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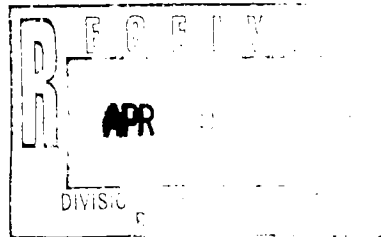
PHASE I REMEDIAL INVESTIGATION REPORT

CUBA MUNICIPAL WASTE DISPOSAL SITE

VILLAGE OF CUBA

ALLEGANY COUNTY, NEW YORK

(SITE REGISTRY NO. 9-02-012)



PREPARED FOR

**NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION**

BY

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SYRACUSE, NEW YORK**

APRIL 1998

**CUBA MUNICIPAL WASTE DISPOSAL SITE
PHASE I REMEDIAL INVESTIGATION REPORT**

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Phase I Remedial Investigation Results

1.0 Introduction

Field work for the remedial investigation (RI) of the Cuba Municipal Solid Waste Facility was begun in August 1997. The site is located in Allegany County, New York and is illustrated on Figure 1. The ongoing RI is being conducted in accordance with the Cuba Municipal Solid Waste Facility Work Plan prepared by Dvirka and Bartilucci Consulting Engineers, dated May 1997. Phase I of the field program was completed in November 1997. This report presents the preliminary results of the first phase of field work. Follow-up work is scheduled for the Spring of 1998. The final results of the first and second phases of the RI will be presented in an RI report to be prepared following the Phase II investigation.

The following describes results of the Phase I investigation. Section 2.0 describes field activities. Section 3.0 presents a description of site conditions based upon field observation. Section 4.0 provides the analytical results compared to standards, criteria, and guidelines (SCGs) and Section 5.0 presents preliminary conclusions and recommendations for further investigation.

2.0 Field Activities

The field program involved leachate sampling, test pit excavation, soil boring construction, monitoring well installation, surface soil sampling, stream sediment sampling and groundwater sampling. The field tasks are described below.

2.1 Surface Soil Sampling

A total of ten surface soil samples were collected at the landfill site in order to assess the possible presence of contaminants. The surface sample locations are identified

as SS-1 through SS-10 and are presented on Figure 2. The surface soil samples were collected 0-3 inches below ground surface.

2.2 Leachate Sampling

Leachate samples were collected from areas of the site previously reported to contain seeps exhibiting orange stained water and water with a sheen. Leachate sample L-1 was collected from the middle of the site at a location in an east-west trench that drains surface run-off to the pond on the interior of the site (see figure 2). Test pits were excavated along the south side of the site to induce the accumulation of leachate to facilitate sampling. A total of twenty excavations were made along the south side of the site. The test pits were excavated at intervals of approximately 100 feet along the southern border of the site (see Figure 2). The excavations were located adjacent to existing accumulations of standing water. In some instances the standing water was stained orange or exhibited a blue-yellow sheen. Standing water was drained from the area before test pits were excavated. Test pits were excavated in such a way as to maximize collection of liquid seeping from the landfill, without collecting surface water run-off. The excavations were allowed to stand open overnight and samples were collected from accumulated water the next morning. Sufficient quantities of water were found in the excavations at 200', 300', 400', 500', 600' and 800' east of the southwest corner of the property. The corresponding leachate samples are referred to as L-2, L-3, L-4, L-5, L-6, L-8, respectively. The remaining excavations for leachate were either dry or contained insufficient water (less than one liter) for analysis.

2.3 Sediment Sampling

A total of four sediment samples were collected from the two streams that flow past the site. Both streams originate upgradient of the site and flow to points downgradient of the site. SD-1 and SD-2 were collected from a stream that is located west of the site and flows in a southwesterly direction. SD-3 and SD-4 were collected

from a stream located on the east of the site and flows south. SD-1 and SD-3 were selected at locations upgradient of the site while SD-2 and SD-4 were collected at downgradient locations that would likely be influenced by surface water run-off from the site. Sediment sample locations are depicted in Figure 2.

2.4 Soil Boring and Monitoring Well Construction

Seven new monitoring wells were installed to compliment the existing four monitoring wells installed during a previous investigation. The work plan called for the installation of monitoring wells in pairs of one shallow and one deep well. During the drilling of MW-1D and MW-5D, bedrock was found to be much closer to the ground surface than anticipated. As a result, the installation of shallow wells in overburden was determined impractical due to lack of sufficient saturated overburden thickness. Only one shallow well, MW-5S, was installed.

MW-1D was installed adjacent to the pre-existing MW-1, upgradient of refuse. The well was installed at a depth of 75.5 feet below ground surface and was dry following well development indicating that water originally found in the well was perched groundwater or residual drilling water. As a result of the dry condition of MW-1D, an additional upgradient monitoring well was installed at a lower elevation to the south. The lower location was chosen in an attempt to minimize the depth of drilling necessary to intersect static groundwater in bedrock. This latter location is designated MW-9. These upgradient wells are completed in bedrock which was typically encountered at depths less than 10 feet below ground surface for the site.

MW-5S, MW-5D and MW-6 were installed within the landfill site. In order to avoid possible cross contamination of contaminants by drilling through waste, the borings were located between waste trenches. Each boring location was excavated by a backhoe prior to drilling to ensure the absence of refuse. MW-5S is screened across the overburden/bedrock interface. MW-5D and MW-6 are screened entirely in bedrock.

Monitoring wells MW-7 and MW-8 were installed at downgradient locations off-site to the south. Both are installed in bedrock. At MW-8 on the Hilger Property, bedrock occurs at a depth of 11 feet which is typical of areas on the site. At MW-7 on the Wildrick Property, however, bedrock was encountered at a much greater depth (49 feet) under a thick sequence of overburden that was not encountered elsewhere on the site. Table 1 lists the monitoring well depths and specifications. Generalized drilling results and observations are presented in Section 3.0.

2.5 Groundwater Sampling

Groundwater sample collection was attempted from the seven monitoring wells installed as part of this RI as well as the four existing monitoring wells. Due to low volumes of water and slow groundwater recovery, only partial samples were collected from MW- 2, MW-5S and MW-8. Monitoring Well MW-1D was not sampled because the well was dry at the time of sampling.

Groundwater samples were also collected from two springs (SP-1 and SP-2) located downgradient of the site. Additionally, groundwater was collected from a residential water supply spring (WS-1) located approximately 4000 feet southwest of the site (see Figure 3).

2.6 Test Pit Excavation

Three backhoe test pits were excavated on the northern portion of the 14.9 acre parcel at a location believed to have been unused for waste disposal. The test pits were excavated to evaluate the overburden thickness in this area and determine its suitability for low permeability landfill cover material that may be used in site remediation. The test pits were excavated to the top of bedrock. Bedrock was encountered at a depth of four feet or less. The overburden contained large flat boulders and generally sandy soil. Grain

size analyses were not performed due to the apparent insufficient quantity and quality of the overburden material for use as low permeability cover. Representative samples were retained for future grain size analysis should it become necessary.

3.0 Site Description

The Cuba Municipal Waste Disposal Site is situated on the steep south-facing slope of Jackson Hill (elevation 2220 feet above mean sea level) which is one of the most prominent hills in the region. The upper portion of the site is 2212 feet in elevation and the south boundary is approximately 2095 feet.

The landfill site consists of two parcels of property owned by the Village of Cuba (see Figure 2). The first parcel is a 24.8 acre rectangular shaped property that is the site of the original landfill. This parcel is extensively covered with landfill trenches. The second parcel is a more or less triangular shaped piece of 14.9 acres that is immediately adjacent and north of the original parcel. This parcel was reportedly purchased as a buffer and to add possible expansion area to the landfill. Trenches observed on this parcel suggest that it was also used for waste disposal.

The site is dominated by grasslands and emergent scrub growth. The property to the north is actively farmed and used for the disposal of waste cheese whey. The areas to the east, south and west are forested with predominately hardwoods and a few softwoods.

The landfill reportedly operated from 1950 through 1987. Landfilling was performed by digging trenches into the side of the hill. In the early stages of use, trenches were dug in a north-south orientation near the bottom of the hill (see Figure 2). These trenches ranged 100 to 300 feet in length and were reported to be approximately ten feet wide and ten feet deep. Later, trenches were constructed in an east-west orientation, perpendicular to the slope of the hill. These trenches were up to 1200 feet long.

The soil cover on the hill slope is thin. Bedrock outcrops are not present on-site, however, tabular pieces of siltstone or sandstone, gravel and boulders are commonly found on the ground surface and indicate that bedrock is shallow. Bedrock does outcrop to the south of the site at the springs, SP-1 and SP-2 (see Figure 2), and in the bed of the unnamed creek to the southwest of the site.

Surface runoff water generally flows south over the site. The only on-site water course is a man-made depression that drains water to the pond at the west-central edge of the site. This pond (also man-made) in turn drains to the south by means of the ditch. Beyond the site perimeter, this stream channel disappears after a short distance in a flat lying area. The only significant occurrence of standing water has been observed in the depression of an apparently settled landfill trench in the 14.9 acre parcel (see Figure 2). Other trenches have not exhibited standing water during site visits.

Site Geology

The geology of the Cuba Municipal Waste Disposal Site has been determined by reviewing the available literature and by the observation of three test pits and seven soil borings constructed on or near the site as part of the remedial investigation.

Overburden thickness at the site is variable. The thickness of on-site soils is thin and ranges from 2 to 10 feet. Unconsolidated soil consists of silt with little gravel and trace to little sand. Tabular shaped cobbles and boulders are common with generally increasing frequency with depth. Soil thickness increases down-slope and south of the site. Off-site the depth to bedrock is 11 feet below ground surface at the location of MW-8, and 49 feet at the location of MW-7. The overburden composition off-site differs from the on-site overburden. At MW-7 and MW-8, overburden soils are somewhat finer textured and less permeable than on-site soils and consist of silt, little gravel, trace clay and trace sand.

Bedrock beneath the site is highly fractured, thinly bedded brown, gray, green-brown or green-gray silty shale with less common siltstone and even more rare sandstone layers of similar colors. Bedrock cores observed during drilling as part of the remedial investigation exhibited multiple fractures. Most fractures were horizontal and parallel to bedrock bedding planes. Vertical fractures are also common. The RQD of bedrock cores ranged from 0% to 61% with a general trend of slightly increasing RQD with depth. Bedrock fractures transmit relatively high quantities of water as observed during drilling and well development. Two wells (MW-7 and MW-6) completed in fractured bedrock yielded 2 gpm for a sustained pumping period of three hours. Other fractures are effectively sealed with shale that has weathered to clay.

Locating water bearing units suitable for screening a well was difficult. While some strata served to perch water, others drained groundwater. Since mud rotary drilling was used to advance the borings it was difficult to distinguish formation water from drilling water while drilling. The overburden portion of boreholes was sealed with temporary casing, however the bedrock portions were open holes. To confirm the presence of formation water in a borehole, drilling water was evacuated and formation water was allowed to flow in. If, after several hours, groundwater reached static equilibrium in the hole, a well was installed. For some wells, multiple borehole evacuations were performed and groundwater was allowed to equilibrate overnight.

In several instances, the water level in the well was significantly lower than the water level in the open borehole. The lowering of the water level was the result of preventing downward flow of groundwater originating in rock layers above the well seal. These conditions suggest that some rock layers are unsaturated and convey groundwater away from the borehole faster than it flows in. Monitoring wells MW-1D, MW-8 and MW-9 are examples of locations where a significant column of water was observed at equilibrium in the borehole, but little or no water occurred in the monitoring well. Long screen lengths (10' to 40') were used to maximize the amount of water in bedrock wells. Table 1 lists monitoring well specifications.

Site Hydrogeology

Groundwater flow characteristics of the Cuba Municipal Waste Disposal Site were assessed using several techniques, including observations of soil and rock characteristics during drilling, installation of groundwater monitoring wells, pumping tests, in-situ hydraulic conductivity tests, measurement of water level depths for the determination of water elevations and groundwater sampling.

Bedrock groundwater flow is generally to the south as shown on Figure 4. Groundwater flow is complex and dominated by bedrock fractures. As a result, groundwater elevations in monitoring wells are variable. Water level measurements recorded during the remedial investigation indicate wide fluctuations in elevation within the same wells. For example, the groundwater elevation in MW-9 on October 1, 1997, was 2116 feet and on December 17, 1997, was 21 feet higher (2137 feet amsl). Groundwater elevations in other wells have varied from 1.3 feet to almost 9 feet. Hydrogeologic conditions suggest that this extreme change in groundwater elevation results from fast recharge likely brought about by a storm event. A change this responsive to precipitation suggests that bedrock recharge is channeled into discrete zones (i.e. landfill trenches) or that overburden is highly permeable. Groundwater recharge probably occurs as pulses of surface water infiltration initiated by weather events such as storms or rapid snow melt.

The direction of groundwater flow may also be variable. In one instance of water level measurements, the groundwater elevation in MW-5D was higher than that of the upgradient MW-9. This suggests groundwater flow, at least temporarily, to the north, in the opposite direction of typical flow and is another indicator of fracture dominated flow.

As a result of observations of complex water level elevations, a continuous log of water levels was recorded for a period of over five weeks in MW-6. Water level measurements were recorded with a data logger at 30 minute intervals from October 3 to

November 12, 1997. The data documents another relatively large scale change of water levels over a short duration. After a gradual decreasing trend of approximately 0.1 feet per day for 30 days, the water level in MW-6 rose sharply 3.5 feet in two days. The water level rise was abruptly truncated, and then remained relatively steady until logging was stopped. The sharp rise in the water level was likely due to a rain event that occurred on or around November 2, 1997.

Other wells show similar patterns of widely fluctuating water levels. These wells have not been directly measured with a data logger, however they do exhibit interesting characteristics. MW-1D was dry when drilled and at each of 21 measurements through December, 1997. However, on January 16, 1998, MW-1D exhibited 1.3 feet of groundwater above the well bottom. Similarly, MW-2 is periodically dry, but at other times contains water up to 1.3 feet above the well bottom.

4.0 Preliminary Sampling Results

The results of the laboratory analyses of environmental samples collected at the Cuba Municipal Waste Disposal Site are presented below. The results are grouped by environmental media sampled.

4.1 Leachate

Seven leachate samples were collected at locations L-1 through L-6 and L-8. Results of leachate sampling analyses are presented in Tables 2a, 2b, 2c, and 2d and summarized on Figure 5. The results are compared to Class GA groundwater standards.

VOCs were detected only at locations L-5 and L-6. Compounds detected in exceedance of groundwater standards were vinyl chloride (19 µg/l and 6µg/l), 1,1-dichloroethane (10 µg/l and 34µg/l), total 1,2-dichloroethene (10 µg/l and 30 µg/l),

trichloroethene (6 µg/l at L-6 only) and chlorobenzene (9 µg/l at L-6 only). Total VOCs detected were relatively low, with 41 µg/l at L-5 and 85 µg/l at L-6.

Two SVOCs were identified above groundwater standards at L-6. The two compounds were 1,4-dichlorobenzene (14 µg/l) and 1,2,4-trichlorobenzene (11 µg/l). No other SVOCs were found above detection limits.

Two pesticide compounds were found above groundwater standards in the leachate sample analyses. Samples collected from L-4 and L-6 contained 0.0047 µg/l and 0.014 µg/l of 4,4'-DDT, respectively. Endrin (0.14 µg/l) was above groundwater standards in L-6.

Three polychlorinated biphenyl (PCB) compounds were detected above groundwater standards in the leachate samples. Sample L-2 contained aroclor-1242 (1.4 µg/l) and aroclor 1254 (0.91 µg/l). Aroclor-1260 was found in L-6 (19 µg/l) and L-8 (0.23 µg/l).

The results of the inorganic analyses for the leachate samples demonstrate exceedances for groundwater standards for iron, manganese, sodium. The ranges of detections for these parameters were: iron 763 to 41,600 µg/l, manganese 19.8 to 3,190 µg/l and sodium 894 to 30,900 µg/l.

4.2 Surface Soil

Ten surface soil samples were collected at the locations shown on Figure 2. These locations are referred to as SS-1 through SS-10. Results of surface soil sample analyses are presented in Tables 3a, 3b, 3c, and 3d.

No VOCs, SVOCs, pesticides or PCBs were detected above the NYSDEC recommended soil cleanup objectives at any location.

