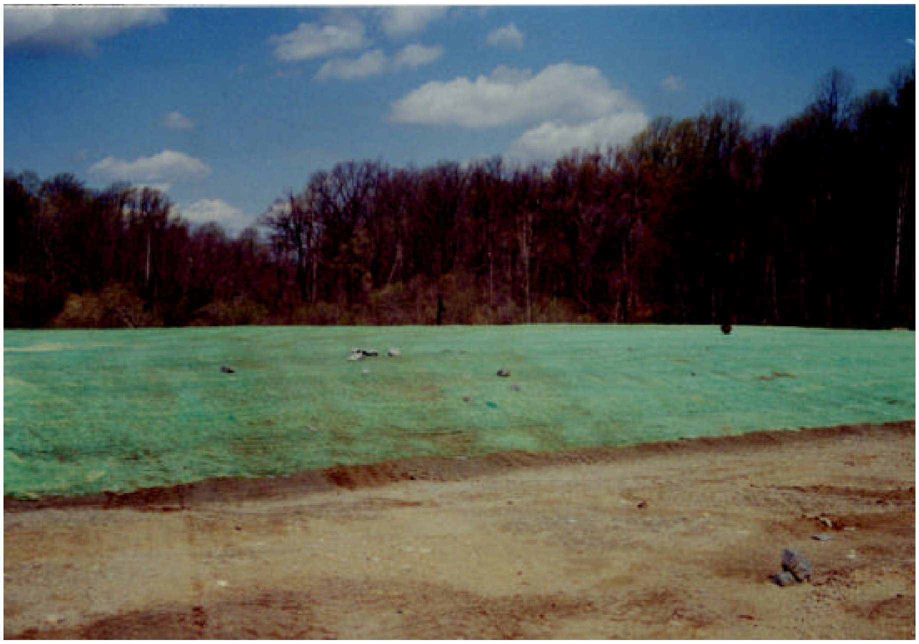
NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
Albany, New York

POST-CLOSURE QUARTERLY LANDFILL MONITORING

Third Year, First Quarter



Harrison Subresidency
D008873 P.I.N. 8806.51.301
Town of Harrison
Westchester County, New York

February 2003

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NEW YORK STATE DEPARTMENT OF TRANSPORTATION
ALBANY, NEW YORK

HARRISON SUBRESIDENCY
WESTCHESTER COUNTY
POST-CLOSURE MONITORING RESULTS

D008873, PIN 8806.51.301

THIRD YEAR, FIRST QUARTERLY REPORT

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EXECUTIVE SUMMARY

This report presents the results of the 4 and 5 November 2002 third year, first quarter post-closure sampling and monitoring conducted at the Harrison Subresidency site located in the town of Harrison, Westchester County, New York. 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 to evaluate and/or modify the existing sampling and monitoring program. Six wells (LMW-2, MW-4, PC-1, PC-2, PC-3 and PC-4), three surface water locations (SW-1, SW-2 and SW-4) and four sediment locations (SD-1, SD-2, SD-3 and SD-4) were sampled for Target Analyte List (TAL) metals, chloride and cyanide and Target Compound List (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides and PCBs in accordance with the December 2000 Post-Closure Operations and Maintenance Manual (LMS 2000). The sampling program was expanded to determine if additional parameters should be included in subsequent sampling events.

The current analytical results indicate that the landfill appears to be contributing elevated levels of several non-RCRA constituents (i.e. iron and manganese) to the groundwater. External (offsite) and/or upgradient sources appear to be contributing elevated levels of the RCRA metals antimony and selenium, and the non-RCRA metals magnesium and sodium to the groundwater. In addition, the unfiltered sample results indicate that elevated levels of both RCRA and non-RCRA metals may be the result of increased sample turbidity, which could occur during sampling activities.

There were no concentrations of chloride, cyanide, VOCs, SVOCs, pesticides or PCBs, detected in the groundwater, above their respective Class GA standards.

The current surface water analytical results indicate the landfill may be contributing slightly elevated levels of the non-RCRA metals iron, manganese and sodium to the surface water. However, elevated levels of these metals were detected in an upstream sample, which suggests a contributing offsite source. The RCRA metal selenium was detected in all the surface water

samples above the NYS standard. However, the elevated level detected in the upstream sample SW-1 indicates a contributing off-site source.

There were no concentrations of chloride, cyanide, VOCs, SVOCs, pesticides or PCBs, detected in the surface water, above their respective Class GA standards.

The current sediment analytical results indicate the landfill appears to be contributing moderate levels of the non-RCRA metals copper and manganese and the RCRA metal lead (detected within the normal background range for this area)[1] to the sediment. According to the NYSDEC Technical Guidance for Screening Contaminated Sediments, the impact to the sediment is considered moderate. In addition, concentration of lead detected in the upstream sample collected from SD-1 suggests a contributing off-site source.

There were no concentrations of chloride, cyanide, VOCs, SVOCs, pesticides or PCBs detected in the sediment above their respective criteria.

The results of the expanded sampling program indicate that there were no concentrations of cyanide, VOCs, SVOCs, pesticides or PCBs detected in the groundwater, surface water or sediment samples above their respective NYS standards, guidance values or criteria. Therefore no additional parameters will be included in the remaining quarters of the third year of landfill sampling and analysis.

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[1] NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, Appendix A.

1.0 INTRODUCTION

1.1 Background

This report presents the results of the 4 and 5 November 2002 third year, first quarter 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 third year, first 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. In accordance with the December 2000 Post-Closure Operations and Maintenance Manual (LMS 2000) the scope was expanded to include groundwater, surface water and sediment sampling for cyanide and TCL VOCs, SVOCs, pesticides and PCBs. The purpose of the expanded scope is to determine if additional parameters should be included in subsequent sampling events. The quarterly sampling and monitoring program was established to conform to the requirements of 6 NYCRR Part 360 2.15 (K).

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 to evaluate and/or modify the existing sampling and monitoring program.

1.3 First Year Quarterly Post-Closure Monitoring

Results of the first year post-closure quarterly monitoring at the landfill suggest that a large portion of the non-RCRA metals and the majority of the RCRA metals, detected in the samples collected from the landfill, were associated with the suspended solids faction (suspended particulates greater than 0.45 microns) and were not detected in the dissolved phase, or were detected at lower concentrations.

1.4 Second Year First Quarterly Post-Closure Monitoring

LMS conducted the second year first quarterly post-closure monitoring of the groundwater, surface water and sediment at the landfill on 7 and 8 November 2001. Samples were collected from four on-site and two off-site monitoring wells, three surface water locations and four sediment locations. The analytical results indicated that two RCRA metals, selenium and chromium, were detected in the groundwater above their respective New York State (NYS) Class GA standard. Chromium was not detected in the filtered samples and selenium was detected in only one filtered sample, PC-2, slightly above the standard. In general, the data indicates that a large portion of the TAL metals detected in the groundwater were associated with the suspended solids faction (which typically do not migrate) and were not detected in the dissolved phase or were detected at a lower concentration. Chloride was detected in excess of the NYS standard of 250 ppm in the off-site well PC-3.

Surface water analytical results indicated that the RCRA metal lead was detected above the NYS standard in the sample collected from SW-2. However, lead was not detected in the downstream surface water sample (SW-4) which indicated there was no off-site surface water migration of lead from the landfill.

Lead and zinc were detected in two sediment samples (lead in SD-3 and zinc in SD-4) above their respective severe effect level (SEL). However, zinc was not detected above the NYS guidance value in the corresponding surface water sample collected from SW-4. The stream at SW-3 was dry and therefore a corresponding surface water sample was not collected. Cadmium, copper, manganese and nickel were detected in the downstream sediment samples above or at their respective lowest effect level (LEL). However, only manganese was detected above the NYS standard in the surface water samples. Manganese is not a hazardous or RCRA metal.

1.5 Second Year Second Quarterly Post-Closure Monitoring

LMS conducted the second year second quarterly post-closure monitoring of the groundwater, surface water and sediment at the landfill on 5 and 6 February 2002. Six wells (LMW-2, MW-4, PC-1, PC-2, PC-3 and PC-4) and four surface water/sediment locations (SW/SD-1, SW/SD-2, SD-3 and SW/SD-4) were sampled for Target Analyte List (TAL) metals and chloride.

