Well Condition:

Well Depth/Diameter:

Well Casing Type: Screened Interval:

Casing Ht./Lock No.:

Depth to Water (DTW)

Water Column Ht./Vol. 9.03/4.97

Reference Pt.:

Purge Est.:

Depth(s):

Rates (gpm):

Yield Rate:

Purged Volume:

DTW After Purging:

**Purge Observations:** 

Purge Method(s):

Purge Date/Time(s):

# LMS Well Sampling Log

PC-3

2402

15 gal.

All

1

15 gal.

Water clear then turbid

Good/New

8.82 - 18.82

Top of PVC

SS Stickup/PVC

9.79

Ded. Poly Bailer

11.05

18.82/2"

/22/01
MS/MP
46-156
YSDOT
arrison SR Landfill

	METERS USED	
Temp.:	TLC # 11	
pH:	98-16	
Cond.:	TLC # 11	
Turb.:	LMS # 001	

•	
DTW Before Sampling:	11.05
Sample Date/Time:	1/22/01 @ 1420
Sampling Method:	Ded. Poly Bailer
Sampling Depth(s):	All
DTW After Sampling:	-
Chain-of-Custody No.(s):	-
Analytical Lab(s):	Veritech
Sampling Observations:	
Water turbid	

SAMPLE C	HEM	ISTRIES	
Temp. (°C)	рН	Sp. Cond.	Turb

				1 011 001
Start	7	7.7	1.023	325
End				

## SAMPLE ANALYSES

Parameters	Pres. Meth.	Filter
TAL Metals - Total	HNO3	No
TAL Metals - Filtered	*lce @ 4°C	Yes
Chloride	Ice @ 4°C	No
* Preserved at La	b	

served at Lab.

PURGE	CHEN	<b>ISTR</b>	RIES

L - M - H

Vol.	Temp. (°C)	рН	Sp. Cond.	Turb.
0	7.6	7.7	1.084	50
5	7.8	7.8	1.108	500
10	8.1	7.4	1.172	500
15	7.0	7.7	1.023	325

Comments:

HNU - At background

Air Temp: Weather Conditions:

Crew Chief Signature

Therese M. Schneider Date: 1/22/01

# LMS Well Sampling Log

1/22/01
TMS/MP
446-156
NYSDOT
Harrison SR Landfill

	METERS USED	
Temp.:	TLC # 11	
pH:	98-16	
Cond.:	TLC # 11	
Turb.:	LMS # 001	

Well ID No .:	PC-4	
Well Condition:	Good/New	
Well Depth/Diameter:	16.94/2"	
Well Casing Type:	SS Stickup/PVC	
Screened Interval:	6.94-16.94	
Casing Ht./Lock No .:	2402	
Reference Pt.:	Top of PVC	
Depth to Water (DTW)	10.05	
Water Column Ht./Vol.	6.89/3.80	
Purge Est.:	12 gal.	
Purge Method(s):	Ded. Poly Bailer	
Purge Date/Time(s):	-	
Depth(s):	All	
Rates (gpm):	1	

12 gal.

11.26

DTW Before Sampling:	11.26
Sample Date/Time:	1/22/01 @ 1445
Sampling Method:	Ded. Poly Bailer.
Sampling Depth(s):	All
DTW After Sampling:	-
Chain-of-Custody No.(s):	-
Analytical Lab(s):	Veritech
Sampling Observations:	
Water turbid	

SAMP	LE C	HEM	ISTR	RIES	5
Toma	(00)		~	-	

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	9.5	7.6	0.457	400
End				

### SAMPLE ANALYSES

Parameters	Pres. Meth.	Filter
TAL Metals - Total	HNO3	No
TAL Metals - Filtered	*lce @ 4°C	Yes
Chloride	Ice @ 4°C	No

\* Preserved at Lab.

PURGE	CHEMISTRIES

Purge Observations: Water turbid

Vol.	Temp. (°C)	pН	Sp. Cond.	Turb.
0	10.9	7.2	0.738	60
4	9.8	6.9	0.486	250
8	9.5	6.9	0.505	300
12	9.7	7	0.502	450

Comments:

Purged Volume:

DTW After Purging:

Yield Rate: L - M - H

HNU - At background

Air Temp: Weather Conditions:

Crew Chief Signature Theresa M. Schneider

Date: 1/22/01

ATTACHMENT B

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Date: Crew: Site:A Operation:	1/24/0 ma/m virisen nyss	FRANK	File	IELD D	ATA SH	IEET FOI	t SURF	ACE WAT			Velocity M Cond. Met	Aeter No	-16 2 # 11 0: LMS # 001 TUC # 11
STATION No.	SAMPLE DEI/TII (N)	TOTAL DEPTH . (N)	тіме (ніімм)	темр (°С)	11q	COND. (jumbos/ cm)	ז'URB. (אדע₅)	FLOW MEAS.	SAMPLE PARAMETERS	BOT.	SAMPLE PARAMETERS	BOT. Nos.	COMMENTS
ñυ-Ζ.	3"		1415	7.3	7.2	0,415	8.0	xiqo	TAL Mutals(t) ""(F) "CL-	1			
av-4	3"	. 3"	1430	8.1	7.5	0.425	13.5	< Icjs	TAL Metalo (7) * * * (F) CL-	   		· · · · · · · · · · · · · · · · · · ·	
Sw-5	3"	3"	1500	7,3	7.2	0.415	8.0	×1 cfs	TAChistals(T) "" "(F) 	    .			Leuplicate pangee Fw-24

÷.

and

Date: 1/24/01 Crew: Jus/mp. Site: starreson fandfell

FIELD DATA SHEET FOR SOIL/SEDIMENT SAMPLES

Oper: Mg Thermometer No:

.

								SAMPLE	BOTTLES				
STA. NO.	TIME	SMPL DPTH	METHOD	TEXT.	CLR.	ODOR	SAMPLE PARAMETERS	BOT. Nos.	SAMPLE PARAMETERS	· BOT. Nos.	Comments		
SD-2		2.0."	Ded. SS: SPOON	LOOSEI GRAL	Br.	None	TAL METALS) (L= 5	1					
5/0-4	1430.	3,5."	Ded 55 Spoon	Wosel Gran.	Br	none	TAL Metals ) CL- 5				C Culvert		
										· .			
-													
			÷										
			•				3						
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ATTACHMENT C

AIR MONITORING FIELD DATA SHEET

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SAMPLE	TIME (24 hr clock)	INITIALS	% LEL CGI	ppm PID	ppm FID	OBSERVATIONS
SV-1		fort :	< 10% .	<1.0	<1.0	no readings about
51-2	· · .	Ins	×1070	<1.0	2.1.0	pite background
GV-3	•	Ins	21070	L1.0 .	21.0	(PID/FID):
GV-4	• • •	Inis	210%	~1.0	21.0	No alarm for
SPL		Ins	510%	<1.3	×1.0	CGI.
EPL		Ims	51070	21.0	<1.0	
NPL		Imp	×1070:	<1.2	<1.0	
WPL		Ins	< 10%	. <1.0	<1.0	
			•			
		• •			•	
					· .	

<u>Notes</u>: . NM

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-

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ppm . mg/m<sup>3</sup> LEL

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Not measured. parts per million. milligrams per cubic meter. -

Lower Explosive Limit

ATTACHMENT D

Hampton-Clarke, Inc. veritech laboratories

175 Route 46 West, Unit D Fairfield, NJ 07004 (973) 244-9770 Federal ID: 222679402

# Lawler, Metusky & Skelly Engineers

# Format: NYDOH-CatA

Project: Harrison LF PO Number:

Samples submitted on: 1/23/01

AB22967 AB22968 AB22969 AB22970

> Environmental Chemistry Section

> > FEB 2 6 2001

Date: 2/7/01 HCI Project: 01241514

CT #: PH-0671 MA #: NJ386 NJ #: 14622 NY #: 11408 PA #: 68-463

### **SDG** Narrative

14.5

Project: NYSDOT Harrison LF Job: 446-156

Hampton-Clarke, Inc. (HCI) received the following Lawler, Metusky & Skelly Engineers samples on January 27, 2001:

LMS #	<u>HCI #</u>	Type	Analysis
LMW-2 unfiltered	AB22967	Aqueous	TAL-METALS (200.7), HG (245.1), CHLORIDE (EPA 325)
LMW-2 filtered	AB22968	Aqueous	TAL-METALS (200.7), HG (245.1)
PC-1 unfiltered	AB22969	Aqueous	TAL-METALS (200.7), HG (245.1), CHLORIDE (EPA 325)
PC-1 filtered	AB22970	Aqueous	TAL-METALS (200.7), HG (245.1)

Following method 200.7, the ICP samples are concentrated during the digestion step from 100 ml to 50 ml. This concentration procedure is evident on the result page by the dilution factor of 0.5, which corrects the result for the concentration step.

Problems associated with these analyses are as follows:

Metals For batch 3168 (Aqueous):

The serial dilution sample did not meet the QC criteria for Sodium.

The MS and MSD fell outside the QC limit for the following elements:

Calcium	<b>MS-66%</b>	<b>MSD-54%</b>
Iron	<b>MS-70%</b>	MSD-67%
Manganese**	MS-54%	MSD-33%

\*\* The sample concentration of Manganese exceeded the spike amount added by a factor of four, therefore the spike recovery criteria does not apply.

The poor spike recovery for Calcium and Iron may be related to matrix interference, since the LSC and LCSD recoveries for those elements were within the QC limits.

Wet Chemistry

There were no problems associated with this analysis.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Stan Gilewicz, Laboratory Director

2/23/01

UNY JUL # 0170 - WY DY " VIATION.

Veritech, 175 Route 46 West, Fairfield, NJ 07004 A Division of HAMPTON-CLARKE, INC. NJDEPE # 14622

CHAIN OF CUSTODY RECORD

PHONE (800) 426-9992 FAX (973) 439-1458

CUST	OMER INFORMATION				INFORM				PROJECT I	NFORMATION
CUSTOMER: / ADDRESS: A TELEPHONE / FAX: PROJECT: PROJECT MANAG PROJECT LOCATI STATE: PO NUMBER:	AWLER MANISKY & SKell Burg Will Plage Poort Ru (5) 735 - 8300 (5) 735 - 7466 JS DOT JS DOT JS DOT JS COT ON: HOLLSON LUN Hill W JY K	SEND		SAM	RIA H E ARIA I Same	HEING		(CONFIRM I ST/ RU 24 44 77	NAROUND RUSH TAT'S WITH LAB) ARDARD SH 4 HOURS 100% 8 HOURS 75% 2 HOURS 50% 1 WEEK 25% 0 DAYS 10%	DELIVERABLES (PLEASE CHECK BOX) STANDARD FULL WASTE BUST NJ REDUCED EXCEL HAZSITE CUSTOM ELECTRONIC DELIVERABLE OTHER (SPECIFY)
			A	NALYT	ICAL RE	QUE	STS			•
LAB SAMPLE NUMBER (LAB USE ONLY)	SAMPLE IDENTIFICATION	METHANOL BOTTLE #	DATE COLLECTED	TIME	COMPOSITE(C) COMPOSITE(C) Read (G) Read (G	Hand Emili	No. of Bottles		A	NALYSIS
AB22967	Lmw-2	/	1/23/01	1445		1			LMETTALS	- TOTAL
22968		/	1	1	11		1			- Dissolved *
22967	$\checkmark$		V	V	in		1		iloride	
22969	PC-1		1/23/01	1545	1945	1		· · · · · · · · · · · · · · · · · · ·	L METALS	
22970								TI	te Metals	- Dissolved *
22969			V	V	VV				Phenride	
	Temp Blank	-		-	-					
	-									
		×							$\rightarrow$	$\leq$
								N		
	RTIFIES THAT EACH SAMPLE REG					_	-			(INITIALS)
		SKIN IRRITA		1	NON-HAZARD		UNKNOW		NOXIOUS FU	
SPECIAL INSTRUCTION	NS: To be filtered, +,	preser	ved i	n	Lab				TEMPERATU	RE UPON RECEIPT:
RELINQUISH AGENT OF:	ED BY: Chreiter	r			DATE/TIM	E 0/	RECEIVED BY: AGENT OF:	+/23/4	H trate	DATE/TIME
RELINQUISH AGENT OF:	ED BY:				DATE / TIM		RECEIVED BY: AGENT OF:			DATE / TIME
			1000			1.00				

	CONDITION UPON	RECEIPT FORM			Verite	ech
	Date Received: Client: Veritech Project #	1/23/01 LAWIER MAtusky	Filed By: Project/Account:	F.I) NYSD	оТ	
	YES NO			]	NITIAL CO	NDITIONS
		Is there a corresponding Chain Are the samples in a container	-	*	?	
]		Are the custody seals intact? IF NO, please circle one		missing	broken	N.A.
18	2.6 °C [4]	Please specify the temperature	•			
	YES NO			SA	MPLE INFO	RMATION
	[5]	Are the samples properly refrig				
	[6]	Are the samples within holding If NO, list parameters an		ers listed on the	COC?	
	[7]	Are all of the sample bottles int broken: leaking:				
	[8]	Are all of the sample labels or	numbers legible? If NO			
	[9]	Do the contents of the containe	r match the COC? If N	NO, specify:		
	[10]	Is there enough sample sent for	the analyses listed on t	the COC? If N	O, specify:	
	[11]	Are the samples preserved corr	ectly (see Preservation	Form for actua	l pH readings	)?
	[12]	Are all soil VO(NJ) samples pr (8g - 12g) and accompanied by	1 110	thanol with the		-
	•			··· ··· ··· · · · · · · · · · · · · ·		
-		S			8	OTHER
1	[13]					
1	NO. ACI	ION			RRECTIVE	ACTIONS

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v • [•••]•.

# veritech laboratories

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# PRESERVATION DOCUMENTATION

Date Received

Client

Veritech Project #

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sauler	MATUSKY

Filed By	41	
Project	NYS DOT	
	2	

SAMPLE ID:	CONTAINER SIZE	CONTAINER TYPE (PG)	PARAMETER	PRESERVATIVE	рĦ
Low-2	12	P	Metal	HNOZ	1
PC-1	IL	P	Metal METAL	HMO3 HMO3	1
					e
		~			
-					
inene State					
and a second and a s					

AQCDOC\preserve.doc

00023

AIN OF CUSTODY RECORD - REFRIGERATC ... 2

Client ID: LAW LER M.S

Location: H-2

COMMENTS

				REMOVED:				RETURNED:	
TEST	SAMPLE NO.	DATE	TIME	SIGNATURE	ALTERNATE	DATE	TIME	SIGNATURE	ALTERNATE
DWI-HG-1	22407-70	125/01	1030	RN	Rec	1/25/01	1105	Ru	New
C1	22967,69	1/25/01	140	No		1/25/01	1700	18	
						· · · · ·			
					<del></del>				
	·			·	••••••••••••••••••••••••••••••••••••••				
	•								

AB22967-70

\QAQC\NEWICOC2.DOC

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Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB22967 Client ID: LMW-2 unfiltered Dilution: 0.5 % Solid: 0

# Concentration Units: ug/L

Cas No.	Analyte		MDL	Concentr	ation M
7429905	Aluminum	-	28	1800	
7440360	Antimony	1	1.1		IP
7440382	Arsenic	i i	3.5	U	IP
7440393	Barium	i	8.7	200	IP
7440417	Beryllium	i	1.1	U U	P
7440702	Calcium	i	350	96000	IP
7440473	Chromium	i	5.7	I U	I P
7440484	Cobalt	Í.	1.7	I U	I P
7440508	Copper	1	5.9	I U	P
7439896	Iron	1	33	3200	P
7439954	Magnesium	1	40	36000	P
7439965	Manganese	1	2.6	1500	P
7440020	Nickel	i.	3.3	1 13	IP
7782492	Selenium	1	4.3	U	P
7440224	Silver	1	2.8	U I	P
7440280	Thallium	E.	3.0	U	P
7440622	Vanadium	1	1.7	8.3	P
7440666	Zinc	1	6.9	8.7	IP

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

## FORM I - IN ILM02.0

1 x 11

Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 01/30/2001 Lab Sample ID: AB22967 Client ID: LMW-2 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte		MDL	Con	centration	n MI
7440439	Cadmium	I.	1.3	i	U	IP I
7439921	Lead		2.0	i i	U	P
1						-

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

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INORGANIC ANALYSIS DATA SHEET

Lab Name: Veritech

Data File Name: A3168Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 1/26/01 Lab Sample ID: AB22967 Client ID: LMW-2 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
	-			11
7440235	Sodium	67	43000	P
17440097	Potassium	36	6400	P
				-

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

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Lab Name: Veritech

Data File Name: H3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 01/26/2001 Lab Sample ID: AB22967 Client ID: LMW-2 unfiltered Dilution: 1 % Solid: 0

Concentration Units: Ug/L

Cas No.	-		Concentration	
7439976	Mercury	0.21	U	CV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