The inorganic analyses of the surface soil samples produced results in exceedance of the soil cleanup objectives for arsenic, beryllium, copper, iron, nickel, selenium and zinc. The ranges of exceedances for these parameters were arsenic 8.1 to 12.6 $\mu\text{g}/\text{kg}$, beryllium 0.70 to 1.2 $\mu\text{g}/\text{kg}$, copper 26.4 to 48.7 $\mu\text{g}/\text{kg}$, iron 24,300 to 41,000 $\mu\text{g}/\text{kg}$, nickel 14.8 to 36.0 $\mu\text{g}/\text{kg}$, selenium 2.1 to 3.1 $\mu\text{g}/\text{kg}$ and zinc 70.7 to 228 $\mu\text{g}/\text{kg}$.

4.3 Subsurface Soil

Subsurface soil samples were collected from the borings at MW-5S (5-7') and at MW-6D (2-4'). These subsurface samples were selected because they contained representative unsaturated overburden from the interior portions of the site. There were no overburden soil samples that exhibited elevated PID measurements, unusual odors or staining. The locations of these sampling locations are depicted on Figure 2. Results of these analyses are presented in Table 4a, 4b, 4c and 4d.

No VOCs, SVOCs pesticides or PCBs were detected above NYSDEC recommended soil cleanup objectives

Six metals were found in concentrations above SCGs. Arsenic, beryllium, copper, iron, nickel and zinc were detected above SCGs at concentrations similar to those detected in surface soil samples. The concentrations are considered background for the site.

4.4 Groundwater

Groundwater samples were collected from MW-1S, MW-2, MW-3, MW-4, MW-5S, MW-5D, MW-6, MW-7, MW-8 and MW-9. Results of groundwater analyses are presented in Tables 5a, 5b, 5c and 5d and summarized on Figure 5.

A total of ten VOCs were detected above NYSDEC Class GA groundwater standards. Complete results of groundwater analyses are provided in Table 5a. The highest concentrations detected at the site for each of these compounds are listed below.

<u>VOC Compound</u>	<u>Maximum Groundwater Concentration at Site ($\mu\text{g/l}$)</u>	<u>Class GA Standard ($\mu\text{g/l}$)</u>
Chloroethane	38	5
1,1-Dichloroethene	11	5
1,1-Dichloroethane	100	5
1,2-Dichloroethene	99	5
1,1,1-Trichloroethane	240	5
Trichloroethene	290	5
Benzene	3	0.7
Tetrachloroethene	8	5
Ethylbenzene	32	5
Total Xylenes	240	5

Monitoring wells with the greatest total VOCs were MW-3 (720 $\mu\text{g/l}$), MW-6 (353 $\mu\text{g/l}$) and MW-4 (118 $\mu\text{g/l}$). All other monitoring well analyses contained less than 100 $\mu\text{g/l}$ total VOCs.

No SVOCs were detected at concentrations above Class GA groundwater standards and guidance values. Analyses for SVOCs were not performed for the locations MW-2 and MW-5S due to insufficient sample quantities caused by slow recovery of groundwater in the wells.

One pesticide compound was identified above Class GA groundwater standards in MW-7. Delta-BHC was found at 0.012 $\mu\text{g/l}$ and has a groundwater standard of non-detect. Table 5c provides the complete results of pesticide analyses.

PCB compounds were also found above groundwater standards at MW-6 and MW-7. Aroclor 1016 was found in MW-6 at 0.42 µg/l and has a groundwater standard of 0.1 µg/l. Aroclor 1242 (0.46 µg/l) and aroclor 1254 (0.27 µg/l) were found at MW-7 and both have a groundwater standard of 0.1 µg/l. Samples were not collected for the analyses of pesticides and PCBs at MW-2, MW-5S and MW-8 due to insufficient quantities of water in the wells.

Among the results for total inorganic compounds for groundwater samples, Class GA groundwater standards were exceeded for arsenic, iron, lead, manganese and sodium. The standard for lead was exceeded only at upgradient monitoring well MW-1S (56.9 µg/l). The standard for sodium was exceeded at MW-2 (25,600 µg/l). The standard for arsenic was exceeded only at MW-5D (29.9 µg/l). The combined standard for iron and manganese was exceeded at all locations except at MW-2. Samples for total inorganic analyses were not collected at MW-5S and MW-8 due to insufficient water quantities. Complete inorganic analyses are presented in Table 5d.

4.5 Surface Water Sediment

Surface water sediment samples were collected at the four locations shown on Figure 2, and are referred to as SD-1 through SD-4. Results of surface water sediment samples are presented in Tables 6a, 6b, 6c and 6d.

No VOCs, SVOCs, pesticides or PCBs were detected above SCGs in any of the four sediment samples analyzed.

The analyses of inorganic compounds for the surface water sediment samples produced results above the NYSDEC recommended soil cleanup objectives for arsenic, beryllium, iron, mercury, nickel, selenium and zinc. There is no apparent correlation of increased concentrations based upon up- or down-gradient locations. All values are considered site background.

4.6 Spring Results

Two groundwater springs (SP-1, SP-2) were sampled downgradient of the site. SP-1 and SP-2 are located on Figure 2. Tables 7a, 7b, 7c, and 7d present the results of analyses of SP-1 and SP-2.

Total VOCs detected in the spring samples were 228.0 µg/l at SP-1 and 367.9 µg/l at SP-2. The analyses of the two springs (SP-1 and SP-2) produced detections above NYSDEC Class GA groundwater standards for 1,1-dichloroethane, 1,2-dichloroethene (total), 1,1,1-trichloroethane and trichloroethene. In addition, the standard for 1,1-dichloroethene was exceeded at SP-2.

No SVOCs were detected above SCGs in the spring samples.

The pesticide endrin was detected at both SP-1 (0.021 µg/l) and SP-2 (0.018 µg/l). These detections were above Class GA groundwater standards for these compounds.

The PCB compound aroclor-1260 was detected at a concentration of 0.93 µg/l at both SP-1 and SP-2. This was the only PCB compound detected at either location, and the values are above Class GA groundwater standard.

The inorganic analyses of the spring samples yielded results in exceedance Class GA groundwater standards for iron and manganese at SP-1 and SP-2.

4.7 Water Supply Sampling Results

One downgradient residential water supply was also sampled and designated WS-1. WS-1 is the water supply for the residence at the corner of Jackson Hill Road and North Branch Road, located approximately 4000 feet southwest of the site (see Figure 3). Tables 7a, 7b, 7c, and 7d present the results of analyses for WS-1.

No VOCs, SVOCs, pesticides or PCBs were detected in WS-1.

Copper was detected at 215 µg/l, slightly above the Class GA groundwater standard of 200 µg/l.

5.0 **Preliminary Conclusions and Recommendations**

The results of the Phase I Remedial Investigation indicate somewhat elevated levels of groundwater contaminants. The types and concentrations of these contaminants are relatively low, and are typical of similar unlined landfills. Conclusions of the Phase I investigation are described below, followed by recommendations for further investigation.

Conclusions

- Groundwater flow is complex and controlled by bedrock fractures, based on the observation of variable groundwater elevations at monitoring wells (particularly MW-6 and MW-9).
- Groundwater flow is likely along preferred pathways dominated by flow along the top of horizontal bedrock strata and flow through vertical fractures between strata.
- Groundwater flow appears to be in pulses that are probably related to storm precipitation or snow-melt run-off.

- Contaminant characteristics vary based upon the proximity of sample collection points to landfill trenches. Each trench probably has its own unique suite of contaminants with varying concentrations based upon the contents of the nearest trench. Therefore, it is possible that leachate and groundwater samples analyzed thus far do not fully characterize possible releases of contaminants from the site.
- Contaminant flow is likely to be in pulses as a result of groundwater pulse flow described above.
- Groundwater and leachate sampling results from the Fall of 1997 may not be representative of chemistry that occurs in pulse flow after storm events.
- Contaminant concentrations in SP-1 and SP-2 are generally higher than those found in monitoring wells. This trend suggests that the monitoring wells may not screen the zones of preferred groundwater flow paths and indicates that groundwater flow is through discrete fractures that are not easily identifiable from drilling logs. ~

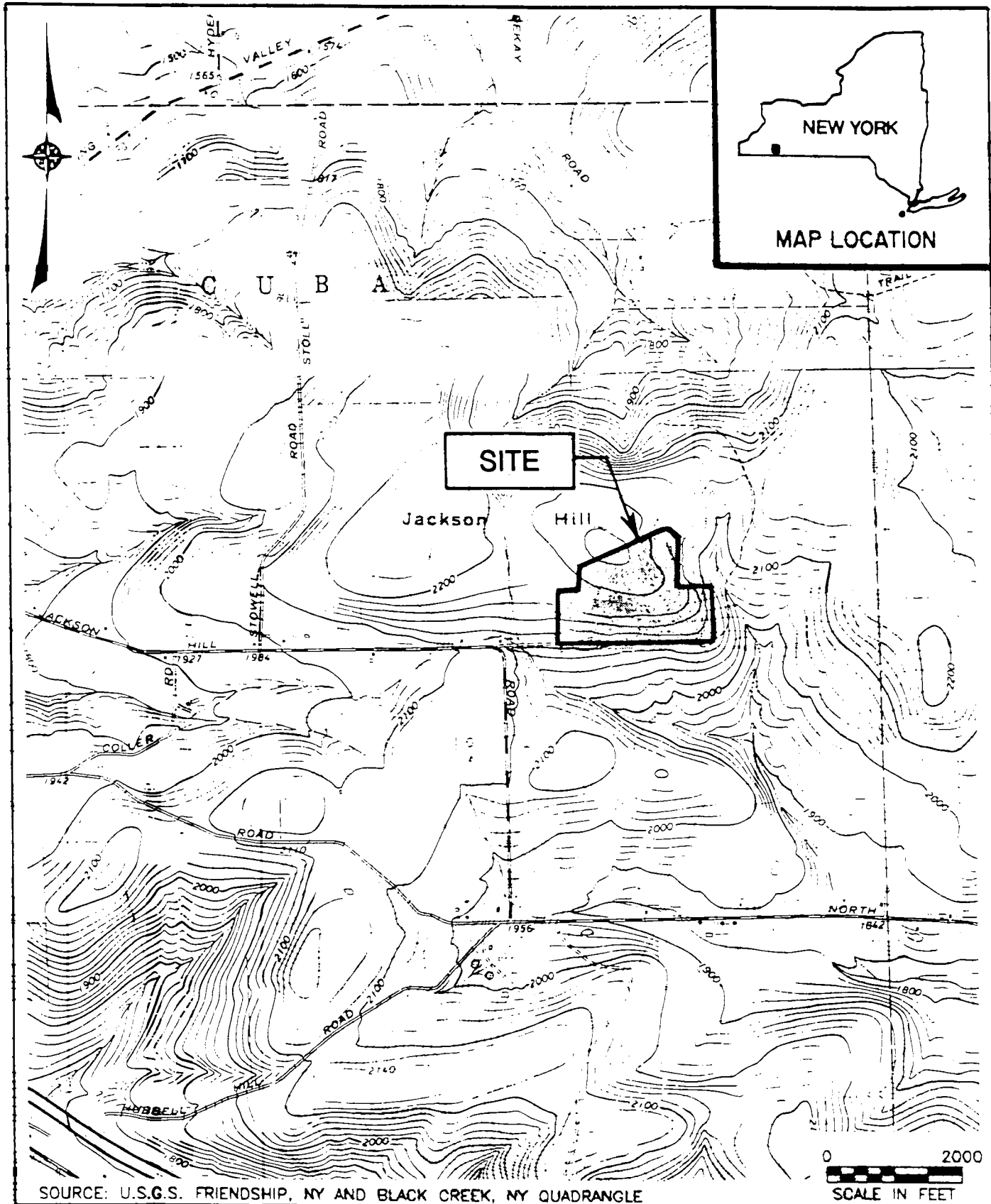
Recommendations

The following tasks are recommended to be undertaken to provide necessary information for the completion of the Remedial Investigation.

- Conduct monthly water level measurements of existing monitoring wells to establish a record of groundwater elevation extremes and evaluate possible periodic groundwater flow direction variations. ~
- Conduct continuous groundwater elevation monitoring using a data logger recording hourly measurements at two or more monitoring wells to attempt to establish correlation of groundwater elevation changes to precipitation events.
- Collect surface soil samples at leachate seeps and SP-1 and SP-2 to determine if contaminants are transported and deposited off-site by water seeps.
- Obtain off-site surface water samples from ditch west of site boundary along access road. Orange stained water has been observed in this off-site, side-gradient ditch that does not receive run-off from within the site boundaries.
- Collect leachate samples from observed seeps along southern boundary of site during Spring when the water table is high.

- Perform a site walkover on downgradient properties to identify and sample as needed, wet spots that may emanate from the site and ascertain if contaminants are present.
- Collect second round of groundwater samples at seasonal high groundwater conditions (April or May 1998) and analyze for VOCs, SVOCs, PCBs and pesticides and metals. Attempt to coordinate groundwater sampling with groundwater "pulse" following a storm event.
- Install piezometers on site to determine if groundwater is preferentially accumulating in, or flowing through landfill trenches.

FIGURES



SOURCE: U.S.G.S. FRIENDSHIP, NY AND BLACK CREEK, NY QUADRANGLE

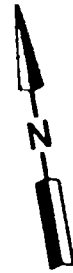
CUBA MUNICIPAL WASTE DISPOSAL SITE
VILLAGE OF CUBA, NEW YORK



Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Cosulich Associates, P.C.

SITE LOCATION MAP

FIGURE 1



SAMPLING LEGEND

- MW MONITORING WELL
- SS SURFACE SOIL SAMPLE
- TP TEST PIT
- SD SEDIMENT
- SP SPRING SAMPLE
- L LEACHATE SAMPLE
- SITE BOUNDARY
- DIRT ROAD OR TRAIL
- FENCE LINE
- TREE LINE

YEC NOTES

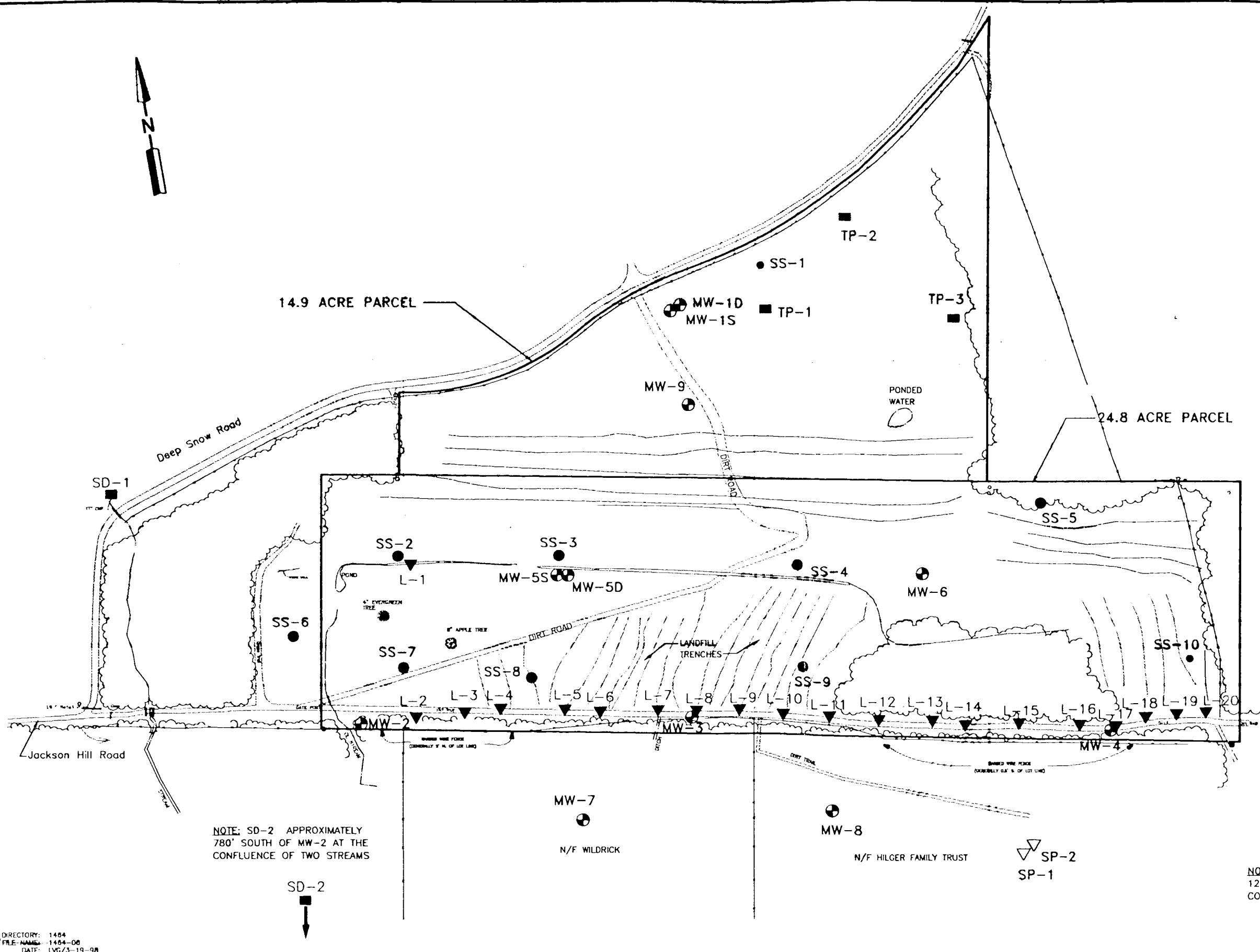
- 1) DATE OF YEC SAMPLING SURVEY: OCTOBER 3, 1997
- 2) VERTICAL DATUM: NGVD 1929 FROM ONSITE BENCHMARKS SHOWN ON MAP PROVIDED BY DVIRKA AND BARTILUCCI.