The analytical results indicate that the RCRA metals antimony and chromium were detected in the groundwater above their respective New York State (NYS) Class GA standard. Chromium was not detected in the filtered samples and antimony was detected slightly above the standard in one filtered sample, PC-2. Concentrations of iron, magnesium, manganese and sodium (which are non-RCRA constituents) were detected in excess of the NYS standards in the filtered and unfiltered groundwater samples. However, in general, the data indicates that a large portion of the TAL metals detected in the groundwater are associated with the suspended solids faction (which typically do not migrate) and were not detected in the dissolved phase or were detected at a lower concentration. Chloride was not detected in excess of the NYS standard in the groundwater samples.

Surface water analytical results indicate that the RCRA metals antimony, chromium and lead were detected above their respective NYS standard. Chromium and lead were detected above the standard in the upstream sample SW-1, which suggests a contributing off-site source. Antimony was detected in the unfiltered downstream surface water sample (SW-4) slightly above the standard. In addition, concentrations of the non-RCRA metals, iron, magnesium, manganese and sodium were detected at levels that exceeded the NYS standards. Chloride was not detected above the standard in the surface water samples.

The RCRA metals lead and nickel were detected in two sediment samples (lead in SD-2 and nickel in SD-2 and SD-3) above their respective lower effect level (LEL) but were not detected above the NYS standards in the corresponding surface water sample collected from SW-2. The stream at SW-3 was dry and therefore a corresponding surface water sample was not collected from this location. The non-RCRA metals copper and manganese were detected in the downstream sediment samples above their respective lowest effect level (LEL) but were not detected above the NYS standards in the surface water samples. There is no sediment criterion for chloride.

1.6 Second Year Third Quarterly Post-Closure Monitoring

LMS conducted the second year third quarterly post-closure monitoring of the groundwater, surface water and sediment at the landfill on 22 and 23 May 2002. Six wells (LMW-2, MW-4, PC-1, PC-2, PC-3 and PC-4) and four surface water/sediment locations (SW/SD-1, SW/SD-2, SD-3 and SW/SD-4) were sampled for Target Analyte List (TAL) metals and chloride

The analytical results indicate that the RCRA metals chromium, lead and selenium were detected in the unfiltered groundwater samples above their respective New York State (NYS) Class GA standards. Concentrations of the non-RCRA metals iron, magnesium, manganese and sodium were detected in excess of the NYS standards in the filtered and unfiltered groundwater samples. However, in general, the data indicates that a large portion of the TAL metals detected in the groundwater were associated with the suspended solids faction (which typically do not migrate) and were not detected in the dissolved phase or were detected at a lower concentration. Elevated levels of iron, magnesium, manganese and sodium, detected in the sample collected from the upgradient well LMW-2, suggests a contributing external source. Chloride was detected just above the NYS standard in the groundwater sample collected from the on-site monitoring well PC-1.

Surface water analytical results indicate that the non-RCRA metals, iron, manganese and sodium were detected at levels that exceeded the NYS standards. The elevated levels of these metals detected in the upstream sample SW-1 suggest a contributing off-site source. Chloride was not detected above the standard in the surface water samples.

The RCRA metals lead and silver were detected in two sediment samples (lead and silver in SD-3 and silver in SD-1) above their respective lower effect level (LEL) but were not detected above the NYS standards in the corresponding surface water samples. The elevated concentration of silver detected in the sample collected from the upstream location SD-1 suggests a contributing external source. The non-RCRA metals copper and manganese were detected in two sediment samples (copper in SD-3 and manganese in SD-2) above their respective lowest effect level (LEL) but were not detected above the NYS standards in the corresponding surface water samples. There is no sediment criterion for chloride.

1.7 Second Year Fourth Quarterly Post-Closure Monitoring

LMS conducted the second year fourth quarterly post-closure monitoring of the groundwater, surface water and sediment at the landfill on 19 and 20 August 2002. Six wells (LMW-2, MW-4, PC-1, PC-2, PC-3 and PC-4), three surface water locations (SW-1, SW-2 and SW-4) and four sediment locations (SD-1, SD-2, SD-3 and SD-4) were sampled for Target Analyte List (TAL) metals and chloride.

The analytical results indicate that the RCRA metals chromium and selenium were detected in the filtered and unfiltered groundwater samples above their respective New York State (NYS) Class GA standards. Concentrations of the non-RCRA metals iron, magnesium, manganese, nickel and sodium were detected in excess of the NYS standards in the filtered and unfiltered groundwater samples. However, in general, the data indicates that a large portion of the TAL metals detected in the groundwater were associated with the suspended solids fraction (which typically do not migrate) and were not detected in the dissolved phase or were detected at a lower concentration. Elevated levels of magnesium and sodium, detected in the sample collected from the upgradient well LMW-2, suggests a contributing external source. Chloride was detected above the NYS standard in the groundwater sample collected from the off-site monitoring well

PC-3. PC-3 is located adjacent to a highway and the elevated level of chloride (620 ppm) detected in this well may be, in part, attributable to deicing activities in this area.

Surface water analytical results indicate that the non-RCRA metals, iron, manganese and sodium were detected at levels that exceeded the NYS standards. The elevated levels of iron and manganese detected in the upstream sample SW-1 suggest a contributing off-site source. Chloride was not detected above the standard in the surface water samples.

The RCRA metals lead and silver were detected above their respective Severe Effect Level (SEL) in two sediment samples (lead in SD-3 and silver in SD-1). Silver was also detected above the Lower Effect Level (LEL) in SD-2 and SD-3. Lead and silver were not detected above the NYS standards in the corresponding surface water samples. The elevated concentration of silver detected in the sample collected from the upstream location SD-1 suggests a contributing external source for this contaminant. The non-RCRA metals copper and manganese were detected in two sediment samples (copper in SD-1 and SD-3 and manganese in SD-2) above their respective LEL. Copper was not detected above the NYS standards in the corresponding surface water samples. Manganese was detected above the NYS standards in samples collected from the upstream location SW-1 and also in samples collected from SW-2 and SW-4. The elevated concentration of copper in the upstream sampling location SD-1 suggests a contributing off-site source. There is no sediment criterion for chloride.

2.0 FIELD INVESTIGATION

2.1 Monitoring Well Sampling

On 4 and 5 November 2002, as part of the quarterly post-closure sampling and monitoring program, six monitoring wells (Figure 3) and a field blank sample (MW-1), a duplicate of PC-1, were purged and sampled TAL metals (filtered and unfiltered) chloride, cyanide, TCL VOC, SVOC, pesticide and PCB analyses.

The upgradient well LMW-2 was purged dry after two gallons. The well was allowed to recharge to more than 95% before sampling. The downgradient well MW-4, which was purged dry after three gallons, was allowed to recover to more than 85% before sampling. PC-1, PC-2, PC-3 and PC-4 were each purged of three well volumes prior to sampling. Well purging was performed by hand using a dedicated bailer or with a submersible pump. 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 analysis.

A round of static water level measurements was recorded for all wells prior to sampling activities. Groundwater chemistry measurements (temperature, pH, conductivity, and turbidity) were recorded before, during, and after purging, with a measurement recorded for approximately every well volume. An additional round of static water measurements was recorded for all wells after purging. Groundwater purging information is recorded on the groundwater well sampling logs included in Attachment A.

2.2 Surface Water Sampling

Three surface water sampling points (SW-1, SW-2 and SW-4) were sampled for TAL metals (total and filtered), chloride, cyanide, TCL VOC, SVOC, pesticide and PCB analyses.

SW-1 was collected from a point located at the eastern section of wetlands B. SW-2 was collected from a point located at the northern portion of wetlands A (western side of the landfill). The stream at SW-3 was dry; therefore no sample was collected from this point. SW-4 was collected from a point located approximately 17 ft. northeast of the 36-in. reinforced concrete pipe (RCP) culvert that diverts the stream southwest under Route 120 to Rye Lake. The flow at

SW-1, SW-2 and SW-4 was very low [<1 cubic foot per second (cfs)] and limited to a small channel approximately four inches deep.

The 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 analysis. Water chemistry measurements (temperature, pH, conductivity, and turbidity) were recorded during sample collection and are included in Attachment B.

2.3 Sediment Sampling

Four sediment samples (Figure 4) were collected for TAL metal, chloride, cyanide, TCL VOC, SVOC, pesticide and PCB analyses. Each sediment sample was collected subsequent to, and at the same location as, its corresponding surface water sample. The samples were collected using a dedicated laboratory-cleaned stainless steel spoon and were placed directly into the appropriate pre-cleaned laboratory-supplied 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 at each of four 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 levels 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 in good condition. As noted in Section 2.1 the well casing at PC-2 had sheared sideways allowing only a gap of approximately two centimeters down the well. The landfill cap, drainage swales, and gas vents were also inspected. No vermin or vector were observed on the landfill.

