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October 3, 2007

Mr. Gerard Burke
Division of Environmental Remediation
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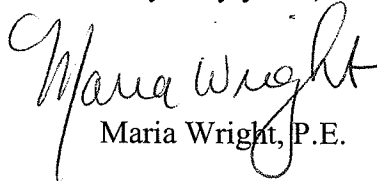
Re: Cuba Landfill
Work Assignment No. D004446-13.1
D&B No. 2600

Dear Mr. Burke:

Enclosed please find a technical memorandum summarizing the results of the test trench/test pit program performed at the Cuba Landfill site during the week of August 6, 2007. The results of the attached memorandum provide details on the basis for design of the landfill closure specifically relating to consolidation of waste at the site. The attached reflects the review comments from Mr. Eugene Melnyk of NYSDEC - Region 9 office.

Once you have had the opportunity to review the enclosed information, please contact me with any comments or questions at (516) 364-9890.

Very truly yours,



Maria Wright, P.E.

MDWt/jmy

cc: E. Melnyk (NYSDEC-Region 9)
R. Walka (D&B)
E. Reilly (D&B)
♦2600\MDW07LTR.DOC-15(R02)

TECHNICAL MEMORANDUM

TO: File

FROM: Maria Wright

DATE: October 3, 2007

RE: Cuba Landfill
Landfill Consolidation Test Trench Investigation

On Monday August 6, 2007, personnel representing New York State Department of Environmental Conservation (NYSDEC), Dvirka and Bartilucci Consulting Engineers (D&B) and SJB/Empire Geoservices met at the Cuba Landfill to initiate the field program to evaluate the characteristics of the waste being considered for excavation and relandfilling and to develop an estimate of the quantity of waste to be consolidated from these areas. Twelve test trenches were excavated from the southeastern and southwestern portion of the landfill. One test trench was excavated in the northern portion of the site. In addition to these test trenches, four test pits were excavated in the central portion of the site to evaluate the soil in this area for use as borrow soil. The approximate locations of the test trenches, test pits and waste trenches are shown on Figure 1.

Of the thirteen test trenches excavated, eight were located in the southeastern portion of the site and four were located in the southwestern portion of the site. One test trench was excavated in the northern portion of the site to evaluate depth to bedrock and groundwater. Test pit logs, test trench cross sections, photographs and sample analysis are provided as attachments. The following describes each of the areas investigated:

Southeastern Portion of the Site

This approximately 4-acre area is under evaluation for consolidation. The results of the test trenching in this area indicated that the average depth of the waste below ground surface is approximately 11 feet, with the depth of waste ranging from 7 feet to 14 feet below ground surface (see Table 1). Waste encountered in the trenches included household waste, rubble, glass, tires, newspaper, scrap metal and wood fragments. Due to the presence of significant vegetation, TT-9 was advanced in three segments. Waste trenches in this area were apparent at ground surface and, therefore, in an effort to limit clearing, no excavation was performed between trenches. Four of the test trenches constructed in this area uncovered drums and/or drum remnants (TT-4, TT-5, TT-9 and TT-11). The two drums that were encountered in TT-4 contained a black sludge like material with strong solvent odor. Elevated readings on the photoionization detector (PID) were noted both in the headspace of the drum and the breathing zone. One drum containing a brown viscous liquid was noted in TT-5. Elevated PID readings were also noted within the drum headspace. Multiple drums were found in both TT-9 and TT-11 although elevated PID readings from the drum headspace were not noted in either excavation.

Of note is that the drums that were encountered were not localized. The test trenches in which drums were uncovered were found in the northern, southern, eastern and western portions of the area being considered for consolidation. Therefore, it is likely that drums may have been buried throughout this area and could routinely be encountered during any consolidation efforts.

In general, waste was found primarily within the original waste trenches excavated in the landfill. The width of the waste trenches in this area was noted to be between 6 and 32 feet. The distance between waste trenches in the area varied from approximately 3 feet to 33 feet with the larger distances between trenches found in the very southern portion of the eastern side of the site (TT-10 and TT-11). The widths of the waste in the trenches were estimated based on the measurements taken from the top section of the trenches.

Depth of soil cover in this area ranges from 1 to 6 feet in thickness. The soil cover is described as fill containing tan-light brown fine medium silty sand and pebble sized angular shale fragments.