NOTE: SD-3 APPROXIMATELY 1000' NORTHEAST OF MW-4 IN STREAM

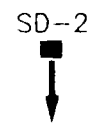


14.9 ACRE PARCEL

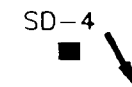
24.8 ACRE PARCEL



NOTE: SD-2 APPROXIMATELY 780' SOUTH OF MW-2 AT THE CONFLUENCE OF TWO STREAMS



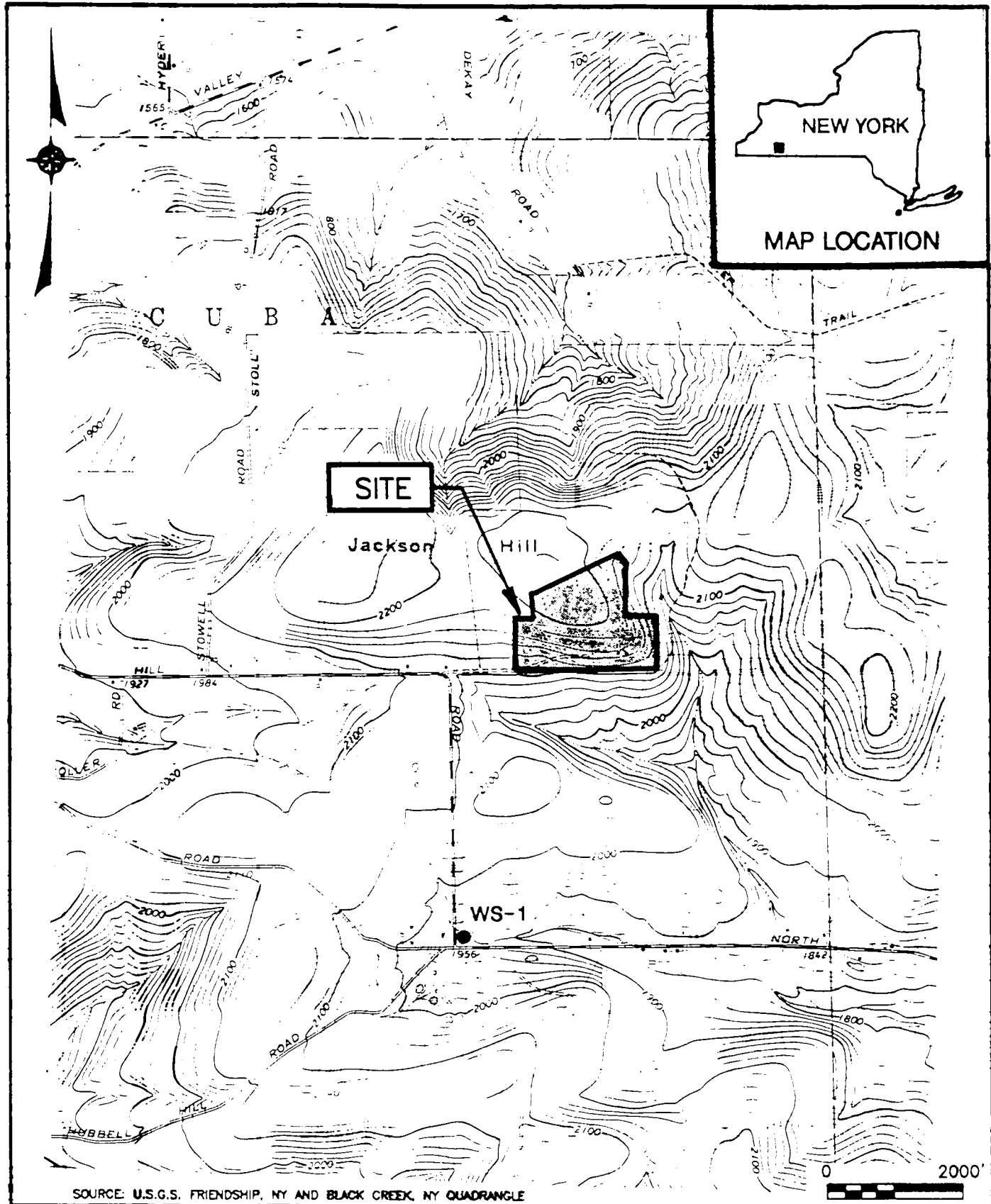
NOTE: SD-4 APPROXIMATELY 1230' SOUTHEAST OF MW-4 BELOW CONFLUENCE OF TWO STREAMS



DIRECTORY: 1484
FILE NAME: 1484-06
DATE: LVG/3-19-98

CUBA MUNICIPAL WASTE SITE
TOWN OF CUBA, NEW YORK

SITE MAP



SOURCE: U.S.G.S. FRIENDSHIP, NY AND BLACK CREEK, NY QUADRANGLE




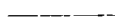



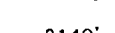
CUBA MUNICIPAL WASTE DISPOSAL SITE
 VILLAGE OF CUBA, NEW YORK
WATER SUPPLY SAMPLE LOCATION



Dvirka and Bartilucci
 Consulting Engineers
 A Division of William F. Cosulich Associates, P.C.

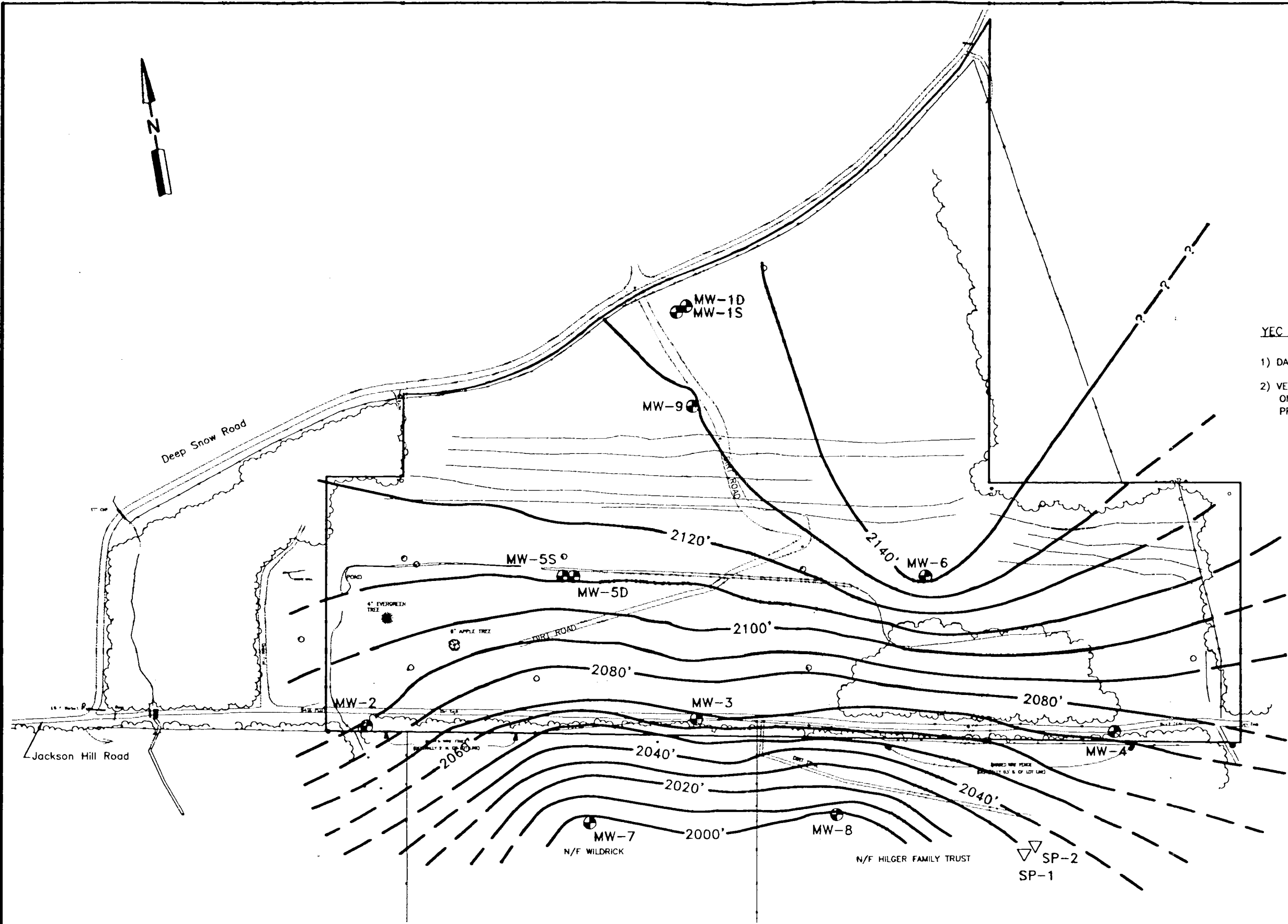
FIGURE 3

SAMPLING LEGEND

-  MW MONITORING WELL
-  SP SPRING SAMPLE
-  SITE BOUNDARY
-  LANDFILL TRENCH
-  DIRT ROAD OR TRAIL
-  FENCE LINE
-  TREE LINE
-  —2140'— EQUIPOTENTIAL GROUNDWATER CONTOUR

YEC NOTES

- 1) DATE OF YEC SAMPLING SURVEY: OCTOBER 3, 1997
- 2) VERTICAL DATUM: NGVD 1929 FROM ONSITE BENCHMARKS SHOWN ON MAP PROVIDED BY DVIRKA AND BARTILUCCI.



DIRECTORY: 1484
 FILE NAME: 1484-07
 DATE: LVG/3-19-98

CUBA MUNICIPAL WASTE SITE
 TOWN OF CUBA, NEW YORK
BEDROCK POTENTIOMETRIC SURFACE
 AUGUST 1997

db
DVIRKA AND BARTILUCCI
 CONSULTING ENGINEERS
 A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

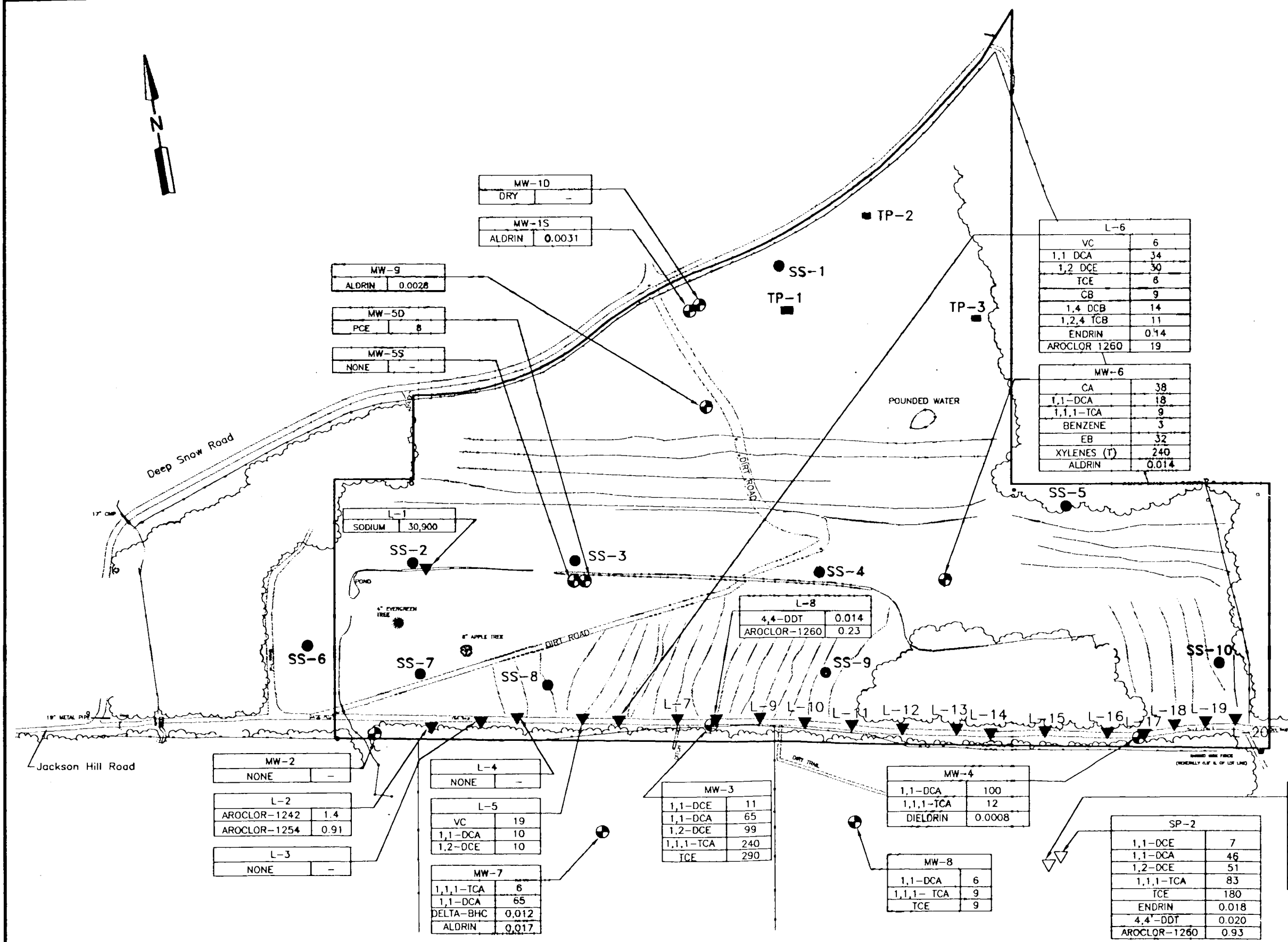
FIGURE 4

SAMPLING LEGEND

- ⊕ MW MONITORING WELL
- ▼ L LEACHATE SAMPLE
- SITE BOUNDARY
- - - LANDFILL TRENCH
- · - · - DIRT ROAD OR TRAIL
- FENCE LINE
- ~ TREE LINE

- VC VINYL CHLORIDE
- CA CHLOROETHANE
- DCE DICHLOROETHENE
- DCA DICHLOROETHANE
- TCE TRICHLOROETHENE
- TCA TRICHLOROETHANE
- PCE TETRACHLOROETHENE
- EB ETHYLBENZENE
- CB CHLOROBENZENE
- DCB DICHLOROBENZENE
- TCB TRICHLOROBENZENE

NOTE:
ALL RESULTS REPORTED IN (PPB)



MW-2	NONE	-
L-2	AROCLOR-1242	1.4
	AROCLOR-1254	0.91
L-3	NONE	-

L-4	NONE	-
L-5	VC	19
	1,1-DCA	10
	1,2-DCE	10
MW-7	1,1,1-TCA	6
	1,1-DCA	65
	DELTA-BHC	0.012
	ALDRIN	0.017

MW-3	1,1-DCE	11
	1,1-DCA	65
	1,2-DCE	99
	1,1,1-TCA	240
	TCE	290

MW-4	1,1-DCA	100
	1,1,1-TCA	12
	DIELDRIN	0.0008

MW-8	1,1-DCA	6
	1,1,1-TCA	9
	TCE	9

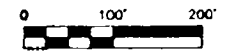
SP-2	1,1-DCE	7
	1,1-DCA	46
	1,2-DCE	51
	1,1,1-TCA	83
	TCE	180
	ENDRIN	0.018
	4,4'-DDT	0.020
	AROCLOR-1260	0.93

SP-1	1,1-DCA	
	1,2-DCE	42
	1,1,1-TCA	21
	TCE	140
	ENDRIN	0.021
	4,4'-DDT	0.016
	AROCLOR	0.93

CUBA MUNICIPAL WASTE SITE
TOWN OF CUBA, NEW YORK

**NOVEMBER 1997
GROUNDWATER AND LEACHATE SAMPLING RESULTS
(SCG EXCEEDANCES ONLY)**

DIRECTORY: 1484
FILE NAME: 1454-08
DATE: LVG/3-10-98



TABLES

TABLE 1.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

MONITORING WELL SPECIFICATIONS
(all measured in feet)

