Memo

To: Joe Martella, RIDEM

From: Meg Kilpatrick & John Hartley

Date: July 10, 2007

Job No.: 05.0043654.00

CC: Michele Leone, National Grid
Jim Clark, GZA

Re: Precharacterization Soil Sampling and Analytical Results
Former Tidewater Facility
Pawtucket, Rhode Island

On January 24, 2007, GZA GeoEnvironmental, Inc. (GZA) completed a shallow soil sampling and testing program within and immediately adjacent to the unpaved roadways located south of the active substation at the Former Tidewater Facility located in Pawtucket, Rhode Island (Site). As described in the January 2007 Short Term Response Action Plan (STRAP) for this Site, blue-stained surface soils along portions of the unpaved access road and parking area located south and southeast of the substation will be removed to a depth of approximately 1 foot below existing grade. This soil sampling and testing program described herein was performed to characterize soil conditions prior to excavation. The results of the testing will be used to determine if excavated soils will be reused in the low-lying area located south of the roadway or transported and disposed of off-Site at a permitted facility approved by National Grid

This memo was prepared in accordance with the Limitations included in Attachment A.

SAMPLING AND ANALYSIS

Four surficial samples (SS-GZ2007-1, SS-GZ2007-2, SS-GZ2007-3 and SS-GZ2007-4) were collected from the upper 1 foot of material along the portion of the roadway exhibiting blue staining. The samples were collected via hand augering. A field sketch of the sampling locations is provided as Attachment B. The following sample locations and material descriptions were recorded:

- SS-GZ2007-1: Collected within the roadway at the intersection located on the southeastern corner of the substation access way. Sample consisted of a mixture of sand and gravel with some blue ash/organic soil

- SS-GZ2007-2: Collected on the south edge of the roadway. The upper ±3-inches consisted of processed construction and demolition (C&D) material. Sample from 3 to 12 inches consisted of primarily blue ash/organic material.
- SS-GZ2007-3: Collected on the north edge of the. Sample collected from 0-10 inches below grade and consisted of C&D material. No blue staining noted.
- SS-GZ2007-4: Collected within the roadway at the intersection located on the southwestern corner of the substation access way. Sample collected from 0-10 inches below grade and consisted of C&D material. No blue staining noted.

The four soil samples were submitted to ESS Laboratory of Cranston, Rhode Island for total cyanide, free cyanide via the MassDEP PAC Method, total petroleum hydrocarbons (TPH) via EPA Method 8100M and polynuclear aromatic hydrocarbons (PAHs) via EPA Method 8270C. In addition, based on available sample recovery, samples SS-GZ2007-1 and SS-GZ2007-2 were submitted for volatile organic compounds (VOCs) via EPA Method 8260, semi-volatile organic compounds (SVOCs) via EPA Method 8270C, polychlorinated biphenyls (PCBs) via EPA Method 8082, RCRA-8 metals, TCLP lead, flashpoint/ignitability, reactivity and corrosivity.

Analytical testing results are summarized in Table 1. Laboratory data sheets are included as Attachment C. The following summarizes the results for the four sampling locations:

- **SS-GZ2007-3 and SS-GZ2007-4**. Detected concentrations for PAHs, TPH, total and free cyanide were below the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C DEC).
- **SS-GZ2007-1**. Concentrations were below the RIDEM Method 1 I/C DEC for all tested constituents, with the exception of arsenic and benzo(a)pyrene. The detected arsenic (17.9 mg/kg) and benzo(a)pyrene (0.972 mg/kg) concentrations were slightly over the criteria of 7 mg/kg and 0.8 mg/kg, respectively.
- **SS-GZ2007-2**. The highest concentrations were detected in this sample, with I/C DEC exceedances noted for arsenic (115 mg/kg vs. 7 mg/kg), TPH (25,300 mg/kg vs. 2,500 mg/kg), benzo(a)anthracene (15.3 mg/kg vs. 7.8 mg/kg), benzo(a)pyrene (17.5 mg/kg vs 0.8 mg/kg) and benzo(b)fluoranthene (28.3 mg/kg vs. 7.8 mg/kg). Note that this sample was collected off the southern extent of the roadway, in a slight depression that runs along the length of the road. Given that the intent of the STRAP is to remove blue stained surficial materials from the roadway in an effort to mitigate potential transport to other Site areas (via tracking on vehicle tires), it is not expected that these off-roadway materials will be encountered.

As described in the STRAP, the final remedial alternative for the Site is currently anticipated to include engineered soil controls (e.g., soil capping, fencing) and deed restrictions. Furthermore, foreseeable future use of this portion of the Site is expected to remain industrial/commercial due to the existing active substation. Based on the soil results, future capping and continued industrial/commercial use of this portion of the Site, it is expected

that material removed from the immediate unpaved roadway (SS-GZ2007-1, SS-GZ-2007-3 and SS-GZ2007-4) may be relocated to the low lying area south of the roadway as depicted on Figure 2 of the STRAP.

For the SS-GZ2007-2 location, as discussed above, this sample was located off the edge of the roadway, in a slight depression that runs along the length of the road. Planned excavation will extend only to the limits of the existing roadway. This material will not be generated during excavation. In the event materials similar in nature to SS-GZ2007-2 are encountered within the immediate roadway, these materials will not be excavated. These materials will be handled similar to blue-stained materials which may possibly be encountered within the depression along the roadway (see below). Specifically, a liner will be installed over the areas of blue-stained materials within the roadway and a layer of trap rock will be placed to bring the excavated area back up to grade with the remainder of the existing road.