Southwestern Portion of the Site

This approximately 1-acre area is also under evaluation for consolidation. Four test trenches were excavated in this area. No waste was encountered in TT-1. The remaining three test trenches encountered waste at depths down to 5 to 8 feet below ground surface, with an average depth of 7 feet. The waste encountered in this area is similar to the waste encountered in the southeastern portion of the landfill and included household waste, bottles, cans, scrap metal and paper. Drums were encountered in TT-3. The drums encountered appeared similar to the drums encountered in TT-4, with strong solvent odor and elevated PID readings in the drum headspace. Groundwater was encountered in TT-3 and TT-12 and was noted to seep into the bottom of the trench. The width of the waste trenches in this area ranged from 14 to 28 feet in width. Distance between the two waste trenches excavated as part of TT-3 was 28 feet. Depth of soil cover ranged from less than 1 foot to 3 feet. The soil cover encountered was described as a light brown to gray silty/clayey fine to medium sand with some cobble to pebble-sized angular shale fragments.

In general, waste buried in this area appears to be more sporadic than and not as extensive as the southeastern portion of the site. However, similar to the southeastern portion of the site, if waste consolidation is pursued in this area, drums will likely be encountered.

Borrow Soil Area

Four test pits (TP-52 through TP-55) were constructed in the central portion of the site to evaluate this area for use of the soil as cover/capping material. This area is approximately 1 acre in size. The test pits were excavated at approximately 150-foot intervals through this area. Soil samples were collected from depths of 3 to 4 feet below ground surface by NYSDEC on-site representative from each of the test pits. Each sample was analyzed for grain size analysis by ASTM D-422; standard proctor compaction by ASTM D-698; and liquid limit/plastic limit/plasticity index by ASTM D-4318, as well as target compound list (TCL) organic and

target analyte list (TAL) inorganic parameters. The results of the geotechnical analysis are provided in Table 2 and the results of the chemical analysis are provided in Table 3.

Bedrock was encountered at depths ranging between 3 and 12 feet. The material above bedrock is described as silt with little fine coarse sand and angular coarse gravel to cobbles. Damp soils were noted in the test pits ranging from depths between 2.5 to 13 feet below ground surface. The information obtained from these test pits have been combined with information from five other test pits (TP-7, 12, 13A, 15 and 35) previously excavated in this area. This information is presented on Table 4.

Results and Conclusions

Borrow Soil Area

As shown by the results of the geotechnical analysis, the soils samples collected were primarily made up of gravel material with comparable amounts of sand, silt and clay. The Unified Classification System designation for the soils sampled in TP-52 thru TP-55 is clayey gravel with sand. Use of the soil as general fill or barrier protection layer would require screening of the material to remove material greater than 2 inches.

The results of the chemical analysis were compared to NYSDEC 6 NYCRR Subpart 375-6 Unrestricted Use Soil Cleanup Objectives (SCOs). As shown by the analysis, the only exceedances to the SCOs were arsenic and nickel. Arsenic was detected at levels greater than 13 mg/kg in three of the four samples and nickel was also detected at levels greater than the SCO of 30 mg/kg in three of the four samples. The levels detected were not significantly above the SCO for either arsenic or nickel, and this material would be used as either general fill or barrier protection material, and would be covered with topsoil and vegetation upon completion of the construction of the cap.

As noted above, the depth to bedrock in this area varied between approximately 3 to 12 feet. Using an average depth of 7.5 feet it is estimated that approximately 24,000 cy of material could be removed from this area for processing and used as borrow soil in construction of the landfill cover. Removal of soil from this area would allow for placement of waste in this area. Consideration would need to be made to ensure waste is not placed directly on the bedrock surface. It is recommended to leave a few feet of soil on top of bedrock prior to placement of waste in this area as part of consolidation.

Total Volume of Material available as potential borrow soil = 24,000 cy

Waste Consolidation

The majority of the material encountered during the test trench program appears suitable for consolidation of the southeastern and southwestern portions of the landfill in an attempt to reduce the overall footprint of the cap. As noted above, drums containing potentially hazardous materials were encountered during the test trench program. Based on the material encountered, intact drums and/or damaged drums containing potentially hazardous materials would need to be

segregated during consolidation. Soil impacted by the contents of ruptured drums would also require segregation and further testing prior to final disposal.