Well ID	Boring Depth	Depth to Bedrock	Screen			Elevation (feet amsl)			
			Top	Bottom	Length	Surface	Bedrock	Screen Top	Screen Bottom
MW-1D	75.8	6.0	65.5	75.5	10.0	2208.4	2202.4	2142.9	2132.9
MW-1S	32.0	6.0	20.0	30.0	10.0	2208.3	2202.3	2188.3	2178.3
MW-2	49.0	3.0	3.0	4.0	1.0	2097.1	2094.1	2094.1	2093.1
MW-3	22.0	2.0	12.0	22.0	10.0	2098.6	2096.6	2086.6	2076.6
MW-4	30.0	5.0	20.0	30.0	10.0	2101.1	2096.1	2081.1	2071.1
MW-5D	40.4	10.0	20.0	40.0	20.0	2141.4	2131.4	2121.4	2101.4
MW-5S	13.6	10.0	3.6	13.6	10.0	2141.1	2131.1	2137.5	2127.5
MW-6	40.4	4.0	12.0	32.0	20.0	2166.1	2162.1	2154.1	2134.1
MW-7	96.1	49.0	76.0	96.0	20.0	2073.5	2024.5	1997.5	1977.5
MW-8	76.5	11.0	36.0	76.0	40.0	2069.0	2058.0	2033.0	1993.0
MW-9	90.0	2.0	55.0	85.0	30.0	2199.2	2197.2	2144.2	2114.2

TABLE 2a.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
LEACHATE SAMPLING RESULTS
VOLATILE ORGANICS

Sample Identification	L-1	L-2	L-3	L-4	L-5	L-6	L-8	Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Date of Collection	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97		
Dilution Factor	1	1	1	1	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Chloromethane	U	U	U	U	U	U	U	10	5 ST
Bromomethane	U	U	U	U	U	U	U	10	5 ST
Vinyl Chloride	U	U	U	U	19	6 J	U	10	2 ST
Chloroethane	U	U	U	U	U	U	U	10	5 ST
Methylene Chloride	U	U	U	U	U	U	U	10	5 ST
Acetone	U	U	U	U	U	U	U	10	50GV
Carbon Disulfide	U	U	U	U	2 J	U	U	10	----
1,1-Dichloroethene	U	U	U	U	U	U	U	10	5 ST
1,1-Dichloroethane	U	U	U	U	10	34	U	10	5 ST
1,2-Dichloroethene (total)	U	U	U	U	10	30	U	10	5 ST
Chloroform	U	U	U	U	U	U	U	10	7 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	10	5 ST
2-Butanone	U	U	U	U	U	U	U	10	50GV
1,1,1-Trichloroethane	U	U	U	U	U	U	U	10	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	10	5 ST
Bromodichloromethane	U	U	U	U	U	U	U	10	50GV
1,2-Dichloropropane	U	U	U	U	U	U	U	10	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	10	5 ST
Trichloroethene	U	U	U	U	U	6 J	U	10	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	10	50GV
1,1,2-Trichloroethane	U	U	U	U	U	U	U	10	5 ST
Benzene	U	U	U	U	U	U	U	10	0.7 ST
Trans-1,3-Dichloropropene	U	U	U	U	U	U	U	10	5 ST
Bromoform	U	U	U	U	U	U	U	10	50GV
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	10	----
2-Hexanone	U	U	U	U	U	U	U	10	50GV
Tetrachloroethene	U	U	U	U	U	U	U	10	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	10	5 ST
Toluene	U	U	U	U	U	U	U	10	5 ST
Chlorobenzene	U	U	U	U	U	9 J	U	10	5 ST
Ethylbenzene	U	U	U	U	U	U	U	10	5 ST
Styrene	U	U	U	U	U	U	U	10	5 ST
Total Xylenes	U	U	U	U	U	U	U	10	5 ST
Total VOCs	0	0	0	0	41	85	0		

Qualifiers:

U: Compound analyzed for but not detected

J: Compound found at aconcentral

Notes:

GV: Guidance Value

ST: Standard

----: Not established



Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value.

TABLE 2b.
 CUBA MUNICIPAL WASTE DISPOSAL SITE
 REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
 LEACHATE SAMPLING RESULTS
 SEMIVOLATILE ORGANICS

Sample Identification	L-1	L-2	L-3	L-4	L-5	L-6	L-8	Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Date of Collection	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	(ug/l)	(ug/l)
Dilution Factor	1	1	1	1	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)		
Phenol	U	U	U	U	U	U	U	10	1 ST **
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	10	1 ST
2-Chlorophenol	U	U	U	U	U	U	U	10	1 ST **
1,3-Dichlorobenzene	U	U	U	U	U	4 J	U	10	5 ST
1,4-Dichlorobenzene	U	U	U	U	U	14	U	10	4.7 ST *
1,2-Dichlorobenzene	U	U	U	U	U	U	U	10	4.7 ST *
2-Methylphenol	U	U	U	U	U	U	U	10	----
2,2'-Oxybis (1-Chloropropane)	U	U	U	U	U	U	U	10	----
4-Methylphenol	U	U	U	U	U	U	U	10	----
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	10	----
Hexachloroethane	U	U	U	U	U	U	U	10	5 ST
Nitrobenzene	U	U	U	U	U	U	U	10	5 ST
Isophorone	U	U	U	U	U	U	U	10	50 GV
2-Nitrophenol	U	U	U	U	U	U	U	10	----
2,4-Dimethylphenol	U	U	U	U	U	U	U	10	----
bis (2-Chloroethoxy)methane	U	U	U	U	U	U	U	10	5 ST
2,4-Dichlorophenol	U	U	U	U	U	U	U	10	1 ST **
1,2,4-Trichlorobenzene	U	U	U	U	U	11	U	10	5 ST
Naphthalene	U	U	U	U	U	0.5 J	U	10	10 GV
4-Chloroaniline	U	U	U	U	U	U	U	10	5 ST
Hexachlorobutadiene	U	U	U	U	U	U	U	10	5 ST
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	10	----
2-Methylnaphthalene	U	U	U	U	U	U	U	10	----
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	10	5 ST
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	10	----
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	25	----
2-Chloronaphthalene	U	U	U	U	U	U	U	10	5 ST
2-Nitroaniline	U	U	U	U	U	U	U	25	5 ST
Dimethylphthalate	U	U	U	U	U	U	U	10	50 GV
Acenaphthylene	U	U	U	U	U	U	U	10	----
2,6-Dinitrotoluene	U	U	U	U	U	U	U	10	5 ST
3-Nitroaniline	U	U	U	U	U	U	U	25	5 ST
Acenaphthene	U	U	U	U	U	U	U	10	20 GV
2,4-Dinitrophenol	U	U	U	U	U	U	U	25	----
4-Nitrophenol	U	U	U	U	U	U	U	25	----
Dibenzofuran	U	U	U	U	U	U	U	10	----
2,4-Dinitrotoluene	U	U	U	U	U	U	U	10	5 ST

TABLE 2b. (CONTINUED)
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
LEACHATE SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	L-1	L-2	L-3	L-4	L-5	L-6	L-8	Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Date of Collection	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97		
Dilution Factor	1	1	1	1	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Diethylphthalate	U	0.3 JB	0.4 JB	0.2 JB	0.3 JB	0.4 JB	U	10	50 GV
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	10	----
Fluorene	U	U	U	U	U	U	U	10	50 GV
4-Nitroaniline	U	U	U	U	U	U	U	25	5 ST
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	25	----
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	10	50 GV
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	10	----
Hexachlorobenzene	U	U	U	U	U	U	U	10	0.35 ST
Pentachlorophenol	U	U	U	U	U	U	U	25	1 ST **
Phenanthrene	U	U	U	U	U	U	U	10	50 GV
Anthracene	U	U	U	U	U	U	U	10	50 GV
Carbazole	U	U	U	U	U	U	U	10	----
Di-n-butylphthalate	U*	U*	U*	U*	U*	U*	U*	10	50 ST
Fluoranthene	U	U	U	U	U	U	U	10	50 GV
Pyrene	U	U	U	U	U	U	U	10	50 GV
Butylbenzylphthalate	U	U	U	U	U	U	U	10	50 GV
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	10	5 ST
Benzo (a) anthracene	U	U	U	U	U	U	U	10	0.002 GV ***
Chrysene	U	U	U	U	U	U	U	10	0.002 GV ***
bis(2-Ethylhexyl)phthalate	0.9 J	U*	U*	U*	U*	U*	U*	10	50 ST
Di-n-octylphthalate	U	U	U	U	U	U	U	10	50 GV
Benzo (b) fluoranthene	U	U	U	U	U	U	U	10	0.002 GV ***
Benzo (k) fluoranthene	U	U	U	U	U	U	U	10	0.002 GV ***
Benzo (a) pyrene	U	U	U	U	U	U	U	10	ND ST
Indeno (1,2,3-cd) pyrene	U	U	U	U	U	U	U	10	0.002 GV
Dibenzo (a,h) anthracene	U	U	U	U	U	U	U	10	----
Benzo (g,h,i) perylene	U	U	U	U	U	U	U	10	----
Total PAHs	0	0	0	0	0	0.5	0		----
Total Carcinogen PAHs	0	0	0	0	0	0	0		
Total SVOCs	0.9	0.3	0.4	0.2	0.3	29.9	0.0		

Qualifiers:

J: Compound found at a concentration below the detection limit
U: Compound analyzed for but not detected
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

Notes:

GV: Guidance value
ST: Standard
----: Not established
NA: Not analyzed
*: Value pertains to the sum of the isomers
**: Value pertains to total phenols
***: Value pertains to the sum of the compounds
 Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value.

TABLE 2c.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
LEACHATE SAMPLING RESULTS
PESTICIDE/PCBs

Sample Identification	L-1	L-2	L-3	L-4	L-5	L-6	L-8	Contract Required Detection Limit (ug/l)	NYSDEC Class GA Groundwater Standard or Guidance Value (ug/l)
	8/6/97	8/6/97	8/6/97	8/6/97	8/6/97	8/6/97	8/6/97		
Date of Collection	8/6/97	8/6/97	8/6/97	8/6/97	8/6/97	8/6/97	8/6/97		
Dilution Factor	1	1	1	1	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)		
alpha-BHC	U	U	U	U	U	U	U	0.05	ND ST*
beta-BHC	U	U	U	U	U	U	U	0.05	ND ST*
delta-BHC	U	U	U	U	U	U	U	0.05	ND ST*
gamma-BHC (Lindane)	U	U	U	U	U	U	U	0.05	ND ST*
Heptachlor	U	U	U	U	U	U	U	0.05	ND ST**
Aldrin	U*	U*	U	U	U	U	U	0.05	ND ST
Heptachlor Epoxide	U	U	U	U	U	U	U	0.05	ND ST**
Endosulfan I	U	U	U	U	U	U	U	0.05	----
Dieldrin	U	U	U	U	U	U	U	0.10	ND ST
4,4'-DDE	U	U	U	U	U	U	U	0.10	ND ST***
Endrin	U	U	U	U	U	0.14 JP	U	0.10	ND ST
Endosulfan II	U	U	U	U	U	U	U	0.10	----
4,4'-DDD	U	U	U	U	U	U	U	0.10	ND ST***
Endosulfan Sulfate	U	U	U	U	U	U	U	0.10	----
4,4'-DDT	U	U*	U*	0.0047 JP	U	U*	0.014 JP	0.10	ND ST***
Methoxychlor	U	U	U	U	U	U	U	0.50	35 ST
Endrin Ketone	U	U	U	U	U	U	U	0.10	5 ST
Endrin Aldehyde	U	0.0028 JP	U	U	U	U*	U	0.10	5 ST
alpha-Chlordane	U	U	U	U	U	U	U	0.05	0.1 ST
gamma-Chlordane	U	U	U	U	U	U	U	0.05	0.1 ST
Toxaphene	U	U	U	U	U	U	U	5.0	ND ST
Aroclor-1016	U	U	U	U	U	U	U	1.0	0.1 ST****
Aroclor-1221	U	U	U	U	U	U	U	2.0	0.1 ST****
Aroclor-1232	U	U	U	U	U	U	U	1.0	0.1 ST****
Aroclor-1242	U	1.4	U	0.082 JP	U	U	U	1.0	0.1 ST****
Aroclor-1248	U	U	U	U	U	U	U	1.0	0.1 ST****
Aroclor-1254	U	0.91 JP	U	U	U	U	U	1.0	0.1 ST****
Aroclor-1260	U	U	0.10 J	0.088 J	U	19	0.23 J	1.0	0.1 ST****
Total PCBs	0.0	2.31	0.1	0.17	0.0	19.0	0.23		

Qualifiers:

U: Compound analyzed for but not detected
 J: Compound found at a concentration below the GRDL, value estimated
 P: Greater than 25% difference for detected concentrations
 between the two GC columns
 U*: Result qualified as non-detect based on validation criteria

Notes:

*: Value applies to the sum of these substances
 **: Value applies to the sum of these substances
 ***: Value applies to the sum of these substances
 ****: Value applies to the sum of these substances
 GV: Guidance Value
 ST: Standard
 ----: not established

Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

TABLE 2d.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
LEACHATE SAMPLING RESULTS
INORGANICS - TOTAL

Sample Identification	L-1	L-2	L-3	L-4	L-5	L-6	L-8	Instrument Detection Limit (ug/l)	NYSDEC Class GA
									Groundwater Standard or Guidance Value (ug/l)
Date of Collection	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97	08/06/97		
Dilution Factor	1	1	1	1	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)		
Aluminum	116 B	582	966	3,270	65.8 B	114 B	6,050	13	----
Antimony	U	U	U	U	U	U	U	8	3 GV
Arsenic	U	U	U	5.9 B	U	U	3.5 B	3	25 ST
Barium	19.2 B	54.4 B	100 B	81.5 B	175 B	124 B	58.9 B	1	1,000 ST
Beryllium	U	U	U	U	U	1.2 B	1.5 B	1	3 GV
Cadmium	U	U	U	4.2 B	U	U	1.4 B	1	10 ST
Calcium	35,300	52,200	62,000	46,000	38,600	45,400	6,020	8	----
Chromium	U	1.8 B	1.6 B	13.7	U	U	7.5 B	1	50 ST
Cobalt	U	U	U	U	U	U	U	2	----
Copper	U	U	4.4 B	7.2 B	U	3.0 B	9.0 B	1	200 ST
Iron	1,960	763	4,340	5,820	4,340	16,000	9,480	20	300 ST ^
Lead	1.2 B	3.8	6.0	12.8	3.2	6.3	15.4	2	25 ST
Magnesium	16,400	26,400	14,400	9,610	10,400	11,100	2,720 B	8	35,000 GV
Manganese	291	19.8	1,540	1,020	2,110	3,190	579	4	300 ST ^
Mercury	U	U	U	U	U	U	0.24	0.2	2 ST
Nickel	5.3 B	3.9 B	4.6 B	8.2 B	2.5 B	17.3 B	14.0 B	2	----
Potassium	2,430 B	510 B	4,360 B	5,480	2,540 B	4,000 B	4,460 B	20	----
Selenium	U	U	U	U	U	U	U	4	10 ST
Silver	U	U	U	U	U	U	U	1	50 ST
Sodium	30,900	8,860	9,150	6,800	15,200	10,200	894 B	9	20,000 ST
Thallium	U	U	U	U	U	U	U	5	4 GV
Vanadium	U	U	U	U	U	U	12.2 B	1	---
Zinc	8.8 B	9.9 B	20.4	77.5	11.0 B	22.9	48.6	1	300 ST
Cyanide	U	U	U	U	U	U	U	10	---

Qualifiers:

U: Compound analyzed for but not detected
 B: Compound concentration is less than the CRDL
 but greater than the IDL

Notes:

NA: Not analyzed
 SB: Site background
 ^: The combined standard for iron and manganese is 500 ug/l

Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

TABLE 3a.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SURFACE SOIL SAMPLING RESULTS
VOLATILE ORGANICS

Sample Identification	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	Contract Required Detection Limit (ug/kg)	NYSDEC Recommended Soil Clean-Up Objective (ug/kg)
Sample Depth	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"		
Date of Collection	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97		
Dilution Factor	1	1	1	1	1	1	1	1	1	1		
Percent Solids	68	73	77	79	68	57	70	70	85	76		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Chloromethane	U	U	U	U	U	U	U	7 J	U	U	10	----
Bromomethane	U	U	U	U	U	U	U	U	U	U	10	----
Vinyl Chloride	U	U	U	U	U	U	U	U	U	U	10	200
Chloroethane	U	U	U	U	U	U	U	U	U	U	10	1900
Methylene Chloride	U	U	U	U	1 J	2 J	3 J	5 J	6 J	5 J	10	100
Acetone	U*	U*	U*	U*	U*	U*	U*	51 J*	U*	47 J*	10	200
Carbon Disulfide	U	U	U	U	U	U	U	U	U	U	10	2700
1,1-Dichloroethene	U	U	U	U	U	U	U	U	U	U	10	400
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U	U	10	200
1,2-Dichloroethene (total)	U	U	U	U	U	U	U	U	U	U	10	300
Chloroform	U	U	U	U	U	U	U	U	U	U	10	300
1,2-Dichloroethane	U	U	U	U	U	U	U	U	U	U	10	100
2-Butanone	2 J	U	3 J	2 J	2 J	U	U	U	3 J	5 J	10	300
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	U	U	10	800
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U	U	10	600
Bromodichloromethane	U	U	U	U	U	U	U	U	U	U	10	----
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U	U	10	----
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	10	----
Trichloroethene	U	U	U	U	U	U	U	U	U	U	10	700
Dibromochloromethane	U	U	U	U	U	U	U	U	U	U	10	----
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U	U	10	----
Benzene	U	U	U	U	U	U	U	U	U	U	10	60
Trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	10	----
Bromoform	U	U	U	U	U	U	U	U	U	U	10	----
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	U	U	U	10	1000
2-Hexanone	U	U	U	U	U	U	U	U	U	U	10	----
Tetrachloroethene	U	U	U	U	U	U	U	U	U	U	10	1400
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U	U	10	600
Toluene	U	U	U	U	U	U	U	U	U	U	10	1500
Chlorobenzene	U	U	U	U	U	U	U	U	U	U	10	1700
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	10	5500
Styrene	U	U	U	U	U	U	U	U	U	U	10	----
Total Xylenes	U	U	U	U	U	U	U	U	U	U	10	1200
Total VOCs	2	0	3	2	3	2	3	63	9	57		10000

Qualifiers:

- U: Compound analyzed for but not detected
- B: Compound found in the blank as well as the sample
- J: Compound found at a concentration below the CRDL, value estimated
- R*: Result qualified as estimated based on validation criteria
- U*: Result qualified as non-detect based on validation criteria

Notes:

- : not established
- Indicates value exceeds recommended soil clean-up objective.