236323082 6<sup>15</sup>26<sup>45</sup>26 29<sub>26529</sub>88

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB22968 Client ID: LMW-2 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Concent	tration	M
		-				
17429905	Aluminum	1	28		U	P
17440360	Antimony	1	1.1	1	U	P
17440382	Arsenic	1	3.5	1	U	P
17440393	Barium	1	8.7	190		P
7440417	Beryllium	1	1.1	1	U	P
17440702	Calcium	1	350	1100000		P
17440473	Chromium	1	5.7	1	U	P
7440484	Cobalt	i –	1.7	1	U	P
7440508	Copper	1	5.9	1	U	P
17439896	Iron	1	33	1	U	P
7439954	Magnesium	1	40	39000		P
7439965	Manganese	i	2.6	2000		P
17440020	Nickel	1	3.3	1 17		P
17782492	Selenium	i	4.3		U	P
17440224	Silver	i	2.8	i i	U	IP
17440280	Thallium	i i	3.0	Í -	U	I P
7440622	Vanadium	1	1.7	1 2.	.9	I P
17440666	Zinc	i	6.9	i i	U	I P

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

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1

Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 01/30/2001 Lab Sample ID: AB22968 Client ID: LMW-2 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
7440439	Cadmium	1.3	U	P
7439921	Lead	2.0	U	P
1				-

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0



1

Lab Name: Veritech

Data File Name: A3168Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 1/26/01 Lab Sample ID: AB22968 Client ID: LMW-2 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Concentration	M
7440235	  Sodium		67	50000	  P
7440097	Potassium	I	36	6200	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

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# INORGANIC ANALYSIS DATA SHEET

Lab Name: Veritech

Data File Name: H3168A

Lab Sample ID: AB22968

Dilution: 1 % Solid: 0

Lab Code: 14622

Analysis Date: 01/26/2001

Client ID: LMW-2 filtered

Matrix: Water

Level: low/med Batch: 3168

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M
7439976	Mercury	0.21	U	CV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

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Concentration Units: ug/L

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168

Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB22969 Client ID: PC-1 unfiltered Dilution: 0.5 % Solid: 0

Cas No.	Analyte	MDL	Concentration	M
7429905	Aluminum	28	9400	P_
7440360	Antimony	1.1	I U	P
7440382	Arsenic	3.5	I U	P
7440393	Barium	8.7	130	P
7440417	Beryllium	1.1	I U	P
7440702	Calcium	350	49000	P
7440473	Chromium	5.7	20	P
7440484	Cobalt	1.7	3.5	P
7440508	Copper	5.9	18	P
7439896	Iron	33	17000	P
7439954	Magnesium	40	12000	P
7439965	Manganese	2.6	540	P
7440020	Nickel	3.3	1 12	IP
7782492	Selenium	4.3	U	P
7440224	Silver	2.8	U	P
7440280	Thallium	3.0	U	P
7440622	Vanadium	1.7	36	P
7440666	Zinc	6.9	39	IP

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

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Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 01/30/2001 Lab Sample ID: AB22969 Client ID: PC-1 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Cc	oncentration	n MI
17440439	Cadmium	1	1.3	E E	U	P
17439921	Lead	1	2.0	1	5.9	P
1						_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

Lab Name: Veritech

Data File Name: A3168Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 1/26/01 Lab Sample ID: AB22969 Client ID: PC-1 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	IM I
	-			
7440235	Sodium	67	47000	IP
7440097	Potassium	36	6800	P
1				-1

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILMO2.0

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Lab Name: Veritech

Data File Name: H3168A

Lab Code: 14622

Matrix: Water

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Level: low/med Batch: 3168 Analysis Date: 01/26/2001 Lab Sample ID: AB22969 Client ID: PC-1 unfiltered Dilution: 1 % Solid: 0

### Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M
•				
17439976	Mercury	0.21	U	CVI

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

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Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB22970 Client ID: PC-1 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
7429905	Aluminum	28	U	P
7440360	Antimony	1.1	U U	P
7440382	Arsenic	3.5	U	P
7440393	Barium	8.7	42	P
7440417	Beryllium	1.1	U	P
7440702	Calcium	350	51000	P
7440473	Chromium	5.7	I U	P
7440484	Cobalt	1.7	U	P
7440508	Copper	5.9	U	P
7439896	Iron	33	U U	P
7439954	Magnesium	40	8900	P
7439965	Manganese	2.6	7.6	IP
7440020	Nickel	3.3	I U	P
7782492	Selenium	4.3	I U	P
7440224	Silver	2.8	U U	P
7440280	Thallium	3.0	U U	P
7440622	Vanadium	1.7	U U	P
7440666	Zinc	6.9	υ	IP

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

#### FORM I - IN ILM02.0

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Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168

Analysis Date: 01/30/2001 Lab Sample ID: AB22970 Client ID: PC-1 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
  7440439  7439921	Cadmium Lead	1.3 2.0	 ו ט ו ט	P_    P_

U - Indicates compound not found above detection/reporting limit \* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Data File Name: A3168Z Analysis Date: 1/26/01 Lab Sample ID: AB22970 Client ID: PC-1 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
17440235	Sodium	67	57000	-    P
7440097	Potassium	36	4300	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0



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#### INORGANIC ANALYSIS DATA SHEET

1

Lab Name: Veritech

Data File Name: H3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3168 Analysis Date: 01/26/2001 Lab Sample ID: AB22970 Client ID: PC-1 filtered Dilution: 1 % Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M I
•				11
17439976	Mercury	0.21	U U	CVI
1				1

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

Lab #: AB22967 Sample ID: LMW			Sample Mat	_	Aqueous
Test Group Name:	-2 unfiltered Chloride EPA 325		Date Receiv		l/23/01 te Prepared:
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
Chioride	32	mg/l	1.8	1	1/25/01
Lab #: AB22969			Sample Mat	nx:	Aqueous
Sample ID: PC-1	unfiltered		Date Receive	ed:  1	/23/01
Test Group Name:	Chioride EPA 325			Dat	e Prepared:
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
	30		1.8		1/25/01

b Name: Veritech

Data File Name: W3169B

#### Analysis Date: 02/01/2001

Batch: 3168

1 Concentration Units in PPM except Mercury in PPB

Linalyte	MB 3168 (	5)   ICB M-01-	•	CCB	I CCB	CCB	I CCB	CCB	11	M
Lundaum	10.0580000	110 1160000	1160000					=   =======		=[
Intimony	10.0032550	UI0.0065100	110 0065100	UIO 0065100	UIU.1160000	010.1160000	U 0.1160000 U 0.0065100	010.1160000	UII	PI
Arsenic	10.0036150	U10.0072300	UI0.0072300	UI0.0072300	UI0 0072300	UI0.0065100	UI0.0072300	010.0065100	OII	PI
Barium	10.0228000	U 0.0456000	UI0.0456000	UI0.0456000	UI0.0456000	UIO 0456000	U 0.0456000	010.0072300	VII	21
eryllium	10.0024600	U10.0049200	U 0.0049200	UI0.0049200	UI0.0049200	UI0.0049200	U 0.0049200	110 0049200	111	21
alcium	10.3790000	010.7580000	0.7580000	U0.7580000	UI0.7580000	UI0.7580000	UI0.7580000	110.7580000	TTLE	DI
Tchrondum	0.0157500	U 0.0315000	U 0.0315000	U 0.0315000	U 0.0315000	UI0.0315000	UI0.0315000	010.0315000	TTLE	DI
Cobalt	0.0046050	010.0092100	U 0.0092100	U 0.0092100	UI0.0092100	UI0.0092100	UI0.0092100	0092100	TTLE	DI
Copper	10.0199000	U 0.0398000	U 0.0398000	U 0.0398000	U 0.0398000	UI0.0398000	UI0.0398000	010.0398000	TTEE	DI
ron	10.0880000	010.1760000	U 0.1760000	U 0.1760000	UI0.1760000	UI0.1760000	UI0.1760000	UID. 1760000	TTLL	DI
agnesium	10.2575000	010.5150000	0 0.5150000	010.5150000	U 0.5150000	U 0.5150000	U 0.5150000	0 . 5150000	011	PI
Nickel	10.0117500	010.0235000	010.0235000	010.0235000	U 0.0235000	U 0.0235000	U 0.0235000	U 0.0235000	011	P
LSelenium	10.0191000	UI0.0302000	010.0302000	010.0302000	010.0302000	010.0302000	U 0.0302000	0.0302000	0 11	₽[
Hilver	10.0196500	10.0393000	010.0393000	010.0393000	010.0393000	010.0393000	UI0.0393000	U 0.0393000	<b>DI</b>	₽I
hallin	10.0031200	110 0062400	110 0062400	UI0.0103000	010.0103000	010.0103000	U 0.0103000	010.0103000	0111	PI
Vanadium	10.0042700	UI0.0085400	UI0.0085400	110 0085400	110 0085400	010.0062400	U10.0062400 U10.0085400 U	010.0062400	0111	<b>P</b> ]
Zinc	10.0200500	U10.0401000	UI0.0401000	UI0.0401000	UI0.0401000	TILO 0401000	U 0.0401000 1	10.0085400	VIII	21
						+1010401000	01010401000	10.0401000	0111	<b>r</b> (

FORM III - IN IIMO2.0

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> Name: Veritech
> Code: 14622

Data File Name: A3168A

#### Analysis Date: 01/30/2001

Batch: 3168

1 Concentration Units in PPM except Mercury in PPB

Analyte	MB 3168(.5)   ICB M-01-BL   CCB	CCB	I CCB	1		1	M
-							
admium	0.0014000 U10.0028000 U10.00280	0 010.00280	00 010.00280	00 01	I	1	1121
ead	10.0034350 010.0068700 010.006870	0 010.00687	00 010.00687	00 01	I.	1	P

FORM III - IN ILMO2.0

b Name: Veritech Data File Name: A3168Z

# b Code: 14622 Analysis Date: 1/26/01

Batch: 3168

1 Concentration Units in PPM except Mercury in PPB

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Analyte	MB 3168(.5)   ICB M-00-BL CCB	I CCB	1	1	1	1 11	M
Potassium	0.0530000 U0.1060000 U0.1060000	U 0.1060000	=   ==================================	:   ::::::::::::::::::::::::::::::::::			=
	10.1305000 U10.2610000 U10.2610000			Í.	1	1 11	P

FORM III - IN ILMO2.0

Lab Name: Veritech

Code: 14622

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Data File Hame: H3168A Analysis Date: 01/26/2001

### Batch: 3168

All Concentration Units in PPM except Mercury in PPB

lyte	110 3160	ICB	ICCB	ICCB	1	1	· · · · · · · · · · · · · · · · · · ·	1   36
1								
Mercury	10.2100000	U[0.21000	00 U 0.210000	0 U 0.2100000 U	I.	1	1	1101

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- IN IIM02.0

101.001 101.001 101.001 Lab Name: Veritech

Lab Code: 14622

ICP sample ID: 22967

Data File Name: W3169B

Analysis Date: 02/02/2001

Batch: 3168

All Concentration Units in PPM except Mercury in PPB

							_		
	Amt		1	22967	22967 MS 1	22967 MS 2	2		
Analyte	Added	QC Limits	1	Non Spike	Matrix Spike 1	Matrix Spike 2	2	Rec1	Rec2
_================	======		=		==================	======================================	===	====	====  M
luminum	5.000	70 - 130	1	3.5627281	7.6050665	7.5519619	1	81	80   P
ntimony	10.50001	70 - 130		0.0065100 U	0.4335749	0.4404347		87	88   P
Arsenic	10.50001	70 - 130	1	0.0072300 U	0.4432456	0.4483825	1	89	90   P
Barium	0.5000	70 - 130	1	0.4002481	0.8265599	0.8109242		85	82   P
eryllium	0.5000	70 - 130	1	0.0049200 U	0.4430757	0.4479084	1	89	90   P
alcium	50.000	70 - 130	1	191.1574630	223.9604040	218.0430740	1	66*1	54*  P
Chromium	0.5000	70 - 130	1	0.0315000 U	0.4473059	0.4516922	1	89	90   P
bobalt	0.5000	70 - 130	1	0.0092100 U	0.4467946	0.4438759	1	89	89   P
opper	10.50001	70 - 130	1	0.0398000 U	0.4212335	0.4262409	1	84	85   P
iron	5.0001	70 - 130	1	6.4200789	9.8965018	9.7494214	1	70*	67*  P
Magnesium	50.000	70 - 130	1	71.4235793	111.4139240	109.3934990	1	80	76   P
anganese	10.50001	70 - 130	1	2.9524286	3.2213938	3.1183964	1	54*1	33*  P
ickel	10.50001	70 - 130	1	0.0302000 U	0.4563107	0.4588479	1	91	92   P
Selenium	0.5000	70 - 130	1	0.0393000 U	0.4368480	0.4412744	1	87	88   P
Silver	10.50001	70 - 130	1	0.0103000 U	0.4001646	0.4210338	1	80	84   P
hallium	[0.5000]	70 - 130	1	0.0062400 U	0.4034277	0.4006229	1	81	80   P
anadium	10.50001	70 - 130	1	0.0165977	0.4382653	0.4420993	1	84	85   P
Zinc	10.50001	70 - 130	1	0.0401000 U	0.4556963	0.4479984	1	91	90   P

\* - Indicates the analyte failed the control limit criteria - Indicates the analyte was not detected

15.5

5 Spike Sample Recovery

Lab Name:VeritechData File Name: A3168ALab Code:14622Analysis Date:01/30/2001ICP sample ID:22967Batch:3168

All Concentration Units in PPM except Mercury in PPB

Analyte	Amt Added	  QC Limits		22967 Non Spike		967 MS Spike	   22967 MS 2  Matrix Spike 2			Re	211
	======	============	=		=======		   =============	= :		====	==  M
		70 - 130		0.0028000 U		1237865	0.4279827				
ead	10.5000	70 - 130	1	0.0068700 U	0.4	1325882	0.4371244	1	81	8	7   P

Indicates the analyte failed the control limit criteria
U - Indicates the analyte was not detected

5 Spike Sample Recovery

le Name: A	A3168Z
Date: 1/	/26/01
68	
	le Name: 1 Date: 1, 68

All Concentration Units in PPM except Mercury in PPB

	Amt		22967	22967 MS 1	22967 MS 2
Analyte	Added	QC Limits	Non Spike	Matrix Spike 1	Matrix Spike 2  Rec1 Rec2
	-   ======		======================	=====================================	====== ====  M
otassium	50.000	70 - 130	12.8140000	55.5940000	55.7520000   86   86   P
odium	50.000	70 - 130	86.4670000	125.8790000	123.0110000   79   73   P

Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

5 Spike Sample Recovery

-	Lab	Name :	Veritech	Data Fil	Le Name: H3168A
i.	Lab	Code:	14622	Analysis	Date: 01/26/2001
	ICP	sample	ID: 22967	Batch:	3168
	<b>A11</b>	Concent	tration Units in PPM except Mercury	in PPB	

	Amt	22967	22967 MS 1   22967 MS 2
	Added   QC Limits		Matrix Spike 1  Matrix Spike 2  Rec1 Rec2
Television			
Mercury	10.0001 70 - 130	0.0308968	9.7771089   10.1498392   97  101   C

- Indicates the analyte failed the control limit criteria - Indicates the analyte was not detected երեր առոհ

Lab Name: Veritech

Lab Code: 14622

ICP sample ID: LCSW

Data File Name: W3169B

Analysis Date: 02/02/2001

Batch: 3168

All Concentration Units in PPM except Mercury in PPB

ł	I	Spike		QC			1	1
Analyte	ł	Amount	I.	Limits	1	Found	Rec	L
==========	- [		=		=		====	11
Aluminum	I	5.000		85-115	I.	5.0027880	100	
Antimony	1	0.5000		85-115	1	0.5043446	101	1
Arsenic	1	0.5000	I.	85-115	1	0.4928017	99	11
Barium	I	0.5000		85-115	1	0.5103808	102	Ð
Beryllium	E	0.5000	1	85-115	1	0.4940350	99	
Calcium	L	50.000		85-115	1	51.4421602	103	L
Chromium	L	0.5000		85-115	1	0.5033843	1101	
Cobalt	I.	0.5000	1	85-115	L.	0.5095008	102	I
Copper	ł	0.5000	ł	85-115	I.	0.4892195	98	I
Iron	I.	5.000		85-115	1	5.0437473	101	I
Magnesium	I.	50.000		85-115	ł	50.8392106	102	ł
Manganese	I.	0.5000		85-115	1	0.4986404	1100	1
Nickel	ł	0.5000		85-115	1	0.5076238	102	L
Selenium	L	0.5000	E.	85-115	1	0.4929750	99	I
Silver	I.	0.5000		85-115	1	0.4927776	1 99 1	1
Thallium	I.	0.5000		85-115	1	0.5032767	101	ł
Vanadium	L	0.5000		85-115	1	0.4854088	97	I
Zinc	I	0.5000	I.	85-115	ŀ	0.4942603	99	I
	,							

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

Lab Name: Veritech Lab Code: 14622 Data File Name: A3168A

Analysis Date: 01/30/2001

ICP sample ID: LCSW

Batch: 3168

All Concentration Units in PPM except Mercury in PPB

Sp	pike	1	QC	1		1	
An	nount	1	Limits	1	Found	1	Rec
====		====		===   ===		==   :	====  M
0.	5000	1	85-115	1	0.4897794	I	98   P
0.	5000	1	85-115	Í.	0.4963005	1	99   P
	Ar ===== 0.	Spike Amount 	Amount    ========= =====  0.5000	Amount   Limits  ====================================	Amount   Limits   ====================================	Amount         Limits         Found           =======         =======         ======         ======           0.5000         85-115         0.4897794	Amount         Limits         Found                     =======         =======         ======         ======         =====         ====         ====         ====         ====         ====         ====         ====         ===         ===         ===         ===         ===         ===         ===         =         = <t< td=""></t<>