To address the blue-stained materials immediately adjacent (less than 10 feet) from the southern extent of the roadway within the depression, it is proposed that the liner be extended over the areas of visible staining and a layer of trap rock be placed (to the extent practical) to bring this area up to grade with the new roadway. Furthermore, it is proposed that a 6-foot chain link fence be installed along the southern extent of the roadway to delineate the road and limit vehicular access to areas of blue-stained surface soils which may not be removed during implementation of the approved STRAP.

Attachments: Table 1
Attachment A – Limitations
Attachment B - Field Sketch
Attachment C – Laboratory Data Sheets

J:\ENV\43654.msk\Corresp\43654-00 Cyanide soil m01 final 7-10-07.DOC

TABLE 1
SUMMARY OF SOIL ANALYTICAL
Former Tidewater Facility
Pawtucket, Rhode Island

File No. 03.003277.00
2/13/2007

	Sample ID:		0701342-01	0701342-02	0701342-03	0701342-04	RIDEM
	Sample Date:		01/24/2007	01/24/2007	01/24/2007	01/24/2007	Method 1
	Sample Time:		11:30	11:30	11:30	11:30	I/C DEC
	Client Sample:		SS-GZ2007-1	SS-GZ2007-2	SS-GZ2007-3	SS-GZ2007-4	
METHODNAME	ANALYTE	UNITS					
1010	Flashpoint	°F	**200**	**200**	---	---	
1311/6010B	Lead	mg/L	<0.50	<0.50	---	---	5
6010B	Arsenic	mg/kg	**17.9**	**115**	---	---	7
6010B	Barium	mg/kg	**54.2**	**41.7**	---	---	10000
6010B	Cadmium	mg/kg	<0.67	**1.78**	---	---	1000
6010B	Chromium	mg/kg	**6.3**	**16.3**	---	---	10000
6010B	Lead	mg/kg	**147**	**99.8**	---	---	500
6010B	Selenium	mg/kg	<6.7	<8.9	---	---	10000
6010B	Silver	mg/kg	<0.67	<0.89	---	---	10000
7.3.3.2	Reactive Cyanide	mg/kg	<2.0	<2.0	---	---	
7.3.4.1	Reactive Sulfide	mg/kg	<2.0	<2.0	---	---	
7471A	Mercury	mg/kg	**0.401**	**2.36**	---	---	610
8082	Aroclor 1016	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1221	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1232	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1242	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1248	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1254	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1260	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1262	mg/kg	<0.0590	<0.0799	---	---	10
8082	Aroclor 1268	mg/kg	<0.0590	<0.0799	---	---	10
8100M	Total Petroleum Hydrocarbons	mg/kg	**463**	**25300**	**126**	**262**	2500
8260B	1,1,1,2-Tetrachloroethane	mg/kg	<0.0922	<0.196	---	---	220
8260B	1,1,1-Trichloroethane	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	1,1,2,2-Tetrachloroethane	mg/kg	<0.0461	<0.0981	---	---	29
8260B	1,1,2-Trichloroethane	mg/kg	<0.0461	<0.0981	---	---	100
8260B	1,1-Dichloroethane	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	1,1-Dichloroethene	mg/kg	<0.0461	<0.0981	---	---	9.5
8260B	1,1-Dichloropropene	mg/kg	<0.0461	<0.0981	---	---	
8260B	1,2,3-Trichlorobenzene	mg/kg	<0.0461	<0.0981	---	---	
8260B	1,2,3-Trichloropropane	mg/kg	<0.0461	<0.0981	---	---	
8260B	1,2,4-Trichlorobenzene	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	1,2,4-Trimethylbenzene	mg/kg	<0.0461	**0.239**	---	---	
8260B	1,2-Dibromo-3-Chloropropane	mg/kg	<0.230	<0.490	---	---	4.1
8260B	1,2-Dibromoethane	mg/kg	<0.0461	<0.0981	---	---	
8260B	1,2-Dichlorobenzene	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	1,2-Dichloroethane	mg/kg	<0.0461	<0.0981	---	---	63
8260B	1,2-Dichloropropane	mg/kg	<0.0461	<0.0981	---	---	84
8260B	1,3,5-Trimethylbenzene	mg/kg	<0.0461	**0.194**	---	---	
8260B	1,3-Dichlorobenzene	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	1,3-Dichloropropane	mg/kg	<0.0461	<0.0981	---	---	
8260B	1,4-Dichlorobenzene	mg/kg	<0.0461	<0.0981	---	---	240
8260B	1,4-Dioxane - Screen	mg/kg	<4.61	<9.81	---	---	
8260B	1-Chlorohexane	mg/kg	<0.0461	<0.0981	---	---	
8260B	2,2-Dichloropropane	mg/kg	<0.0922	<0.196	---	---	
8260B	2-Butanone	mg/kg	<1.15	<2.45	---	---	
8260B	2-Chlorotoluene	mg/kg	<0.0461	<0.0981	---	---	
8260B	2-Hexanone	mg/kg	<0.461	<0.981	---	---	
8260B	4-Chlorotoluene	mg/kg	<0.0461	<0.0981	---	---	
8260B	4-Isopropyltoluene	mg/kg	<0.0461	**0.0588**	---	---	
8260B	4-Methyl-2-Pentanone	mg/kg	<0.461	<0.981	---	---	
8260B	Acetone	mg/kg	<1.15	<2.45	---	---	10000
8260B	Benzene	mg/kg	**0.0286**	**0.106**	---	---	200
8260B	Bromobenzene	mg/kg	<0.0461	<0.0981	---	---	
8260B	Bromochloromethane	mg/kg	<0.0461	<0.0981	---	---	
8260B	Bromodichloromethane	mg/kg	<0.0461	<0.0981	---	---	92
8260B	Bromoform	mg/kg	<0.0461	<0.0981	---	---	720
8260B	Bromomethane	mg/kg	<0.0922	<0.196	---	---	2900
8260B	Carbon Disulfide	mg/kg	<0.0461	**0.0471**	---	---	
8260B	Carbon Tetrachloride	mg/kg	<0.0461	<0.0981	---	---	44
8260B	Chlorobenzene	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	Chloroethane	mg/kg	<0.0922	<0.196	---	---	
8260B	Chloroform	mg/kg	<0.0461	<0.0981	---	---	940
8260B	Chloromethane	mg/kg	<0.0922	<0.196	---	---	
8260B	cis-1,2-Dichloroethene	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	cis-1,3-Dichloropropene	mg/kg	<0.0461	<0.0981	---	---	
8260B	Dibromochloromethane	mg/kg	<0.0461	<0.0981	---	---	68
8260B	Dibromomethane	mg/kg	<0.0461	<0.0981	---	---	
8260B	Dichlorodifluoromethane	mg/kg	<0.0461	<0.0981	---	---	
8260B	Diethyl Ether	mg/kg	<0.0461	<0.0981	---	---	
8260B	Di-isopropyl ether	mg/kg	<0.0461	<0.0981	---	---	
8260B	Ethyl tertiary-butyl ether	mg/kg	<0.0461	<0.0981	---	---	
8260B	Ethylbenzene	mg/kg	<0.0461	**0.0353**	---	---	10000
8260B	Hexachlorobutadiene	mg/kg	<0.0461	<0.0981	---	---	
8260B	Isopropylbenzene	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	Methyl tert-Butyl Ether	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	Methylene Chloride	mg/kg	<0.230	<0.490	---	---	760
8260B	Naphthalene	mg/kg	**0.0830**	**46.3**	---	---	10000
8260B	n-Butylbenzene	mg/kg	<0.0461	<0.0981	---	---	
8260B	n-Propylbenzene	mg/kg	<0.0461	<0.0981	---	---	
8260B	sec-Butylbenzene	mg/kg	<0.0461	<0.0981	---	---	
8260B	Styrene	mg/kg	**0.0148**	**0.679**	---	---	190