TABLE 3b.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SURFACE SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	Contract Required Detection Limit	NYSDEC Recommended Soil Clean-Up Objective
Sample Depth	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'		
Date of Collection	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97		
Dilution Factor	1	1	1	1	1	1	1	1	1	1		
Percent Solids	68	73	77	79	68	57	70	70	85	76		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	U	U	330	30 OR MDL
bis (2-Chloroethyl) ether	U	U	U	U	U	U	U	U	U	U	330	----
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	330	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	330	8500
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	330	7900
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	330	100 OR MDL
2,2'-Oxybis (1-Chloropropane)	U	U	U	U	U	U	U	U	U	U	330	----
4-Methylphenol	U	U	U	U	U	48 J	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	330	----
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	330	----
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	330	200 OR MDL
Isophorone	U	U	U	U	U	U	U	U	U	U	330	4400
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	330	330 OR MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	330	----
bis (2-Chloroethoxy) methane	U	U	U	U	U	U	U	U	U	U	330	----
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	330	3400
Naphthalene	U	U	U	U	U	U	U	U	U	U	330	13000
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	330	220 OR MDL
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	330	----
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	330	240 OR MDL
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	U	330	36400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	330	----
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	330	----
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	800	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	330	----
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	800	430 OR MDL
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	330	2000
Acenaphthylene	U	U	U	U	U	U	U	U	U	U	330	41000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	330	1

TABLE 3b. (CONTINUED)
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIATION INVESTIGATION AND FEASIBILITY STUDY
SURFACE SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	Contract Required Detection Limit	NYSDEC Recommended Soil Clean-Up Objective
Sample Depth	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"		
Date of Collection	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97		
Dilution Factor	1	1	1	1	1	1	1	1	1	1		
Percent Solids	68	73	77	79	68	57	70	70	85	76		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	800	500 OR MDL
Acenaphthene	U	U	U	U	U	U	U	U	U	U	330	50000
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	800	200 OR MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	800	100 OR MDL
Dibenzofuran	U	U	U	U	U	U	U	U	U	U	330	6200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	330	----
Diethylphthalate	U	U	U	U*	U*	U*	U*	U*	U*	U	330	7100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	330	----
Fluorene	U	U	U	U	U	U	U	U	U	U	330	50000
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	330	----
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	330	----
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	U	U	330	----
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	330	----
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	330	100 OR MDL
Phenanthrene	U	U	U	U	U	U	U	51 J	U	U	330	50000
Anthracene	U	U	U	U	U	U	U	10 J	U	U	330	50000
Carbazole	U	U	U	U	U	U	U	U	U	U	330	----
Di-n-butylphthalate	U	U	U*	U	U	22 J	14 J	32 J	12 J	U	330	8100
Fluoranthene	48 J	U	U	U	33 J	29 J	27 J	65 J	U	U	330	50000
Pyrene	52 J	U	U	U	30 J	28 J	29 J	58 J	U	U	330	50000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	U	U	330	50000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	330	----
Benzo (a) anthracene	U	U	U	U	U	U	U	30 J	U	U	330	224 OR MDL
Chrysene	U	U	U	U	U	U	U	46 J	U	U	330	400
bis (2-Ethylhexyl) phthalate	U*	U*	47 J	U*	U*	U*	U*	U*	U*	U*	330	50000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	330	----
Benzo (b) fluoranthene	U	U	U	U	U	U	U	37 J	U	U	330	1100
Benzo (k) fluoranthene	U	U	U	U	U	U	U	30 J	U	U	330	1100
Benzo (a) pyrene	U	U	U	U	U	U	U	U	U	U	330	61 OR MDL
Indeno (1,2,3-cd) pyrene	U	U	U	U	U	U	U	U	U	U	330	3200
Dibenzo (a,h) anthracene	U	U	U	U	U	U	U	U	U	U	330	14 OR MDL
Benzo (g,h,i) perylene	150 J	U	U	U	U	200 J	84 J	U	82 J	U	330	50000
Total PAHs	250	0	0	0	63	257	140	327	82	0		----
Total Carcinogen PAHs	0	0	0	0	0	0	0	143	0	0		10000
Total SVOCs	250	0	47	0	63	327	154	359	94	0		500000

Notes:

J: Compound found at a concentration below the detection limit

U: Compound analyzed for but not detected

----: not established

B: Compound found in the method blank as well as the sample

U*: Result qualified as non-detect based on validation criteria

Indicates value exceeds NYSDEC soil clean-up objective.

TABLE 3c.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SURFACE SOIL SAMPLING RESULTS
PESTICIDE/PCBs

Sample Identification	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	Contract Required Detection Limit (ug/kg)	NYSDEC Recommended Soil Clean-Up Objective (ug/kg)
Sample Depth	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"	0-3"		
Date of Collection	11/4/97	11/4/97	11/4/97	11/4/97	11/3/97	11/4/97	11/4/97	11/4/97	11/4/97	11/3/97		
Dilution Factor	1	1	1	1	1	1	1	1	1	1		
Percent Solids	68	73	77	79	68	57	70	70	85	76		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
alpha-BHC	U	U	U	U	U	U	U	U	U	U	0.05	110
beta-BHC	U	U	U	U	U	U	U	U	U	U	0.05	200
delta-BHC	U	U	U	U	U	U	U	U	U	U	0.05	300
gamma-BHC (Lindane)	U	U	U	U	U	U	U	U	U	U	0.05	540
Heptachlor	U	U	U	U	U	U	U	U	U	U	0.05	100
Aldrin	U	U	U	U	U	U	U	U	U	U	0.05	41
Heptachlor Epoxide	U	U	U	U	U	U	U	U	U	U	0.05	20
Endosulfan I	U	U	U	U	U	U	U	U	U	U	0.05	900
Dieldrin	U	U	U	U	0.12 J	U	7.2 JP	U	U	U	0.10	44
4,4'-DDE	U	U	U	U	0.43 J	U*	U	U	1.1 JP	U	0.10	2100
Endrin	U	U	U	U	U*	0.14 J	U	U*	U	U	0.10	100
Endosulfan II	U	U	U	U	U	U	U	U	U	U	0.10	900
4,4'-DDD	U	U	U	U	U*	U	U*	U	U	U	0.10	2900
Endosulfan Sulfate	U	U	U	U	U	U	U	U	U	U	0.10	1000
4,4'-DDT	U	U	U	U	0.95 JP	0.81 J	11 R	U*	2.8 J	U	0.10	2100
Methoxychlor	U	U	U	U	U	U	U	U	U*	U	0.50	***
Endrin Ketone	U	U	U	U	U	U	U	U	U	U	0.10	---
Endrin Aldehyde	U	U	U	U	U	U	16 R	U*	U	U	0.10	---
alpha-Chlordane	U	U	U	U	U	U	U	U	U	U	0.05	540
gamma-Chlordane	U	U	U	U	U	U	U	U	U	U	0.05	540
Toxaphene	U	U	U	U	U	U	U	U	U	U	5.0	---
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	1.0	1000*
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	2.0	1000*
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	1.0	1000*
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	1.0	1000*
Aroclor-1248	U	U	U	U	U	U	U	U	U	U	1.0	1000*
Aroclor-1254	U	U	U	U	3.6 J	U	U	49 P	14 J	U	1.0	1000*
Aroclor-1260	U	U	U	U	U*	9.9 JP	650 P	120 P	50	U	1.0	1000*
Total PCBs	0.0	0.0	0.0	0.0	3.6	9.9	650.0	169.0	64.0	0.0		

Qualifiers:

- U: Compound analyzed for but not detected
- J: Compound found at a concentration below the CRDL, value estimated
- P: Greater than 25% difference for detected concentrations between the two GC columns
- U*: Result qualified as non-detect based on validation criteria
- R: Result rejected based on validation criteria

Notes:

- : not established
- ***: Total pesticides not to exceed 10,000 ug/kg
- *: Value refers to the sum of these compounds
- Indicates value exceeds NYSDEC recommended soil clean-up objective

TABLE 3d.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SURFACE SOIL SAMPLING RESULTS
INORGANICS

Sample Identification	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	Instrument	NYSDEC Recommended Soil Clean-Up Objective (mg/kg)
Sample Depth	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'	0-3'		
Date of Collection	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97	11/04/97	11/04/97	11/04/97	11/04/97	11/03/97	Limit (ug/l)	
Dilution Factor	1	1	1	1	1	1	1	1	1	1		
Percent Solids	68	73	77	79	68	57	70	70	85	76		
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
Aluminum	13,300	13,300	18,100	19,200	11,400	19,500	11,600	13,700	12,700	18,600	13	SB
Antimony	U	U	U	U	U	U	U	U	U	U	8	SB
Arsenic	8.1	9.3	6.6	10.4	4.1	12.2	10.6	10.5	8.4	12.6	3	7.5 or SB
Barium	84.5	85.1	65.0	90.0	55.2	166	105	121	65.4	74.2	1	300 or SB
Beryllium	0.70 B	0.81 B	0.75 B	0.82 B	0.73 B	1.2 B	0.73 B	0.78 B	0.76 B	1.1 B	1	0.16 or SB
Cadmium	U	U	U	U	U	U	0.40 B	2.4	U	U	1	10*
Calcium	782 B	873 B	261 B	364 B	1,290 B	5,150	1,900	1,800	666 B	1,380	8	SB
Chromium	14.2	17.4	19.5	23.6	17.5	20.4	14.5	22.7	17.1	23.6	1	50*
Cobalt	10.1 B	20.3	13.1	15.8	15.0	13.5 B	12.1 B	13.0	14.4	17.5	2	30 or SB
Copper	9.9	17.5	11.7	21.5	23.3	18.2	21.1	48.7	18.0	26.4	1	25 or SB
Iron	24,300	30,100	29,500	37,600	24,300	31,500	26,400	31,600	28,600	41,000	20	2000 or SB
Lead	19.0	14.8	14.5	14.5	28.8	46.3	95.4	128	24.2	14.8	2	SB
Magnesium	2,090	4,090	3,070	4,700	3,920	3,400	2,450	3,930	3,730	5,250	8	SB
Manganese	1,270	1,030	315	1,110	549	2,650	940	597	866	907	4	SB
Mercury	U	U	U	U	U	U	U	U	U	U	0.2	0.1
Nickel	14.8	31.3	26.8	30.6	27.9	19.2	16.6	29.9	26.0	36.0	2	13 or SB
Potassium	654 B	911 B	779 B	1,750	1,060 B	3,360	1,000 B	1,730	1,210	1,930	20	SB
Selenium	2.1	1.3 B	3.1	1.4	U	2.0	1.2 B	2.4	1.5	2.2	4	2 or SB
Silver	U	U	U	U	U	U	U	U	U	U	1	SB
Sodium	61.9 B	66.3 B	58.7 B	82.6 B	53.6 B	108 B	57.4 B	71.6 B	45.7 B	66.9 B	9	SB
Thallium	U	U	1.6 B	U	U	U	U	1.6 B	U	2.3 B	5	SB
Vanadium	20.2	15.4	20.1	24.6	12.2 B	29.0	17.9	17.2	15.0	21.6	1	150 or SB
Zinc	70.7	88.6	101	124	98.8	146	138	228	91.0	116	1	20 or SB
Cyanide	U	U	U	U	U	U	U	U	U	U	10	----

Qualifiers:

- U: Compound analyzed for but not detected
- B: Compound concentration is less than the CRDL but greater than the IDL.

Notes: To determine the detection limit for each sample, use the following equation: $(CRDL) \cdot (DF) \cdot (100\%S)$ where CRDL = contract required detection limit, DF = dilution factor and %S = percent solids.

- SB: Site background
- : not established

*: as per proposed 4/95 NYSDEC TAGM

Indicates value exceeds the NYSDEC recommended soil clean-up objective

TABLE 4a.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SUBSURFACE SOIL SAMPLING RESULTS
VOLATILE ORGANICS

Sample Identification	MW-5S	MW-6D	Contract Required Detection Limit (ug/kg)	NYSDEC Recommended Soil Clean-Up Objective (ug/kg)
Sample Depth	5-7'	2-4'		
Date of Collection	08/28/97	08/28/97		
Dilution Factor	1	1		
Percent Solids	87.1	90.5		
Units	(ug/kg)	(ug/kg)		
Chloromethane	U	U	10	----
Bromomethane	U	U	10	----
Vinyl Chloride	U	U	10	200
Chloroethane	U	U	10	1900
Methylene Chloride	U	U	10	100
Acetone	U	U	10	200
Carbon Disulfide	U	U	10	2700
1,1-Dichloroethene	U	U	10	400
1,1-Dichloroethane	U	U	10	200
1,2-Dichloroethene (total)	U	U	10	300
Chloroform	U	U	10	300
1,2-Dichloroethane	U	U	10	100
2-Butanone	U	U	10	300
1,1,1-Trichloroethane	U	U	10	800
Carbon Tetrachloride	U	U	10	600
Bromodichloromethane	U	U	10	----
1,2-Dichloropropane	U	U	10	----
cis-1,3-Dichloropropene	U	U	10	----
Trichloroethene	U	U	10	700
Dibromochloromethane	U	U	10	----
1,1,2-Trichloroethane	U	U	10	----
Benzene	U	U	10	60
Trans-1,3-Dichloropropene	U	U	10	----
Bromoform	U	U	10	----
4-Methyl-2-Pentanone	U	U	10	1000
2-Hexanone	U	U	10	----
Tetrachloroethene	2 J	U	10	1400
1,1,2,2-Tetrachloroethane	U	U	10	600
Toluene	U	U	10	1500
Chlorobenzene	U	U	10	1700
Ethylbenzene	U	U	10	5500
Styrene	U	U	10	----
Total Xylenes	U	U	10	1200
Total VOCs	2	0		10000

Qualifiers:

U: Compound analyzed for but not detected

J: Compound found at a concentration below the CRDL, value estimated

Notes:

To determine the detection limit for each sample, use the following equation: $(CRDL) * (DF)$ where CRDL = contract required detection limit, DF = dilution factor and %S = percent solids..