\* - Indicates the analyte failed the control limit criteria

U - Indicates the analyte was not detected

Lab	Name:	Veritech	Data File Name: A3168Z
Lab	Code:	14622	Analysis Date: 1/26/01
ICP	sample	ID: LCSW	Batch: 3168

All Concentration Units in PPM except Mercury in PPB

	1	Spike		QC			1	
Analyte	E	Amount	L	Limits	1	Found		Rec
	: =		====		===   ===		=   :	====     M
Potassium	1	50.000	1	85-115	1	47.0610000	Ì.	94   P
Sodium	1	50.000	1	85-115	1	48.1880000	1	96     P

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

Lab Name: Veritech Lab Code: 14622

Data File Name: H3168A

Analysis Date: 01/26/2001

ICP sample ID: LCSW

à

Batch: 3168

All Concentration Units in PPM except Mercury in PPB

1	1	Spike	1	QC	1		1		
Analyte	1	Amount	1	Limits	1	Found	IE	Rec	
	=		-				-		M
Mercury	L	10.000	1	85-115	1	10.0540243	110	)1	CI

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

\$

# **INORGANIC METHOD BLANK SUMMARY**

Blank Matrix: Water Units: mg/L

Analyte	Practical Quant Limit	Batch Number	Method Blank Result	
Chloride	1.0	080w	ND	

# **INORGANIC SPIKE SAMPLE RECOVERY**

# Sample No.: AB22462 MS

Sample Matrix: Water Units: mg/L

% Solids for Sample: NA

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	С	Added (SA)	%R	Q	М
Chloride	75-125	97.5		52.3	U	50	90		
TCN	75-125								
Phenols	75-125								
RCN	75-125								
RS	75-125								
Hex-Cr	75-125								
						n			

Comments: \_\_\_\_

## VERITECH

# **INORGANIC SPIKE SAMPLE RECOVERY**

# Sample No.: AB22462 MSD

Sample Matrix: Water Units: mg/L

% Solids for Sample: NA

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	С	Added (SA)	%R	Q	N
Chloride	75-125	98.4		52.3	U	50	92		
TCN	75-125								T
Phenols	75-125								
RCN	75-125								
RS	75-125								
Hex-Cr	75-125	1							
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1									
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									-
An									-
			1						
								-	

Comments: \_\_\_\_

Hampton-Clarke, Inc. veritech laboratories

175 Route 46 West, Unit D Fairfield, NJ 07004 (973) 244-9770 Federal ID: 222679402

# Lawler, Metusky & Skelly Engineers

# Format: NYDOH-CatA

Project: Harrison LF PO Number:

Samples submitted on: 1/23/01

AB22949 AB22950 AB22951 AB22952

> Environmental Chemistry Section

> > FEB 2 1 2001

Date: 2/9/01 HCI Project: 01231639

CT #: PH-0671 MA #: NJ386 NJ #: 14622 NY #: 11408 PA #: 68-463

Amended 2/23/01

Project: NYSDOT Harrison LF Job: 446-156

Hampton-Clarke, Inc. (HCI) received the following Lawler, Metusky & Skelly Engineers samples on January 23, 2001:

<u>LMS #</u>	<u>HCI #</u>	Type	Analysis
PC-3 unfiltered	AB22949	Aqueous	TAL-METALS (200.7), HG (245.1) CHLORIDE (EPA 325)
PC-3 filtered	AB22950	Aqueous	TAL-METALS (200.7), HG (245.1)
PC-4 unfiltered	AB22951	Aqueous	TAL-METALS (200.7), HG (245.1) CHLORIDE (EPA 325)
PC-4 filtered	AB22952	Aqueous	TAL-METALS (200.7), HG (245.1)

Following method 200.7, the ICP samples are concentrated during the digestion step from 100 ml to 50 ml. This concentration procedure is evident on the result page by the dilution factor of 0.5, which corrects the results for the concentration step.

Problems associated with these analyses are as follows:

#### **Metals**

For batch 3166 (Aqueous):

The serial dilution sample did not meet the QC criteria for Beryllium.

The MS fell outside the QC limit for Calcium and Iron with recoveries of 148 and 134%. The LCS and LCSD had recoveries that were within the QC limit indicating that the digestion was performed properly, and that the poor recovery for the two elements may be matrix related.

#### Wet Chemistry

There were no problems associated with this analysis.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Stan Gilewicz, Laboratory Director

2/23/01 Date

Environmental Chemistry Section

FEB 2 6 2001

Project: Harrison LF Job:

Hampton-Clarke, Inc. (HCI) received the following Lawler, Metusky & Skelly Engineers samples on January 23, 2001:

LMS #	<u>HCI #</u>	Type	Analysis
PC-3 unfiltered	AB22949	Aqueous	TAL-METALS (6010), CHLORIDE (EPA 325)
PC-3 filtered	AB22950	Aqueous	TAL-METALS (6010)
PC-4 unfiltered	AB22951	Aqueous	TAL-METALS (6010), CHLORIDE (EPA 325)
PC-4 filtered	AB22952	Aqueous	TAL-METALS (6010)

All metals sample results have been reported to the MDL, as requested by the client, to achieve the detection limits as listed in the ASP Standards. The Method blanks and continuing calibration blanks are based upon the PQL criteria.

Problems associated with these analyses are as follows:

Metals For batch 3166 (Aqueous):

The serial dilution sample did not meet the QC criteria for Beryllium.

The MS fell outside the QC limit for Calcium and Iron with recoveries of 148 and 134%. The LCS and LCSD had recoveries that were within the QC limit indicating that the digestion was performed properly, and that the poor recovery for the two elements may be matrix related.

#### Wet Chemistry

There were no problems associated with this analysis.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Ian Aleurin

Stan Gilewicz, Laboratory Director

2/20/01

Date

	WE PIVER NU 10965		REPORT	PORT TO: MA					z				NFORMATION DELIVERABLES (PLEASE CHECK BOX) STANDARD TULL
PROJECT: 144	35-8302, 845-1783-24 CRISCALLEF 446-156 SER: T. SCHNEIDER ON: HOLMISON LONGfill UNIT		INVOICE	то: <u>И</u> А	eia	H	EIN	<u>cz</u>	-			□ RUSH         □ 24 HOURS 100%         □ 48 HOURS 75%         □ 72 HOURS 50%         □ 1 WEEK 25%         □ 10 DAYS 10%	WASTE     BUST       NJ REDUCED     EXCEL       HAZSITE     CUSTO       ELECTRONIC DELIVERABL       OTHER (SPECIFY)
			Al	NALYT			EQL	EST	S				· · · · · · · · · · · · · · · · · · ·
AB SAMPLE NUMBER (LAB USE ONLY)	SAMPLE IDENTIFICATION	METHANOL BOTTLE #	DATE COLLECTED	TIME	COMPOSITE(C)		1000	11	HOUR HOUR	1.11			NALYSIS
AB22949	PC-3		10mp	1420	V	1GW		1				TAL METALS	- TOTAL
22950	•		1		V	11				1			- Dissolved *
22949			V	¥	. /	1	1			1		Chloride	
22951	PC-4		1 proto	1445	V	Gin		1				TALMETALS	-TOTAL
22952			1	t	V	11				1		TALMETALS	- Dissolved X
22951			J	V	1	N				1		chloride	
11	TEHP BLANK					·							
			-	-					1	+	1		/
						>	$\downarrow$	1				$\rightarrow$	$\langle$
			1		T							/	
SAMPLER CE	RTIFIES THAT EACH SAMPLE RE	CEIVED PRO	PER FIEL	D PRESE	RVA	TION	<b>V</b> (1)	REQ	UIRED)				(INITIALS)
		SKIN IRRITA		N	ON-H	AZAR	10		UN	KNOWN	M	NOXIOUS FL	

CONDITION UPON RECEIPT F	ORM	Veritec
Date Received: 1/27/61 Client:	Filed By:	FN
Veritech Project #	MATURY + Skelly Project/Account:	HARRison LF L
YES NO		INITIAL COM
[1] Is there a co	rresponding Chain of Custody included w	INITIAL COND
[2] Are the sam	ples in a container such as a cooler or ice	chest?
[3] Are the custo	ody seals intact?	-
	, please circle one of the following: y the temperature inside the container.	missing broken
YES NO		SAMPLE INFORM
[5] Are the samp	les properly refrigerated (where required)	, have they arrived on ice?
[0] Are the samp	les within holding times for the parameter list parameters and associated samples:	s listed on the COC?
[7] Are all of the	sample bottles intact? If NO, specify sam	
broken: leaking:		ipie numbers below:
	sample labels or numbers legible? If NO,	specify:
[9] Do the content	s of the container match the COC? If NO	), specify:
[10] Is there enough	a sample sent for the analyses listed on the	COC? If NO, specify:
[11] Are the sample	s preserved correctly (see Preservation Fo	orm for actual pH readings)?
[12] Are all soil VO	(NJ) samples properly preserved in metha	anol with the correct soil weights
[13] Specify:		ΟΤΙ
	· · · · · · · · · · · · · · · · · · ·	
NO. ACTION		CODDECTIVE
		CORRECTIVE ACTION

-

L					•	veritech labo	Into
1		PRE	SERVATION	DOCUMEN	FATTO		alu
j	Date Received	1/2/			LA 110	<b>N</b> .	
-	Client	123/01		File	d By	TN	
	Veritech Project	# - Awher M	attskytsk	elly Proj	ect	F.J	
			A	ing .	-	HARRison )F	446
	SAMPLE ID:	CONTAINER	CONTRACT				
ł	2	SIZE	CONTAINE TYPE (PG	R PARAM	ETER	PRESERVATIVE	
+	703	11	D				<b>p</b> ]
1	PCU	11	-Z-	metal	5	Hrroz	1
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TECT		DATE	TIME	SIGNATURE	ALTERNATE	DATE	TIME	SIGNATURE	ALTERNATE
TEST	SAMPLE No.	DATE		m		1		1	ALIENNAIL
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# Veritech

#### **METHOD REFERENCES**

Test Methods for Evaluating Solid Waste, SW-846, **Third Edition** Chloride: Method 9253. Cyanide: Method 9010B/9014. Dioxins/Furans: Method 8290. Flashpoint: Method 1010. Fingerprint (GC): Methods (3510C or 3550B)/8015 modified. Hexavalent Chromium: Second and Third Editions, Methods 3060 and 7196A. Ignitability: Method 1030. Metals: Methods (3005A or 3050B)/6010B, (7470A or 7471A) (Hg). PCB's: Methods (3510C or 3550B)/8082. PCB's (Oils): Methods 3580A/8082. Pesticides: Methods (3510C or 3550B)/8081A. pH (Soils): Method 9045C. Phenolics (Soils): Method 9065. Reactive Cyanide/Sulfide: Chapter Seven, Section 7.3, Reactivity. Semivolatile Organics: Methods (3510C or 3550B)/8270C. Sulfide: Method 9030B/9034. TCLP: Extraction: Method 1311. TCLP Volatile Organics: Method 8260B. TCLP Semivolatile Organics: Methods 3510C/8270C. TCLP Pesticides: Methods 3510C/8081A. TCLP Herbicides: Method 8151A. TCLP Metals: Methods 3005A/6010B and 7470A. TPH: Method 9071A (extraction only)/418.1. TPH Extractables: Methods (3510C or 3550B)/8015 modified. Volatile Organics: Method 8260B. Total Organic Carbon: 9060

Federal Register, 40 CFR Part 136 Volatile Organics: Method 624. Semivolatile Organics: Method 625. Pesticides/PCB's: Method 608.

Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039

Volatile Organics: Method 524.2, Revision 4, 1995.

Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992 Cyanide (Free):, Method 4500-CN-I. Hexavalent Chromium: Method 3500-Cr D. Salinity: Method 2520-B. Solids, Total, Fixed, & Volatile: Method 2540-G.

Methods for the Determination of Metals in Environmental Samples, EPA/600/4-91/010, June 1991 ICP Metals: Method 200.7, Revision 3.3.

GFAA Metals: Method 200.9.

1

Methods for the Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983 Cyanide & Amenable Cyanide: Method 335.2/335.1. Phenols: Method 420.1. Mercury: Method 245.1. pH Hydrogen Ion: Method 150.1/150.2. Temperature, Deg. C: 170.1. TPH (Soils & Waters): Method 418.1 (analysis 418.1 for Soils). Specific Conductance: Method 120.1. Residue, Filterable (TDS): Method 160.1. Residue, Non-Filterable (TSS): Method 160.2. Residue, Total: Method 160.3. Residue, Volatile: Method 160.4. Chloride: Method 325.3. Sulfide (Waters): Method 376.1. Oil & Grease (Total Recoverable): Method 413.1. Oil & Grease: Method 1664. Acidity (as CaCO3): Method 305.1. Alkalinity (as CaCO3): Method 310.1. Ammonia: Method 350.2 Total Organic Carbon: 415.1 American Society for Testing & Materials (ASTM), **June 1991** TOX (Waters & Soils): Method D2361-91.

Hach Chemical Company Handbook Chemical Oxygen Demand (Waters): Method 8000.

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB22949 Client ID: PC-3 unfiltered Dilution: 0.5 % Solid: 0 41

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
	Aluminum	28	31000	P.
7429905				· · · ·
7440360	Antimony	1.1	1 0	P_
7440382	Arsenic	3.5	U U	P_
7440393	Barium	8.7	400	P_
7440417	Beryllium	1.1	I U	P
7440702	Calcium	350	61000	P_
17440473	Chromium	5.7	1 74	
7440484	Cobalt	1.7	40	P_
7440508	Copper	1 5.9	81	P_
17439896	Iron	33	49000	P
7439954	Magnesium	40	29000	P
7439965	Manganese	2.6	1600	P
17440020	Nickel	3.3	86	P
7782492	Selenium	4.3	I U	P
17440224	Silver	2.8	I U	P
7440280	Thallium	3.0	I U	P
7440622	Vanadium	1.7	110	P
7440666	Zinc	6.9	130	P_

U - Indicates compound not found above detection/reporting limit
 \* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

#### FORM I - IN

ILM02.0

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Data File Name: A3166F

Analysis Date: 02/02/2001

Lab Sample ID: AB22949 Client ID: PC-3 unfiltered Dilution: 0.5 % Solid: 0 Ę.

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
7440439	Cadmium	1.3	I U	P
7439921	Lead	2.0	16	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: A3166Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Analysis Date: 1/29/01

Lab Sample ID: AB22949 Client ID: PC-3 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

7440235  Sodium   67   95000	)  P_

U - Indicates compound not found above detection/reporting limit
 \* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

i.

Comments:

Lab Name: Veritech

Data File Name: A3166Y

Lab Code: 14622.