The results of the test trench/test pit program were also used to develop conceptual estimates of volumes of material to be considered for consolidation. As noted above, in portions of the areas considered for consolidation, waste trenches were noted to be spaced at distances greater than 10 feet apart. Due to the large distance between waste trenches, waste consolidation will be performed by excavating waste trenches only, limiting disturbance to material between trenches. Conceptual calculations were made to determine estimated volumes of material considered for consolidation. Each of the waste trenches considered for consolidation were labeled A thru U (see Figure 1). In addition to the initial areas considered for consolidation, a contingency area being considered for consolidation is also shown on Figure 1. The waste trenches in this area were labeled V thru AF. Field observations indicate that there is significant space between the waste trenches in this contingency area and, therefore, this area has also been identified as potential area for consolidation. No test trenches were advanced in this area and, therefore, information presented on estimated volumes of waste and soil in this area is based on information obtained from the four test trenches excavated in the adjacent southwestern area. Field observations indicated the base width of the trench may be narrower.

Based on the information obtained from the test trench program, estimated volumes of material were calculated for both complete removal of all material and removal of just waste and contiguous soil. Tables 5 and 6 summarize the volume calculations performed.

For the purpose of this discussion, all quantity estimates should be considered as order of magnitude estimates rather than finite estimates subject to routine tolerances.

Southeastern Portion of the Site

The estimated volume of all material, including waste, soil cover and soil between waste trenches, within the southeastern portion, is approximately 81,000 cy (bulk area-wide excavation). This number does not include a contingency and is based an average depth to bedrock over the entire area encountered during the test trench investigation.

As noted above, the space between waste trenches in the southern portion of this area was determined to be as much as 33 feet apart. Therefore, this area warrants consideration for excavation of the waste trenches without removal of the soil between trenches (chasing the trenches). Assuming that excavation of the waste will require excavation of at least 1.5 feet of soil on either side of the trench limits an estimate of the volume of material in this area to be removed is approximately 7,800 cy. This volume is significantly less than the total volume of material estimated for this area of approximately 22,000 cy, if the area is uniformly excavated to a depth of 9 feet. Once waste is excavated from this area it is assumed that the remaining material will be regraded and left in place, and not used for borrow material unless needed during construction of cap.

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With regard to the northern portion of this area, although the spacing between trenches was found to be as little as 3 feet, which may make it impractical to segregate material, trench chasing will also be considered for consolidation of this area. If the waste trenches were to be individually excavated in this area the total volume of material including contiguous soil requiring removal would be approximately 36,000 cy. The total volume of material estimated to be in this area is approximately 59,000 cy, if the area is uniformly excavated to a depth of 12.6 feet.

Total Volume of Material requiring consolidation under cap 7,800 cy + 36,300 cy = 44,100 cy

Southwestern Portion of the Site

The estimated volume of all material, including waste, soil cover and soil between trenches within the overall southwestern portion, is approximately 22,000 cy. The spacing between waste trenches in this area was noted to be as much as 28 feet and, therefore, excavating waste trenches while leaving the soil material between trenches, was evaluated. The volume of material requiring removal from this area, including the waste trenches, soil cover and contiguous soil 18 inches on either side of the waste trench, is approximately 3,500 cy.

Total Volume of Waste Material requiring consolidation under cap = 3,500 cy

Total Volume of Soil Material to be used as potential borrow soil = 18,500 cy

Contingency Area

Due to the apparent significant spacing between waste trenches in this area, the shallow depth to bedrock and the potential use of this area for construction of a storm water detention pond, this area was also considered for consolidation. The estimated volume of material, including waste, soil cover and soil between trenches in this area is approximately 12,000 cy. The volume of material removed from the waste trenches including waste, soil cover and contiguous soil is approximately 5,600 cy.

Total Volume of Material requiring consolidation under cap = 5,600 cy

Total Volume of Material to be used as potential borrow soil = 6,400 cy

Summary

Based on the rough calculations presented, without contingency, there is approximately 53,200 cy of material requiring consolidation under the cap excluding the contingency area. The cap area would be reduced from 21 acres to approximately 12.6 acres. Placement of 53,200 cy of material will increase the existing grade of the landfill by 2.5 feet. This may vary based upon actual volume of waste and co-mingled soil excavated for consolidation.