Indicates value exceeds recommended
NYSDEC soil clean-up objective

---: Not established

TABLE 4b.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SUBSURFACE SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	MW-5S	MW-6D	Contract Required Detection Limit (ug/kg)	NYSDEC Recommended Soil Clean-Up Objective (ug/kg)
Sample Depth	5-7'	2-4'		
Date of Collection	08/28/97	08/28/97		
Dilution Factor	1	1		
Percent Solids	87.1	90.5		
Units	(ug/kg)	(ug/kg)		
Phenol	U	U	330	30 OR MDL
bis(2-Chloroethyl)ether	U	U	330	----
2-Chlorophenol	U	U	330	800
1,3-Dichlorobenzene	U	U	330	1600
1,4-Dichlorobenzene	U	U	330	8500
1,2-Dichlorobenzene	U	U	330	7900
2-Methylphenol	U	U	330	100 OR MDL
2,2-Oxybis (1-Chloropropane)	U	U	330	----
4-Methylphenol	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	330	----
Hexachloroethane	U	U	330	----
Nitrobenzene	U	U	330	200 OR MDL
Isophorone	U	U	330	4400
2-Nitrophenol	U	U	330	330 OR MDL
2,4-Dimethylphenol	U	U	330	----
bis(2-Chloroethoxy)methane	U	U	330	----
2,4-Dichlorophenol	U	U	330	400
1,2,4-Trichlorobenzene	U	U	330	3400
Naphthalene	U	U	330	13000
4-Chloroaniline	U	U	330	220 OR MDL
Hexachlorobutadiene	U	U	330	----
4-Chloro-3-methylphenol	U	U	330	240 OR MDL
2-Methylnaphthalene	U	U	330	36400
Hexachlorocyclopentadiene	U	U	330	----
2,4,6-Trichlorophenol	U	U	330	----
2,4,5-Trichlorophenol	U	U	800	100
2-Chloronaphthalene	U	U	330	----
2-Nitroaniline	U	U	800	430 OR MDL
Dimethylphthalate	U	U	330	2000
Acenaphthylene	U	U	330	41000
2,6-Dinitrotoluene	U	U	330	1
3-Nitroaniline	U	U	800	500 OR MDL
Acenaphthene	U	U	330	50000
2,4-Dinitrophenol	U	U	800	200 OR MDL
4-Nitrophenol	U	U	800	100 OR MDL
Dibenzofuran	U	U	330	6200

TABLE 4b. (CONTINUED)
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SUBSURFACE SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	MW-5S	MW-6D	Contract Required Detection Limit (ug/kg)	NYSDEC Recommended Soil Clean-Up Objective (ug/kg)
Sample Depth	5-7'	2-4'		
Date of Collection	08/28/97	08/28/97		
Dilution Factor	1	1		
Percent Solids	87.1	90.5		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrotoluene	U	U	330	----
Diethylphthalate	U*	U*	330	7100
4-Chlorophenyl-phenylether	U	U	330	----
Fluorene	U	U	330	50000
4-Nitroaniline	U	U	800	----
4,6-Dinitro-2-methylphenol	U	U	800	----
N-Nitrosodiphenylamine	U	U	330	----
4-Bromophenyl-phenylether	U	U	330	----
Hexachlorobenzene	U	U	330	410
Pentachlorophenol	U	U	800	100 OR MDL
Phenanthrene	U	U	330	50000
Anthracene	U	U	330	50000
Carbazole	U	U	330	
Di-n-butylphthalate	U*	U*	330	8100
Fluoranthene	U	U	330	50000
Pyrene	U	U	330	50000
Butylbenzylphthalate	U	U	330	50000
3,3'-Dichlorobenzidine	U	U	330	----
Benzo (a) anthracene	U	U	330	224 OR MDL
Chrysene	U	U	330	400
bis(2-Ethylhexyl)phthalate	98 J	47 J	330	50000
Di-octylphthalate	U	U	330	
Benzo(b)fluoranthene	U	U	330	1100
Benzo(k)fluoranthene	U	U	330	1100
Benzo(a)pyrene	U	U	330	61 OR MDL
Indeno(1,2,3-cd)pyrene	U	U	330	3200
Dibenzo(a,h)anthracene	U	U	330	14 OR MDL
Benzo(g,h,i)perylene	U	U	330	50000
Total PAHs	0	0		----
Total Carcinogen PAHs	0	0		10000
Total SVOCs	98	47		500000

Qualifiers:

- J: Compound found at a concentration below the detection limit
- U: Compound analyzed for but not detected
- B: Compound found in the method blank as well as the sample
- U*: Result qualified as non-detect based on validation criteria

Notes: To determine the detection limit for each sample, use the following equation: $(CRDL) \cdot (DF) \cdot (100\%S)$, where CRDL = contract required detection limit, DF = dilution factor and %S = percent solids.
 ---: not established

TABLE 4c.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SUBSURFACE SOIL SAMPLING RESULTS
PESTICIDE/PCBs

Sample Identification	MW-5S	MW-6D	Contract Required Detection Limit	NYSDEC Recommended Soil Clean-Up Objective
Sample Depth	5-7'	2-4'		
Date of Collection	8/6/97	8/6/97		
Dilution Factor	1	1		
Percent Solids	87.1	90.5		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
alpha-BHC	U	U	0.05	110
beta-BHC	U	U	0.05	200
delta-BHC	0.33 JPB	U	0.05	300
gamma-BHC (Lindane)	U	U	0.05	540
Heptachlor	U	U	0.05	100
Aldrin	U	U	0.05	41
Heptachlor Epoxide	U	U	0.05	20
Endosulfan I	U	U	0.05	900
Dieldrin	U	U	0.10	44
4,4'-DDE	U	U*	0.10	2,100
Endrin	U	U	0.10	100
Endosulfan II	U	U	0.10	900
4,4'-DDD	U	U	0.10	2,900
Endosulfan Sulfate	U	U	0.10	1,000
4,4'-DDT	U*	0.92 JPB	0.10	2,100
Methoxychlor	U	U	0.50	---
Endrin Ketone	U	U	0.10	---
Endrin Aldehyde	U	0.42 J	0.10	---
alpha-Chlordane	U	U	0.05	540
gamma-Chlordane	U	U	0.05	540
Toxaphene	U	U	5.0	---
Aroclor-1016	U	U	1.0	10,000*
Aroclor-1221	U	U	2.0	10,000*
Aroclor-1232	U	U	1.0	10,000*
Aroclor-1242	U	U	1.0	10,000*
Aroclor-1248	U	U	1.0	10,000*
Aroclor-1254	2.8 JP	U*	1.0	10,000*
Aroclor-1260	U	U	1.0	10,000*
Total PCBs	2.8	0.0		10,000*

Qualifiers:

- U: Compound analyzed for but not detected
- J: Compound found at a concentration below the CRDL, value estimated
- P: Greater than 25% difference for detected concentrations between the two columns
- B: Compound found in blank as well as sample
- U*: Result qualified as non-detect based on validation criteria

Notes:

To determine the detection limit for each sample, use the following equation: $(CRDL) \cdot (DF) \cdot (100\%S)$, where CRDL = contract required detection limit, DF = dilution factor and %S = percent solids.

*: Value applies to the sum of these compounds

***: Total pesticides not to exceed 10,000 ug/l

---: not established

Indicates value exceeds NYSDEC recommended Soil Clean-Up Objective

TABLE 4d.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SUBSURFACE SOIL SAMPLING RESULTS
INORGANICS - TOTAL

Sample Identification	MW-5S	MW-6D	Instrument Detection Limit (ug/l)	NYSDEC Recommended Soil Clean-up Objective (mg/kg)
Sample Depth	5-7'	2-4'		
Date of Collection	08/28/97	08/28/97		
Dilution Factor	1	1		
Percent Solids	87.1	90.5		
Units	(mg/kg)	(mg/kg)		
Aluminum	15,600	18,600	13	SB
Antimony	U	U	8	SB
Arsenic	7.1	12.3	3	7.5 or SB
Barium	67.2	69.0	1	300 or SB
Beryllium	1.0 B	0.95 B	1	0.16 or SB
Cadmium	U	U	1	10*
Calcium	233 B	720 B	8	SB
Chromium	20.8	24.0	1	50*
Cobalt	22.7	19.4	2	30 or SB
Copper	27.7	27.4	1	25 or SB
Iron	39,700	39,700	20	2000 or SB
Lead	12.4	14.6	2	SB
Magnesium	4,860	5,320	8	SB
Manganese	788	905	4	SB
Mercury	U	U	0.2	0.1
Nickel	35.7	37.9	2	13 or SB
Potassium	1,840	2,600	20	SB
Selenium	1.0 B	1.3	4	2 or SB
Silver	U	U	1	SB
Sodium	85.0 B	100 B	9	SB
Thallium	1.6 B	0.96 B	5	SB
Vanadium	16.9	19.5	1	150 or SB
Zinc	87.2	94.7	1	20 or SB
Cyanide	3.70	U		---

Qualifiers:

- U: Compound analyzed for but not detected
- B: Compound concentration is less than the CRDL but greater than the IDL

Notes:

To determine the detection limit for each sample, use the following equation: $(CRDL) * (DF) * (100\%S)$, where CRDL = contract required detection limit, DF = dilution factor and %S = percent solids.

SB: Site background

---: Not established

*: as per proposed 4/95 NYSDEC TAGM

 Indicates value exceeds NYSDEC recommended Soil Clean-Up Objective

TABLE 5a.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
GROUNDWATER SAMPLING RESULTS
VOLATILE ORGANICS

Sample Identification	MW-1S	MW-2	MW-3	MW-4	MW-5S	MW-5D	MW-6	MW-7	MW-8	MW-9	Contract Required Detection Limit (ug/l)	NYSDEC Class GA Groundwater Standard or Guidance Value (ug/l)
	Date of Collection	11/11/97	11/11/97	11/11/97	11/11/97	11/11/97	11/11/97	11/11/97	11/12/97	11/11/97		
Dilution Factor	1	1	2	1	1	1	2	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)		
Chloromethane	U	U	U	U	U	U	U	U	U	U	10	5 ST
Bromomethane	U	U	U	U	U	U	U	U	U	U	10	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	U	U	10	2 ST
Chloroethane	U	U	4 J	U	U	U	38	U	U	U	10	5 ST
Methylene Chloride	1 J	U	U	U	U	U	1 J	U	U	U	10	5 ST
Acetone	U*	U	14 J	U	U*	U	7 J	U	U	U	10	50GV
Carbon Disulfide	U	U	U	U	U	U	U	U	U	U	10	---
1,1-Dichloroethene	U	U	11 J	1 J	U	U	0.9 J	U	U	U	10	5 ST
1,1-Dichloroethane	U	U	65	100	U	2 J	18	2 J	6 J	2 J	10	5 ST
1,2-Dichloroethene (total)	U	U	99	U	U	U	1 J	2 J	4 J	0.8 J	10	5 ST
Chloroform	U	U	U	U	U	U	U	U	U	U	10	7 ST
1,2-Dichloroethane	U	U	U	U	U	U	1 J	U	U	U	10	5 ST
2-Butanone	U	U	U	U	U	U	U	U	U	U	10	50GV
1,1,1-Trichloroethane	1 J	U	240	12	0.9 J	U	9 J	6 J	9 J	0.9 J	10	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U	U	10	5 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	U	U	10	50GV
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U	U	10	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	10	5 ST
Trichloroethene	U	U	290	4 J	U	0.6 J	0.5 J	2 J	9 J	U	10	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	U	U	10	50GV
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U	U	10	5 ST
Benzene	U	U	U	U	U	U	3 J	U	U	U	10	0.7 ST
Trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	10	5 ST
Bromoform	U	U	U	U	U	U	U	U	U	U	10	50GV
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	U	U	U	10	---
2-Hexanone	U	U	U	U	U	U	U	U	U	U	10	50GV
Tetrachloroethene	1 J	U	U	1 J	U	8 J	U	U	U	2 J	10	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U	U	10	5 ST
Toluene	U	U	U	U	U	U	2 JB	U	U	U	10	5 ST
Chlorobenzene	U	U	U	U	U	U	U	U	U	U	10	5 ST
Ethylbenzene	U	U	U	U	U	U	32	U	U	U	10	5 ST
Styrene	U	U	U	U	U	U	U	U	U	U	10	5 ST
Total Xylenes	U	U	U	U	U	U	240	U	U	U	10	5 ST
Total VOCs	3	0	723	118	0.9	10.6	353	12	28	5.7		

Qualifiers:

- U: Compound analyzed for but not detected
- B: Compound found in the blank as well as the sample
- J: Compound found at a concentration below the CRDL, value estimated
- U*: Result qualified as non-detect based on validation criteria

Notes:

- GV: Guidance Value
- ST: Standard
- : Not established



Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value.

TABLE 5b.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
GROUNDWATER SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	MW-1S	MW-3	MW-4	MW-5D	MW-6	MW-7	MW-8	MW-9	Contract Required	NYSDEC Class GA
	Date of Collection	11/11/97	11/11/97	11/11/97	11/11/97	11/11/97	11/12/97	11/11/97	Detection	Groundwater Standard or Guidance Value
Dilution Factor	1	1	1	1	1	1	1	1	Limit	
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Phenol	U	U	U	U	U	U	U	U	10	1 ST **
bis (2-Chloroethyl) ether	U	U	U	U	U	U	U	U	10	1 ST
2-Chlorophenol	U	U	U	U	U	U	U	U	10	1 ST **
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	10	5 ST
1,4-Dichlorobenzene	U	U	U	U	2 J	U	U	U	10	4.7 ST *
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	10	4.7 ST *
2-Methylphenol	U	U	U	U	U	U	U	U	10	----
2,2'-Oxybis (1-Chloropropane)	U	U	U	U	U	U	U	U	10	----
4-Methylphenol	U	U	U	U	U	U	U	U	10	----
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	10	----
Hexachloroethane	U	U	U	U	U	U	U	U	10	5 ST
Nitrobenzene	U	U	U	U	U	U	U	U	10	5 ST
Isophorone	U	U	U	U	U	U	U	U	10	50 GV
2-Nitrophenol	U	U	U	U	U	U	U	U	10	----
2,4-Dimethylphenol	U	U	U	U	2 J	U	U	U	10	----
bis (2-Chloroethoxy) methane	U	U	U	U	U	U	U	U	10	5 ST
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	10	1 ST **
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	10	5 ST
Naphthalene	U	U	U	U	2 J	U	U	U	10	10 GV
4-Chloroaniline	U	U	U	U	U	U	U	U	10	5 ST
Hexachlorobutadiene	U	U	U	U	U	U	U	U	10	5 ST
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	10	----
2-Methylnaphthalene	U	U	U	U	0.5 J	U	U	U	10	----
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	10	5 ST
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	10	----
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	25	----
2-Chloronaphthalene	U	U	U	U	U	U	U	U	10	5 ST
2-Nitroaniline	U	U	U	U	U	U	U	U	25	5 ST
Dimethylphthalate	U	U	U	U	U	U	U	U	10	50 GV
Acenaphthylene	U	U	U	U	U	U	U	U	10	----
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	10	5 ST
3-Nitroaniline	U	U	U	U	U	U	U	U	25	5 ST
Acenaphthene	U	U	U	U	U	U	U	U	10	20 GV
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	25	----
4-Nitrophenol	U	U	U	U	U	U	U	U	25	----
Dibenzofuran	U	U	U	U	U	U	U	U	10	----
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	10	5 ST

TABLE 5b. (CONTINUED)
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
GROUNDWATER SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	MW-1S	MW-3	MW-4	MW-5D	MW-6	MW-7	MW-8	MW-9	Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Date of Collection	11/11/97	11/11/97	11/11/97	11/11/97	11/11/97	11/12/97	11/11/97	11/11/97		
Dilution Factor	1	1	1	1	1	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Diethylphthalate	U	U	0.4 J	2 JB	8 J	0.3 JB	0.4 JB	0.3 JB	10	50 GV
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	10	---
Fluorene	U	U	U	U	U	U	U	U	10	50 GV
4-Nitroaniline	U	U	U	U	U	U	U	U	25	5 ST
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	25	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	10	50 GV
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	10	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	10	0.35 ST
Pentachlorophenol	U	U	U	U	U	U	U	U	25	1 ST **
Phenanthrene	U	U	U	U	U	U	U	U	10	50 GV
Anthracene	U	U	U	U	U	U	U	U	10	50 GV
Carbazole	U	U	U	U	U	U	U	U	10	---
Di-n-butylphthalate	U*	U*	U*	U*	U*	U*	U*	U*	10	50 ST
Fluoranthene	U	U	U	U	U	U	U	U	10	50 GV
Pyrene	U	U	U	U	U	U	U	U	10	50 GV
Butylbenzylphthalate	U	U	U	U	U	U	U	U	10	50 GV
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	10	5 ST
Benzo (a) anthracene	U	U	U	U	U	U	U	U	10	0.002 GV ***
Chrysene	U	U	U	U	U	U	U	U	10	0.002 GV ***
bis (2-Ethylhexyl) phthalate	U	0.8 J	U	U*	1 J	U*	U*	U*	10	50 ST
Di-n-octylphthalate	U	U	U	U	U	U	U	U	10	50 GV
Benzo (b) fluoranthene	U	U	U	U	U	U	U	U	10	0.002 GV ***
Benzo (k) fluoranthene	U	U	U	U	U	U	U	U	10	0.002 GV ***
Benzo (a) pyrene	U	U	U	U	U	U	U	U	10	ND ST
Indeno (1,2,3-cd) pyrene	U	U	U	U	U	U	U	U	10	0.002 GV
Dibenzo (a,h) anthracene	U	U	U	U	U	U	U	U	10	---
Benzo (g,h,i) perylene	U	U	U	U	U	U	U	U	10	---
Total PAHs	0	0	0	0	2	0	0	0		---
Total Carcinogen PAHs	0	0	0	0	0	0	0	0		---
Total SVOCs	0.0	0.8	0.4	2	15.5	0.3	0.4	0.3		---

Qualifiers:

J: Compound found at a concentration below the detection limit
U: Compound analyzed for but not detected
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

Notes:

GV: Guidance value
ST: Standard
---: Not established
NA: Not analyzed
*: Value pertains to the sum of the isomers
**: Value pertains to total phenols
***: Value pertains to the sum of the compounds

Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value.