Matrix: Water

Level: low/med Batch: 3166 Analysis Date: 1/30/01 Lab Sample ID: AB22949 Client ID: PC-3 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
7440097		36	9800	
1440097	Potassium	30	1 9800	15

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN I

ILM02.0

Lab Name: Veritech

Data File Name: H3166A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Analysis Date: 01/25/2001 Lab Sample ID: AB22949 Client ID: PC-3 unfiltered Dilution: 1 % Solid: 0 ř

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M I
7439976	Mercury	0.21	-  U	
U - Indicato * - Indicato	es compound es compound	not found above above calibrati	detection/report on range	ing lim

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

1

Lab Name: VeritechData File Name: A3166FLab Code: 14622Analysis Date: 02/02/2001Matrix: WaterLab Sample ID: AB22950<br/>Client ID: PC-3 filteredLevel: low/medDilution: 0.5<br/>% Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Cond	centratio	n M
	-	-				
7440439	Cadmium	1	1.3	1	U	P
7439921	Lead	1	2.0	1	U	P

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

Un

Lab Name: VeritechData File Name: A3166ZLab Code: 14622Analysis Date: 1/29/01Matrix: WaterLab Sample ID: AB22950<br/>Client ID: PC-3 filteredLevel: low/med<br/>Batch: 3166Dilution: 0.5<br/>% Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	I M	DL	Concentration	IM
					11
17440235	Sodium	6	7	99000	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:



1

Lab Name: Veritech

Data File Name: A3166Y

Analysis Date: 1/30/01

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Lab Sample ID: AB22950 Client ID: PC-3 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
	Potassium	36	5600	

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560) CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: VeritechData File Name: H3166ALab Code: 14622Analysis Date: 01/25/2001Matrix: WaterLab Sample ID: AB22950<br/>Client ID: PC-3 filtered<br/>Dilution: 1<br/>% Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M I
7439976	Mercury	0.21	U	
J - Indica	ites compound n	ot found abo	ve detection/report	ing limi
- Indica	ites compound a	bove calibra	tion range	-

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

- 541 - 984 1

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB22951 Client ID: PC-4 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MD	L	Concent	tration	M
7429905	Aluminum	28		19000		P_
7440360	Antimony	1	.1	I	U	P_
7440382	Arsenic	3	.5	1	U	P_
7440393	Barium	1 8	.7	260		P_
7440417	Beryllium	1	.1	1	U	P
7440702	Calcium	1 350		25000		P
7440473	Chromium	1 5	.7	82		P
7440484	Cobalt	1 1	.7	14		P
7440508	Copper	1 5	.9	40		P
7439896	Iron	1 33		28000		P
7439954	Magnesium	40		17000		P
7439965	Manganese	1 2	.6	1 280		P
7440020	Nickel		.3	1 71		P
7782492	Selenium	4	.3		U	P
7440224	Silver	•	.8		U	P
7440280	Thallium		.0		U	P
7440622	Vanadium		.7	61		P
7440666	Zinc		.9	94		P

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

1

Lab Name: Veritech

Lab Code: 14622

Data File Name: A3166F

Analysis Date: 02/02/2001

Matrix: Water

Level: low/med Batch: 3166 Lab Sample ID: AB22951 Client ID: PC-4 unfiltered Dilution: 0.5 % Solid: 0

#### Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Co	ncentrati	on M
7440439	Cadmium	1	1.3	1	U	P
7439921	Lead	1	2.0	- E	20	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

Lab Name: Veritech

Data File Name: A3166Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Analysis Date: 1/29/01 Lab Sample ID: AB22951 Client ID: PC-4 unfiltered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	
17440235	Sodium	67	38000	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: VeritechData File Name: A3166YLab Code: 14622Analysis Date: 1/30/01Matrix: WaterLab Sample ID: AB22951<br/>Client ID: PC-4 unfiltered<br/>Dilution: 0.5<br/>% Solid: 0

Concentration Units: ug/L

Analyte	1		Concentration	M I
  Potassium		36	7400	-    P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:



Lab Name: VeritechData File Name: H3166ALab Code: 14622Analysis Date: 01/25/2001Matrix: WaterLab Sample ID: AB22951<br/>Client ID: PC-4 unfiltered<br/>Dilution: 1<br/>% Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M I
		0.21	0.50	
	mercury	0.21	1 0100	1011

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

#### FORM I - IN ILM02.0

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Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB22952 Client ID: PC-4 filtered Dilution: 0.5 % Solid: 0

MDL Concentration M Cas No. Analyte 1 |-----\_\_\_\_\_| -- | \_\_\_\_ U |P | 28 17429905 Aluminum U |P| 1.1 17440360 Antimony Т 3.5 U 17440382 Arsenic T PI 71 8.7 17440393 Barium U P 1.1 17440417 |Beryllium | IP I 24000 |Calcium 350 17440702 1 IP I 5.7 U 17440473 Chromium IP I U 1.7 7440484 Cobalt |P | U 5.9 Copper 17440508 U P 33 Iron 17439896 8500 |P 40 |Magnesium | 7439954 2.6 27 |P |Manganese | 7439965 6.6 P 3.3 \_1 Nickel 17440020 P | U Selenium 4.3 17782492 U | P\_ 2.8 17440224 Silver U P 3.0 17440280 |Thallium U | P\_\_\_ 1.7 17440622 |Vanadium ł Ł U |P\_| 6.9 17440666 Zinc 1

.Concentration Units: ug/L

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

Lab Name: Veritech

Lab Code: 14622

Data File Name: A3166F

Analysis Date: 02/02/2001

Matrix: Water

Level: low/med Batch: 3166 Lab Sample ID: AB22952 Client ID: PC-4 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
7440439 7439921	  Cadmium  Lead	1.3 2.0	 ע ד ע	

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: A3166Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Analysis Date: 1/29/01 Lab Sample ID: AB22952 Client ID: PC-4 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Concentration	IM
					·
7440235	Sodium	1	67	41000	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: A3166Y

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3166 Analysis Date: 1/30/01 Lab Sample ID: AB22952 Client ID: PC-4 filtered Dilution: 0.5 % Solid: 0

Concentration Units: ug/L

Analyte	MDL	Concentration	
Potassium	36	4000	  P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:



Lab Name: Veritech

Data File Name: H3166A

Lab Code: 14622

Matrix: Water

Level: low/med

Batch: 3166

Analysis Date: 01/25/2001 Lab Sample ID: AB22952 Client ID: PC-4 filtered Dilution: 1 % Solid: 0

#### Concentration Units: Ug/L

Cas No.  Analyte	MDL	Concentration	M
7439976  Mercury	0.21	U U	
 U - Indicates compound	not found above	detection/reporti	 Ing lin

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

#### ILM02.0 FORM I - IN

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Lab #: AB22949	et Chem Form 1 Sur	nmary	Lab #: AB22949 Sample Matrix: Aqueous Date Received: 1/23/01		
Test Group Name: Analyte Chloride	Chioride EPA 325 Concentration 170	Units mg/l	MDL/PQL 1.8	Date DF 1	Date Analyzed
Lab #: AB22951 Sample ID: PC-4	l unfiltered		Sample Mat	_	Aqueous 23/01
Test Group Name:	Chloride EPA 325			Date	Prepared:
Analyte Chloride	Concentration 64	Units mg/l	MDL/PQL 1.8	DF 1	Date Analyzed 1/25/01

Page 1 of 1

3 BLANKS

Lab Name: Veritech

#### Data File Name: W3169B

Analysis Date: 02/01/2001

Tab Code: 14622

#### Batch: 3166

All Concentration Units in PPM except Mercury in PPB

Analyte	ICB M-01-	L CCB	CCB	I CCB	CCB	I CCB	CCB		<b>  M</b>
Aluminum			U 0.1160000						P
Antimony	10.0065100	U 0.0065100	U 0.0065100	010.0065100	U 0.0065100	U 0.0065100	U 0.0065100	01	
Arsenic	10.0072300	U 0.0072300	U 0.0072300	010.0072300	U10.0072300	U 0.0072300	U 0.0072300	U	P
Barium	10.0456000	U10.0456000	U 0.0456000	U	P				
Beryllium	10.0049200	U10.0049200	U 0.0049200	0					
Calcium	10.7580000	U 0.7580000	01	P					
Chromium	10.0315000	UI0.0315000	U 0.0315000	01	112				
Cobalt	10.0092100	U10.0092100	U 0.0092100	01	112				
Copper	10.0398000	U10.0398000	U10.0398000	U 0.0398000	U 0.0398000	U 0.0398000	U10.0398000		1121
Iron	0.1760000	UI0.1760000	U 0.1760000	010.1760000	U 0.1760000	U 0.1760000	U 0.1760000	01	P
Magnesium	10.5150000	U 0.5150000	U 0.5150000	U[0.5150000	U 0.5150000	U 0.5150000	U 0.5150000	0	
Manganese	10.0235000	U10.0235000	U 0.0235000	U					
Nickel	10.0302000	UI0.0302000	U 0.0302000	U 0.0302000	U 0.0302000	U 0.0302000	U10.0302000	<b>a</b> !	
Selenium	10.0393000	U 0.0393000	0						
Silver	10.0103000	UI0.0103000	U 0.0103000	U	IIPI				
Thallium	10.0062400	UI0.0062400	U 0.0062400	U10.0062400	U 0.0062400	U 0.0062400	U 0.0062400	טו	P
Vanadium	10.0085400	U10.0085400	U 0.0085400	טו	IIP				
Zinc	10.0401000	U 0.0401000	U[0.0401000	ח	P				

FORM III - IN

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3 Blanks

Lab Name: Veritech

### Data File Name: A3166E

Analysis Date: 02/01/2001

ab Code: 14622

#### Batch: 3166

All Concentration Units in PPM except Mercury in PPB

Analyte	)B 3166(.5	5)   ICB H-01-	BLICCB	CCB	CCB				(  ) 
Aluminum	0.0580000	TLO. 1160000	U 0.1160000	UI0.1160000	010.1160000	U			
Antimony			U 0.0065100				i	i i	111
Arsenic			U 0.0072300				1	i i	111
Barium			U0.0456000				1	1	111
Beryllium			U10.0049200				ł	1	111
Cadmium			010.0028000				I	1	111
Calcium			U0.7580000				I I	1	111
Chromium	10.0157500	U0.0315000	U 0.0315000	U 0.0315000	U 0.0315000	טו	1	1	11
Cobalt			U 0.0092100				1	1	11
Copper	0.0199000	U10.0398000	U10.0398000	U 0.0398000	U10.0398000	ΔI	1	1	11
Iron	10.0880000	010.1760000	U 0.1760000	U 0.1760000	U 0.1760000	01	1	1	EI.
Load	0.0034350	010.0068700	U10.0068700	U 0.0068700	010.0068700	U	1	1	E E
Magnesium	0.2575000	U 0.5150000	U 0.5150000	U 0.5150000	U 0.5150000	וס	1	L	11
langanese	0.0117500	U10.0235000	U 0.0235000	U 0.0235000	U 0.0235000	טו	1	1	11
Nickel	10.0151000	U10.0302000	U 0.0302000	U 0.0302000	U 0.0302000	סו	1	1	11
Selenium	10.0196500	U10.0393000	U10.0393000	U 0.0393000	U 0.0393000	U	ł	1	11
Silver			U 0.0103000				1	1	11
Thallium			U 0.0062400				I	1	11
Vanadium			U 0.0085400						11
Zinc	10.0200500	U 0.0401000	U 0.0401000	U 0.0401000	U[0.0401000	וס	1	1	

FORM III - IN

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3 BLANKS

Lab Name: Veritech

#### Data File Name: A3166F

Analysis Date: 02/02/2001

Lab Code: 14622

Batch: 3166

All Concentration Units in PPM except Mercury in PPB

Analyte	ICB M-01-BL CCB	1	1	l	1	1 · · · · · · · · · · · · · · · · · · ·
Cadmium	10.0028000 U10.0028000 U				( saladi saladi sa	
Lead	10.0068700 U 0.0068700 U			8	ł	
			<b>1</b>		1	1 1141

FORM III - IN ILMO2.0

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3 BLANKS

ab Name: Veritech

Data File Name: A3166Z

Analysis Date: 1/29/01

Lab Code: 14622

1

Batch: 3166

All Concentration Units in PPM except Mercury in PPB

Applyte	MB 3166(.5)  ICB M-00-BL CCB  CCB		
Sodium	0.1305000 00.2610000 00.2610000 00.2610000 00	1 1	₽

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3 Blanks

lab Name: Veritech

Data File Name: A3166Y

Analysis Date: 1/30/01

Lab Code: 14622

Batch: 3166

All Concentration Units in PPM except Mercury in PPB .

Analyte  MB 3166(.5) ICB M-00-BL CCB	CCB	1		I INI
Potassium  0.0530000 U 0.1060000 U 0.1060000 U	0.1060000 U	I I		2

FORM III - IN IIM02.0

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3 BLANKS

Lab Name: Veritech

Data File Name: A3166X Analysis Date: 2/ 1/01

Lab Code: 14622

Batch: 3166

All Concentration Units in PPM except Mercury in PPB

	the second se					
Analyte  ICB M-00-EL CCB	1	1	1	1	1	[M]
						*  =
Potassium  0.1060000 U 0.1060000 U	1	1	F	I	1	₽

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3 BLANKS

Lab Hame:VeritechData File Hame: H3166ALab Code:14622Analysis Date: 01/25/2001

Batch: 3166

All Concentration Units in FPM except Mercury in FFS

	Analyte	136 3166	ICB	(CCB		1	1	- 1	
_	Mercury	10.210000	0 U10.2100	000 U[0.210000	0 U[0.2100000 U]		1	1	1101

FORM III - IN ILMO2.0

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Lab Name: Veritech

Lab Code: 14622

ICP sample ID: 22810

Data File Name: A3166E

Analysis Date: 02/01/2001

Batch: 3166

All Concentration Units in PPM except Mercury in PPB

		Amt	1				22810		22810 MS 1		22810 MS	2			
	Analyte	Added	QC	Lin	its	E.	Non Spike	1	Matrix Spike 1	11	Matrix Spike	2	Rec1	Rec2	
		======	===	===		=		===		1:		==	====	====	M
=	Aluminum	5.000	70	-	130	1	0.1160000	U	4.5397883	1	4.4821658		91	90	P
10	Antimony	0.5000	70	-	130	L	0.0065100	U	0.4444847		0.4463216	,	89	89	P
-	-	0.5000	70	-	130	1	0.0214173	1	0.4643908	T	0.4617650	1	89	88	P
	Barium	0.5000	70	-	130	1	0.2697346	1	0.7628041	ł	0.7204399	E	99	90	
01		10.5000	70	-	130	İ.	0.0049200	U	0.4562013	I	0.4541739	i i i	91	91	P
		0.5000	70	-	130	İ.	0.0028000	U	0.4279864	1	0.4286254		86	86	P
1		150.000	70	-	130	1	150.3888240		224.2681440	I	202.5761900		148*	104	P
_	Chromium	0.5000	70	-	130	1	0.0315000	U	0.4341152	I	0.4317454		87	86	P
	Cobalt	0.5000	70	-	130	1	0.0092100	U	0.4499644	ł	0.4497074		90	90	P
-		0.5000	70	-	130	İ.	0.0398000	U	0.4328487	I.	0.4309005		87	86	P
	Iron	5.000	70	-	130	İ.	11.4144206		18.0958204	I	16.3276626	,	134*	98	P
-	Lead	0.5000	70	-	130	1	0.0068700	U	0.4392594	L	0.4397142		88	88	P
		150.000	70	-	130	İ.	54.4910719		108.8400700	I	100.5317900		109	92	P
-		10.5000	70		130	L	0.9809656		1.6040865	I.	1.4588759		125	96	P
		10.5000	70	-	130	1	0.0302000	U	0.4346247	I.	0.4358640		87	87	P
10		10.5000	1 70		130	Í.	0.0393000	U	0.4417303	Ł	0.4443503		88	89	P
		0.5000	i 70	-	130	i	0.0103000	U	0.4277063	T.	0.4314390		86	86	P
-	Thallium	10.5000		- 1	130	i.	0.0062400	U	0.4201763	I.	0.4202284		84	84	P
	Vanadium	0.5000		-	130	i	0.0105400		0.4444979	I	0:4417593	;	87	86	IP
11	Zinc	10.5000			130	i	0.0401000	U	0.4448151	1	0.4496414		89	90	P
	,					í .									

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

Lab Name:VeritechData File Name: A3166ZLab Code:14622Analysis Date: 1/29/01ICP sample ID:22810Batch: 3166

All Concentration Units in PPM except Mercury in PPB

I	Amt		22810	22810 MS 1	22810 MS 2
		QC Limits	Non Spike	Matrix Spike 1	Matrix Spike 2  Rec1 Rec2
===============	====== =			=====================================	=   =====   ====   ====    M
Sodium	[50.000]	70 - 130	55.0550000	113.4080000	104.6750000  117   99   P

Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

Lab Name: Veritech

Lab Code: 14622

Data File Name: A3166Y-X

Analysis Date: 1/30/01-2/1/01

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ICP sample ID: 22810

Batch: 3166

All Concentration Units in PPM except Mercury in PPB

Amt		22810	22810 MS 1   22810 MS 2
Analyte   Added	QC Limits	Non Spike	Matrix Spike 1  Matrix Spike 2  Rec1 Rec2
======== ===== =====	======= === ===		:   ===========   =====   =====   ====   ====     M
Potassium  50.000	70 - 130	8.8380000	55.7320000   54.0790000   94   90   P

- Indicates the analyte failed the control limit criteria J - Indicates the analyte was not detected

Lab	Name:	Veritech	Data Fi	le Name	e: H3166A
Lab	Code:	14622	Analysis	Date:	01/25/2001
ICP	sample	ID: 22731	Batch:	3166	

All Concentration Units in PPM except Mercury in PPB

1	Amt		1 :	22731	1	22731 MS	1	22	731 MS	2	
Analyte	Added	QC Limits	1 1	Non Spike	Matr	ix Spike	1	Matrix	Spike	2  Rec	Rec2
1				THEFT	====			•   <del>*****</del>			=   =====    M
Mercury	110.0001	70 - 130	1 (	0.0239517	1	.0.091898	4	10.	0866322	2  101	1101   C

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\* - Indicates the analyte failed the control limit criteria U - Indicates the analyte was not detected Lab Name: Veritech

Lab Code: 14622

ICP sample ID: LCSW

### Data File Name: A3166E

Analysis Date: 02/01/2001

Batch: 3166

All Concentration Units in PPM except Mercury in PPB

		Spike	i	QC				
Analyte	1	Amount	1	Limits		Found	Rec	
**********	=		====		===   ====		=   ====	
Aluminum	L	5.000		85-115	1	5.6070841		
Antimony	1	0.5000	1	85-115	1	0.5033097	101	
Arsenic	1	0.5000	1	85-115	E.	0.4860014	97	
Barium	1	0.5000	l I	85-115	1	0.5014502	100	
Beryllium	I.	0.5000	I	85-115	I.	0.4962095	99	
Cadmium		0.5000	1	85-115	1	0.4974444	1 99 1	
Calcium	1	50.000	1	85-115	1.	51.4809752	103	
Chromium	Ì.	0.5000	1	85-115	1	0.4980209	100	
Cobalt	1	0.5000	1	85-115	1	0.5105767	1102	11
Copper	Ì.	0.5000	l.	85-115	1	0.5031681	101	L
Iron	Ĩ.	5.000	1	85-115	1	5.0799377	1102	11
Lead	i	0.5000	i -	85-115	1	0.5075555	1102	11
Magnesium	i	50.000	1	85-115	1	50.3707192	1101	11
Manganese	i	0.5000		85-115	i .	0.5439928	1109	H
Nickel	i	0.5000	i	85-115	1	0.4997384	1100	11
Selenium	i	0.5000	i i	85-115	1	0.4944752	99	
Silver	Ê	0.5000	i I	85-115	1	0.4961085	99	
Thallium	i	0.5000	i	85-115	1	0.5014861	100	E
Vanadium	i	0.5000	i i	85-115	1	0.4883856	98	H
Zinc	i	0.5000	1	85-115	İ	0.5038060	101	