3.0 ANALYTICAL RESULTS

3.1 Groundwater Results

Filtered and unfiltered groundwater samples were collected from four on-site (LMW-2, MW-4, PC-1 and PC-2) and two off-site (PC-3 and PC-4) monitoring wells and analyzed for TAL metals, chloride, cyanide, VOCs, SVOCs, pesticides and PCBs. An additional sample, MW-1, a blind duplicate sample of PC-1, was also collected. The correlation for PC-1 and MW-1 (blind duplicate) was within an acceptable range (within 20%) for 61% of the parameters analyzed.

Groundwater samples were analyzed according to NYSDEC Analytical Services Protocol (ASP). Analytical results for TAL metals (filtered and unfiltered groundwater samples), chloride and cyanide are presented in Table 1. The analytical results for the TCL VOCs, SVOCs, pesticides and PCBs are presented in Table 4. 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.

TAL Metals, Chloride and Cyanide

Results of the analysis indicate that 19 TAL metals were detected in the groundwater samples. Arsenic, beryllium, mercury, and thallium were not detected in the filtered and unfiltered groundwater samples. With some exceptions [antimony (PC-3), cadmium (PC-1 and PC-2) calcium (LMW-2 and MW-4), chromium (MW-4 and PC-1), magnesium (LMW-2 and MW-4), nickel (MW-4 and PC-1), potassium (MW-4), selenium (PC-2, PC-3 and PC-4), silver (LMW-2, PC-3 and PC-4), sodium (LMW-2 and MW-4) and zinc (MW-4)] the concentrations of TAL metals detected in the filtered ground water samples were lower than those detected in the unfiltered samples. Many of these compounds were detected below the groundwater standards in the filtered samples.

Cyanide was not detected in the groundwater samples. Chloride was detected in all the unfiltered groundwater samples. The highest concentration, 190 parts per million (ppm), was detected in the offsite well PC-3.

VOCs, SVOCs, Pesticides and PCBs

No volatile organic compounds were detected in the groundwater samples. A total of two semi-volatile organic compounds [bis(2-Ethylhexyl)phthalate (all samples) and di-n-butylphthalate (LMW-2, PC-1 and PC-2) were detected in the groundwater samples. These compounds were either detected in the laboratory blank and/or were reported below the specified detection limit. No PCBs or pesticides were detected in the groundwater samples.

3.2 Surface Water Results

Three surface water samples were collected and analyzed for TAL metals (filtered and unfiltered), chloride, cyanide, TCL VOCs, SVOCs, pesticides and PCBs according to NYSDEC ASP. Analytical results for TAL metals, chloride and cyanide are presented in Table 2. Analytical results for TCL VOCs, SVOCs, pesticides and PCBs are presented in Table 4. 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.

TAL Metals, Chloride and Cyanide

Results of the analysis indicate that fourteen TAL metals were detected in the surface water samples. Antimony, arsenic, beryllium, chromium, cobalt, lead, mercury, nickel, and thallium were not detected in the filtered and unfiltered surface water samples. With some exceptions [aluminum (SW-1), barium (SW-1), cadmium (SW-4), calcium (SW-1 and SW-4), copper (SW-1), magnesium (SW-4), potassium (SW-1 and SW-4), selenium (SW-1 and SW-2), silver (SW-1 and SW-2), sodium (SW-1 and SW-4) and vanadium (SW-1 and SW-4)] the concentrations of TAL metals detected in the filtered surface water samples were lower than those detected in the unfiltered samples. The highest concentration of chloride (69 ppm) was detected in the unfiltered sample collected from SW-2. Cyanide was not detected in the surface water samples.

VOCs, SVOCs, Pesticides and PCBs

One volatile organic compound, methylene chloride, was detected in the surface water (SW-1). The compound was reported below the specified detection limit. A total of two semi-volatile organic compounds [bis(2-Ethylhexyl)phthalate (all samples) and di-n-butylphthalate (all samples) were detected in the surface water samples. These compounds were detected in the laboratory blank and were reported below the specified detection limit. No PCBs or pesticides were detected in the surface water samples.

3.3 Sediment Data Results

Four sediment samples were collected and analyzed for TAL metals, chloride, cyanide, TCL VOCs, SVOCs, pesticides and PCBs according to NYSDEC ASP. TAL metal, chloride and cyanide analytical results are presented in Table 3 and the TCL VOC, SVOC, pesticide and PCB analytical results are presented in Table 4. 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.

TAL Metals, Chloride and Cyanide

Sixteen TAL metals were detected in the sediment samples (antimony, beryllium, cadmium, mercury, selenium, silver and thallium were not detected). The highest concentrations of TAL metals were detected in the sample collected from SD-4. This is attributable to the elevated concentrations of calcium and magnesium detected in this sample. SD-4 is downgradient of a stream segment that is filled with rip-rap material that includes carbonate rock. It is possible that small fragments of carbonate rock in the sediment are contributing to the elevated concentrations of calcium and magnesium detected in this sample.

The highest concentration of chloride (76 ppm) was detected in SD-3. Cyanide was detected at 0.43 ppm in the upstream sampling location, SD-1.

VOCs, SVOCs and Pesticides and PCBs

One volatile organic compound, methylene chloride, was detected in the sediment samples (all samples). This compound was also detected in the laboratory blank sample. Sixteen semi-volatile organic compounds were detected in the sediment samples (SD-2, SD-3 and SD-4). With the exception of chrysene, fluoranthene, phenanthrene and pyrene (SD-3) all the compounds were reported below the specified detection limit. No PCBs or pesticides were detected in the sediment samples.

4.0 COMPARISON TO APPLICABLE CRITERIA

4.1 Groundwater

TAL Metals, Chloride and Cyanide

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

The TAL metals groundwater analysis indicates three RCRA metals (antimony, chromium and selenium) and four non-RCRA metals (iron, manganese, magnesium and sodium), detected in the unfiltered and filtered samples, occurred at concentrations exceeding their respective groundwater criteria (Table 1).

Protocol requires analysis of both filtered and unfiltered samples. Unfiltered analytical results indicate that elevated concentrations of TAL-metals are related to increased sample turbidity, which could result from sampling activities.

Unfiltered Samples

Antimony was not detected in the unfiltered groundwater samples. Chromium was detected above the Class GA standard of 50 ppb in the sample collected from the offsite well PC-4 (120 ppb). Selenium was detected above the Class GA standard of 10 ppb in the samples collected from LMW-2 (23 ppb), MW-4 (11 ppb), PC-1 (19 ppb), PC-3 (13 ppb) and PC-4 (15 ppb). The highest concentration was detected in the background upgradient well LMW-2, which suggests a contributing off-site source.

Iron and manganese exceeded the combined Class GA standard of 500 ppb in all the unfiltered samples. The highest combined concentration, 110,000 ppb, was detected in PC-2. Magnesium exceeded the Class GA guidance value of 35,000 ppb in the sample collected from the upgradient well LMW-2 at 36,000 ppb. The elevated level detected in the upgradient background well suggests a contributing off-site source. Sodium exceeded the standard of 20,000 ppb in all unfiltered groundwater samples. The highest concentration (120,000 ppb) was detected in the sample collected from the off-site well PC-3, which suggests a contributing offsite source.

Filtered Samples

Antimony exceeded the Class GA standard of 3 parts per billion (ppb) in the filtered groundwater sample collected from the offsite well PC-3 (4.2 ppb). Antimony was not detected in the groundwater samples collected from the on-site wells or the offsite well (PC-4), which may indicate an external source for the elevated concentration detected in PC-3.

Chromium was not detected above the standard in any of the filtered samples, which suggests that the elevated levels detected in the unfiltered samples which is likely the result of increased turbidity related to sampling activities.

Selenium was detected at or above the Class GA standard of 10 ppb in the samples collected from LMW-2 (15 ppb), PC-1 (16 ppb), PC-2 (10 ppb), PC-3 (20 ppb) and PC-4 (and 16 ppb). The concentration of selenium detected in the sample collected from the upgradient background well, LMW-2, suggests an offsite source.

Iron and manganese exceeded their combined Class GA standard of 500 parts per billion (ppb) in all but two samples (PC-1 and PC-4). The highest combined concentration of iron and manganese was detected in the sample collected from MW-4.

Magnesium exceeded the Class GA guidance value of 35,000 ppb in the sample collected from the upgradient well LMW-2 at 37,000 ppb, which suggests a contributing offsite source.