TABLE 5c.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
GROUNDWATER SAMPLING RESULTS
PESTICIDE/PCBs

Sample Identification	MW-1S	MW-3	MW-4	MW-5D	MW-6	MW-7	MW-9	Contract Required Detection Limit (ug/l)	NYSDEC Class GA Groundwater Standard or Guidance Value (ug/l)
Date of Collection	11/11/97	11/11/97	11/11/97	11/11/97	11/11/97	11/12/97	11/11/97		
Dilution Factor	1	1	1	1	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)		
alpha-BHC	U	U	U	U	U	U	U	0.05	ND ST*
beta-BHC	U	U	U	U	U	U	U	0.05	ND ST*
delta-BHC	U	U	U	U	U	0.012 J	U	0.05	ND ST*
gamma-BHC (Lindane)	U	U	U	U	U	U	U	0.05	ND ST*
Heptachlor	U	U	U	U	U	U	U	0.05	ND ST**
Aldrin	U*	U	U	U	U*	U*	U*	0.05	ND ST
Heptachlor Epoxide	U	U	U	U	U	U	U	0.05	ND ST**
Endosulfan I	U	U	U	U	U	U	U	0.05	----
Dieldrin	U	U	U*	U	U	U	U	0.10	ND ST
4,4'-DDE	U	U	U	U	U	U	U	0.10	ND ST***
Endrin	U	U	U	U	U	U	U	0.10	ND ST
Endosulfan II	U	U	U	U	U	U	U	0.10	----
4,4'-DDD	U	U	U	U	U	U	U	0.10	ND ST***
Endosulfan Sulfate	U	U	U	U	U	U	U	0.10	----
4,4'-DDT	U	U	U	U	U	U	U	0.10	ND ST***
Methoxychlor	U	U	U	U	U*	U	U	0.50	35 ST
Endrin Ketone	U	U	U	U	U	U	U	0.10	5 ST
Endrin Aldehyde	U	U	U*	U	U	U	U	0.10	5 ST
alpha-Chlordane	U	U	U	U	U	U*	U	0.05	0.1 ST
gamma-Chlordane	U	U	U	U	U	U	U	0.05	0.1 ST
Toxaphene	U	U	U	U	U	U	U	5.0	ND ST
Aroclor-1016	U	U	U	U	0.42 J	U	U	1.0	0.1 ST****
Aroclor-1221	U	U	U	U	U	U	U	2.0	0.1 ST****
Aroclor-1232	U	U	U	U	U	U	U	1.0	0.1 ST****
Aroclor-1242	U	U	U	U	U	0.46 J	U	1.0	0.1 ST****
Aroclor-1248	U	U	U	U	U	U	U	1.0	0.1 ST****
Aroclor-1254	U	U	U	U	U	0.27 J	U	1.0	0.1 ST****
Aroclor-1260	U	U	U	U	U	U	U	1.0	0.1 ST****
Total PCBs	0.0	0.0	0.0	0.0	0.4	0.7	0.0		

Qualifiers:

U: Compound analyzed for but not detected
 J: Compound found at a concentration below the CRDL, value estimated
 NA: Not analyzed
 U*: Result qualified as non-detect based on validation criteria

Notes:

*: Value applies to the sum of these substances
 **: Value applies to the sum of these substances
 ***: Value applies to the sum of these substances
 ****: Value applies to the sum of these substances
 GV: Guidance Value

ST: Standard
 ----: not established

Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

TABLE 5d.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
GROUNDWATER SAMPLING RESULTS
INORGANICS - TOTAL

Sample Identification	MW-1S	MW-2	MW-3	MW-4	MW-5D	MW-6	MW-7	MW-9	Instrument	NYSDEC Class GA
Date of Collection	11/11/97	11/12/97	11/11/97	11/11/97	11/11/97	11/11/97	11/12/97	11/11/97	Detection	Groundwater
Dilution Factor	1	1	1	1	1	1	1	1	Limit	Standard or
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	Guidance Value
Aluminum	13,600	48.7 B	1,180	124 B	179 B	4710	2,380	281	13	----
Antimony	U	U	U	U	U	U	U	U	8	3 GV
Arsenic	6.3 B	U	U	U	29.9	10.7	U	U	3	25 ST
Barium	835	12.8 B	14.8 B	16.5 B	64.3 B	93.6 B	58.0 B	18.6 B	1	1,000 ST
Beryllium	2.6 B	U	U	U	U	U	U	U	1	3 GV
Cadmium	U	1.5 B	U	U	U	U	U	U	1	10 ST
Calcium	30,500	19,600	28,800	60,400	31,200	59,100	44,100	30,500	8	----
Chromium	14.4	U	2.4 B	U	U	8.8 B	5.7 B	U	1	50 ST
Cobalt	30.0 B	U	U	U	7.4 B	4.2 B	U	U	2	----
Copper	42.6	U	16.3 B	3.1 B	2.4 B	22.8 B	65.9	12.0 B	1	200 ST
Iron	22,200	42.8 B	2,370	331	9,720	42,200	4,950	652	20	300 ST ^
Lead	56.9	2.3 B	2.2 B	U	2.4 B	15.1	11.9	3.7	2	25 ST
Magnesium	6,750	10,900	10,700	17,900	14,700	15,700	21,100	13,700	8	35,000 GV
Manganese	3,930	74.0	109	27.3	3,580	8,120	136	378	4	300 ST ^
Mercury	0.36	U	0.22	U	U	U	U	U	0.2	2 ST
Nickel	32.6 B	U	3.7 B	U	5.1 B	10.9 B	5.4 B	3.0 B	2	----
Potassium	2,460 B	781 B	2,580 B	2,560 B	1,780 B	6,300	2,240 B	1,280 B	20	----
Selenium	5.0 B	U	U	U	4.3 B	6.8	U	4.4 B	4	10 ST
Silver	U	U	U	U	U	U	U	U	1	50 ST
Sodium	1,720 B	25,600	10,400	9,860	19,300	13,900	5,890	5,660	9	20,000 ST
Thallium	U	U	U	U	U	U	U	U	5	4 GV
Vanadium	12.6 B	U	1.2 B	U	U	6.5 B	2.6 B	U	1	----
Zinc	89.1	24.8	20.4	4.2 B	5.9 B	58.1	29.2	24.4	1	300 ST
Cyanide	U	NA	U	U	U	U	U	U	10	100 ST

Qualifiers:

U: Compound analyzed for but not detected

B: Compound concentration is less than the CRDL
but greater than the IDL

Notes:

NA: Not analyzed

SB: Site background

^: The combined standard for iron and manganese is 500 ug/l

Indicates value exceeds NYSDEC Class GA groundwater standard
or guidance value

TABLE 6a.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SEDIMENT SAMPLING RESULTS
VOLATILE ORGANICS

Sample Identification	SD-1	SD-2	SD-3	SD-4	Contract Required Detection Limit (ug/kg)	NYSDEC Recommended Soil Clean-Up Objective (ug/kg)
Sample Depth	0-6"	0-6"	0-6"	0-6"		
Date of Collection	11/12/97	11/12/97	11/12/97	11/12/97		
Dilution Factor	1	1	1	1		
Percent Solids	83.0	75.8	83.0	75.8		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Chloromethane	U	U	U	U	330	----
Bromomethane	U	U	U	U	330	----
Vinyl Chloride	U	U	U	U	330	200
Chloroethane	U	U	U	U	330	1900
Methylene Chloride	3 J	3 J	3 J	5 J	330	100
Acetone	U*	U*	U*	U*	330	200
Carbon Disulfide	U	U	U	U	330	2700
1,1-Dichloroethene	U	U	U	U	330	400
1,1-Dichloroethane	U	U	U	U	330	200
1,2-Dichloroethene (total)	U	U	U	U	330	300
Chloroform	U	U	U	U	330	300
1,2-Dichloroethane	U	U	U	U	330	100
2-Butanone	U	U	U	U	330	300
1,1,1-Trichloroethane	U	U	U	U	330	800
Carbon Tetrachloride	U	U	U	U	330	600
Bromodichloromethane	U	U	U	U	330	----
1,2-Dichloropropane	U	U	U	U	330	----
cis-1,3-Dichloropropene	U	U	U	U	330	----
Trichloroethene	U	U	U	U	330	700
Dibromochloromethane	U	U	U	U	330	----
1,1,2-Trichloroethane	U	U	U	U	330	----
Benzene	U	U	U	U	330	60
Trans-1,3-Dichloropropene	U	U	U	U	330	----
Bromoform	U	U	U	U	330	----
4-Methyl-2-Pentanone	U	U	U	U	330	1000
2-Hexanone	U	U	U	U	330	----
Tetrachloroethene	U	U	U	U	330	1400
1,1,2,2-Tetrachloroethane	U	U	U	U	330	600
Toluene	U	U	U	U	330	1500
Chlorobenzene	U	U	U	U	330	1700
Ethylbenzene	U	U	U	U	330	5500
Styrene	U	U	U	U	330	----
Total Xylenes	U	U	U	U	330	1200
Total VOCs	3	3	3	5		10000

Qualifiers:

- U: Compound analyzed for but not detected
- B: Compound found in the blank as well as the sample
- J: Compound found at a concentration below the CRDL, value estimated
- U*: Result qualified as non-detect based on validation criteria

Notes:

To determine the detection limit for each sample, use the following equation: $(CRDL) \cdot (DF) \cdot 100 / \%S$, where CRDL = contract required detection limit, DF = dilution factor, %S = percent solids.

Indicates value exceeds recommended NYSDEC soil clean-up objective

TABLE 6b.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SEDIMENT SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	SD-1	SD-2	SD-3	SD-4	Contract Required Detection Limit	NYSDEC Recommended Soil Clean-Up Objective
Sample Depth	0-6"	0-6"	0-6"	0-6"		
Date of Collection	11/12/97	11/12/97	11/12/97	11/12/97		
Dilution Factor	1	1	1	1		
Percent Solids	83.0	75.8	83.0	75.8		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	330	30 OR MDL
bis(2-Chloroethyl)ether	U	U	U	U	330	----
2-Chlorophenol	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	330	1600
1,4-Dichlorobenzene	U	U	U	U	330	8500
1,2-Dichlorobenzene	U	U	U	U	330	7900
2-Methylphenol	U	U	U	U	330	100 OR MDL
2,2-Oxybis (1-Chloropropane)	U	U	U	U	330	----
4-Methylphenol	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	330	----
Hexachloroethane	U	U	U	U	330	----
Nitrobenzene	U	U	U	U	330	200 OR MDL
Isophorone	U	U	U	U	330	4400
2-Nitrophenol	U	U	U	U	330	330 OR MDL
2,4-Dimethylphenol	U	U	U	U	330	----
bis(2-Chloroethoxy)methane	U	U	U	U	330	----
2,4-Dichlorophenol	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	330	3400
Naphthalene	U	U	U	U	330	13000
4-Chloroaniline	U	U	U	U	330	220 OR MDL
Hexachlorobutadiene	U	U	U	U	330	----
4-Chloro-3-methylphenol	U	U	U	U	330	240 OR MDL
2-Methylnaphthalene	U	U	U	U	330	36400
Hexachlorocyclopentadiene	U	U	U	U	330	----
2,4,6-Trichlorophenol	U	U	U	U	330	----
2,4,5-Trichlorophenol	U	U	U	U	800	100
2-Chloronaphthalene	U	U	U	U	330	----
2-Nitroaniline	U	U	U	U	800	430 OR MDL
Dimethylphthalate	U	U	U	U	330	2000
Acenaphthylene	U	U	U	U	330	41000
2,6-Dinitrotoluene	U	U	U	U	330	1
3-Nitroaniline	U	U	U	U	800	500 OR MDL
Acenaphthene	U	U	U	U	330	50000
2,4-Dinitrophenol	U	U	U	U	800	200 OR MDL

TABLE 6b. (CONTINUED)
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SEDIMENT SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	SD-1	SD-2	SD-3	SD-4	Contract Required Detection Limit	NYSDEC Recommended Soil Clean-Up Objective
Sample Depth	0-6"	0-6"	0-6"	0-6"		
Date of Collection	11/12/97	11/12/97	11/12/97	11/12/97		
Dilution Factor	1	1	1	1		
Percent Solids	83.0	75.8	83.0	75.8		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
4-Nitrophenol	U	U	U	U	800	100 OR MDL
Dibenzofuran	U	U	U	U	330	6200
2,4-Dinitrotoluene	U	U	U	U	330	----
Diethylphthalate	16 J	U	U	18 J	330	7100
4-Chlorophenyl-phenylether	U	U	U	U	330	----
Fluorene	U	U	U	U	330	50000
4-Nitroaniline	U	U	U	U	800	----
4,6-Dinitro-2-methylphenol	U	U	U	U	800	----
N-Nitrosodiphenylamine	U	U	U	U	330	----
4-Bromophenyl-phenylether	U	U	U	U	330	----
Hexachlorobenzene	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	800	100 OR MDL
Phenanthrene	U	U	U	U	330	50000
Anthracene	U	U	U	U	330	50000
Carbazole	U	U	U	U	330	----
Di-n-butylphthalate	U	U*	U*	U	330	8100
Fluoranthene	U	U	U	U	330	50000
Pyrene	U	U	U	U	330	50000
Butylbenzylphthalate	U	U	U	U	330	50000
3,3'-Dichlorobenzidine	U	U	U	U	330	----
Benzo (a) anthracene	U	U	U	U	330	224 OR MDL
Chrysene	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U*	U*	U*	U*	330	50000
Di-octylphthalate	U	U	U	U	330	----
Benzo(b)fluoranthene	U	U	U	U	330	1100
Benzo(k)fluoranthene	U	U	U	U	330	1100
Benzo(a)pyrene	U	U	U	U	330	61 OR MDL
Indeno(1,2,3-cd)pyrene	U	U	U	U	330	3200
Dibenzo(a,h)anthracene	U	U	U	U	330	14 OR MDL
Benzo(g,h,i)perylene	U	U	U	U	330	50000
Total PAHs	0	0	0	0		----
Total Carcinogen PAHs	0	0	0	0		10000
Total SVOCs	16	0	0	18		500000

Qualifiers:

- J: Compound found at a concentration below the detection limit
- U: Compound analyzed for but not detected
- B: Compound found in the method blank as well as in the sample
- U*: Result qualified as non-detect based on validation criteria

Notes:

To determine the detection limit for each sample, use the following equation: $(CRDL) \cdot (DF) \cdot 100 / \%S$, where CRDL = contract required detection limit, DF = dilution factor, %S = percent solids.