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	Sample Time:		11:30	11:30	11:30	11:30	I/C DEC
	Client Sample:		SS-GZ2007-1	SS-GZ2007-2	SS-GZ2007-3	SS-GZ2007-4	
METHODNAME	ANALYTE	UNITS					
8260B	tert-Butylbenzene	mg/kg	<0.0461	<0.0981	---	---	
8260B	Tertiary-amyl methyl ether	mg/kg	<0.0461	<0.0981	---	---	
8260B	Tetrachloroethene	mg/kg	<0.0461	<0.0981	---	---	110
8260B	Tetrahydrofuran	mg/kg	<0.230	<0.490	---	---	
8260B	Toluene	mg/kg	**0.0369**	**0.124**	---	---	10000
8260B	trans-1,2-Dichloroethene	mg/kg	<0.0461	<0.0981	---	---	10000
8260B	trans-1,3-Dichloropropene	mg/kg	<0.0461	<0.0981	---	---	
8260B	Trichloroethene	mg/kg	<0.0461	<0.0981	---	---	520
8260B	Trichlorofluoromethane	mg/kg	<0.0461	<0.0981	---	---	
8260B	Vinyl Acetate	mg/kg	<0.230	<0.490	---	---	
8260B	Vinyl Chloride	mg/kg	<0.0461	<0.0981	---	---	3
8260B	Xylene O	mg/kg	<0.0461	**0.0902**	---	---	
8260B	Xylene P,M	mg/kg	<0.0922	**0.110**	---	---	
8260B	Xylenes (Total)	mg/kg	<0.138	<0.294	---	---	10000
8270C	1,1-Biphenyl	mg/kg	**0.163**	**5.77**	---	---	10000
8270C	1,2,4-Trichlorobenzene	mg/kg	<0.404	<2.74	---	---	10000
8270C	1,2-Dichlorobenzene	mg/kg	<0.404	<2.74	---	---	10000
8270C	1,3-Dichlorobenzene	mg/kg	<0.404	<2.74	---	---	10000
8270C	1,4-Dichlorobenzene	mg/kg	<0.404	<2.74	---	---	240
8270C	2,3,4,6-Tetrachlorophenol	mg/kg	<2.03	<13.7	---	---	
8270C	2,4,5-Trichlorophenol	mg/kg	<0.404	<2.74	---	---	10000
8270C	2,4,6-Trichlorophenol	mg/kg	<0.404	<2.74	---	---	520
8270C	2,4-Dichlorophenol	mg/kg	<0.404	<2.74	---	---	6100
8270C	2,4-Dimethylphenol	mg/kg	<0.404	<2.74	---	---	10000
8270C	2,4-Dinitrophenol	mg/kg	<2.03	<13.7	---	---	4100
8270C	2,4-Dinitrotoluene	mg/kg	<0.404	<2.74	---	---	8.4
8270C	2,6-Dinitrotoluene	mg/kg	<0.404	<2.74	---	---	
8270C	2-Chloronaphthalene	mg/kg	<0.404	<2.74	---	---	
8270C	2-Chlorophenol	mg/kg	<0.404	<2.74	---	---	10000
8270C	2-Methylnaphthalene	mg/kg	**0.144**	**27.1**	<0.364	**0.129**	10000
8270C	2-Methylphenol	mg/kg	<0.404	<2.74	---	---	
8270C	2-Nitroaniline	mg/kg	<0.404	<2.74	---	---	
8270C	2-Nitrophenol	mg/kg	<0.404	<2.74	---	---	
8270C	3,3´-Dichlorobenzidine	mg/kg	<0.809	<5.49	---	---	13
8270C	3+4-Methylphenol	mg/kg	<0.809	<5.49	---	---	
8270C	3-Nitroaniline	mg/kg	<0.404	<2.74	---	---	
8270C	4,6-Dinitro-2-Methylphenol	mg/kg	<2.03	<13.7	---	---	
8270C	4-Bromophenyl-phenylether	mg/kg	<0.404	<2.74	---	---	
8270C	4-Chloro-3-Methylphenol	mg/kg	<0.404	<2.74	---	---	
8270C	4-Chloroaniline	mg/kg	<0.809	<5.49	---	---	8200
8270C	4-Chloro-phenyl-phenyl ether	mg/kg	<0.404	<2.74	---	---	
8270C	4-Nitroaniline	mg/kg	<0.404	<2.74	---	---	
8270C	4-Nitrophenol	mg/kg	<2.03	<13.7	---	---	
8270C	Acenaphthene	mg/kg	**0.0566**	<2.74	<0.364	<0.371	10000
8270C	Acenaphthylene	mg/kg	**0.334**	**13.4**	**0.076**	**0.080**	10000
8270C	Acetophenone	mg/kg	<0.809	**12.3**	---	---	
8270C	Aniline	mg/kg	<2.03	<13.7	---	---	
8270C	Anthracene	mg/kg	**0.343**	**3.00**	**0.116**	**0.132**	10000
8270C	Azobenzene	mg/kg	<0.404	<2.74	---	---	
8270C	Benzo(a)anthracene	mg/kg	**1.33**	**15.3**	**0.648**	**0.627**	7.8
8270C	Benzo(a)pyrene	mg/kg	**0.972**	**17.5**	**0.637**	**0.572**	0.8
8270C	Benzo(b)fluoranthene	mg/kg	**1.62**	**28.3**	**0.794**	**0.573**	7.8
8270C	Benzo(g,h,i)perylene	mg/kg	**0.742**	**6.33**	**0.260**	**0.277**	10000
8270C	Benzo(k)fluoranthene	mg/kg	**1.16**	**28.7**	**0.515**	**0.575**	78
8270C	Benzoic Acid	mg/kg	<2.03	<13.7	---	---	
8270C	Benzyl Alcohol	mg/kg	<0.404	<2.74	---	---	
8270C	bis(2-Chloroethoxy)methane	mg/kg	<0.404	<2.74	---	---	
8270C	bis(2-Chloroethyl)ether	mg/kg	<0.404	<2.74	---	---	5.2
8270C	bis(2-chloroisopropyl)Ether	mg/kg	<0.404	<2.74	---	---	82
8270C	bis(2-Ethylhexyl)phthalate	mg/kg	**0.0550**	<2.74	---	---	410
8270C	Butylbenzylphthalate	mg/kg	<0.404	<2.74	---	---	
8270C	Carbazole	mg/kg	**0.0627**	**3.05**	---	---	
8270C	Chrysene	mg/kg	**1.74**	**44.5**	**0.788**	**0.754**	780
8270C	Dibenzo(a,h)Anthracene	mg/kg	**0.0703**	**0.482**	**0.024**	<0.186	0.8
8270C	Dibenzofuran	mg/kg	**0.0768**	**11.3**	---	---	
8270C	Diethylphthalate	mg/kg	<0.404	<2.74	---	---	
8270C	Dimethylphthalate	mg/kg	<0.404	<2.74	---	---	
8270C	Di-n-butylphthalate	mg/kg	<0.404	<2.74	---	---	
8270C	Di-n-octylphthalate	mg/kg	<0.404	<2.74	---	---	
8270C	Fluoranthene	mg/kg	**1.96**	**72.2**	**1.55**	**1.33**	10000
8270C	Fluorene	mg/kg	**0.462**	<2.74	**0.041**	**0.065**	10000
8270C	Hexachlorobenzene	mg/kg	<0.404	<2.74	---	---	3.6
8270C	Hexachlorobutadiene	mg/kg	<0.404	<2.74	---	---	73
8270C	Hexachlorocyclopentadiene	mg/kg	<2.03	<13.7	---	---	
8270C	Hexachloroethane	mg/kg	<0.404	<2.74	---	---	410
8270C	Indeno(1,2,3-cd)Pyrene	mg/kg	**0.783**	**7.97**	**0.252**	**0.263**	7.8
8270C	Isophorone	mg/kg	<0.404	<2.74	---	---	
8270C	Naphthalene	mg/kg	**0.126**	**50.3**	<0.364	**0.068**	10000
8270C	Nitrobenzene	mg/kg	<0.404	<2.74	---	---	
8270C	N-Nitrosodimethylamine	mg/kg	<0.404	<2.74	---	---	
8270C	N-Nitroso-Di-n-Propylamine	mg/kg	<0.404	<2.74	---	---	
8270C	N-nitrosodiphenylamine	mg/kg	<0.404	<2.74	---	---	