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There will be a minimum of approximately 86,000 cy of material for use on-site as borrow material. Using a revised cap size of 12.6 acres and a 1.5-ft. barrier protection layer, approximately 31,000 cy of material will be required. Based on the preliminary findings, it appears that there may be enough suitable material on-site for use as general fill, daily cover and barrier protection layer. This material will require on-site processing to remove the gravel portion of the soil. The borrow soil screening will yield stone which may be suitable for erosion protection materials needed at the site. Further evaluation of cut and fill volumes for the design will be performed during development of the subgrade plan.

Table 1
Cuba Landfill
Summary of Test Trench Observations

Test Pit Location	Depth to Waste (feet below ground surface)	Depth to Water (feet below ground surface)	Depth to Bedrock (feet below ground surface)	Drums Encountered?
Southwestern Portion of Site				
TT-1	NE	NE	NE	No
TT-2	<1-3'	NE	8'	No
TT-3	1-3'	5-6' *	7'	Yes
TT-12	1'	5'***	5'	No
Southeastern Portion of Site				
TT-4	4.5-5'	NE	10-12'	Yes
TT-5	1-6'	9'***	9.5-12'	Yes
TT-6	1-6'	NE	13-14'	No
TT-7	2.5-3'	NE	10-13'	No
TT-8	2.5-5'	NE	10-12'	No
TT-9	4-5'	NE	9-12'	Yes
TT-10	1-2'	NE	8-9.5'	No
TT-11	1.5-2'	NE	7-8'	Yes
Northern Portion of Site				
TT-13	NE	NE	4.5'	No

NE: Not encountered.

*: TT-3 is located at a topographically and hydraulically low end of the site and adjacent to a surface water drainage ditch. The noted groundwater depth may be attributed to these factors.

** TT-12 is located at a topographically and hydraulically low end of the site and is situated in an area where surface water collects.

***Groundwater observed in TT-5 is likely attributed to localized surface water infiltration along waste trench I causing a localized perched water condition. Waste trench I surface features consist of a elongated depression with a low soil embankment on the downgradient side. These surface features serve to intercept and retain surface water runoff.

TABLE 2
CUBA LANDFILL
TEST PIT PROGRAM
SUMMARY OF GEOTECHNICAL PARAMETERS

Lab I.D. #	Sample ID	Depth (feet)	Sieve Size - Percent Passing Sieve													Component Percent			
			3"	2"	1 1/2"	1"	3/4"	1/2"	1/4"	#4	#10	#20	#40	#100	#200	Gravel	Sand	Silt	Clay
07-982	TP-52	5.0	100.0	97.5	88.2	82.8	79.2	73.2	62.7	57.6	52.3	47.3	45.1	42.8	40.3	42.4	17.3	23.1	17.2
07-983	TP-53	5.0	100.0	93.8	92.3	91.0	88.9	84.0	69.7	63.3	56.6	50.3	46.6	42.8	40.5	36.7	22.8	21.9	18.6
07-984	TP-54	5.0	100.0	95.3	90.6	83.9	79.0	71.3	60.7	57.6	48.8	43.9	41.5	39.2	37.1	42.4	20.5	28.6	8.5
07-985	TP-55	3.0	100.0	96.4	87.0	79.3	73.1	63.1	48.5	43.7	35.0	30.2	27.8	25.7	24.4	56.3	19.3	13.6	10.8

Lab I.D. #	Sample ID	Depth (feet)	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Maximum Dry Density (pcf)	Optimum Moisture (%)	Unified Soil Classification System
07-983	TP-53	5.0	12.2	34	19	15	124.5	9.1	GC- Clayey gravel with sand
07-984	TP-54	5.0	11.0	28	20	8	120.0	9.6	GC- Clayey gravel with sand
07-985	TP-55	3.0	10.0	37	19	18	127.1	10.1	GC- Clayey gravel with sand