----: not established

Indicates value exceeds recommended NYSDEC Soil Clean-Up Objective

TABLE 6c.
**CUBA MUNICIPAL WASTE DISPOSAL SITE
 REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
 SEDIMENT SAMPLING RESULTS
 PESTICIDE/PCBs**

Sample Identification	SD-1	SD-2	SD-3	SD-4	Contract Required Detection Limit (ug/kg)	NYSDEC Recommended Soil Clean-Up Objective (ug/kg)
Date of Collection	11/12/97	11/12/97	11/12/97	11/12/97		
Dilution Factor	1	1	1	1		
Percent Solids	83.0	75.8	83.0	75.8		
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
alpha-BHC	U	U	U	U	0.05	110
beta-BHC	U	U	U	U	0.05	200
delta-BHC	U	U	U	0.15 JP	0.05	300
gamma-BHC (Lindane)	U	U	U	U	0.05	540
Heptachlor	U	U	U	U	0.05	100
Aldrin	U	U	U	U	0.05	41
Heptachlor Epoxide	U	U	U	U	0.05	20
Endosulfan I	U	U	U	U	0.05	900
Dieldrin	U	U	U	U	0.10	44
4,4'-DDE	U	U	U	U	0.10	2,100
Endrin	U	U	U	U	0.10	100
Endosulfan II	U	U	U	U	0.10	900
4,4'-DDD	U	U	U	U	0.10	2,900
Endosulfan Sulfate	U	U	U	U	0.10	1,000
4,4'-DDT	U	U	U	U	0.10	2,100
Methoxychlor	U	U	U	U	0.50	***
Endrin Ketone	U	U	U	U	0.10	----
Endrin Aldehyde	U	U	U	U	0.10	----
alpha-Chlordane	U	U	U	U	0.05	540
gamma-Chlordane	U	U	U	U	0.05	540
Toxaphene	U	U	U	U	5.0	----
Aroclor-1016	U	U	U	U	1.0	10,000*
Aroclor-1221	U	U	U	U	2.0	10,000*
Aroclor-1232	U	U	U	U	1.0	10,000*
Aroclor-1242	U	U	U	U	1.0	10,000*
Aroclor-1248	U	U	U	U	1.0	10,000*
Aroclor-1254	U	U	U	U	1.0	10,000*
Aroclor-1260	U	U	U	U	1.0	10,000*
Total PCBs	0.0	0.0	0.0	0.0		

Qualifiers:

- U: Compound analyzed for but not detected
- J: Compound found at a concentration below the CRDL, value estimated
- P: Greater than 25% difference for detected concentrations between the two GC columns

Notes:

- *: Value applies to the sum of these compounds
- ***: Total pesticides not to exceed 10,000 ug/kg
- : not established
- Indicates value exceeds NYSDEC soil clean-up objective

TABLE 6d.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SEDIMENT SAMPLING RESULTS
INORGANICS

Sample Identification	SD-1	SD-2	SD-3	SD-4	Instrument Detection Limit (ug/l)	NYSDEC Recommended Soil Clean-Up Objective (mg/kg)
Sample Depth	0-6"	0-6"	0-6"	0-6"		
Date of Collection	11/12/97	11/12/97	11/12/97	11/12/97		
Dilution Factor	1	1	1	1		
Percent Solids	83.0	75.8	83.0	75.8		
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
Aluminum	3,650	5,410	12,300	5,040	13	SB
Antimony	U	U	U	U	8	SB
Arsenic	5.6	6.5	16.2	7.0	3	7.5 or SB
Barium	71.6	58.0	120	132	1	300 or SB
Beryllium	0.51 B	0.59 B	1.0 B	0.81 B	1	0.16 or SB
Cadmium	U	U	U	U	1	10*
Calcium	870 B	1,100 B	1,190 B	1,700	8	SB
Chromium	3.2	6.6	14.8	5.6	1	50*
Cobalt	5.4 B	9.5 B	13.5	9.4 B	2	30 or SB
Copper	11.3	7.0	16.7	7.2	1	25 or SB
Iron	8,840	16,500	36,300	19,000	20	2,000 or SB
Lead	18.2	14.8	21.3	21.2	2	SB
Magnesium	735 B	1,460	3,180	1,260 B	8	SB
Manganese	346	816	1,420	1,280	4	SB
Mercury	0.17	0.19	0.29	U	0.2	0.1
Nickel	4.9 B	11.4	23.2	11.6	2	13 or SB
Potassium	636 B	492 B	1,100 B	414 B	20	SB
Selenium	1.3	2.4	2.5	1.9	4	2 or SB
Silver	U	U	U	U	1	SB
Sodium	207 B	123 B	57.2 B	41.5 B	9	SB
Thallium	U	U	2.3 B	U	5	SB
Vanadium	3.9 B	8.3 B	17.0	7.8 B	1	150 or SB
Zinc	34.7	45.2	92.1	46.3	1	20 or SB
Cyanide	U	U	U	U	10	SB

Qualifiers:

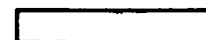
U: Compound analyzed for but not detected

B: Compound concentration is less than the CRDL
but greater than the IDL

Notes:

SB: Site background

*: as per proposed 4/95 NYSDEC TAGM



Indicates value exceeds NYSDEC recommended
soil clean-up objective

TABLE 7a.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SPRING AND WATER SUPPLY SAMPLING RESULTS
VOLATILE ORGANICS

Sample Identification	SP-1	SP-2	WS-1	Contract Required Detection Limit (ug/l)	NYSDEC Class GA Groundwater Standard or Guidance Value (ug/l)
Date of Collection	08/06/97	08/06/97	09/17/97		
Dilution Factor	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)		
Chloromethane	U	U	U	10	5 ST
Bromomethane	U	U	U	10	5 ST
Vinyl Chloride	U	U	U	10	2 ST
Chloroethane	U	U	U	10	5 ST
Methylene Chloride	U	U	U	10	5 ST
Acetone	U	U	U	10	50GV
Carbon Disulfide	U	U	U	10	----
1,1-Dichloroethene	U	7 J	U	10	5 ST
1,1-Dichloroethane	15	46	U	10	5 ST
1,2-Dichloroethane (total)	42	51	U	10	5 ST
Chloroform	U	U	U	10	7 ST
1,2-Dichloroethane	U	U	U	10	5 ST
2-Butanone	U	U	U	10	50GV
1,1,1-Trichloroethane	31	83	U	10	5 ST
Carbon Tetrachloride	U	U	U	10	5 ST
Bromodichloromethane	U	U	U	10	50GV
1,2-Dichloropropane	U	U	U	10	5 ST
cis-1,3-Dichloropropene	U	U	U	10	5 ST
Trichloroethene	140	180	U	10	5 ST
Dibromochloromethane	U	U	U	10	50GV
1,1,2-Trichloroethane	U	U	U	10	5 ST
Benzene	U	U	U	10	0.7 ST
Trans-1,3-Dichloropropene	U	U	U	10	5 ST
Bromoform	U	U	U	10	50GV
4-Methyl-2-Pentanone	U	U	U	10	----
2-Hexanone	U	U	U	10	50GV
Tetrachloroethene	U	0.9 J	U	10	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	10	5 ST
Toluene	U	U	U	10	5 ST
Chlorobenzene	U	U	U	10	5 ST
Ethylbenzene	U	U	U	10	5 ST
Styrene	U	U	U	10	5 ST
Total Xylenes	U	U	U	10	5 ST
Total VOCs	228.0	367.9	0.0		

Qualifiers:

U: Compound analyzed for but not detected

J: Compound found at a concentration below
the CRDL, value estimated

Notes:



Indicates value exceeds NYSDEC Class GA
groundwater standard or guidance value

ST: standard

GV: guidance value

----: not established

TABLE 7b.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SPRING AND WATER SUPPLY SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	SP-1	SP-2	WS-1	Contract Required Detection Limit (ug/l)	NYSDEC Class GA Groundwater Standard or Guidance Value (ug/l)
Date of Collection	08/06/97	08/06/97	09/17/97		
Dilution Factor	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)		
Phenol	U	U	U	10	1 ST **
bis(2-Chloroethyl)ether	U	U	U	10	1 ST
2-Chlorophenol	U	U	U	10	1 ST **
1,3-Dichlorobenzene	U	U	U	10	5 ST
1,4-Dichlorobenzene	U	U	U	10	4.7 ST *
1,2-Dichlorobenzene	U	U	U	10	4.7 ST *
2-Methylphenol	U	U	U	10	----
2,2'-Oxybis (1-Chloropropane)	U	U	U	10	----
4-Methylphenol	U	U	U	10	----
N-Nitroso-di-n-propylamine	U	U	U	10	----
Hexachloroethane	U	U	U	10	5 ST
Nitrobenzene	U	U	U	10	5 ST
Isophorone	U	U	U	10	50 GV
2-Nitrophenol	U	U	U	10	----
2,4-Dimethylphenol	U	U	U	10	----
bis (2-Chloroethoxy)methane	U	U	U	10	5 ST
2,4-Dichlorophenol	U	U	U	10	1 ST **
1,2,4-Trichlorobenzene	U	U	U	10	5 ST
Naphthalene	U	U	U	10	10 GV
4-Chloroaniline	U	U	U	10	5 ST
Hexachlorobutadiene	U	U	U	10	5 ST
4-Chloro-3-methylphenol	U	U	U	10	----
2-Methylnaphthalene	U	U	U	10	----
Hexachlorocyclopentadiene	U	U	U	10	5 ST
2,4,6-Trichlorophenol	U	U	U	10	----
2,4,5-Trichlorophenol	U	U	U	25	----
2-Chloronaphthalene	U	U	U	10	5 ST
2-Nitroaniline	U	U	U	25	5 ST
Dimethylphthalate	U	U	U	10	50 GV
Acenaphthylene	U	U	U	10	----
2,6-Dinitrotoluene	U	U	U	10	5 ST
3-Nitroaniline	U	U	U	25	5 ST
Acenaphthene	U	U	U	10	20 GV
2,4-Dinitrophenol	U	U	U	25	----
4-Nitrophenol	U	U	U	25	----
Dibenzofuran	U	U	U	10	----
2,4-Dinitrotoluene	U	U	U	10	5 ST
Diethylphthalate	U*	U*	U*	10	50 GV
4-Chlorophenyl-phenylether	U	U	U	10	----
Fluorene	U	U	U	10	50 GV

TABLE 7b. (CONTINUED)
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SPRING AND WATER SUPPLY SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Sample Identification	SP-1	SP-2	WS-1	Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Date of Collection	08/06/97	08/06/97	09/17/97		
Dilution Factor	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
4-Nitroaniline	U	U	U	25	5 ST
4,6-Dinitro-2-methylphenol	U	U	U	25	----
N-Nitrosodiphenylamine	U	U	U	10	50 GV
4-Bromophenyl-phenylether	U	U	U	10	----
Hexachlorobenzene	U	U	U	10	0.35 ST
Pentachlorophenol	U	U	U	25	1 ST **
Phenanthrene	U	U	U	10	50 GV
Anthracene	U	U	U	10	50 GV
Carbazole	U	U	U	10	----
Di-n-butylphthalate	U*	U*	U*	10	50 ST
Fluoranthene	U	U	U	10	50 GV
Pyrene	U	U	U	10	50 GV
Butylbenzylphthalate	U	U	U	10	50 GV
3,3'-Dichlorobenzidine	U	U	U	10	5 ST
Benzo (a) anthracene	U	U	U	10	0.002 GV ***
Chrysene	U	U	U	10	0.002 GV ***
bis(2-Ethylhexyl)phthalate	U*	U*	U*	10	50 ST
Di-n-octylphthalate	U	U	U	10	50 GV
Benzo (b) fluoranthene	U	U	U	10	0.002 GV ***
Benzo (k) fluoranthene	U	U	U	10	0.002 GV ***
Benzo (a) pyrene	U	U	U	10	ND ST
Indeno (1,2,3-cd) pyrene	U	U	U	10	0.002 GV
Dibenzo (a,h) anthracene	U	U	U	10	----
Benzo (g,h,i) perylene	U	U	U	10	----
Total PAHs	0.0	0.0	0.0		
Total Carcinogen PAHs	0.0	0.0	0.0		
Total SVOCs	0.0	0.0	0.0		

Qualifiers:

- J: Compound found at a concentration below the detection limit
- U: Compound analyzed for but not detected
- B: Compound found in the method blank as well as the sample
- U*: Result qualified as non-detect based on validation criteria

Notes:

- *: Value pertains to the sum of isomers
- ** : Value pertains to total phenols
- ***: Value pertains to the sum of the compounds
- : Not established
- ST: Standard
- GV: Guidance value

Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

TABLE 7c.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SPRING AND WATER SUPPLY SAMPLING RESULTS
PESTICIDE/PCBs

Sample Identification	SP-1	SP-2	WS-1	Contract Required Detection Limit (ug/l)	NYSDEC Class GA Groundwater Standard or Guidance Value (ug/l)
Date of Collection	8/6/97	8/6/97	9/17/97		
Dilution Factor	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
alpha-BHC	U	U	U	0.05	ND ST*
beta-BHC	U	U	U	0.05	ND ST*
delta-BHC	U	U	U	0.05	ND ST*
gamma-BHC (Lindane)	U	U	U	0.05	ND ST*
Heptachlor	U	U	U	0.05	ND ST**
Aldrin	U	U	U	0.05	ND ST
Heptachlor Epoxide	U	U	U	0.05	ND ST**
Endosulfan I	U	U	U	0.05	----
Dieldrin	U	U	U	0.10	ND ST
4,4'-DDE	U	U	U	0.10	ND ST***
Endrin	0.021 JP	0.018 J	U	0.10	ND ST
Endosulfan II	U	U	U	0.10	----
4,4'-DDD	U	U	U	0.10	ND ST***
Endosulfan Sulfate	U	U	U	0.10	----
4,4'-DDT	U*	U*	U	0.10	ND ST***
Methoxychlor	U	U	U	0.50	35 ST
Endrin Ketone	U	U	U	0.10	5 ST
Endrin Aldehyde	U	U	U	0.10	5 ST
alpha-Chlordane	U	U	U	0.05	0.1 ST
gamma-Chlordane	U	U	U	0.05	0.1 ST
Toxaphene	U	U	U	5.0	ND ST
Aroclor-1016	U	U	U	1.0	0.1 ST****
Aroclor-1221	U	U	U	2.0	0.1 ST****
Aroclor-1232	U	U	U	1.0	0.1 ST****
Aroclor-1242	U	U	U	1.0	0.1 ST****
Aroclor-1248	U	U	U	1.0	0.1 ST****
Aroclor-1254	U	U	U	1.0	0.1 ST****
Aroclor-1260	0.93 J	0.93 JP	U	1.0	0.1 ST****
Total PCBs	0.93	0.93	0		

Qualifiers:

- U: Compound analyzed for but not detected
- J: Compound found at a concentration below the CRDL, value estimated
- P: Greater than 25% difference for detected concentrations between the two GC columns
- U*: Result qualified as non-detect based on validation criteria

Notes:

- *: Value applies to the sum of these substances
- ** : Value applies to the sum of these substances
- ***: Value applies to the sum of these substances
- ****: Value applies to the sum of these substances
- GV: Guidance Value
- ST: Standard
- : not established

Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

TABLE 7d.
CUBA MUNICIPAL WASTE DISPOSAL SITE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
SPRING AND WATER SUPPLY SAMPLING RESULTS
INORGANICS - TOTAL

Sample Identification	SP-1	SP-2	WS-1	Instrument Detection Limit (ug/l)	NYSDEC Class GA Groundwater Standard or Guidance Value (ug/l)
Date of Collection	08/06/97	08/06/97	09/17/97		
Dilution Factor	1	1	1		
Units	(ug/l)	(ug/l)	(ug/l)		
Aluminum	328	298	20.9 B	13	----
Antimony	U	U	U	8	3 GV
Arsenic	U	U	U	3	25 ST
Barium	12.0 B	16.3 B	35.9 B	1	1,000 ST
Beryllium	1.3 B	1.4 B	U	1	3 GV
Cadmium	U	U	U	1	10 ST
Calcium	34,600	38,800	16,200	8	----
Chromium	U	1.2 B	U	1	50 ST
Cobalt	U	U	U	2	----
Copper	U	U	215	1	200 ST
Iron	501	613	25.9 B	20	300 ST ^
Lead	1.7 B	1.2 B	U	2	25 ST
Magnesium	9,160	10,200	5,030	8	35,000 GV
Manganese	88.0	128	53.8	4	300 ST ^
Mercury	U	U	U	0.2	2 ST
Nickel	3.9 B	2.6 B	U	2	----
Potassium	1,370 B	1,680 B	1,260 B	20	----
Selenium	U	U	U	4	10 ST
Silver	U	U	U	1	50 ST
Sodium	6,210	5,650	7,630	9	20,000 ST
Thallium	U	U	U	5	4 GV
Vanadium	U	U	U	1	----
Zinc	U	7.9 B	15.8 B	1	300 ST
Cyanide	U	U	U	10	100 ST

Qualifiers:

- U: Compound analyzed for but not detected
- B: Compound concentration is less than the CRDL but greater than the IDL

Notes:

- NA: Not analyzed
- SB: Site background
- GV: Guidance value
- ST: Standard
- : Not established
- ^: The standard for combined iron and manganese is 500 ug/l

Indicates value exceeds the NYSDEC Class GA groundwater standard or guidance value