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	Sample Time:		11:30	11:30	11:30	11:30	I/C DEC
	Client Sample:		SS-GZ2007-1	SS-GZ2007-2	SS-GZ2007-3	SS-GZ2007-4	
METHODNAME	ANALYTE	UNITS					
8270C	Pentachlorophenol	mg/kg	<2.03	<13.7	---	---	48
8270C	Phenanthrene	mg/kg	**2.82**	**21.6**	**0.640**	**0.805**	10000
8270C	Phenol	mg/kg	<0.404	<2.74	---	---	10000
8270C	Pyrene	mg/kg	**2.39**	**54.7**	**1.43**	**1.35**	10000
8270C	Pyridine	mg/kg	<2.03	<13.7	---	---	
9014	Total Cyanide	mg/kg	**268**	**1870**	**12.6**	**14.5**	10000
9045	Corrosivity (pH)	S.U.	**3.36**	**1.98**	---	---	
MA PAC	Cyanide (PAC)	mg/kg	**9.6**	**57.8**	<1.8	<2.5	10000

Denotes exceedance of RIDEM Method I Industrial/Commercial Direct Exposure Criteria

GEOHYDROLOGICAL LIMITATIONS

1. The conclusions and recommendations submitted in this report are based in part upon the data obtained from a limited number of soil samples from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until further investigation. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the recommendations of this report.