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

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Laboratory Control Sample

Lab Name: Veritech

Lab Code: 14622

Data File Name: A3166Z

Analysis Date: 1/29/01

Batch: 3166

ICP sample ID: LCSW

All Concentration Units in PPM except Mercury in PPB

1	Spike	OC	1	
Analyte	Amount	Limits	Found	Recil
	=========		=======================	= ====  M
Sodium	50.000	85-115	49.8670000	100   P

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

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### 7 Laboratory Control Sample

Lab Name: Veritech

Data File Name: A3166Y

Analysis Date: 1/30/01

ICP sample ID: LCSW

Lab Code: 14622

Batch: 3166

All Concentration Units in PPM except Mercury in PPB

1	1	Spike	QC	l	
Analyte	1	Amount	Limits	Found	Rec
=======================================	=			=====================================	===== ====   M
Potassium	1	50.000	85-115	48.9300	000   98   P

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

2

7 Laboratory Control Sample

Lab	Name:	Veritech	Data Fi	le Nam	e: H3166A
Lab	Code:	14622	Analysis	Date:	01/25/2001
ICP	sample	ID: LCSW	Batch:	3166	

All Concentration Units in PPM except Mercury in PPB

1	Τ	Spike	1	QC	1		1	111
Analyte	İ.	Amount	I.	Limits	1	Found	Re	-11
	=		=		====		===	=   M
Mercury	1	10.000	1	85-115	1	10.0488402	1100	1101

\* - Indicates the analyte failed the control limit criteria U - Indicates the analyte was not detected

### NJ STATE LAB ID: 14622

### VERITECH

### INORGANIC METHOD BLANK SUMMARY

Blank Matrix: Water Units: mg/L

Analyte	Practical Quant Limit	Batch Number	Method Blank Result
Chloride	1.0	080w	ND

### VERITECH

### **INORGANIC SPIKE SAMPLE RECOVERY**

### Sample No.: AB22462 MS

Sample Matrix: Water Units: mg/L

% Solids for Sample: NA

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	с	Added (SA)	%R	Q	M
Chloride	75-125	97.5		52.3		50	90		
TCN	75-125								
Phenois	75-125								
RCN	75-125					-			
RS	75-125								
Hex-Cr	75-125								
		•							
		·							
	·								

Comments: \_\_\_\_

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### NJ STATE LAB ID: 14622

### VERITECH

### **INORGANIC SPIKE SAMPLE RECOVERY**

### Sample No.: AB22462 MSD

Sample Matrix: Water Units: mg/L

н: Ц

% Solids for Sample: NA

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	с	Added (SA)	%R	Q	м
Chloride	75-125	98.4		52.3		50	92		
TCN	75-125						_		
Phenols	75-125								
RCN	75-125								
RS	75-125								
Hex-Cr	75-125								
	1								
	1								
<u></u>									
•									
•									
•									

Comments:

FORM V (Part 1) - IN

175 Route 46 West, Unit D Fairfield, NJ 07004 (973) 244-9770 Federal ID: 222679402

# Lawler, Metusky & Skelly Engineers

## Format: NYDOH-CatA

Project: Harrison LF PO Number:

Samples submitted on: 1/24/01

AB23032 AB23033 AB23034 AB23035 AB23036 AB23037 AB23038 AB23039 AB23040 AB23041 AB23042 AB23043

Environmental Chemistry Section

FEB 2 6 2001

## Date: 2/15/01 HCI Project: 01251613

CT #: PH-0671 MA #: NJ386 NJ #: 14622 NY #: 11408 PA #: 68-463

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Project: NYSDOT Harrison LF Job: 446-156

Hampton-Clarke, Inc. (HCI) received the following Lawler, Metusky & Skelly Engineers samples on January 24, 2001:

LMS #	HCI #	Type	Analysis
PC-2 unfiltered	AB23032	Aqueous	TAL-METALS (6010B), HG (7470A), CHLORIDE (EPA 325)
PC-2 filtered	AB23033	Aqueous	TAL-METALS (6010B), HG (7470A)
MW-4 unfiltered	AB23034	Aqueous	TAL-METALS (6010B), HG (7470A), CHLORIDE (EPA 325)
MW-4 filtered	AB23035	Aqueous	TAL-METALS (6010B), HG (7470A)
SW-2 unfiltered	AB23036	Aqueous	TAL-METALS (6010B), HG (7470A), CHLORIDE (EPA 325)
SW-2 filtered	AB23037	Aqueous	TAL-METALS (6010B), HG (7470A)
SD-2	AB23038	Soil	TAL-METALS (6010B), HG (7471A), CHLORIDE (EPA 325)
SW-4 unfiltered	AB23039	Aqueous	TAL-METALS (6010B), HG (7470A), CHLORIDE (EPA 325)
SW-4 filtered	AB23040	Aqueous	TAL-METALS (6010B), HG (7470A)
SD-4	AB23041	Soil	TAL-METALS (6010B), HG (7471A), CHLORIDE (EPA 325)
SW-5 unfiltered	AB23042	Aqueous	TAL-METALS (6010B), HG (7470A), CHLORIDE (EPA 325)
SW-5 filtered	AB23042 AB23043	Aqueous	TAL-METALS (6010B), HG (7470A), CILORIDE (EFA 323) TAL-METALS (6010B), HG (7470A)

All metals sample results have been reported to the MDL, as requested by the client, to achieve the detection limits as listed in the ASP Standards. The Method blanks and continuing calibration blanks are based upon the PQL criteria.

Problems associated with these analyses are as follows:

### <u>Metals</u>

For batch 3171 (Soil):

The MS and MSD fell outside the QC limit for the following elements:

Antimony	MS-60%	MSD-56%
Barium	MS-62%	MSD-131%
Lead	MS-42%	MSD-180%
Manganese	MS-24%	
Zinc	MS-190%	<b>MSD-245%</b>
Aluminum**	MS-214%	MSD-216%
Calcium		<b>MSD-255%</b>
Iron**	<b>MS-13%</b>	MSD-0%
Magnesium	<b>MS-72%</b>	<b>MSD-127%</b>

\*\* The sample concentration exceeded the spike amount added by a factor of four, therefore the spike recovery criteria does not apply.

The poor spike recovery for the other elements may be related to matrix interference, since the LCS and LCSD recoveries for those elements were within the QC limits.

The RPD between the sample and its duplicate within the batch exceeded the QC limit for Calcium 57%, Copper 63%, and Magnesium 22%. The RPD between the LCS and the LCSD for these elements was within the QC limits, suggesting that the sample chosen for QC may not be homogenous.

10 March 10	and Ann and Ann	1.000	100	£	100	ar	Au	# 86	6 2004	
Veritech, 175 A Division of HAMPTO	5 Route 46 West, Fairfield, NJ 07( N-CLARKE, INC. NJDEPE # 14		HAIN	OF C		-	CORD		PHONE (8 FAX (9	00) 426-9992 73) 439-1458 PG 1 0f 2
CUST	OMER INFORMATION	R			INFORM				PROJECT II	NFORMATION
ADDRESS A CALL	WLER, MATUSKY SKOL BLUCHIII PLAZA, POOLRWY 5) 735-8300 35-7466 SDOT ER: T SCHNEIDER ON: HARRISON LANDFILL U YOYK			5 10: M	AME	HEINC		(CONFIRM ST/ RU: 24 44 44 1	NAROUND NUSH TAT'S WITH LAB) ARDARD SH 4 HOURS 100% 8 HOURS 75% 2 HOURS 50% 1 HOURS 50% 1 WEEK 25% 0 DAYS 10%	DELIVERABLES (PLEASE CHECK BOX) STANDARD FULL WASTE BUST NJ REDUCED EXCEL HAZSITE CUSTOM ELECTRONIC DELIVERABLE OTHER (SPECIFY)
			A	NALYT		EQUEST				•
LAB SAMPLE NUMBER (LAB USE ONLY)	SAMPLE IDENTIFICATION	METHANOL BOTTLE #	DATE COLLECTED	TIME COLLECTED	GRAB (G)	777	io. of Bottles	78/	A	ALYSIS
AB23032	PC-2	/	1/24/01	1345		1			L METALS	-TOTAL
23033	1	/	1	1			. 1			-Dissolved*
23032	$\checkmark$	/	V	V	4		1		hloride	
	MW-4	/	1/24/01	1400		1				S-TOTAL
23035		/	1	1	M		1			S - DISSOlved *
23034		/	V				1		loride	
23036	Sw-Z	/	1/24/01	1415	But					S-TOTAL
23037			1	1	1		1			LS- Dissolved*
23036					VV				Moride	
¥ 23038	SD-2		1/2/10	1415	150		1		ALMETTAL	slot-
	RTIFIES THAT EACH SAMPLE REG	CEIVED PROI			ton and tone of the second		UIRED)			(INITIALS)
		SKIN IRRITA		N	ION-HAZARI		UNKNO		NOXIOUS FU	
SPECIAL X	IS: LAB D. F. ITEra	Preser	we.						TEMPERATU	RE UPON RECEIPT:
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RELINQUISHE AGENT OF:	ED BY:				DATE / TIM		CEIVED BY GENT OF:	•		DATE / TIME

	and first and the			100			u		66	2264478		ii (i
Jeritech, 17 Division of HAMPTO	5 Route 46 West, Fairfield, NJ 07( N-CLARKE, INC. NJDEPE # 14		HAIN	OF C	CUSTC	DY I	RECO	ORD			$\begin{array}{c} 00) \ 426-9992 \\ 73) \ 439-1458 \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	2
CUST	OMER INFORMATION		RE	PORT	INFOR	MATIC	N			PROJECT II	NFORMATION	1
CUSTOMER ADDRESS: O.L. TELEPHONE: 84 FAX: (845)	WICY, MATUSKY + SKellu Blue Hill Plaga, Peories 5) 235-8300 235-7462 SDOT ER: T. SCHNGIDEY ON: HARRISON LANGHILL			S	KIA I AAUR IARIA SAA	HEI			"	TURNAROUND ONFIRM BUGH TAT'S WITH LAB) STARDARD RUSH 24 HOURS 100% 48 HOURS 75% 72 HOURS 50% 1 WEEK 25% 10 DAYS 10%	WASTE	K BOX) FULL BUST EXCEL CUSTOM
A.D.			1		ICAL RI	EQUE					· · · · · · · · · · · · · · · · · · ·	
LAB SAMPLE NUMBER (LAB USE ONLY)	SAMPLE IDENTIFICATION	METHANOL BOTTLE #	DATE COLLECTED	TIME COLLECTED	GRAB (G)	HINDS AND AND AND AND AND AND AND AND AND AND	11	f Bottles	Other		ALYSIS	
AB23039	Sw-4		1/21/01	1430	Sw					TAL metals	-Total	
23040		/		1	21			1		TAL Metals	and the second second second second second second second second second second second second second second second	ed*
23039		/		V	1			11		Chloride		
	SD-4	/	1/24/01	1430	VSN			1		TAL metals	Tchimite	
	Sw-5	/	1/24/01	1000	Su	1 1 1				TAL metal		
23043	1	/	1-4-1	T	VI			1		TAL metals		
23042	V	/			V			1		Cl-		
<u></u>	Temp Blank	/		× _			1+		-			
	Temp Suches											/
						P		+++				
SAMPLER CE	RTIFIES THAT EACH SAMPLE REC	EIVED PRO	PER FIEL	D PRESE	RVATION	(IF R	EQUIRE	ED)			(INITIALS)	
SAMPLE HAZ		SKIN IRRITA		N	ON-HAZAR			UNKNOW	ND	NOXIOUS FU		1
SPECIAL INSTRUCTION	15:X hab to filter	y pra	esers	e						TEMPERATU	RE UPON RECEIPT	1:
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AGENT OF:							AGEN	TOF:				

For Batch 3169 (Aqueous):

Sample AB23034 (MW-4 unfiltered), was run at a ten times dilution.

The MS and MSD fell outside the QC limit for the following elements:

Iron**	<b>MS-66%</b>	<b>MSD-36%</b>
Manganese**	MS-42%	MSD-0%

\*\* The sample concentration exceeded the spike amount added by a factor of four, therefore the spike recovery criteria does not apply.

### Wet Chemistry

There were no problems associated with this analysis.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Stan Gilewicz, Laboratory Director

2/23/01 Date

	FecEx. USA Airbill Territy 8196 2264 4783	DELIS Recipient's Copy
HERE	From This portion can be removed for Recipient's records. Date 24/01 FedEx Tracking Number B19622644783 Senders T. SchNEIDER Phone 845735-8300	4a         Express Package Service         Package op to 150 lbs.           Prodex Priority Overnight Next business morning         FedEx Standard Overnight Next business affermoon         FedEx Standard Overnight Earlier next morning
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	CONDITION UPON RECEIPT FORM	Veritech
	Date Received:       1/25/01       Filed By:         Client:       Image: Alapha E R       Project/Account:         Veritech Project #       Image: Alapha E R       Project/Account:	F. DOT
	YES NO	INITIAL CONDITIONS
1	[1] Is there a corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the corresponding Chain of Custody included with the custody included with	the samples?
	[3] Are the custody seals intact?	
	IF NO, please circle one of the following: mis °C [4] Please specify the temperature inside the container.	sing broken (N.A.
	YES NO	SAMPLE INFORMATION
	[5] Are the samples properly refrigerated (where required), ha	
	[6] Are the samples within holding times for the parameters lis If NO, list parameters and associated samples:	sted on the COC?
	[7] Are all of the sample bottles intact? If NO, specify sample broken: leaking:	
	[8] Are all of the sample labels or numbers legible? If NO, sp	ecify:
	[9] Do the contents of the container match the COC? If NO, s	specify:
	[10] Is there enough sample sent for the analyses listed on the C	COC? If NO, specify:
	[11] Are the samples preserved correctly (see Preservation Form	n for actual pH readings)?
		ol with the correct soil weights
	[13] Specify:	OTHER
	NO. ACTION	CORRECTIVE ACTIONS
	VCUR9.DOC	00015

## veritech laboratories

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## **PRESERVATION DOCUMENTATION**

Client

Veritech Project #

1/25/01	Filed B
AWLER.	Project

y .	F.D
	NYSDOT

CONTAINER SIZE	CONTAINER TYPE (PG)	PARAMETER	PRESERVATIVE	pH
11	P	Metals	Hrroz	1
12	P		HNOZ	1
IL				-
16				+
		V		T
		SIZE TYPE (PG)	SIZE TYPE (PG) 1 L P Metals	SIZE     TYPE (PG)     TAKAMETER     PRESERVATIVE       1 L     P     Metals     Hmo3

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TEST	SAMPLE No.	DATE	TIME	SIGNATURE	ALTERNATE	DATE	TIME	SIGNATURE	ALTERNATE
TD-WI	23032-37,3940,42-43	125/01	1010	Ry		126101	1400	Ry.	2
	33,35,37,40,43	1/26/01	1010	R'm/		126/01	1100	RUL	
	23038.41	1/29/01	1200	Jan		1/29/01	1230	Alm	
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6

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23032 Client ID: PC-2 unfiltered Dilution: 1 % Solid: 0

#### |Concentration |Cas No. |Analyte | MDL M - | ----- | --- | --- | --- | -----56 110 |P| 7429905 |Aluminum | L |P\_| |P\_| |P\_| 2.1 7.0 U 7440360 |Antimony | E Arsenic U 7440382 E. 17 180 17440393 Barium P P P P P P 7440417 |Beryllium | 2.2 U 1 1 75000 700 7440702 |Calcium | |Chromium | 7440473 12 U 7440484 Cobalt 3.4 U ł Copper 12 7440508 U Iron 65 80000 7439896 1 |P\_| |P\_| |P\_| 7439921 Lead 4.0 U 81 | 25000 7439954 |Magnesium | 5.3 | 17000 17439965 |Manganese | |P| |P| |P| 7440020 Nickel 6.6 U 17 7782492 Selenium 8.6 1 7440224 Silver 5.7 U E 7440280 Thallium 6.0 6.9 7440622 Vanadium 3.3 8.0 |P\_| ł 17440666 Zinc 14 U |P\_| Ŧ

Concentration Units: ug/L

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

130714 18<sup>866631</sup>

Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 01/30/2001 Lab Sample ID: AB23032 Client ID: PC-2 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	[Concentration	M
7440439	Cadmium	2.6	U	IP I
1				

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

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Lab Name: Veritech

Data File Name: W3169Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 2/ 1/01 Lab Sample ID: AB23032 Client ID: PC-2 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	I	MDL	Concentrat	tion  M
7440097	  Potassium	-	72	3200	  P
7440235	Sodium	1	130	63000	P_

U - Indicates compound not found above detection/reporting limit
 \* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: H3169sw Analysis Date: 01/31/2001 Lab Sample ID: AB23032 Client ID: PC-2 unfiltered Dilution: 1 % Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M
				!!
7439976	Mercury	0.14	U	CV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Concentration Units: ug/L

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23033 Client ID: PC-2 filtered Dilution: 1 % Solid: 0