TABLE 3
CUBA LANDFILL
TEST PIT PROGRAM
TARGET COMPOUND LIST VOLATILE ORGANIC COMPOUNDS

SAMPLE ID	TP-52	TP-53	TP-54	TP-55	NYSDEC 6 NYCRR SUBPART 375-6 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
SAMPLE DATE	8/7/2007	8/7/2007	8/7/2007	8/7/2007	
SAMPLE DEPTH (FEET)	5.0	5.0	5.0	3.0	
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,1,1-Trichloroethane	U	U	U	U	680
1,1,2,2-Tetrachloroethane	U	U	U	U	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	U	J	U	U	--
1,1,2-Trichloroethane	U	U	U	U	--
1,1-Dichloroethane	U	U	U	U	270
1,1-Dichloroethene	U	U	U	U	330
1,2,4-Trichlorobenzene	U	U	U	U	--
1,2-Dibromo-3-Chloropropane	U	U	U	U	--
1,2-Dibromoethane	U	U	U	U	--
1,2-Dichlorobenzene	U	U	U	U	1,100
1,2-Dichloroethane	U	U	U	U	20
1,2-Dichloropropane	U	U	U	U	--
1,3-Dichlorobenzene	U	U	U	U	2,400
1,4-Dichlorobenzene	U	U	U	U	1,800
2-Butanone	U	U	U	U	120
2-Hexanone	U	U	U	U	--
4-Methyl-2-Pentanone	U	U	U	U	--
Acetone	9 J	U	U	6 J	50
Benzene	U	U	U	U	60
Bromodichloromethane	U	U	U	U	--
Bromoform	U	U	U	U	--
Bromomethane	U	U	U	U	--
Carbon Disulfide	U	U	U	U	--
Carbon Tetrachloride	U	U	U	U	760
Chlorobenzene	U	J	U	U	1,100
Chloroethane	U	J	U	U	--
Chloroform	U	U	U	U	370
Chloromethane	U	U	U	U	--
cis-1,2-Dichloroethene	U	U	U	U	250
cis-1,3-Dichloropropene	U	U	U	U	--
Cyclohexane	U	U	U	U	--
Dibromochloromethane	U	J	U	U	--
Dichlorodifluoromethane	U	U	U	U	--
Ethylbenzene	U	U	U	U	1,000
Isopropylbenzene	U	U	U	U	--
Methyl Acetate	U	U	U	U	--
Methyl tert-butyl Ether	U	U	U	U	930
Methylcyclohexane	U	U	U	U	--
Methylene Chloride	44	26	44	30	50
Styrene	U	U	U	U	--
t-1,3-Dichloropropene	U	U	U	U	--
Tetrachloroethene	U	U	U	U	1,300
Toluene	1 J	U	U	U	700
trans-1,2-Dichloroethene	U	U	U	U	190
Trichloroethene	U	U	U	U	470
Trichlorofluoromethane	U	U	U	U	--
Vinyl Chloride	U	U	U	U	20
Xylenes (total)	U	U	U	U	260
Total VOA	54	26	44	36	--

NOTES:

--: Not established

QUALIFIERS:

U: Compound analyzed for but not detected

J: Compound greater than or equal to the instrument detection limit, but less than the CRDL