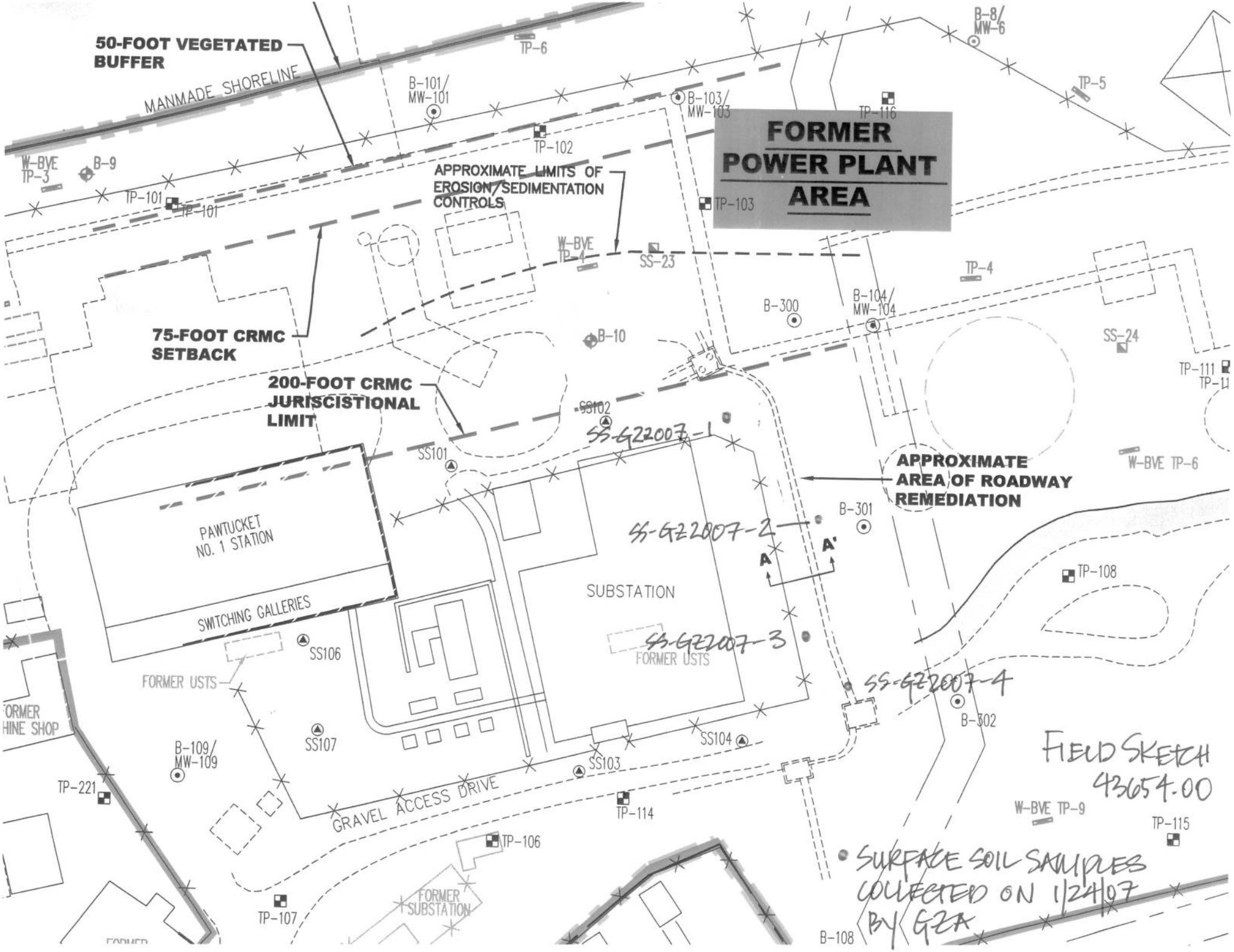
2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the boring logs.

3. Water level readings have been made in the test pits, borings and/or observation wells at times and under conditions stated on the exploration logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made.

4. The conclusions and recommendations contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. As indicated within the report, some of these data are preliminary "screening" level data, and should be confirmed with quantitative analyses if more specific information is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed by GZA, and the conclusions and recommendations presented therein modified accordingly.

5. Chemical analyses have been performed for specific parameters during the course of this study, as detailed in the text. It must be noted that additional constituents not searched for during the current study may be present in soil and groundwater at the site.

6. It is recommended that this firm be retained to provide further engineering services during design, implementation, and/or construction of any remedial measures, if necessary. This is to observe compliance with the concepts and recommendations contained herein and to allow design changes in the event that subsurface conditions differ from those anticipated.