Cas No. Analyte MDL [Concentration M |------------\_\_\_\_\_ - | -- | 7429905 Aluminum 56 U |P | U | P\_| 7440360 Antimony 2.1 - E | P | 17440382 Arsenic 7.0 U Ł P | 7440393 Barium 86 17 P |Beryllium | 7440417 2.2 U 1 Calcium 700 74000 P 17440702 1. 7440473 Chromium 12 U |P| 3.4 U |P| 7440484 Cobalt 7440508 Copper 12 U P 17439896 Iron 65 40000 P 1 IP | 17439921 Lead 4.0 U ÷. 25000 |P| 17439954 |Magnesium | 81 E IP I 17439965 |Manganese | 5.3 17000 1 Nickel 17440020 6.6 IP | U Ł 17782492 Selenium 8.6 10 IP I 7440224 Silver 5.7 U P 8.9 |P| 7440280 |Thallium 6.0 U |P| 17440622 |Vanadium 3.3 P 17440666 U Zinc 14 1 U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range
 P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN

ILM02.0

Lab Name: VeritechData File Name: A3168ALab Code: 14622Analysis Date: 01/31/2001Matrix: WaterLab Sample ID: AB23033<br/>Client ID: PC-2 filtered<br/>Dilution: 1<br/>% Solid: 0

Concentration Units: ug/L

Cas No. A	nalyte		Concentration	
7440439 IC		2.6	-	

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

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Lab Name: Veritech

Data File Name: W3169Z

Lab Code: 14622 Matrix: Water

> Level: low/med Batch: 3169

Analysis Date: 2/ 1/01 Lab Sample ID: AB23033 Client ID: PC-2 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.  Anal	yte	MDL	Concentration	n MI
7440097  Pota	ssium	72	3600	P_
7440235  Sodi	um I	130	60000	P_

U - Indicates compound not found above detection/reporting limit \* - Indicates compound above calibration range P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:





Lab Name: VeritechData File Name: H3169swLab Code: 14622Analysis Date: 01/31/2001Matrix: WaterLab Sample ID: AB23033<br/>Client ID: PC-2 filtered<br/>Dilution: 1<br/>% Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	I	MDL	Concentration	M
•	  Mercury	· · 	0.14	-    U	I CV
	A		found about	detection/report	ing 1

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

\*\*\*\*\*\*\*

Lab Name: Veritech

Data File Name: W3169B

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 02/01/2001 Lab Sample ID: AB23034 Client ID: MW-4 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
7429905	Aluminum	56	U U	P
7440360	Antimony	2.1	I U	P
7440382	Arsenic	7.0	U U	P
7440393	Barium	17	U U	P
7440417	Beryllium	2.2	U U	P
7440702	Calcium	700	6500	P
7440473	Chromium	12	I U	P
7440484	Cobalt	3.4	I U	P
7440508	Copper	12	U	P
7439896	Iron	65	12000	P
7439921	Lead	4.0	U	P
7439954	Magnesium	81	2100	P
7440020	Nickel	6.6	I U	P
7782492	Selenium	8.6	I U	P
7440224	Silver	5.7	U	IP
7440280	Thallium	6.0	U	P
7440622	Vanadium	3.3	U	P
7440666	Zinc	14	U U	P

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Dev 2/22/01

Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Analysis Date: 01/31/2001

Matrix: Water

Level: low/med Batch: 3169 Lab Sample ID: AB23034 Client ID: MW-4 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Coi	ncentration	M
7440439	Cadmium	1	2.6	ł	υ	P_
1						E E

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Batch: 3169

Level: low/med

Data File Name: W3169B

Analysis Date: 02/01/2001

Lab Sample ID: AB23034 Client ID: MW-4 unfiltered Dilution: 10 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
7439965	Manganese	53	42000	P
1				-
U - Indica	tes compound	not found ab	ove detection/report	ing li
	tes compound			
			-	

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name: Veritech

Data File Name: W3169Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 2/ 1/01 Lab Sample ID: AB23034 Client ID: MW-4 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
1	Potassium	72	3100	P_
	Sodium	130	30000	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: VeritechData File Name: H3169swLab Code: 14622Analysis Date: 01/31/2001Matrix: WaterLab Sample ID: AB23034<br/>Client ID: MW-4 unfiltered<br/>Dilution: 1<br/>% Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M
7439976	Mercury	0.14	l U	  CV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169

Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23035 Client ID: MW-4 filtered Dilution: 1 % Solid: 0

### Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
7429905	Aluminum	56	I U	P
7440360	Antimony	2.1	I U	IP
7440382	Arsenic	7.0	U U	P
7440393	Barium	17	I U	P
7440417	Beryllium	2.2	I U	P
7440702	Calcium	700	1 5700	IP
7440473	Chromium	12	U U	P
7440484	Cobalt	3.4	U U	P
7440508	Copper	12	U U	P
7439896	Iron	65	4800	P
7439921	Lead	4.0	I U	IP
7439954	Magnesium	81	1800	P
7439965	Manganese	5.3	1 3800	P
7440020	Nickel	6.6	U	P
7782492	Selenium	8.6	I U	P
7440224	Silver	5.7	U	P
7440280	Thallium	6.0	U	P
7440622	Vanadium	3.3	U	P
7440666	Zinc	14	U U	P

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 01/31/2001 Lab Sample ID: AB23035 Client ID: MW-4 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

	n MI	Concentration	MDL		Analyte	as No.
				-		
7440439  Cadmium   2.6   U	P_	U	2.6	1	Cadmium	440439

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:



Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23035 Client ID: MW-4 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

ICas No.	Analyte	1	MDL	Concentration	M
17439965	  Manganese	1	5.3	   3800	  P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:



Lab Name: VeritechData File Name: W3169ZLab Code: 14622Analysis Date: 2/ 1/01Matrix: WaterLab Sample ID: AB23035<br/>Client ID: MW-4 filteredLevel: low/medDilution: 1Batch: 3169% Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
1	  Potassium  Sodium	   72   130	2800 28000	P_   P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: H3169sw Analysis Date: 01/31/2001 Lab Sample ID: AB23035 Client ID: MW-4 filtered Dilution: 1 % Solid: 0

Concentration Units: Ug/L

Analyte		MDL		centration	
			- [		
Mercury	1	0.14	1	U	CV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169

Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23036 Client ID: SW-2 unfiltered Dilution: 1 % Solid: 0

## Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
7429905	Aluminum	56	1400	P
7440360	Antimony	2.1	I U	P
7440382	Arsenic	7.0	U	IP
7440393	Barium	1 17	i 23	IP
7440417	Beryllium	1 2.2	i U	IP
7440702	Calcium	700	1 29000	IP
7440473	Chromium	12	U	IP
7440484	Cobalt	3.4	I U	IP
7440508	Copper	1 12	i Ū	P
7439896	Iron	65	1 140	IP
7439921	Lead	4.0	υ	P
7439954	Magnesium	81	9000	IP
7439965	Manganese	1 5.3	350	IP
7440020	Nickel	6.6	U U	I P
7782492	Selenium	8.6	i U	IP
7440224	Silver	1 5.7	i o	IP
7440280	Thallium	6.0	i ŭ	IP
7440622	Vanadium	3.3	i ŭ	P
7440666	Zinc	14	i ŭ	P

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\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV) CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name: Veritech

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Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 01/31/2001 Lab Sample ID: AB23036 Client ID: SW-2 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

7440439  Cadmium	2.6	1	U	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:



Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: W31692 Analysis Date: 2/ 1/01 Lab Sample ID: AB23036 Client ID: SW-2 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Concentration	M I
	  Potassium  Sodium	   	72 130	2300   22000	  P_   P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

h Data File Name: H3169sw Analysis Date: 01/31/2001 Lab Sample ID: AB23036 Client ID: SW-2 unfiltered

Level: low/med Batch: 3169

Concentration Units: Ug/L

Dilution: 1

% Solid: 0

Cas No.	Analyte	1	MDL	Con	centration	M M I
	-	-1				
17439976	Mercury	E	0.14		U	CV
1						

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

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Concentration Units: ug/L

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169

Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23037 Client ID: SW-2 filtered Dilution: 1 % Solid: 0

#### Cas No. Analyte MDL [Concentration MI ÷. |----|----| ----|-----7429905 |Aluminum | 56 U IP | |P| 17440360 Antimony 2.1 U 1 L 7.0 |P\_| |P\_| 17440382 Arsenic U 17440393 Barium 17 25 E P 17440417 |Beryllium | 2.2 U |P| Calcium 700 33000 17440702 Ł |P\_| |P\_| 7440473 Chromium 12 U 7440484 Cobalt 3.4 U | P\_| | P\_| 17440508 Copper 12 U 69 17439896 Iron 65 7439921 Lead 4.0 U |P\_| ł 10000 7439954 |Magnesium | 81 P\_ 5.3 7439965 |Manganese | 99 P | Ŧ. 17440020 Nickel 6.6 U |P| н 17782492 Selenium 8.6 U P | I P 17440224 Silver 5.7 U 1 н 17440280 Thallium 6.0 U P -1 Т 17440622 Vanadium 3.3 U P - 1 ł 17440666 Zinc 14 U P I U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: A3168A

Lab Code: 14622

Matrix: Water

L.

Level: low/med Batch: 3169 Analysis Date: 01/31/2001 Lab Sample ID: AB23037 Client ID: SW-2 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
17440439	Cadmium	2.6	U	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: W3169Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 2/ 1/01 Lab Sample ID: AB23037 Client ID: SW-2 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	[Concentration	M
	-   Potassium	72	3900	  P
7440235	Sodium	130	28000	P

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name:	Veritech	Data File Name: H3169sw
Lab Code:	14622	Analysis Date: 01/31/2001
Matrix:	Water	Lab Sample ID: AB23037 Client ID: SW-2 filtered
Level:	low/med	Dilution: 1
Batch:		<pre>% Solid: 0</pre>

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M
			-	
7439976	Mercury	0.14	U	CVI
	-			1
U - Indica	tes compound	not found above	detection/report	ting limi
		above calibrati		

\* - Indicates compound above calibration range
 P - Indicates analyzed by ICP(OPTIMA 3000DV)
 CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name:	Veritech	Data File Name:	S3171b
Lab Code:	14622	Analysis Date:	02/02/2001
Matrix:	Soil	Lab Sample ID: Client ID:	
Level: Batch:	low/med 3171	Dilution: % Solid:	

Concentration Units: Mg/Kg

Cas No.	Analyte	1	MDL	Concentration	M
7440360	Antimony	-	0.39	0.64	
7440382	Arsenic	i -	0.94	2.6	P
7440393	Barium	i -	3.9	33	P
7440417	Beryllium	1	0.10	U	P
7440439	Cadmium	1	0.078	0.16	P
7440473	Chromium	1	2.1	8.0	P
7440484	Cobalt	1	0.43	4.6	P
7440508	Copper	1	0.99	13	P
7439921	Lead	1	2.7	31	P
7439965	Manganese	1	21	290	P
7440020	Nickel	1	0.65	12	P
7782492	Selenium	1	0.65	0.92	P
7440224	Silver	1	0.12	0.14	P
7440280	Thallium	1	0.70	l U	P
7440622	Vanadium	1	6.1	14	P
7440666	Zinc	ł	11	53	P

\* - Indicates compound above calibration range
 P - Indicates analyzed by ICP(OPTIMA 300CDV)
 CV - Indicates analyzed by Cold Vapor

Comments:

On The

Lab Name: Veritech

Data File Name: S3171Z

Client ID: SD-2 Dilution: 100 % Solid: 77

Lab Code: 14622

Analysis Date: 2/ 2/01 Lab Sample ID: AB23038

Matrix: Soil

Level: low/med Batch: 3171

Concentration Units: Mg/Kg

Cas No.	Analyte	MDL	Concentration	M   
  7429905  7440702  7439896  7439954  7440097  7440235	Aluminum  Calcium  Iron  Magnesium  Potassium  Sodium	100 330 70 94 28 520	4600 54000 13000 28000 1200 U	P_    P_    P_    P_    P_    P_
* - Indicai	tes compound tes analyzed	not found ab above calibr by ICP(ARL 3	560)	ing limit

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Soil

Level: low/med Batch: 3171 Data File Name: H3171sa Analysis Date: 02/02/2001 Lab Sample ID: AB23038 Client ID: SD-2 Dilution: 167 % Solid: 77

## Concentration Units: mg/Kg

Cas No.  Analyte		MDL		centration	
7439976  Mercury	1	0.048	1	U	CV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169

Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23039 Client ID: SW-4 unfiltered Dilution: 1 % Solid: 0

## Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
2400005				
7429905	Aluminum	56	400	P_
7440360	Antimony	2.1	U	P_
7440382	Arsenic	1 7.0	U	P
7440393	Barium	17	34	P
7440417	Beryllium	2.2	U U	P
7440702	Calcium	700	35000	P
7440473	Chromium	12	U U	P
7440484	Cobalt	3.4	U U	P
7440508	Copper	12	U U	P
7439896	Iron	65	1400	P
7439921	Lead	4.0	U	P
7439954	Magnesium	81	11000	P
7439965	Manganese	5.3	230	I P
7440020	Nickel	6.6	U	P
7782492	Selenium	8.6	U	P
7440224	Silver	5.7	I U	IP
7440280	Thallium	6.0	U	IP
7440622	Vanadium	3.3	I U	IP
7440666	Zinc	14	i u	I P
			, -	

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV) CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

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Data File Name: A3168A

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 01/31/2001 Lab Sample ID: AB23039 Client ID: SW-4 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.		MDL	1	
	-   Cadmium		 5   U	  P
1				· _ i

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: W3169Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 2/ 1/01 Lab Sample ID: AB23039 Client ID: SW-4 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	1	MDL	Concentration	M I
		-1			
7440097	Potassium		72	2600	P
7440235	Sodium		130	29000	P
					_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med

Batch: 3169

Data File Name: H3169sw Analysis Date: 01/31/2001 Lab Sample ID: AB23039 Client ID: SW-4 unfiltered Dilution: 1 % Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M
				-
7439976	Mercury	0.14	U	CV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: W3169B Analysis Date: 02/01/2001 Lab Sample ID: AB23040 Client ID: SW-4 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
7429905	Aluminum	56	U	  P
7440360	Antimony	2.1	I U	P
7440382	Arsenic	7.0	U	IP
7440393	Barium	17	26	P
7440417	Beryllium	2.2	U	IP
7440702	Calcium	700	34000	P
7440473	Chromium	12	U	IP
7440484	Cobalt	3.4	U	IP
7440508	Copper	12	U	P
7439896	Iron	65	I U	P
7439921	Lead	4.0	U I	P
7439954	Magnesium	81	10000	P
7439965	Manganese	5.3	59	P
7440020	Nickel	6.6	U	P
7782492	Selenium	8.6	U	P
7440224	Silver	5.7	U	P
7440280	Thallium	6.0	U	IP
7440622	Vanadium	3.3	U	P
7440666	Zinc	14	U U	P

J - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range
 P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: A3168A Analysis Date: 01/31/2001 Lab Sample ID: AB23040 Client ID: SW-4 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.  A	Analyte	MDL	Concentration	M
-				
7440439  0	Cadmium	2.6	U	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name: Veritech

Data File Name: W3169Z

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Analysis Date: 2/ 1/01 Lab Sample ID: AB23040 Client ID: SW-4 filtered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M I
  7440097  7440235	  Potassium  Sodium	   72   130	2500   30000	  P_   P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name: Veritech Data File Name: H3169sw Analysis Date: 01/31/2001 Lab Code: 14622 Matrix: Water

Level: low/med Batch: 3169

Lab Sample ID: AB23040 Client ID: SW-4 filtered Dilution: 1 % Solid: 0

Concentration Units: Ug/L

Cas No.			[Concentration	
				-
17439976	Mercury	0.14	U	ICVI

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name:	Veritech	Data File Name:	S3171b
Lab Code:	14622	Analysis Date:	02/02/2001
Matrix:	Soil	Lab Sample ID: Client ID:	
Level: Batch:	low/med 3171	Dilution: % Solid:	100

### Concentration Units: Mg/Kg

Cas No.	Analyte	1	MDL	IC	oncentration	M
7440360	Antimony		0.40		U	  P
7440382	Arsenic	1	0.96	i i	2.6	P
7440393	Barium	1	4.0	1	37	P
7440417	Beryllium	i i	0.11	i i	U	P
7440439	Cadmium	1	0.080	i	U	IP I
7440473	Chromium	1 I	2.1	i	7.7	P
7440484	Cobalt	i	0.44	i	3.7	P
7440508	Copper	1	1.0	i	10	P
7439921	Lead	i i	2.8	Í	23	P
7439965	Manganese	1	22	i	600	P
7440020	Nickel	1	0.67	i	9.2	P
7782492	Selenium	1	0.67	1	1.0	P
7440224	Silver	1	0.13	Í	U	P
7440280	Thallium	1	0.72	i i	U	P
7440622	Vanadium	1	6.3	I.	14	P
7440666	Zinc	1	11	1	48	P
						-

\* - Indicates compound above calibration range
 P - Indicates analyzed by ICP(OPTIMA 3000DV)
 CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name:	Veritech	Data File Name: S3171Z
Lab Code:	14622	Analysis Date: 2/ 2/01
Matrix:	Soil	Lab Sample ID: AB23041 Client ID: SD-4
Level: Batch:	low/med 3171	Dilution: 100 % Solid: 75