Sodium exceeded the standard of 20,000 ppb in all groundwater samples. The highest concentration (110,000 ppb) was detected in the sample collected from the offsite well PC-3 which suggests a contributing offsite source.

Chloride and Cyanide

Chloride and cyanide were not detected above their respective Class GA standards in the groundwater samples.

VOCs, SVOCs, Pesticides and PCBs

There were no concentrations of VOCs, SVOCs, pesticides or PCBs, detected in the groundwater, above their respective Class GA standards.

4.2 Surface Water

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

TAL Metals, Chloride and Cyanide

The results of the TAL metals analysis indicates that one RCRA metal (selenium) and three non-RCRA metals (iron, manganese and sodium) were detected in the unfiltered and filtered surface water samples at concentrations exceeding their respective criteria (Table 2).

Selenium was detected above the Class GA standard of 10 ppb in all the unfiltered and filtered surface water samples. The concentrations of selenium detected in the unfiltered and filtered samples collected from the upstream surface water location SW-1 indicate a contributing off site source.

Iron and manganese exceeded the combined Class GA standard of 500 ppb in all but two samples (filtered SW-2 and filtered SW-4). The combined iron and manganese concentration detected in the filtered samples was lower than that detected in the unfiltered samples. The elevated levels of iron and manganese detected in the upstream sampling location SW-1 suggest a contributing off-site source. Sodium was detected above the Class GA standard of 20,000 ppb in the unfiltered and filtered samples collected from all surface water locations. The highest concentration, 44,000 ppb, was detected in the filtered sample collected from SW-4. The concentration of sodium detected in the unfiltered and filtered samples collected from the upstream location SW-1 suggests a contributing off-site source.

Chloride and cyanide were not detected above their respective Class GA standards in the surface water samples.

VOCs, SVOCs, Pesticides and PCBs

There were no concentrations of VOCs, SVOCs, pesticides or PCBs, detected in the surface water, above their respective Class GA standards.

4.3 Sediment

The results of the sediment analysis (Table 3) was compared to the NYSDEC Technical Guidance for Screening Contaminated Sediments (January 1999 Revision).

TAL Metals, Chloride and Cyanide

The results of the TAL metals analysis indicate that concentrations of copper, lead and manganese exceeded the lowest effect level (LEL) in the upstream and downstream sample locations. Copper exceeded the LEL of 16 ppm in the sample collected from SD-2 (69 ppm). Lead was detected above the LEL of 31 ppm in the samples collected from SD-3 (50 ppm) and the upstream location SD-1 (35 ppm). The concentration of lead detected in the upstream sample SD-1 suggests a contributing off-site source. Manganese was detected above the LEL of 460 ppm in SD-2 (850 ppm), SD-3 (730 ppm) and SD-4 (610 ppm). Lead was detected within the normal background range for this area (NYSDEC TAGM HWR-94-4046). In addition, according to the NYSDEC Technical Guidance for Screening Contaminated Sediments, if only the LEL criterion is exceeded the impact to the sediment is considered moderate.

There is no sediment criterion for chloride and cyanide.

VOCs, SVOCs, Pesticides and PCBs

There were no concentrations of VOCs, SVOCs, pesticides or PCBs, detected in the sediment, above their respective criteria.

5.0 COMPARISON WITH THE PREVIOUS QUARTER

5.1 Groundwater

Results of the third year first quarter groundwater sampling event (November 2002) indicate that there has been a decrease in the concentrations of the RCRA and non-RCRA metals chromium, nickel, iron, manganese, magnesium and sodium since the last sampling event (August 2002). However, there has been an increase in the concentrations of antimony (filtered offsite sample) and selenium (filtered and unfiltered samples). The highest concentration of selenium was detected in the upgradient well, which indicates a contributing off-site source for the elevated levels we are seeing in the November results. The November 2002 analytical results also indicate there has been a decrease in the chloride concentration detected in the groundwater since the last sampling event (August 2002).

5.2 Surface Water

Between August 2002 and November 2002 there has been a decrease in the non-RCRA metals iron and manganese and an increase in the non-RCRA metal sodium and the RCRA metal selenium. Selenium was detected in the upstream sample, which indicates a contributing off-site source for the elevated levels we are seeing the November 2002 results. There were no concentrations of chloride reported above the Class GA standard in the August 2002 and November 2002 surface water analyses.

5.3 Sediments

Between August 2002 and November 2002 there has been a decrease in the concentrations of the RCRA metals lead and silver and an increase in the non-RCRA metals copper and manganese in the sediment samples.

6.0 CONCLUSIONS

The current analytical results indicate that the landfill appears to be contributing elevated levels of several non-RCRA constituents (i.e. iron and manganese) to the groundwater. External (offsite) and/or upgradient sources appear to be contributing elevated levels of the RCRA metals antimony and selenium, and the non-RCRA metals magnesium and sodium to the groundwater (Figure 6). In addition, the unfiltered sample results indicate that elevated levels of both RCRA and non-RCRA metals may be the result of increased sample turbidity, which could occur during sampling activities.

There were no concentrations of chloride, cyanide, VOCs, SVOCs, pesticides or PCBs, detected in the groundwater, above their respective Class GA standards.

The current surface water analytical results indicate the landfill may be contributing slightly elevated levels of the non-RCRA metals iron, manganese and sodium to the surface water. However, elevated levels of these metals were detected in an upstream sample, which suggests a contributing offsite source. The RCRA metal selenium was detected in all the surface water samples above the NYS standard. However, the elevated level detected in the upstream sample SW-1 indicates a contributing off-site source (Figure 7).

There were no concentrations of chloride, cyanide, VOCs, SVOCs, pesticides or PCBs, detected in the surface water, above their respective Class GA standards.

The current sediment analytical results indicate the landfill appears to be contributing moderate levels of the non-RCRA metals copper and manganese and the RCRA metal lead (detected within the normal background range for this area)[2] to the sediment (Figure 8). According to the NYSDEC Technical Guidance for Screening Contaminated Sediments, the impact to the sediment is considered moderate. In addition, concentration of lead detected in the upstream sample collected from SD-1 suggests a contributing off-site source.

There were no concentrations of chloride, cyanide, VOCs, SVOCs, pesticides or PCBs detected in the sediment above their respective criteria.

The results of the expanded sampling program indicate that there were no concentrations of cyanide, VOCs, SVOCs, pesticides or PCBs detected in the groundwater, surface water or

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[2] NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, Appendix A.

sediment samples above their respective NYS standards, guidance values or criteria. Therefore no additional parameters will be included in the remaining quarters of the third year of landfill sampling and analysis.