FIELD SKETCH
43654.00

SURFACE SOIL SAMPLES COLLECTED ON 1/24/07 BY GZA

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-1
Date Sampled: 01/24/07 11:30
Percent Solids: 83

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil

TCLP Date: 1/24/07

1311/6000/7000 TCLP Metals

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
Lead	ND	mg/L	0.50	1311/6010B	1	JP	01/25/07	5	50

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Sample Matrix: Soil

3050B/6000/7000 Total Metals

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
Arsenic	**17.9**	mg/kg dry	6.7	6010B	1	JP	01/24/07	1.8	100
Barium	**54.2**	mg/kg dry	3.3	6010B	1	JP	01/24/07	1.8	100
Cadmium	ND	mg/kg dry	0.67	6010B	1	JP	01/24/07	1.8	100
Chromium	**6.3**	mg/kg dry	1.3	6010B	1	JP	01/24/07	1.8	100
Lead	**147**	mg/kg dry	6.7	6010B	1	JP	01/24/07	1.8	100
Mercury	**0.401**	mg/kg dry	0.040	7471A	1	EEM	01/25/07	0.6	40
Selenium	ND	mg/kg dry	6.7	6010B	1	JP	01/24/07	1.8	100
Silver	ND	mg/kg dry	0.67	6010B	1	JP	01/24/07	1.8	100

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Date Sampled: 01/24/07 11:30
Percent Solids: 83
Initial Volume: 25.2
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: RES

5035/8260B Volatile Organic Compounds / Methanol

Analyte		Results	Units	MRL	MDL	DF	Analyzed
1,1,1,2-Tetrachloroethane		ND	mg/kg dry	0.0922	0.0295	1	01/26/07
1,1,1-Trichloroethane		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
1,1,2,2-Tetrachloroethane		ND	mg/kg dry	0.0461	0.0129	1	01/26/07
1,1,2-Trichloroethane		ND	mg/kg dry	0.0461	0.0194	1	01/26/07
1,1-Dichloroethane		ND	mg/kg dry	0.0461	0.0129	1	01/26/07
1,1-Dichloroethene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
1,1-Dichloropropene		ND	mg/kg dry	0.0461	0.0083	1	01/26/07
1,2,3-Trichlorobenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
1,2,3-Trichloropropane		ND	mg/kg dry	0.0461	0.0230	1	01/26/07
1,2,4-Trichlorobenzene		ND	mg/kg dry	0.0461	0.0092	1	01/26/07
1,2,4-Trimethylbenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
1,2-Dibromo-3-Chloropropane		ND	mg/kg dry	0.230	0.0922	1	01/26/07
1,2-Dibromoethane		ND	mg/kg dry	0.0461	0.0092	1	01/26/07
1,2-Dichlorobenzene		ND	mg/kg dry	0.0461	0.0092	1	01/26/07
1,2-Dichloroethane		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
1,2-Dichloropropane		ND	mg/kg dry	0.0461	0.0129	1	01/26/07
1,3,5-Trimethylbenzene		ND	mg/kg dry	0.0461	0.0120	1	01/26/07
1,3-Dichlorobenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
1,3-Dichloropropane		ND	mg/kg dry	0.0461	0.0083	1	01/26/07
1,4-Dichlorobenzene		ND	mg/kg dry	0.0461	0.0120	1	01/26/07
1,4-Dioxane - Screen		ND	mg/kg dry	4.61	2.2100	1	01/26/07
1-Chlorohexane		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
2,2-Dichloropropane		ND	mg/kg dry	0.0922	0.0212	1	01/26/07
2-Butanone		ND	mg/kg dry	1.15	0.1880	1	01/26/07
2-Chlorotoluene		ND	mg/kg dry	0.0461	0.0129	1	01/26/07
2-Hexanone		ND	mg/kg dry	0.461	0.0461	1	01/26/07
4-Chlorotoluene		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
4-Isopropyltoluene		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
4-Methyl-2-Pentanone		ND	mg/kg dry	0.461	0.0581	1	01/26/07
Acetone		ND	mg/kg dry	1.15	0.3920	1	01/26/07
Benzene	J	**0.0286**	mg/kg dry	0.0461	0.0129	1	01/26/07
Bromobenzene		ND	mg/kg dry	0.0461	0.0092	1	01/26/07
Bromochloromethane		ND	mg/kg dry	0.0461	0.0138	1	01/26/07
Bromodichloromethane		ND	mg/kg dry	0.0461	0.0120	1	01/26/07
Bromoform		ND	mg/kg dry	0.0461	0.0101	1	01/26/07

CERTIFICATE OF ANALYSIS

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Initial Volume: 25.2
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: RES