Concentration Units: Mg/Kg

Cas No.	Analyte	e   MDL  0		Concentrati	on M	
17429905	Aluminum		100	!	4800	   P
7440702	Calcium	i	340	i	56000	P
7439896	Iron	1	72	1	13000	P
7439954	Magnesium	L	97	1	28000	P
7440097	Potassium	1	29	1	1300	P
7440235	Sodium	1	530	1	U	P
I						
II - Indica	ates compound	not	found	above de	etection/rep	porting

U - Indicates compound not found above detection/reporting limit \* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

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Lab Name: VeritechData File Name: H3171saLab Code: 14622Analysis Date: 02/02/2001Matrix: SoilLab Sample ID: AB23041<br/>Client ID: SD-4<br/>Dilution: 167<br/>% Solid: 75

Concentration Units: mg/Kg

Cas No.	Analyte	1	MDL	Con	centration	M
  7439976	  Mercury	-	0.049	 	U	ICV

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

1

Concentration Units: ug/L

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB23042 Client ID: SW-5 unfiltered Dilution: 1 % Solid: 0

MDL [Concentration M |Cas No. Analyte 1 | P\_| | P\_| | P\_| 56 U 17429905 |Aluminum | 2.1 U 17440360 |Antimony | U 17440382 Arsenic 7.0 |Barium | 17 7440393 30 |P\_| |P\_| |P\_| |P\_| |Beryllium | 7440417 2.2 U |Calcium | | 37000 700 7440702 |Chromium | 17440473 12 U Cobalt U |7440484 3.4 - 1 12 Copper U |P\_| 7440508 1 65 180 Iron | P\_| 7439896 1 Lead 4.0 U |P\_| 7439921 1 Ŧ | 11000 |Magnesium | |P\_| 81 7439954 140 | P\_| |Manganese | 5.3 7439965 + |Nickel | U | P | 6.6 7440020 |Selenium | 8.6 U |P\_| 7782492 1 U |P\_| 7440224 |Silver | 5.7 |Thallium | 6.0 U |P\_| 7440280 |Vanadium | 3.3 U |P\_| 7440622 | P\_| |Zinc 14 U 7440666 U - Indicates compound not found above detection/reporting limit \* - Indicates compound above calibration range P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILMO2.0

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Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: A3168A Analysis Date: 01/31/2001 Lab Sample ID: AB23042 Client ID: SW-5 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	I N	IDL	Concent	ration	M I
17440439	Cadmium	1	2.6	1	U	P
1						

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:



Lab Name: Veritech

Matrix: Water

Batch: 3169

Lab Code: 14622

Level: low/med

Data File Name: W3169Z Analysis Date: 2/ 1/01 Lab Sample ID: AB23042 Client ID: SW-5 unfiltered Dilution: 1 % Solid: 0

Concentration Units: ug/L

Cas No.		1	M
7440097	  Potassium  Sodium		  P_   P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab Name: Veritech

Data File Name: H3169sw Lab Code: 14622 Analysis Date: 01/31/2001 Lab Sample ID: AB23042 Matrix: Water Client ID: SW-5 unfiltered Dilution: 1 Level: low/med % Solid: 0 Batch: 3169

Concentration Units: Ug/L

	Analyte	1	MDL		centration	
		-				
7439976	Mercury	1	0.14	I I	U	CV
1						1

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

ILM02.0 FORM I - IN

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169

Data File Name: W3169B Analysis Date: 02/02/2001 Lab Sample ID: AB23043 Client ID: SW-5 filtered Dilution: 1 % Solid: 0

Cas No.	Analyte	MDL	Concentration	M
7429905	Aluminum	56	I U	P_
7440360	Antimony	2.1	U	P
7440382	Arsenic	7.0	U U	P
17440393	Barium	17	28	P
17440417	Beryllium	2.2	I U	P
17440702	Calcium	700	36000	P
17440473	Chromium	12	I U	P
17440484	Cobalt	3.4	I U	P
7440508	Copper	12	U I	P
17439896	Iron	65	U I	P
17439921	Lead	4.0	U U	P
17439954	Magnesium	81	11000	P
17439965	Manganese	5.3	96	P
7440020	Nickel	6.6	U	P
17782492	Selenium	8.6	U	P
7440224	Silver	5.7	U U	P
17440280	Thallium	6.0	U	P
17440622	Vanadium	3.3	U	P
17440666	Zinc	14	U	P
				_
U - Indica	tes compound n	not found abo	ve detection/report	rting 1

Concentration Units: ug/L

U - Indicates compound not found above detection/reporting limit
 \* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Data File Name: A3168A Lab Name: Veritech Lab Code: 14622 Analysis Date: 01/31/2001 Lab Sample ID: AB23043 Matrix: Water Dilution: 1 Level: low/med % Solid: 0 Batch: 3169

Concentration Units: ug/L

Cas No.	Analyte	MDL	Concentration	M
17440439	Cadmium	2.6	I U	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

FORM I - IN ILM02.0

Client ID: SW-5 filtered

Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: W3169Z Analysis Date: 2/ 1/01 Lab Sample ID: AB23043 Client ID: SW-5 filtered Dilution: 1 & Solid: 0

Concentration Units: ug/L

Cas No.	Analyte	I MI	DL  Concentra	tion  M
	-   Potassium	72	2   2700	  P_
7440235	Sodium	130	)   27000	P_

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(ARL 3560)

CV - Indicates analyzed by Cold Vapor

Comments:



Lab Name: Veritech

Lab Code: 14622

Matrix: Water

Level: low/med Batch: 3169 Data File Name: H3169sw Analysis Date: 01/31/2001 Lab Sample ID: AB23043 Client ID: SW-5 filtered Dilution: 1 % Solid: 0

Concentration Units: Ug/L

Cas No.	Analyte	MDL	Concentration	M
17439976	Mercury	0.14	0.56	ICVI

U - Indicates compound not found above detection/reporting limit

\* - Indicates compound above calibration range

P - Indicates analyzed by ICP(OPTIMA 3000DV)

CV - Indicates analyzed by Cold Vapor

Comments:

Lab #: AB23032			Sample Ma	trix:	Aqueous
	unfiltered		Date Receiv		01/24/2001
Test Group Name:	Chioride EPA 325				te Prepared;
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
Chioride	90	mgA	1.8	1	01/31/2001
Lab #. AB23034					
	4 unfiltered		Sample Mat Date Receiv		Aqueous 1/24/2001
	Chioride EPA 325				
Test Group Name: Analyte	Concentration	Units	MDL/POL	Det	e Prepared:
Chipride	58		1.8	1	Date Analyzed
		mg/l	1.9		01/31/2001
Lab #AB23036			Sample Mat	(IX)	Aqueous
Sample ID. SW 2	unfiltered		Date Receiv	ed: 0	1/24/2001
Test Group Name:	Chioride EPA 325			Dat	• Prepared:
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
Chloride	64	mgA	1.8	1	01/31/2001
Lab # AB23038			Sample Mat	ria:	Sediment
Sample ID: SD 2			Date Receiv	_	1/24/2001
Test Group Name:	% Solida SM2540G				Prepared:
Analyte	Concentration	Units	MDL/PQL	DE	Date Analyzed
% Solida	77	Percent		1	02/01/2001
Test Group Name:	Chioride 9250				Prepared: 02/01/200
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
Chioride	ND -	mgilig	65	1	02/06/2001
Lab # AB23039			C k . ha		A
	unfiltered		Sample Mati		Aqueous
			Date Receiv		1/24/2001
Test Group Name:	Chioride EPA 325				Prepared:
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
Chlorida	50	mgi	1.8	1	01/31/2001
Lab #: AB23041			Sample Mati	rix:	Sediment
Sample ID: SD-4		i i	Date Receiv	ed: 0 <sup>4</sup>	1/24/2001
Test Group Name:	% Solids SM2540G			Date	Prepared:
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
% Solids	75	Percent		1	02/01/2001
Fest Group Name:	Chioride 9250			Date	Prepared: 02/01/200
Analyte	Concentration	Units	MDL/PQL	DF	Date Analyzed
	ND		67		

Veritech We	t Chem Form 1 Sur	Lab #:		AB23042		
Lab #. AB2304	2		Sample Mat	rix:	Aqueous	
Sample ID: SW-	Date Received:		01/24/2001			
Test Group Name:	Chioride EPA 325		Date Prepared:			
Analyte	Concentration	Units	MDL/PQL	D	Date Analyzed	
Chioride	40	ngf	1.8	1	01/31/2001	

3 BLANKS

Lab Name: Veritech

Data File Name: W3169B

Analysis Date: 02/01/2001

b Code: 14622

Batch: 3169

All Concentration Units in PPM except Mercury in PPB

Winalyte	MB 3169 (	1)   ICB M-01-1	BL   CCB	CCB	CCB	1	1	1	M
Aluminum	10.1500000	U 0.1500000	U 0.1500000	U 0.1500000	U 0.1500000	וט	E	1	1121
Intimony	0.0107000	010.0107000	U 0.0107000	U 0.0107000	U 0.0107000	UI	1	1	₽
rsenic	10.0070200	U 0.0070200	U 0.0070200	U 0.0070200	U 0.0070200	טו	1	1	P
Plarium	0.0500000	U10.0500000	U 0.0500000	U10.0500000	U 0.0500000	טו	1	1	P
Beryllium	10.0060000	U10.0060000	U 0.0060000	U10.0060000	U 0.0060000	וט	1	1	P
ICalcium	1.0000000	U 1.0000000	U 1.0000000	U 1.0000000	U 1.0000000	טו	E Contraction	1	₽
hromium	10.0500000	U 0.0500000	U 0.0500000	U10.0500000	U 0.0500000	αl	I.	1	P
cobalt	10.0150000	U 0.0150000	U 0.0150000	U 0.0150000	U 0.0150000	זט	1	E C	IP
copper	10.0400000	U10.0400000	U 0.0400000	U 0.0400000	U 0.0400000	U	1	1	P
Iron	10.2500000	U10.2500000	U 0.2500000	U 0.2500000	U 0.2500000	טו	1	1	P
Lead	10.0080000	U10.0080000	UI0.0080000	U10.0080000	U10.0080000	טו	1	1	P
agnesium	10.400000	UI0.4000000	U10.4000000	U10.4000000	U 0.4000000	01	1	I	1121
anganese	10.0250000	U10.0250000	U 0.0250000	U 0.0250000	U 0.0250000	U	1	1	P
rickel	10.0300000	U10.0300000	U[0.0300000	U0.0300000	U 0.0300000	U	1	1	₽
Selenium	10.0300000	U10.0300000	U 0.0300000	U 0.0300000	U10.0300000	U	E E	I I	P
LSilver	10.0200000	U 0.0200000	U 0.0200000	U 0.0200000	U 0.0200000	UI	1	1	P
hallium	10.0080000	U10.0080000	U0.0080000	U10.0080000	U10.0080000	וט	\$	1	
anadium	10.0150000	U 0.0150000	U 0.0150000	U 0.0150000	U 0.0150000	טו	1	Ĩ.	P
zinc	10.0500000	U 0.0500000	U 0.0500000	U 0.0500000	U 0.0500000	01	1	1	P

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Lab Name: Veritech

Data File Name: A3168A Analysis Date: 01/30/2001

Batch: 3169

1 Concentration Units in PFM except Mercury in PFB

Analyte  MB 3169	(1)   ICB M-01-	BL CCB	CCB	CCB	CCB	I CCB	1 1 1 1
						= [ ]	
admium [0.00300	00 010.0030000	<b>0</b>  0.0030000	<b>010.0030000</b>	U 0.0030000	U 0.0030000	UI0.0030000 UI	1   2

Lab Name: Veritech Data File Name: W31692

b Code: 14622 Analysis Date: 2/ 1/01

Batch: 3169

All Concentration Units in PPM except Mercury in PPB

Munalyte  MB 3169 (1)   ICB M-00-BL   CCB   CCB   CCB	M
Potassium (2.0000000 U/2.0000000 U/2.0000000 U/2.0000000 U/2.0000000 U/	2
Codium  2.0000000 U 2.0000000 U 2.0000000 U 2.0000000 U 2.0000000 U	2

Lab Name:	Veritech	Data File Name: H3169sw
Code:	14622	Analysis Date: 01/31/2001

Batch: 3169

Concentration Units in PFM except Mercury in PFB

1

Lualyte	) <b>3169</b>	ICB	(CCB	ICCB	I	1		1	
									=
Mercury	10.700000 0	10.700000 0	10.700000 0	10.700000 0	1	I	1	E I	IICI

Lab Name: Veritech

Lab Code: 14622

ICP sample ID: 23032

Data File Name: W3169B

Analysis Date: 02/01/2001

Batch: 3169

All Concentration Units in PPM except Mercury in PPB

	Amt	l				2303	2			230	32 M	S 1	1	23	032 N	IS :	2				
Analyte	Added	QC	Li	mits		Non	Spike		Mat	cix	Spike	e 1	11	Matrix	Spik	e :	2	Rec1	.   Re	ec2	i i i
	======	===	===	====	====			==	====				=   =	=====	======	===	===	====	-   ===	===	M
Aluminum	5.000	75	5 -	125		0.15	00000	U	1	4.9	5903	80	1	4.	96777	73	1	99	1 9	9	
Antimony	0.5000	75	5 -	125		0.01	07000	U		0.4	77202	22	L	0.	47554	60	1	95	1 9	95	
Arsenic	0.5000	75	5 -	125		0.00	70200	U		0.4	6767:	13	1	0.	46688	36	1	94	1 9	3	
Barium	0.5000	75	5 -	125		0.18	11003			0.6	66064	47	E	0.	65999	77		97	1 9	6	IPI
Beryllium	0.5000	75	5 -	125		0.00	60000	U	ļ	0.4	7967	51	1	0.	47701	21	1	96	1 9	5	IPI
Calcium	150.000	75	;	125		74.51	50507		12	23.2	1104	70	1	122.	19719	80	İ	97	1 9	5	IPI
Chromium	10.5000	75	; -	125		0.05	00000	U		0.4	79698	34	Ŧ	0.	47657	02	i	96	1 9	5	IP
Cobalt	0.5000	75	5 -	125		0.01	50000	U		0.4	90008	34	1	0.	48696	24	1	98	1 9	7	
Copper	0.5000	75	; -	125		0.04	00000	U		0.4	80211	17	1	0.	47750	73	1	96	1 9	6	
Iron	5.000	75	5 -	125	8	30.02	21947	1	8	33.3	44747	73	1	81.	81555	36	1	66*	1 3	6+	
Lead	10.5000	75	; -	125		0.00	80000	U		0.4	86933	34	F	0.	48416	94	1	97	1 9	7	
Magnesium	150.000	75	5 -	125	2	24.79	78225		1	12.2	66994	14	1	71.	45824	32	- I	95	19	3	P
Manganese	0.5000	75	; -	125	1	17.20	45761	1	1	7.4	15879	90	1	17.3	20225	07	1	42*	1<	0*1	P
Nickel	0.5000	75	- (	125		0.03	00000	U		0.4	76101	1	1	0.	47485	52	1	95	1 9	5	P
Selenium	10.5000	75	5 —	125		0.03	00000	U		0.4	82812	29	1	0.4	48340	53		97	1 9	7	P
Silver	10.5000	75	- (	125		0.02	00000	U		0.4	75018	80	1	0.4	47322	44	1	95	1 9	5	P
Thallium	10.50001	75	- (	125		0.00	80000	U		0.4	88090	9	1	0.4	48762	73	1	98	1 9	8 1	P
Vanadium	10.50001	75	- (	125		0.01	50000	U		0.4	78564	15	1	0.4	47538	37	1	96	1 9	5	P
Zinc	0.5000	75	- (	125		0.05	00000	U		0.4	96916	52	I.	0.4	48425	23	E.	99	1 9	7 1	P

Indicates the analyte failed the control limit criteria
 Indicates the analyte was not detected

6.2°2 1111

Lab Name: Veritech

Lab Code: 14622

ICP sample ID: 23032

Data File Name: A3168A

Analysis Date: 01/30/2001

Batch: 3169

All Concentration Units in PPM except Mercury in PPB

	Amt		23032	23032 MS 1	23032 MS	2
Analyte	Added	QC Limits	+	Matrix Spike 1	Matrix Spike	2  Rec1 Rec2
	=====	=========		======================================	=   ===================================	===   ====     M
Cadmium	0.5000	75 - 125	0.0030000 U	0.4643480	0.4637083	93   93   PI

- Indicates the analyte failed the control limit criteria - Indicates the analyte was not detected

Lab Name:VeritechData File Name: W3169ZLab Code:14622Analysis Date:2/ 1/01ICP sample ID:23032Batch:3169

All Concentration Units in PPM except Mercury in PPB

Analyte	Amt     Added Q	C Limits	23032 Non Spike	-	23032 MS 2         Matrix Spike 2  Rec1 Rec2
	====== =  50.000   50.000	75 - 125	3.2200000		=   =====   ====   ====    M

Indicates the analyte failed the control limit criteria
 Indicates the analyte was not detected

Lab Name: Veritech

Lab Code: 14622

t

ICP sample ID: 23032

Batch: 3169

Data File Name: H3169sw

Analysis Date: 01/31/2001

All Concentration Units in PPM except Mercury in PPB

	Amt	23032	23032 MS 1	23032 MS 2	
Analyte	Added   QC Limits	Non Spike	Matrix Spike 1	Matrix Spike 2	Rec1 Rec2
		1			=   ====     M
ercury	10.000  75 - 125	0.0000000 0	8.0974178	8.0809740	81   81   C