TABLE 3 (continued)
 CUBA LANDFILL
 TEST PIT PROGRAM
 TARGET COMPOUND LIST SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE ID	TP-52	TP-53	TP-54	TP-55	NYSDEC 6 NYCRR SUBPART 375-6 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
SAMPLE DATE	8/7/2007	8/7/2007	8/7/2007	8/7/2007	
SAMPLE DEPTH (FEET)	5.0	5.0	5.0	3.0	
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Phenol	U	U	U	U	330
bis(2-Chloroethyl)ether	U	U	U	U	--
2-Chlorophenol	U	U	U	U	--
2-Methylphenol	U	U	U	U	--
2,2-oxybis(1-Chloropropane)	U	U	U	U	--
4-Methylphenol	U	U	U	U	--
N-Nitroso-di-n-propylamine	U	U	U	U	--
Hexachloroethane	U	U	U	U	--
Nitrobenzene	U	U	U	U	--
Isophorone	U	U	U	U	--
2-Nitrophenol	U	U	U	U	--
2,4-Dimethylphenol	U	U	U	U	--
2,4-Dichlorophenol	U	U	U	U	--
1,2,4-Trichlorobenzene	U	U	U	U	--
Naphthalene	U	U	U	U	12,000
4-Chloroaniline	U	U	U	U	--
bis(2-Chloroethoxy)methane	U	U	U	U	--
Hexachlorobutadiene	U	U	U	U	--
4-Chloro-3-methylphenol	U	U	U	U	--
2-Methylnaphthalene	U	U	U	U	--
Hexachlorocyclopentadiene	U	U	U	U	--
2,4,6-Trichlorophenol	U	U	U	U	--
2,4,5-Trichlorophenol	U	U	U	U	--
2-Chloronaphthalene	U	U	U	U	--
2-Nitroaniline	U	U	U	U	--
Dimethylphthalate	U	U	U	U	--
Acenaphthylene	U	U	U	U	100,000
2,6-Dinitrotoluene	U	U	U	U	--
3-Nitroaniline	U	U	U	U	--
Acenaphthene	U	U	U	U	20,000
2,4-Dinitrophenol	U	U	U	U	--
4-Nitrophenol	U	U	U	U	--
Dibenzofuran	U	U	U	U	--
2,4-Dinitrotoluene	U	U	U	U	--
Diethylphthalate	U	U	U	U	--
4-Chlorophenyl-phenylether	U	U	U	U	--
Fluorene	U	U	U	U	30,000
4-Nitroaniline	U	U	U	U	--
4,6-Dinitro-2-methylphenol	U	U	U	U	--
N-Nitrosodiphenylamine	U	U	U	U	--
4-Bromophenyl-phenylether	U	U	U	U	--
Hexachlorobenzene	U	U	U	U	--
Pentachlorophenol	U	U	U	U	800
Phenanthrene	U	U	U	U	100,000
Anthracene	U	U	U	U	100,000
Carbazole	U	U	U	U	--
Di-n-butylphthalate	U	U	U	U	--
Fluoranthene	U	10 J	U	U	100,000
Pyrene	U	8 J	U	U	100,000
Butylbenzylphthalate	U	U	69 J	U	--
3,3-Dichlorobenzidine	U	U	U	U	--
Benzo(a)anthracene	U	8 J	U	U	1,000
Chrysene	U	U	U	U	1,000
bis(2-Ethylhexyl)phthalate	370	410	190	290	--
Di-n-octyl phthalate	U	8 J	U	U	--
Benzo(b)fluoranthene	U	8 J	U	U	1,000
Benzo(k)fluoranthene	U	U	U	U	800
Benzo(a)pyrene	U	U	U	U	1,000
Indeno(1,2,3-cd)pyrene	U	U	U	U	500
Dibenzo(a,h)anthracene	U	U	U	U	330
Benzo(g,h,i)perylene	U	U	U	U	--
1,1'-Biphenyl	U	U	U	U	--
Acetophenone	U	U	U	U	--
Atrazine	U	U	U	U	--
Benzaldehyde	U	U	U	U	--
Caprolactam	U	U	U	U	--
					0
Total PAHs	0	34	0	0	--
Total CaPAHs	0	16	0	0	--
Total SVOCs	370	452	259	290	--

NOTES:
 --: Not established

QUALIFIERS:
 U: Compound analyzed for but not detected
 J: Compound greater than or equal to the instrument detection limit, but less than the CRDL

TABLE 3 (continued)
CUBA LANDFILL
TEST PIT PROGRAM

TARGET COMPOUND LIST PESTICIDES

SAMPLE ID	TP-52 8/7/2007 5.0 ug/kg	TP-53 8/7/2007 5.0 ug/kg	TP-54 8/7/2007 5.0 ug/kg	TP-55 8/7/2007 3.0 ug/kg	NYSDEC 6 NYCRR SUBPART 375-6 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES ug/kg
Units					
4,4'-DDD	U	U	U	U	3.3
4,4'-DDE	1.3 J	U	U	0.92 J	3.3
4,4'-DDT	U	2.2	U	2.1	3.3
Aldrin	U	U	U	U	5
alpha-BHC	U	U	U	U	20
beta-BHC	U	U	U	U	36
Chlordane	U	U	U	U	94
delta-BHC	U	U	U	U	40
Dieldrin	U	U	U	0.52 J	5
Endosulfan I	U	U	U	U	2,400
Endosulfan II	U	U	U	U	2,400
Endosulfan sulfate	U	0.68 J	U	U	2,400
Endrin	U	U	U	U	14
Endrin aldehyde	U	U	U	U	--
Endrin ketone	U	U	U	U	--
gamma-BHC (Lindane)	U	U	U	U	100
Heptachlor	U	U	U	U	42
Heptachlor epoxide	U	U	U	U	--
Methoxychlor	U	U	U	U	--
Toxaphene	U	U	U	U	--
Total Pesticides	1.3	2.9	0.0	3.5	--