5035/8260B Volatile Organic Compounds / Methanol

Bromomethane		ND	mg/kg dry	0.0922	0.0092	1	01/26/07
Carbon Disulfide		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
Carbon Tetrachloride		ND	mg/kg dry	0.0461	0.0120	1	01/26/07
Chlorobenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Chloroethane		ND	mg/kg dry	0.0922	0.0277	1	01/26/07
Chloroform		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Chloromethane		ND	mg/kg dry	0.0922	0.0138	1	01/26/07
cis-1,2-Dichloroethene		ND	mg/kg dry	0.0461	0.0129	1	01/26/07
cis-1,3-Dichloropropene		ND	mg/kg dry	0.0461	0.0092	1	01/26/07
Dibromochloromethane		ND	mg/kg dry	0.0461	0.0074	1	01/26/07
Dibromomethane		ND	mg/kg dry	0.0461	0.0120	1	01/26/07
Dichlorodifluoromethane		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Diethyl Ether		ND	mg/kg dry	0.0461	0.0129	1	01/26/07
Di-isopropyl ether		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Ethyl tertiary-butyl ether		ND	mg/kg dry	0.0461	0.0092	1	01/26/07
Ethylbenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Hexachlorobutadiene		ND	mg/kg dry	0.0461	0.0203	1	01/26/07
Isopropylbenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Methyl tert-Butyl Ether		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Methylene Chloride		ND	mg/kg dry	0.230	0.0175	1	01/26/07
Naphthalene		**0.0830**	mg/kg dry	0.0461	0.0074	1	01/26/07
n-Butylbenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
n-Propylbenzene		ND	mg/kg dry	0.0461	0.0092	1	01/26/07
sec-Butylbenzene		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
Styrene	J	**0.0148**	mg/kg dry	0.0461	0.0111	1	01/26/07
tert-Butylbenzene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Tertiary-amyl methyl ether		ND	mg/kg dry	0.0461	0.0129	1	01/26/07
Tetrachloroethene		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
Tetrahydrofuran		ND	mg/kg dry	0.230	0.0922	1	01/26/07
Toluene	J	**0.0369**	mg/kg dry	0.0461	0.0120	1	01/26/07
trans-1,2-Dichloroethene		ND	mg/kg dry	0.0461	0.0148	1	01/26/07
trans-1,3-Dichloropropene		ND	mg/kg dry	0.0461	0.0111	1	01/26/07
Trichloroethene		ND	mg/kg dry	0.0461	0.0101	1	01/26/07
Trichlorofluoromethane		ND	mg/kg dry	0.0461	0.0120	1	01/26/07
Vinyl Acetate		ND	mg/kg dry	0.230	0.0175	1	01/26/07
Vinyl Chloride		ND	mg/kg dry	0.0461	0.0111	1	01/26/07

CERTIFICATE OF ANALYSIS

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Initial Volume: 25.2
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: RES

5035/8260B Volatile Organic Compounds / Methanol

Xylene O	ND	mg/kg dry	0.0461	0.0083	1	01/26/07
Xylene P,M	ND	mg/kg dry	0.0922	0.0221	1	01/26/07
Xylenes (Total)	ND	mg/kg dry	0.138			01/26/07

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*91 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*84 %*		*70-130*
Surrogate: Dibromofluoromethane	*101 %*		*70-130*
Surrogate: Toluene-d8	*87 %*		*70-130*

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

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Client Sample ID: SS-GZ2007-1
Date Sampled: 01/24/07 11:30
Percent Solids: 83
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3541

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: sep
Prepared: 01/25/07

8082 Polychlorinated Biphenyls (PCB)

Analyte	Results	Units	MRL	DF	Analyzed
Aroclor 1016	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1221	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1232	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1242	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1248	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1254	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1260	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1262	ND	mg/kg dry	0.0590	1	01/25/07
Aroclor 1268	ND	mg/kg dry	0.0590	1	01/25/07

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*48 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*334 %*	*+*	*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*36 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-1
Date Sampled: 01/24/07 11:30
Percent Solids: 83
Initial Volume: 19.7
Final Volume: 1
Extraction Method: 3541

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: JLS
Prepared: 01/24/07

8100M Total Petroleum Hydrocarbons

Analyte	Results	Units	MRL	DF	Analyzed
Total Petroleum Hydrocarbons	463	mg/kg dry	45.9	1	01/27/07

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*111 %*		*40-140*

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Date Sampled: 01/24/07 11:30
Percent Solids: 83
Initial Volume: 29.8
Final Volume: 1
Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Semi-Volatile Organic Compounds

Analyte		Results	Units	MRL	MDL	DF	Analyzed
1,1-Biphenyl	J	**0.163**	mg/kg dry	0.404	0.0206	1	01/26/07
1,2,4-Trichlorobenzene		ND	mg/kg dry	0.404	0.0264	1	01/26/07
1,2-Dichlorobenzene		ND	mg/kg dry	0.404	0.0228	1	01/26/07
1,3-Dichlorobenzene		ND	mg/kg dry	0.404	0.0240	1	01/26/07
1,4-Dichlorobenzene		ND	mg/kg dry	0.404	0.0227	1	01/26/07
2,3,4,6-Tetrachlorophenol		ND	mg/kg dry	2.03	0.0279	1	01/26/07
2,4,5-Trichlorophenol		ND	mg/kg dry	0.404	0.0376	1	01/26/07
2,4,6-Trichlorophenol		ND	mg/kg dry	0.404	0.0211	1	01/26/07
2,4-Dichlorophenol		ND	mg/kg dry	0.404	0.0237	1	01/26/07
2,4-Dimethylphenol		ND	mg/kg dry	0.404	0.0170	1	01/26/07
2,4-Dinitrophenol		ND	mg/kg dry	2.03	0.2350	1	01/26/07
2,4-Dinitrotoluene		ND	mg/kg dry	0.404	0.0303	1	01/26/07
2,6-Dinitrotoluene		ND	mg/kg dry	0.404	0.0211	1	01/26/07
2-Chloronaphthalene		ND	mg/kg dry	0.404	0.0218	1	01/26/07
2-Chlorophenol		ND	mg/kg dry	0.404	0.0270	1	01/26/07
2-Methylnaphthalene	J	**0.144**	mg/kg dry	0.404	0.0200	1	01/26/07
2-Methylphenol		ND	mg/kg dry	0.404	0.0146	1	01/26/07
2-Nitroaniline		ND	mg/kg dry	0.404	0.0263	1	01/26/07
2-Nitrophenol		ND	mg/kg dry	0.404	0.0217	1	01/26/07
3,3'-Dichlorobenzidine		ND	mg/kg dry	0.809	0.0270	1	01/26/07
3+4-Methylphenol		ND	mg/kg dry	0.809	0.0189	1	01/26/07
3-Nitroaniline		ND	mg/kg dry	0.404	0.0255	1	01/26/07
4,6-Dinitro-2-Methylphenol		ND	mg/kg dry	2.03	0.0247	1	01/26/07
4-Bromophenyl-phenylether		ND	mg/kg dry	0.404	0.0309	1	01/26/07
4-Chloro-3-Methylphenol		ND	mg/kg dry	0.404	0.0273	1	01/26/07
4-Chloroaniline		ND	mg/kg dry	0.809	0.1380	1	01/26/07
4-Chloro-phenyl-phenyl ether		ND	mg/kg dry	0.404	0.0232	1	01/26/07
4-Nitroaniline		ND	mg/kg dry	0.404	0.0269	1	01/26/07
4-Nitrophenol		ND	mg/kg dry	2.03	0.2220	1	01/26/07
Acenaphthene	J	**0.0566**	mg/kg dry	0.404	0.0297	1	01/26/07
Acenaphthylene	J	**0.334**	mg/kg dry	0.404	0.0195	1	01/26/07
Acetophenone		ND	mg/kg dry	0.809	0.2600	1	01/26/07
Aniline		ND	mg/kg dry	2.03	0.0291	1	01/26/07
Anthracene	J	**0.343**	mg/kg dry	0.404	0.0229	1	01/26/07
Azobenzene		ND	mg/kg dry	0.404	0.0423	1	01/26/07