- Indicates the analyte failed the control limit criteria - Indicates the analyte was not detected Lab Name: Veritech

Lab Code: 14622

Data File Name: W3169B

Analysis Date: 02/01/2001

ICP sample ID: LCSW

Batch: 3169

All Concentration Units in PPM except Mercury in PPB

	Spike	QC	1		1 11
Analyte	Amount	Limits	1	Found	Rec
		================	== ====		
Aluminum	5.000	75-125	1	5.0333438	101   E
Antimony	0.5000	75-125	I	0.4953506	99    E
Arsenic	0.5000	75-125	1	0.4834715	97   E
Barium	0.5000	75-125	1	0.5012646	100   E
Beryllium	0.5000	1 75-125	1	0.4916258	98   E
Calcium	50.000	75-125		51.0167112	102   E
Chromium	0.5000	75-125	1	0.4959293	99   E
Cobalt	0.5000	75-125	1	0.5058701	1101   1
Copper	0.5000	75-125		0.4961435	99   E
Iron	5.000	75-125	1	5.0215064	1100   E
Lead	0.5000	75-125		0.5014449	1100    E
Magnesium	50.000	75-125	1	50.2051609	1100   E
Manganese	0.5000	75-125	1	0.4965430	99 11
Nickel	0.5000	75-125	1	0.4935362	99   E
Selenium	0.5000	75-125	1	0.4919127	98    1
Silver	0.5000	75-125	1	0.4888850	98   E
Thallium	0.5000	75-125	1	0.5057952	1101    E
Vanadium	0.5000	75-125	1	0.4832159	97   E
Zinc	0.5000	75-125	1	0.4962066	99 11

\* - Indicates the analyte failed the control limit criteria

U - Indicates the analyte was not detected

Lab Name: Veritech Lab Code: 14622 Data File Name: A3168A

Analysis Date: 01/30/2001

ICP sample ID: LCSW

Batch: 3169

All Concentration Units in PPM except Mercury in PPB

I	1	Spike		QC	1	1 1 1
Analyte		Amount		Limits	ł	Found   Rec
=========	==	**=====	====		=	=======================  M
Cadmium		0.5000		75-125	1	0.4895839   98   P

 $\star$  - Indicates the analyte failed the control limit criteria U - Indicates the analyte was not detected

car) Car

Lab Name: Veritech

Lab Code: 14622

ICP sample ID: LCSW

Data File Name: W3169Z Analysis Date: 2/ 1/01

Batch: 3169

All Concentration Units in PPM except Mercury in PPB

1	1	Spike	1	QC	Γ				111
Analyte	1	Amount	t	Limits	I.	Found	1	Rec	111
=====================================	=		1	*************	=	=======================================	==		M
Potassium	1	50.000	I.	75-125	1	48.7590000	1	98	P
Sodium		50.000	ł	75-125	1	49.7170000		99	P

\* - Indicates the analyte failed the control limit criteria

U - Indicates the analyte was not detected

Lab Name: Veritech Lab Code: 14622

ICP sample ID: LCSW

Data File Name: H3169sw Analysis Date: 01/31/2001 Batch: 3169

All Concentration Units in PPM except Mercury in PPB

		1	Spike		QC			
- 1	Analyte	1	Amount		Limits		Found	Rec
1		==		=====				=   ====     M
	Mercury	E .	10.000	1	75-125	1	10.5263045	105   C

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

# \*\* 5 24 2 4 2

Lab Name: Veritech

Data File Name: \$3171B

Analysis Date: 02/02/2001

b Code: 14622

Batch: 3171

All Concentration Units in PPM except Mercury in PPB

Inalyte	MB3171mg/	kg ICB M-01-	IL CCB	CCB	(CCB	CCB	1	1	136
Antimony						U 0.0145000			i Pi
rsenic	12.000000	U 0.0200000	U 0.0200000	U 0.0200000	U10.0200000	U 0.0200000	U		P
ariun	10.000000	U 0.1000000	U 0.1000000	U 0.1000000	U 0.1000000	U 0.1000000	σi		P
peryllium	10.400000	U[0.0040000	U10.0040000	U10.0040000	U 0.0040000	UI0.0040000	UI		P
Cadaium	0.300000	U[0.0030000	U 0.0030000	U 0.0030000	U 0.0030000	U0.0030000	U		P
Chromium						U 0.0400000			P
obalt	11.6500000	U 0.0165000	U 0.0165000	U 0.0165000	U 0.0165000	U 0.0165000	U		P
opper	3.8000000	U 0.0380000	U 0.0380000	U 0.0380000	U10.0380000	U0.0380000	ען		PI
bead						U 0.0500000			P
Manganese	116.200000	U 0.1620000	U 0.1620000	U 0.1620000	U 0.1620000	U 0.1620000	סן		PI
Nickel	12.4400000	U 0.0244000	U10.0244000	U 0.0244000	U 0.0244000	U 0.0244000	U		PI
alenium	12.5000000	U 0.0250000	U 0.0250000	U 0.0250000	U 0.0250000	U 0.0250000	סן		PI
ilver						U 0.0050000			P
mallium	11.2000000	U 0.0120000	U 0.0120000	U 0.0120000	U 0.0120000	U 0.0120000	U		PI
Vanadium	110.000000	U 0.1000000	U 0.1000000	U 0.1000000	U 0.1000000	U 0.1000000	U		P
Zing	10.000000	U 0.1000000	U 0.1000000	U 0.1000000	U[0.1000000	V 0.1000000	01		P

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Lab Name: Veritech

o Code: 14622

Analysis Date: 2/ 2/01 Batch: 3171

Data File Name: S31712

111 Concentration Units in PPM except Mercury in PPB

malyte		kg ICB M-00-		I CCB	CCB	CCB	1	1	<b>  M</b>
Aluminum	300.00000	U 3.0000000	U 3.0000000	U13.0000000	U13.0000000	U 3.0000000	U	i	I I PI
alcium	500.00000	U 5.0000000	U15.0000000	U 5.0000000	U15.0000000	U[5.0000000	U	. i	P
ron	300.00000	U 3.0000000	U 3.0000000	U13.000000	U 3.0000000	U13.0000000	U	i	1121
Magnesium	1500.00000	U 5.0000000	U 5.0000000	U 5.0000000	U15.0000000	U15.0000000	UI	i	I PI
Potassium	1250.00000	U 2.5000000	U 2.5000000	U 2.5000000	U12.5000000	U12.5000000	σί	i	
Liodium	1500.00000	U15.000000	U 5.0000000	U15.0000000	U15.0000000	UIS.0000000	UI	i	I I PI

FORM III - IN ILMO2.0

 $\left\{\begin{smallmatrix} a_{1} + s_{n+1} & a_{1} \\ a_{1} + s_{n$ 

Lab Name: Veritech

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Data File Hame: H31715 Analysis Date: 02/02/2001

### Batch: 3171

All Concentration Units in PEM except Maroury in FFB

malyte	188 3171 Mg/Rg   ICB		1	[ ] 36 ]
		i i		
Becorry.	10.1419500 VI0.05	00000 UI0.8500000 UI	1	C

Lab Name: Veritech

Data File Name: H31715A Analysis Date: 02/02/2001

Batch: 3171

il Concentration Units in PEM except Mercury in PEB

Inalyte	ICB	ICC	ICCB	1	1	1	1	26	ī
1							]	==========    =	j i
iller outy	10.8500000 U	10.8500000 U	10.8500000 U	1	l .	F	I		

PORM III - IN ILMO2.0

B. 7.8 Lab Name: Veritech

Lab Code: 14622

ICP sample ID: 23086

Batch: 3171

Data File Name: S3171B

Analysis Date: 02/02/2001

All Concentration Units in PPM except Mercury in PPB

	Amt		23086	23087 MS 1	23088 MS 2	
Analyte	Added	QC Limits	Non Spike	Matrix Spike 1	Matrix Spike 2	Rec1 Rec2
1	-   ======	===================		***************	======================================	=   ====   ====     M
Antimony	0.5000	75 - 125	0.0200000 U	0.2975658	0.2805416	60*  56*  P
Arsenic	0.5000	75 - 125	0.0362506	0.5013592	0.5037997	93 94 1P
Barium	10.50001	75 - 125	0.6852825	0.9971653	1.3422183	62* 131*  P
Beryllium	0.5000	75 - 125	0.0060000 U	0.4807816	0.4739488	96 95   P
admium	0.5000	75 - 125	0.0060000 U	0.4782133	0.4672716	96   93   P
chromium	10.50001	75 - 125	0.1123623	0.6597129	0.5937410	109   96   P
Cobalt	10.50001	75 - 125	0.0462346	0.5380245	0.5262979	98   96   P
Copper	0.5000	75 - 125	0.3146010	0.7113705	0.8841505	79  114   P
Lead	0.5000	75 - 125	1.2221916	1.4330825	2.1225919	42* 180*  P
Manganese	0.5000	75 - 125	1.6803475	1.8011111	2.1894410	24* 102   P
<b>Nickel</b>	0.5000	75 - 125	0.1007626	0.5797839	0.5691151	96   94   P
elenium	0.5000	75 - 125	0.0250000 U	0.4733647	0.4650895	95   93   P
Silver	10.50001	75 - 125	0.0250000 U	0.4716580	0.4662730	94 93   P
Thallium	0.5000	75 - 125	0.0120000 U	0.4632317	0.4384940	93   88   P
LVanadium	0.5000	75 - 125	0.1873668	0.6502045	0.6668131	93   96   P
linc	0.5000	75 - 125	0.9687978	1.9180168	2.1918663	190* 245*  P

- Indicates the analyte failed the control limit criteria - Indicates the analyte was not detected

Lab Name:	Veritech	Data File Name: S3171Z
Lab Code:	14622	Analysis Date: 2/ 2/01
ICP sample	ID: 23086	Batch: 3171

All Concentration Units in PPM except Mercury in PPB

	Amt	1	23086	23087 MS 1	23088 MS 2
Analyte	Added	QC Limits	Non Spike	Matrix Spike 1	Matrix Spike 2  Rec1 Rec2
	======	==========	*=======================	==============================	========== =====   M
luminum	5.000	75 - 125	47.0010000	57.6870000	57.8190000  214* 216*  P
Calcium	50.000	75 - 125	69.6540000	122.4020000	196.9530000  105  255*  P
Iron	5.000	75 - 125	144.1230000	144.7790000	139.8160000   13* < 0*  P
agnesium	50.000	75 - 125	33.6930000	69.7100000	97.3490000   72* 127*  P
otassium	50.000	75 - 125	13.3060000	57.4440000	60.0880000   88   94   P
Sodium	150.000	75 - 125	5.0000000 U	51.9030000	52.3730000  104  105   P

Indicates the analyte failed the control limit criteria
 Indicates the analyte was not detected

Lab Name:VeritechData File Name: H31715Lab Code:14622Analysis Date: 02/02/2001ICP sample ID:23086Batch: 3171/3171a

All Concentration Units in PPM except Mercury in PPB

T	Amt		23086	23087 MS 1	1 23088 MS 2
		QC Limits		Matrix Spike 1	Matrix Spike 2  Rec1 Rec2
				=====================================	=   =====   ====   ====    M
Mercury	10.000	75 - 125	2.4317794	12.6375213	11.7817092  102   93   C

Indicates the analyte failed the control limit criteria
U - Indicates the analyte was not detected

the state

Lab Name: Veritech

Lab Code: 14622

ICP sample ID: LCS 100

Data File Name: S3171B Analysis Date: 02/02/2001 Batch: 3171

All Concentration Units in PPM except Mercury in PPB

	Spike	l QC	2			
Analyte	Amount	Limi	its		Found	Rec
=========	===========	=======		=   ==		= ====
Antimony	32.6	0-	68.1	1	38.7669920	119
Arsenic	185	138-	233	1	185.9039060	100
Barium	177	137-	218	1	161.6905550	91
Beryllium	45.0	35.3-	54.8	1	46.0756410	1102
Cadmium	64.0	49.2-	78.7	1	66.8861670	105
Chromium	143	114-	171	1	143.1028160	100
Cobalt	212	168-	255	1	222.2931740	1105
Copper	92.7	75.9-	109	I.	91.9265920	99
Lead	119	90.9-	148	I.	126.1251700	1106
Manganese	388	311-	465	1	383.3298350	99
Nickel	1 74.5	58.3-	90.7	È.	78.3319120	1105 11
Selenium	1 150	111-	188	İ.	156.2151590	1104 11
Silver	90.0	67.0-	113	i	90.2842810	1100 11
Thallium	80.3	46.0-	115	i i	89.1352890	i111 ii
Vanadium	173	118-	228	1	159.3544890	92 11
Zinc	273	211-	335	i	261.9810170	96 11

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

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Lab Name: Veritech

Lab Code: 14622

Data File Name: S3171Z Analysis Date: 2/ 2/01

ICP sample ID: LCS 100

Batch: 3171

All Concentration Units in PPM except Mercury in PPB

1	Spike	T	Q	2	Τ		
1	Amount	1	Limi	its		Found	Rec
=		=   =			=   =		= ====  M
1	8270	Ł	4200-	12300	1	4617.7000000	56   P
1	10500	1	7840-	13200	I.	10735.5000000	1102   P
1	12700	E	7470-	17900	T	9724.6000000	77   P
I.	2750	Ť.	2070-	3430	1	2336.4000000	1 85   P
1	3580	E	2620-	4540	Î.	3008.6000000	84   P
1	1020	1	692-	1350	İ.	1017.6000000	1100 IIP
		Amount 8270 10500 12700 2750 3580	Amount     8270     10500     12700     2750     3580	Amount   Limi   8270   4200-   10500   7840-   12700   7470-   2750   2070-   3580   2620-	Amount       Limits         8270       4200-12300         10500       7840-13200         12700       7470-17900         2750       2070-3430         3580       2620-4540	Amount       Limits         8270       4200-12300         10500       7840-13200         12700       7470-17900         2750       2070-3430         3580       2620-4540	Amount       Limits       Found         8270       4200-12300       4617.7000000         10500       7840-13200       10735.5000000         12700       7470-17900       9724.6000000         2750       2070-3430       2336.4000000         3580       2620-4540       3008.6000000

\* - Indicates the analyte failed the control limit criteria
 U - Indicates the analyte was not detected

Lab Name:VeritechData File Name: H31715Lab Code:14622Analysis Date: 02/02/2001ICP sample ID:LCSBatch: 3171

All Concentration Units in PPM except Mercury in PPB

	Spike	0	C		
Analyte	Amount	Lim	its	Found	Rec
============	*********				= ====  M
Mercury	1490	852-	2120	1236.6105095	83   C

\* - Indicates the analyte failed the control limit criteria

U - Indicates the analyte was not detected

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# **INORGANIC METHOD BLANK SUMMARY**

Blank Matrix: Soil Units: mg/Kg

Analyte	Practical Quant Limit	Batch Number	Method Blank Result
Chloride	50	031s	ND

# **INORGANIC METHOD BLANK SUMMARY**

Blank Matrix: Water Units: mg/L

Analyte	Practical Quant Limit	Batch Number	Method Blank Result
Chloride	1.8	081w	ND

# **INORGANIC SPIKE SAMPLE RECOVERY**

# Sample No.: AB23038 MS

Sample Matrix: Soil Units: mg/Kg

% Solids for Sample: 77

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	с	Added (SA)	%R	Q	M
Chloride	75-125	692		65	U	649	107		
TCN	75-125								
Phenols	75-125								
RCN	75-125								
RS	75-125								
Hex-Cr	75-125								
									-
			-	<u>.</u>		**************************************			

# NJ STATE LAB ID: 14622

# **INORGANIC SPIKE SAMPLE RECOVERY**

## Sample No.: AB23038 MSD

Sample Matrix: Soil Units: mg/Kg

% Solids for Sample: 77

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	С	Added (SA)	%R	Q	M
Chloride	75-125	692		65	U	649	107		T
TCN	75-125								$\uparrow$
Phenols	75-125					- <u> </u>			
RCN	75-125								
RS	75-125								
Hex-Cr	75-125								
									-
									-

# NJ STATE LAB ID: 14622

# **INORGANIC SPIKE SAMPLE RECOVERY**

# Sample No.: AB23042 MS

Sample Matrix: Water Units: mg/L

% Solids for Sample: NA

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	С	Added (SA)	%R	Q	M
Chloride	75-125	89.5		39.9	Í	50.0	99		
TCN	75-125								
Phenols	75-125								
RCN	75-125								
RS	75-125								
Hex-Cr	75-125								
									-
									-
								_	
									_

# **INORGANIC SPIKE SAMPLE RECOVERY**

## Sample No.: AB23042 MSD

Sample Matrix: Water Units: mg/L

% Solids for Sample: NA

Analyte	Control Limit (%R)	Spiked Sample Result (SSR)	С	Sample Result (SR)	С	Added (SA)	%R	Q	M
Chloride	75-125	91.3		39.9		50.0	103		
TCN	75-125								
Phenols	75-125								
RCN	75-125								
RS	75-125								
Hex-Cr	75-125					· · · · · · · · · · · · · · · · · · ·			