NOTES:

--: Not established

QUALIFIERS:

U: Compound analyzed for but not detected

J: Compound greater than or equal to the instrument detection limit, but less than the CRDL

TABLE 3 (continued)
CUBA LANDFILL
TEST PIT PROGRAM

TARGET COMPOUND LIST PCBs

SAMPLE ID	TP-52 8/7/2007 5.0 ug/kg	TP-53 8/7/2007 5.0 ug/kg	TP-54 8/7/2007 5.0 ug/kg	TP-55 8/7/2007 3.0 ug/kg	NYSDEC 6 NYCRR SUBPART 375-6 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES ug/kg
Aroclor-1016	U	U	U	U	100
Aroclor-1221	U	U	U	U	100
Aroclor-1232	U	U	U	U	100
Aroclor-1242	U	U	U	U	100
Aroclor-1248	U	U	U	U	100
Aroclor-1254	U	U	U	11 J	100
Aroclor-1260	U	4.2 J	U	U	100
<i>Total PCBs</i>	0	4.2	0	11	100

QUALIFIERS:

U: Compound analyzed for but not detected

J: Compound greater than or equal to the instrument detection limit, but less than the CRDL

TABLE 3 (continued)
CUBA LANDFILL
TEST PIT PROGRAM
TARGET ANALYTE LIST METALS

SAMPLE ID	TP-52	TP-53	TP-54	TP-55	NYSDEC 6 NYCRR SUBPART 375-6 UNRESTRICTED USE SOIL CLEANUP
SAMPLE DATE	8/7/2007	8/7/2007	8/7/2007	8/7/2007	
SAMPLE DEPTH (FEET)	5.0	5.0	5.0	3.0	mg/kg
Units	mg/kg	mg/kg	mg/kg	mg/kg	
Aluminum	15,900	17,300	16,400	17,400	--
Antimony	U	U	U	U	--
Arsenic	16.7	13.1	7.6	18.2	13
Barium	107	81	91.8	176	350
Beryllium	0.89	0.73	0.76	0.95	7.2
Cadmium	U	0.39	0.25	0.41	2.5
Calcium	1,350	792	403	239	--
Chromium	20.3	19.2	21.2	22.2	30
Cobalt	16.6	13.6	14.2	17.1	--
Copper	24.3	18.2	28.5	25.8	50
Iron	33,600	33,200	36,300	38,200	--
Lead	16.3	18.2	10	24.0	63
Magnesium	4,760	3,340	4,920	4,550	--
Manganese	798	698	487	997	1,600
Mercury	U	0.044	U	U	0.18
Nickel	32.4	24.5	35.2	33.9	30
Potassium	1,470	924	1,160	1,470	--
Selenium	U	U	U	U	3.9
Silver	U	U	U	U	2
Sodium	U	U	U	U	--
Thallium	U	U	U	U	--
Vanadium	18.2	22.1	17.1	20.6	--
Zinc	74.7	76.7	77.4	78.3	109

NOTES:

SB: Site Background

--: Not established

QUALIFIERS:

U: Compound analyzed for but not detected

J: Compound greater than or equal to the instrument detection limit, but less than the CRDL

Concentration exceeds the NYSDEC 6 NYCRR Subpart 375-6 Unrestricted Use Soil Cleanup Objectives

Table 4
Cuba Landfill
Summary of Test Pit Observations

Test Pit Location	Depth to Damp Soils (feet below ground surface)	Depth to Bedrock (feet below ground surface)
TP-7**	6	6-9
TP-12**	4	11
TP-13A**	NE	8
TP-15**	2.5	8
TP-35**	*	10
TP-52	13	NE
TP-53	9	12
TP-54	5	11
TP-55	NE	3

NE: Not encountered.

*Moist soil noted from surface to base of test pit.