Source: NYSDOT 2001

\446\156...\graphics\156-site vicinity aerial.dsf

Figure 6

Harrison Subresidency Site and Vicinity

Harrison Subresidency
POST-CLOSURE QUARTERLY MONITORING
NYSDOT PIN 8806.51.101

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

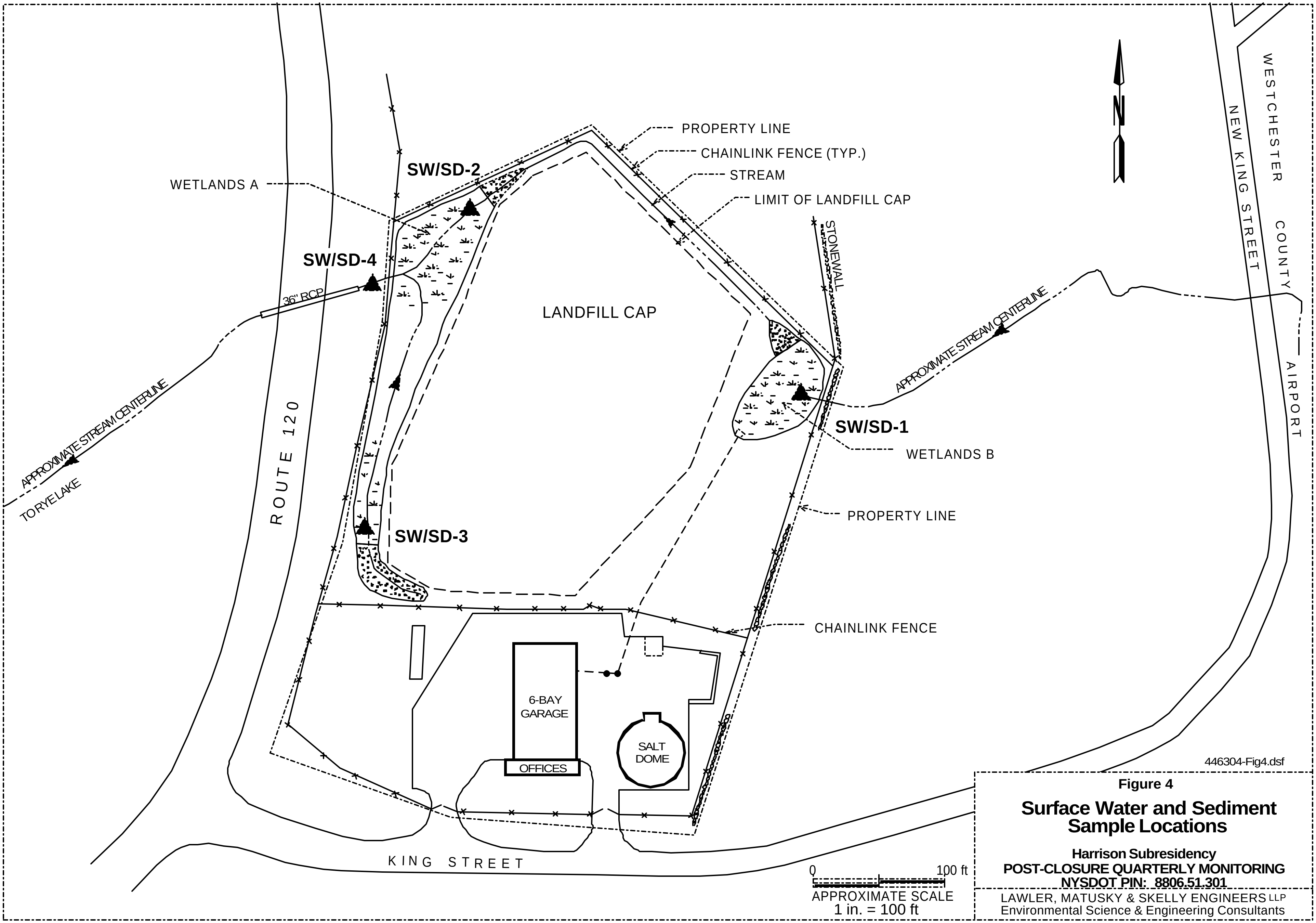


Figure 4

Surface Water and Sediment Sample Locations

Harrison Subresidency
POST-CLOSURE QUARTERLY MONITORING
NYSDOT PIN: 8806.51.301

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants

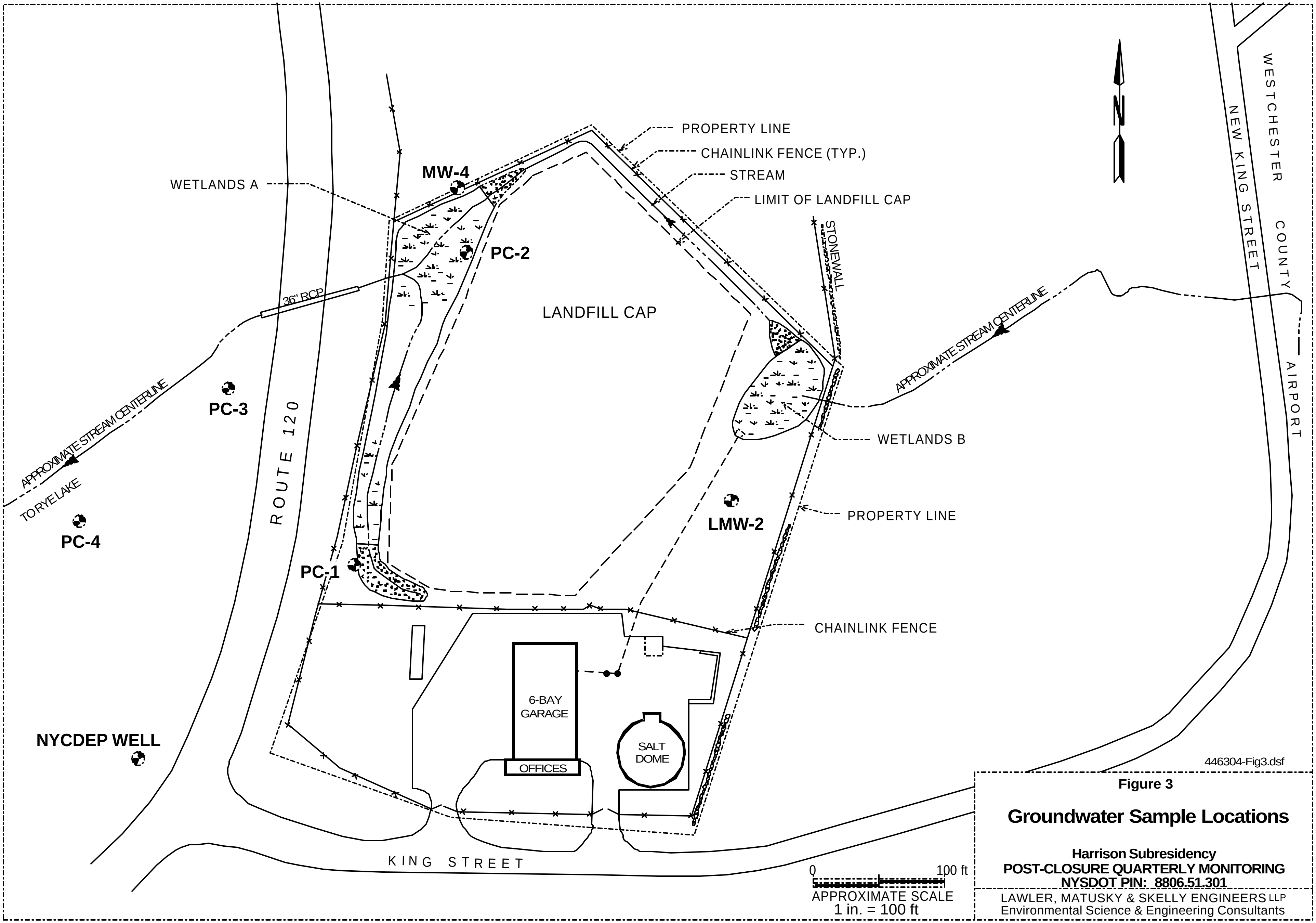
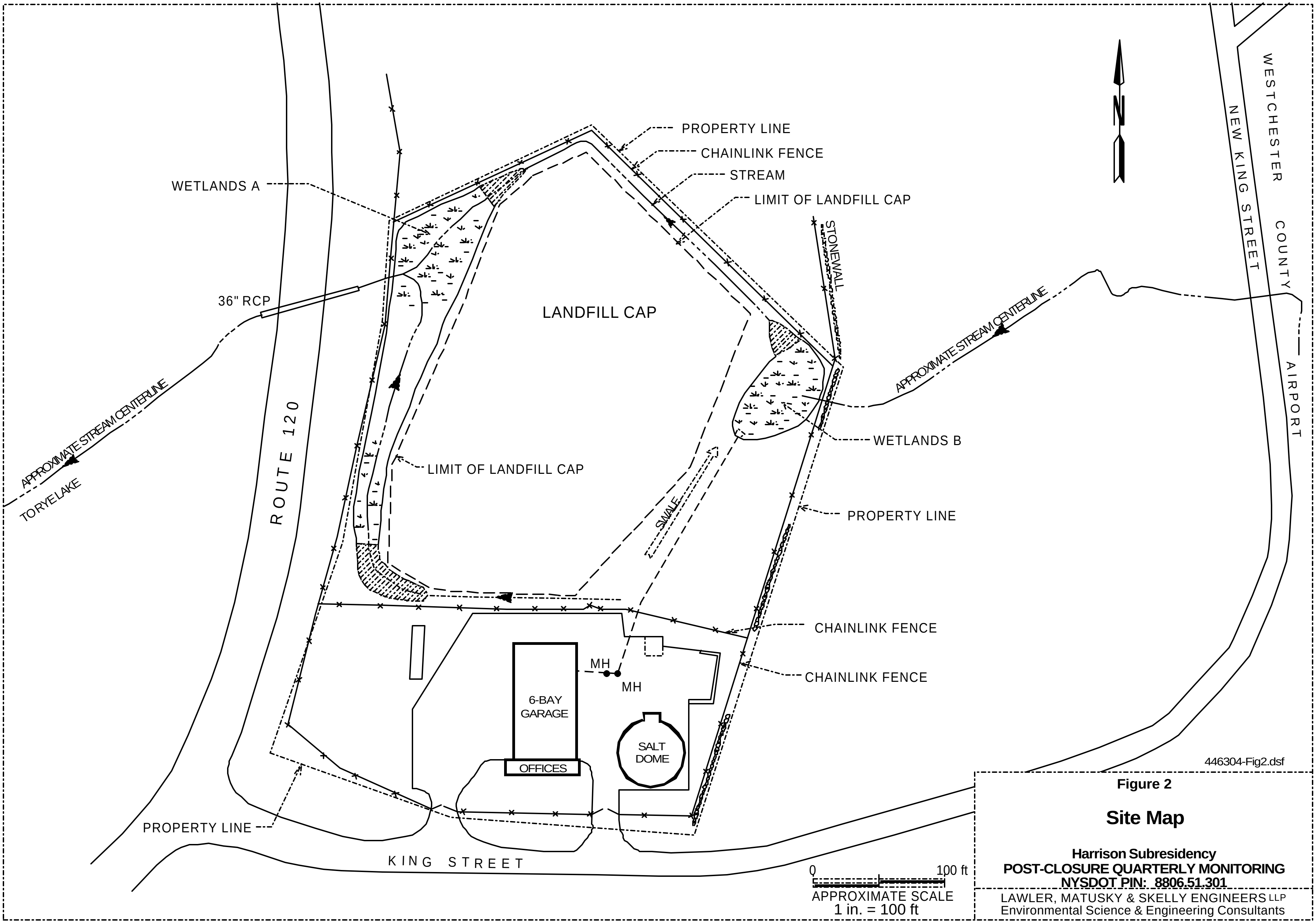


Figure 3

Groundwater Sample Locations

Harrison Subresidency
POST-CLOSURE QUARTERLY MONITORING
NYSDOT PIN: 8806.51.301

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants



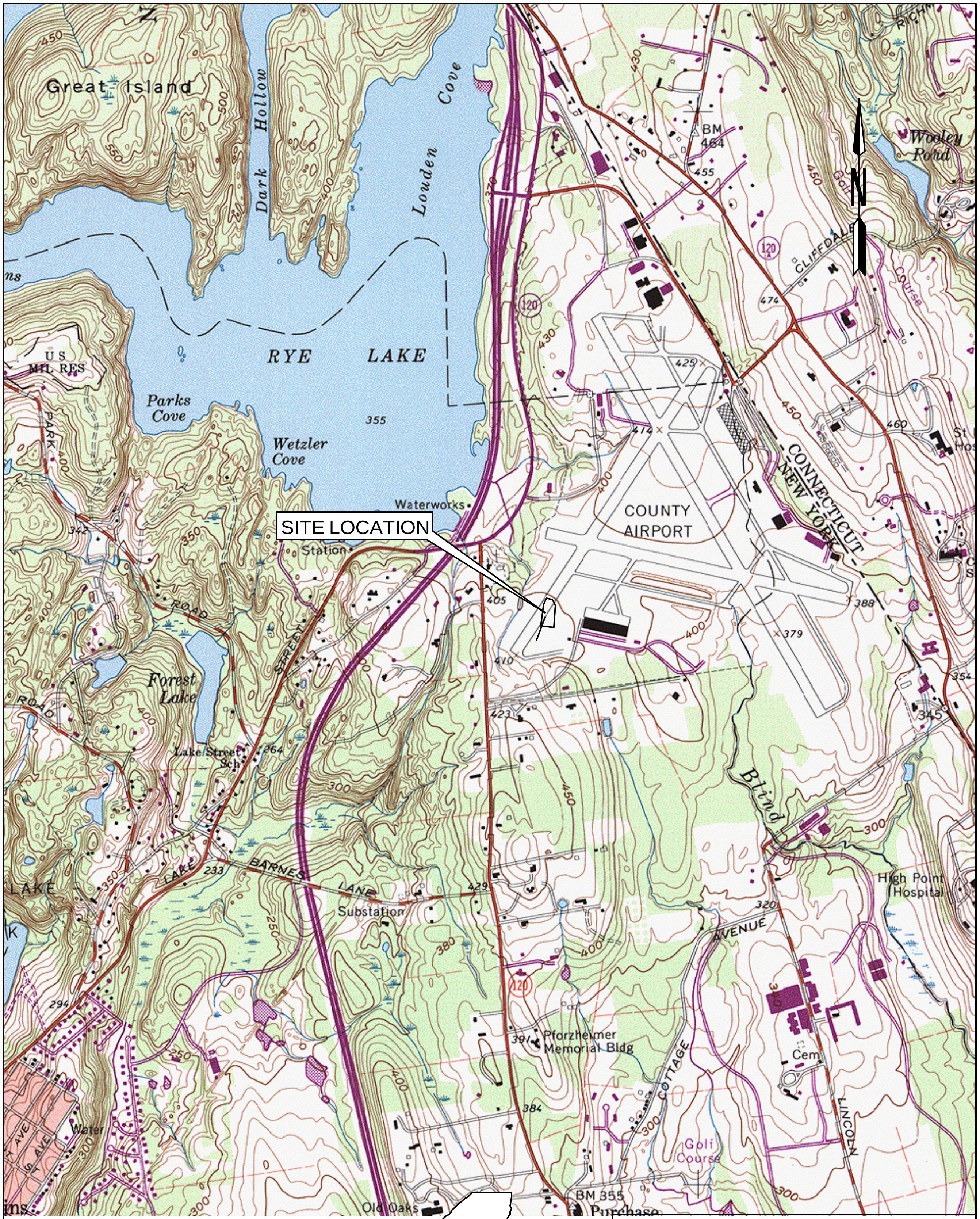
446304-Fig2.dsf

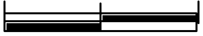
Figure 2

Site Map

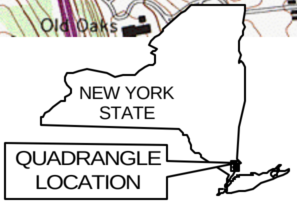
Harrison Subresidency
POST-CLOSURE QUARTERLY MONITORING
NYSDOT PIN: 8806.51.301

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants





SCALE
1 in. = 2000 ft



Map source: USGS 7.5 minute quadrangle map, Glenville Conn. NY, 1960 Photorevised 1971.