**Test pits constructed as part of the Pre-Design Investigation in 2003.

**TABLE 5
WASTE CONSOLIDATION
VOLUME OF MATERIAL ESTIMATE
CUBA LANDFILL**

Site Area	Area in SQ FT	Area in Acres	Avg. Depth to Bedrock in FT	Estimated Volume of Material in CY (Bulk Waste and Soil Removal)	Estimated Volume of Material in CY (Trench Chasing)	Estimated Volume of Potential Borrow Material in CY
Southeastern Portion of Site	192,320	4.42				
Northern	126,095	2.89	12.6	58,844	36,328	22,516
Southern	66,224	1.52	9	22,075	7,836	14,238
TOTAL				80,919	44,164	36,755
Southwestern Portion of Site	84,684	2.08	7	21,955	3,537	18,418
Contingency Area	64,960	1.49	5	12,030	5,583	6,447
Borrow Soil Area	86,689	1.99	7.5	--	--	24,080
TOTAL				114,904	53,284	85,700

**TABLE 6
WASTE CONSOLIDATION
VOLUME OF WASTE ESTIMATE (PER WASTE TRENCH)
CUBA LANDFILL**

Waste Trench	Length of Trench in FT	Width of Waste Trench in FT	Thickness of Waste in FT	Volume of Waste in CY	Width of Proposed Excavation in FT*	Overlying Thickness of Soil Cover	Volume of All Material To Be Removed per Trench CY**	Reference
Southeastern Portion of Site								
A	440	21	6	2053	24	4.00	3,911	TT-4 and TT-7
B	516	14	6.5	1739	17	4.75	3,655	TT-4 and TT-7
C	504	17.5	6.5	2123	20.5	3.75	3,922	TT-4 and TT-7
D	510	13.7	8.2	2122	16.7	4.50	4,006	TT-4, TT-6 and TT-7
E	446	17	8.2	2303	20	3.50	3,865	TT-6 and TT-8
F	446	21	10	3469	24	3.50	5,352	TT-6 and TT-8
G	464	17	7.5	2191	20	4.50	4,124	TT-6
H	256	32	7	2124	35	5.00	3,982	TT-5
I	280	18	7.5	1400	21	2.00	2,069	TT-5
J	440	10	5.3	864	13	1.50	1,441	TP-27, TP-28 and TP-29
K	230	16.6	6	848	19.6	2.50	1,419	TP-26
L	204	15	6.5	737	18	3.00	1,292	TT-10
M	230	22	6	1124	25	3.00	1,917	TT-10
N	230	17.5	5.5	820	20.5	2.00	1,310	TT-10 and TT-11
O	210	12	6	560	15	2.00	933	TT-11
P	140	16.6	8	689	19.6	1.50	965	TP-24
Volume of waste in southeastern portion				25166			44164	
Volume of waste in southeastern portion (trenches A-J)				20388			36328	(north area)
Volume of waste in southeastern portion (trenches K-P)				4778			7836	(south area)
Southwestern Portion of Site								
Q	146	15	3	243	18	3.00	584	TT-3
R	120	14	6	373	17	1.00	529	TT-3
S	132	19	5.3	492	22	1.67	750	Avg. from trenches Q,R,T
T	148	28	7	1074	31	1.00	1,359	TT-2
U	100	14	4	207	17	1.00	315	TT-12
Volume of waste in southwestern portion				2391			3537	
Contingency Area								
V	70	18	5	233	21	1.50	354	Avg. from trenches Q,R,T
W	50	18	5	167	21	1.50	253	Avg. from trenches Q,R,T
X	50	18	5	167	21	1.50	253	Avg. from trenches Q,R,T
Y	72	18	5	240	21	1.50	364	Avg. from trenches Q,R,T
Z	40	18	5	133	21	1.50	202	Avg. from trenches Q,R,T
AA	106	18	5	353	21	1.50	536	Avg. from trenches Q,R,T
AB	120	18	5	400	21	1.50	607	Avg. from trenches Q,R,T
AC	140	18	5	467	21	1.50	708	Avg. from trenches Q,R,T
AD	100	18	5	333	21	1.50	506	Avg. from trenches Q,R,T
AE	106	18	5	353	21	1.50	536	Avg. from trenches Q,R,T
AF	50	18	5	167	21	1.50	253	Avg. from trenches Q,R,T
AG	84	18	9	504	21	1.50	686	Avg. from trenches Q,R,T
AH	40	18	9	240	21	1.50	327	Avg. from trenches Q,R,T
Volume of waste in contingency area				3757			5583	
TOTAL VOLUME OF WASTE				31314			53284	

*Adds 1.5 feet onto either side of trench to account for excavation width.

** Includes soil cover and width of excavation to calculate total volume of material.