\446\304...\graphics\446304-Fig1.dsf

Figure 1

Site Location

Harrison Subresidency
POST-CLOSURE QUARTERLY MONITORING
NYSDOT PIN 8806.51.301

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

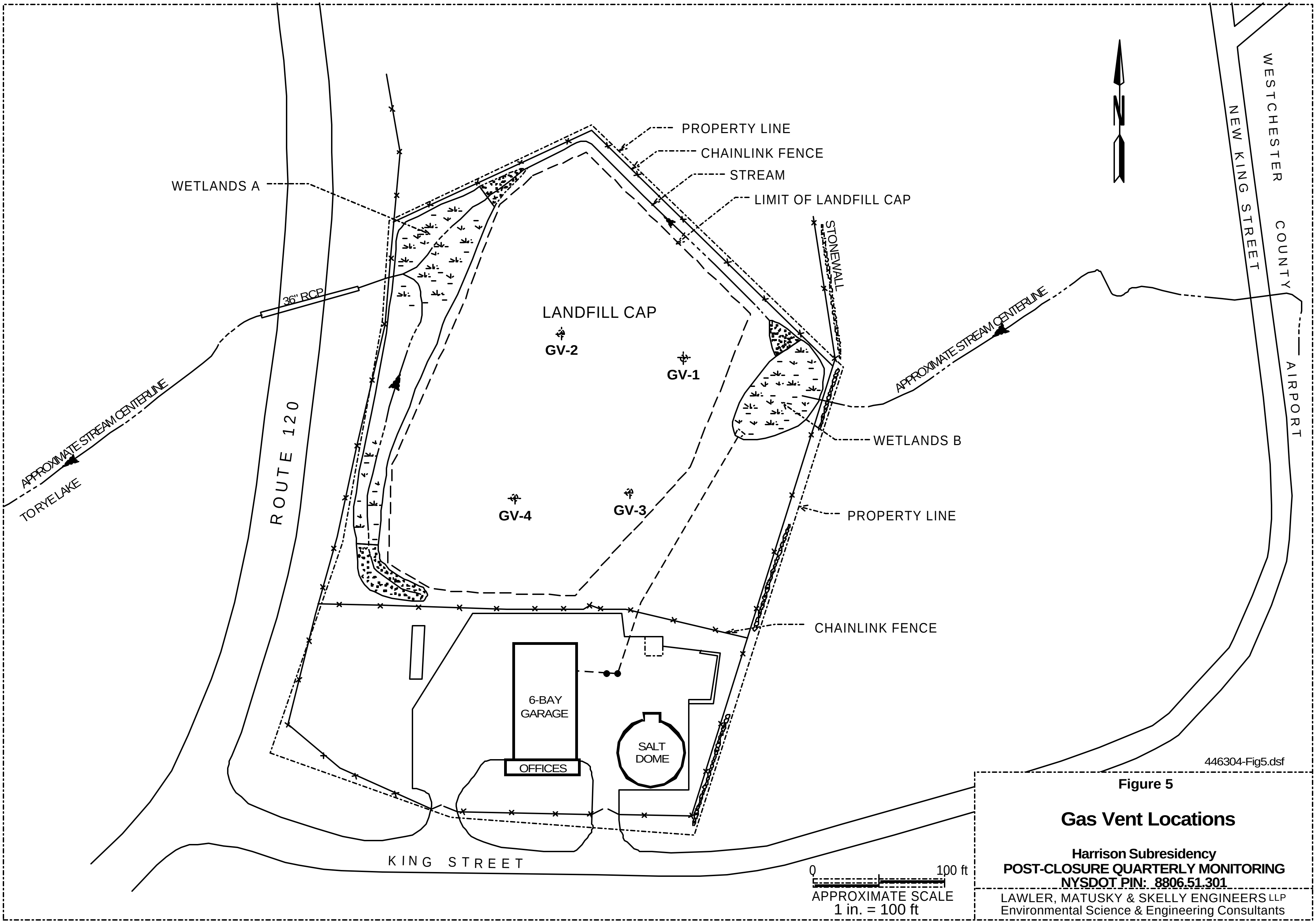


Figure 5

Gas Vent Locations

Harrison Subresidency
POST-CLOSURE QUARTERLY MONITORING
NYSDOT PIN: 8806.51.301

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants

TABLE 1

GROUNDWATER DATA SUMMARY

Third Year - First Quarter (November 2002)

Harrison Subresidency
NYSDOT
D008873, PIN 8806.51.101

PARAMETER	LMW-2	FIL LMW-2	MW-1**	FIL MW-1**	MW-4	FIL MW-4	PC-1	FIL PC-1	PC-2	FIL PC-2	PC-3	FIL PC-3	PC-4	FIL PC-4	NATURAL AMBIENT GROUNDWATER RANGES (n)	NYSDEC CLASS GA STANDARDS (a)
TAL METALS (ug/L)																
Aluminum	1700	ND	12000	ND	480	98	550	ND	16000	ND	4100	ND	27000	130	<5.0 - 1000	NS
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.2	ND	ND	N/A	3
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.0 - 30	25
Barium	200	170	220	86	180	140	100	81	340	120	260	160	340	97	10 - 500	1000
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<10	3.0 GV
Cadmium	2.7	1.5	1.6	0.81	3.1	0.78	0.99	1	ND	0.69	1.1	1	1.3	0.96	<1.0	5
Calcium	96000	99000	110000	110000	82000	86000	120000	110000	68000	68000	92000	81000	40000	36000	1000 - 150000	NS
Chromium	6.5	ND	39	ND	5.2	7.9	ND	7.4	41	ND	12	ND	120	ND	<1.0 - 5.0	50
Cobalt	2.8	ND	8.5	ND	8.3	7	ND	ND	12	3.9	18	10	19	0.54	<10	NS
Copper	10	4.4	28	ND	3.1	ND	4.5	ND	29	ND	31	ND	61	ND	<1.0 - 3	200
Iron	3000	ND	22000	ND	48000	5700	930	60	96000	10000	7400	66	41000	52	10 - 10000	300 (m)
Lead	ND	ND	ND	ND	ND	ND	ND	ND	16	ND	ND	ND	24	ND	<15	25
Magnesium	36000	37000	25000	20000	21000	23000	21000	19000	25000	22000	27000	23000	23000	12000	1000 - 50000	35000 GV
Manganese	1300	900	1200	41	21000	21000	180	35	14000	13000	1100	1000	410	100	<1.0 - 1000	300 (m)
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.0	0.7
Nickel	17	15	22	ND	ND	3.4	2.1	2.8	26	ND	16	8.7	93	9.6	<10 - 50	100
Potassium	6300	5700	9500	5400	4300	4900	5700	5200	6800	5000	7600	6800	9900	5300	1000 - 10000	NS
Selenium	23	15	19	16	11	6.8	19	16	9	10	13	20	15	16	<1.0 - 10	10
Silver	7.2	7.7	5.8	7.7	1.7	1.1	8	7.9	4.8	3.3	7.3	7.6	5.4	7.9	<5	50
Sodium	56000	58000	84000	87000	28000	30000	83000	83000	63000	63000	120000	110000	50000	49000	500 - 120000	20000
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	0.5 GV
Vanadium	19	15	54	11	11	8.1	15	10	55	8.1	30	11	87	6.3	<1.0 - 10	NS
Zinc	22	11	58	ND	12	19	ND	ND	73	ND	22	ND	110	ND	<10 - 2000	2000 GV
Chloride (mg/L)	37	*	*	*	32	*	180	*	76	*	190	*	96	*	N/A	250
Cyanide (mg/L)	ND	*	*	*	ND	*	ND	*	ND	*	ND	*	ND	*		0.2

(a) - NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1). June 1998, revised April 2000.
GV - Guidance value.
(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.
NS - No standard.
* - Not analyzed.
** - Duplicate Sample

TABLE 2

SURFACE WATER DATA SUMMARY
Third Year - First Quarter (November 2002)
Harrison Subresidency
NYSDOT
D008873, PIN 8806.51.101

PARAMETER	SW-1	FIL SW-1	SW-2	FIL SW-2	SW-4	FIL SW-4	NATURAL AMBIENT GROUNDWATER RANGES (n)	NYSDEC CLASS GA STANDARDS (a)
TAL METALS (ug/L)								
Aluminum	ND	95	750	95	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	41	48	60	34	37	37	10 - 500	1000
Beryllium	ND	ND	ND	ND	ND	ND	<10	3.0 GV
Cadmium	0.88	0.77	1	0.88	0.66	0.87	<1.0	5
Calcium	43000	46000	48000	47000	49000	51000	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	5.7	4.9	ND	ND	ND	<1.0 - 3	200
Iron	300	80	1800	ND	450	40	10 - 10000	300 (m)
Lead	ND	ND	ND	ND	ND	ND	<15	25
Magnesium	14000	14000	15000	15000	15000	16000	1000 - 50000	35000 GV
Manganese	630	620	1000	8.7	140	64	<1.0 - 1000	300 (m)
Mercury	ND	ND	ND	ND	ND	ND	<1.0	0.7
Nickel	ND	ND	ND	ND	ND	ND	<10 - 50	100
Potassium	3100	3300	3500	3400	3300	3500	1000 - 10000	NS
Selenium	13	14	11	12	15	10	<1.0 - 10	10
Silver	7.8	12	7.7	8.1	8	7.9	<5	50
Sodium	27000	37000	43000	43000	41000	44000	500 - 120000	20000
Thallium	ND	ND	ND	ND	ND	ND	N/A	0.5 GV
Vanadium	5.7	6.1	8.6	6.5	6.1	7.1	<1.0 - 10	NS
Zinc	15	13	15	9.8	ND	ND	<10 - 2000	2000 GV
Chloride (mg/L)	63	*	69	*	68	*	N/A	250
Cyanide (mg/L)	ND	*	ND	*	ND	*		0.2

* - Not analyzed.
(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.

TABLE 3

SEDIMENT DATA SUMMARY

Third Year - First Quarter (November 2002)

Harrison Subresidency

NYSDOT

D008873, PIN 8806.51.101

PARAMETER	SD-1	SD-2	SD-3	SD-4	Sediment Criteria (a) LEL[1]	SEL[2]
TAL METALS (mg/kg)						
Aluminum	5900	5500	9500	4600		
Antimony	ND	ND	ND	ND	2	25
Arsenic	1.5	3.5	3.5	3	6	33
Barium	35	37	46	36		
Beryllium	ND	ND	ND	ND		
Cadmium	ND	ND	ND	ND	0.6	9
Calcium	4400	36000	19000	44000		
Chromium	12	9	12	8.6	26	110
Cobalt	3.6	6.2	11	4.6		
Copper	9.6	69	9.7	8.1	16	110
Iron	11000	16000	15000	14000	20000	40000
Lead	35	15	50	16	31.0	110
Magnesium	4200	18000	12000	24000		
Manganese	170	850	730	610	460	1100
Mercury	ND	ND	ND	ND	0.15	1.3
Nickel	8.9	9.9	9.8	8.5	16	50
Potassium	1100	1500	900	1200		
Selenium	ND	ND	ND	ND		
Silver	ND	ND	ND	ND	1	2.2
Sodium	ND	300	ND	ND		
Thallium	ND	ND	ND	ND		
Vanadium	20	15	25	15		
Zinc	40	39	42	45	120	270
Chloride	ND	ND	76	ND		
Cyanide	0.43	ND	ND	ND		

(a) - NYSDEC Technical Guidance for Screening Contaminated Sediments.
November 1993, revised January 1999.
1 - Lowest Effect Level
2 - Severe Effect Level
ND - Not detected at analytical detection limit.

TABLE 4

ORGANICS DATA SUMMARY

Third Year - First Quarter (November 2002)

Harrison Subresidency
NYSDOT
D008873, PIN 8806.51.101

PARAMETER	LMW-2	MW-4	PC-1	PC-2	PC-3	PC-4	SW-1	SW-2	SW-4	Trip Blank	NYSDEC CLASS GA STANDARDS (a)
VOLATILE ORGANICS (ug/L)											
Methylene chloride	ND	ND	ND	ND	ND	ND	1.1 j	ND	ND	ND	5
SEMIVOLATILE ORGANICS (ug/L)											
Bis(2-Ethylhexyl)phthalate	3.1 j b	4.2 j b	4.6 j b	1.8 j b	3.2 jb	3.8 j b	1.8 j b	1.8 j b	2.4 j b	*	5
Di-n-butylphthalate	3.0 j	ND	1.5 j	2.6 j b	ND	ND	2.4 j b	2.1 j b	2.8 j b	*	50
PCBs (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	0.09
PESTICIDES (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	N/A

PARAMETER	SD-1	SD-2	SD-3	SD-4	Sediment Criteria (b)
VOLATILE ORGANICS (mg/kg)					
Methylene chloride	0.0089 b	0.0058 b	0.0076 b	0.0072 b	
SEMIVOLATILE ORGANICS (mg/kg)					
Anthracene	ND	ND	0.20 j	ND	
Benzo(a)anthracene	ND	ND	0.39 j	ND	
Benzo(a)pyrene	ND	ND	0.31 j	ND	1.3
Benzo(b)fluoranthene	ND	0.051 j	0.44 j	ND	
Benzo(g,h,i)perylene	ND	ND	0.11 j	ND	
Benzo(k)fluoranthene	ND	ND	0.15 j	ND	
Bis(2-Ethylhexyl)phthalate	ND	0.082 j	ND	ND	
Butylbenzylphthalate	ND	ND	ND	ND	
Carbazole	ND	ND	0.068j	ND	
Chrysene	ND	0.044 j	0.37	ND	
Di-n-butylphthalate	ND	ND	ND	ND	
Fluoranthene	ND	0.068 j	0.92	0.042 j	
Fluorene	ND	ND	0.089 j	ND	
Indeno(1,2,3-cd)pyrene	ND	ND	0.11 j	ND	
Phenanthrene	ND	ND	0.72	ND	
Pyrene	ND	0.065 j	0.69	ND	
PCBs (mg/kg)	ND	ND	ND	ND	0.0008
PESTICIDES (mg/kg)	ND	ND	ND	ND	N/A

ND - Not detected at analytical detection limit.
* - Not analyzed.
(a) - NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1). June 1998, revised April 2000.
(b) - NYSDEC Technical Guidance for Screening Contaminated Sediments.
b - Indicates the analyte was found in the blank as well as in the sample.
j - Indicates an estimated value when a compound is detected at less than the specified detection limit.
N/A - Not applicable.

Lawler, Matusky & Skelly , Eng.
Pearl River, New York

Date: 11/5/2002
Crew: MEL/MVP
Site: Harrison Subresidency Landfill

AIR MONITORING FIELD DATA SHEET

CGI: Gas Tech Genisis
PID: MiniRae
FID: Foxboro OVA 128

Sample Point	Time	Inspector	% LEL CGI	PID Equiv.	FID* PPM	CH4	Background PID	Background FID	Observations/Notes
GV-4	1305	MEL/MVP	0	0	0	0	0	0	
GV-3	1310	MEL/MVP	0	0	0	0	0	0	
GV-1	1315	MEL/MVP	0	0	0	0	0	0	
GV-2	1320	MEL/MVP	0	0	0	0	0	0	
W	1330	MEL/MVP	0	0	0	0	0	0	
S	1345	MEL/MVP	0	0	0	0	0	0	
E	1400	MEL/MVP	0	0	0	0	0	0	
N	1420	MEL/MVP	0	0	0	0	0	0	

* With methane filter

LMS Well Sampling Log

Date:	11/4/2002		METERS USED
Crew:	MVP/MEL	Temp.:	TCL # 10
Job No:	446-304	pH:	98-17
Project:	Harrison Landfill	Cond.:	TCL # 10
Project Site:	Harrison NY	Turb.:	DRT-15CE

Well ID No.:	PC-4
Well Condition:	Good
Well Depth/Diameter:	16.68'/2"
Well Casing Type:	PVC
Screened Interval:	NA
Casing Ht./Lock No.:	
Reference Pt.:	TOC
Depth to Water (DTW):	9.88
Water Column Ht./Vol.:	6.8/4
Purge Est.:	12 gal.
Purge Method(s):	Hand bailed
Purge Date/Time(s):	
Depth(s):	All
Rates (gpm):	
Purged Volume:	12 gal.
DTW After Purging:	
Yield Rate:	Low
Purge Observations:	Water turbid.

DTW Before Sampling:	10.7
Sample Date/Time:	
Sampling Method:	Dedicated 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)	pH	Sp. Cond.	Turb.
Start				
End	13.1	6.9	0.559	503

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filter
Total metals	NA	HNO3	No
Filtered metals	NA	None*	Yes
Cl^-	NA	None	No
CN^-	NA	NaOH	No
VOCs	NA	HCL	No
SVOCs	NA	None	No
Pest/PCBs	NA	None	No

*Perserved in Laboratory

PURGE CHEMISTRIES

Vol.	Temp. (°C)	pH	Sp. Cond.	Turb.
0	13.3	7.1	0.426	319
5	13.8	6.9	0.554	462
12	13.1	6.9	0.549	744

Comments:

Air Temp: 40^0

Weather Conditions: Partly Cloudy

Crew Chief Signature ______________________ Date: ____________

Date: 11/5/2002
Crew: MVP, MEL
Site: Harrison Landfill

FIELD DATA SHEET FOR SOIL/SEDIMENTS

Lawler, Matusky & Skelly, Eng.
Pearl River, New York

Sta. No.	Time	Sample Depth	Method	Texture	Color	Odor/ Staining	Sample Parameters	Comments
SD-4	1000	surface	stainless steel spoon	coarse sand and gravel	brown	none	Full TCL	
SD-2	1115	surface	stainless steel spoon	coarse sand and gravel	brown	none	Full TCL	
SD-1	1230	surface	stainless steel spoon	coarse sand and gravel	brown	none	Full TCL	Some organic matter
SD-3	1300	surface	stainless steel spoon	coarse sand and gravel	brown	none	Full TCL	

Lawler, Matusky & Skelly , Eng.
Pearl River, New York

Date: 11/5/2002
Crew: MVP, MEL
Site: Harrison Landfill

FIELD DATA SHEET FOR SURFACE WATER

pH No: 98-17
TLC No: TLC #10
Turb. Meter: DRT 15CE

Sta. No.	Time	Sample Depth	Total Depth	Temp. ^{o}C	pH	Cond. umhos/cm	Turb. NTUs	Flow CFS	Sample Parameters	Comments
SW-4	1000	Surface	4"	7.6	7.4	0.602	56	< 1	Full TCL	
SW-2	1115	Surface	4"	7.7	7.1	0.588	20	< 1	Full TCL	
SW-1	1230	Surface	4"	8.2	7.5	0.79	7	< 1	Full TCL	
SW-3	*	*	*	*	*	*	*	*	*	* Not Applicable. Stream Dry