CERTIFICATE OF ANALYSIS

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Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Semi-Volatile Organic Compounds

Benzo(a)anthracene		**1.33**	mg/kg dry	0.404	0.0207	1	01/26/07
Benzo(a)pyrene		**0.972**	mg/kg dry	0.203	0.0215	1	01/26/07
Benzo(b)fluoranthene		**1.62**	mg/kg dry	0.404	0.0374	1	01/26/07
Benzo(g,h,i)perylene		**0.742**	mg/kg dry	0.404	0.0237	1	01/26/07
Benzo(k)fluoranthene		**1.16**	mg/kg dry	0.404	0.0353	1	01/26/07
Benzoic Acid		ND	mg/kg dry	2.03	0.2560	1	01/26/07
Benzyl Alcohol		ND	mg/kg dry	0.404	0.0241	1	01/26/07
bis(2-Chloroethoxy)methane		ND	mg/kg dry	0.404	0.0170	1	01/26/07
bis(2-Chloroethyl)ether		ND	mg/kg dry	0.404	0.0319	1	01/26/07
bis(2-chloroisopropyl)Ether		ND	mg/kg dry	0.404	0.0228	1	01/26/07
bis(2-Ethylhexyl)phthalate	J	**0.0550**	mg/kg dry	0.404	0.0267	1	01/26/07
Butylbenzylphthalate		ND	mg/kg dry	0.404	0.0211	1	01/26/07
Carbazole	J	**0.0627**	mg/kg dry	0.404	0.0264	1	01/26/07
Chrysene		**1.74**	mg/kg dry	0.203	0.0253	1	01/26/07
Dibenzo(a,h)Anthracene	J	**0.0703**	mg/kg dry	0.203	0.0249	1	01/26/07
Dibenzofuran	J	**0.0768**	mg/kg dry	0.404	0.0224	1	01/26/07
Diethylphthalate		ND	mg/kg dry	0.404	0.0294	1	01/26/07
Dimethylphthalate		ND	mg/kg dry	0.404	0.0279	1	01/26/07
Di-n-butylphthalate		ND	mg/kg dry	0.404	0.0251	1	01/26/07
Di-n-octylphthalate		ND	mg/kg dry	0.404	0.0275	1	01/26/07
Fluoranthene		**1.96**	mg/kg dry	0.404	0.0243	1	01/26/07
Fluorene		**0.462**	mg/kg dry	0.404	0.0193	1	01/26/07
Hexachlorobenzene		ND	mg/kg dry	0.404	0.0285	1	01/26/07
Hexachlorobutadiene		ND	mg/kg dry	0.404	0.0372	1	01/26/07
Hexachlorocyclopentadiene		ND	mg/kg dry	2.03	0.1150	1	01/26/07
Hexachloroethane		ND	mg/kg dry	0.404	0.0228	1	01/26/07
Indeno(1,2,3-cd)Pyrene		**0.783**	mg/kg dry	0.404	0.0291	1	01/26/07
Isophorone		ND	mg/kg dry	0.404	0.0170	1	01/26/07
Naphthalene	J	**0.126**	mg/kg dry	0.404	0.0203	1	01/26/07
Nitrobenzene		ND	mg/kg dry	0.404	0.0262	1	01/26/07
N-Nitrosodimethylamine		ND	mg/kg dry	0.404	0.0342	1	01/26/07
N-Nitroso-Di-n-Propylamine		ND	mg/kg dry	0.404	0.0250	1	01/26/07
N-nitrosodiphenylamine		ND	mg/kg dry	0.404	0.0216	1	01/26/07
Pentachlorophenol		ND	mg/kg dry	2.03	0.2080	1	01/26/07
Phenanthrene		**2.82**	mg/kg dry	0.404	0.0278	1	01/26/07
Phenol		ND	mg/kg dry	0.404	0.0206	1	01/26/07

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-1
Date Sampled: 01/24/07 11:30
Percent Solids: 83
Initial Volume: 29.8
Final Volume: 1
Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Semi-Volatile Organic Compounds

Pyrene	**2.39**	mg/kg dry	0.404	0.0188	1	01/26/07
Pyridine	ND	mg/kg dry	2.03	0.0456	1	01/26/07

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*63 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*65 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*68 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*71 %*		*30-130*
Surrogate: 2-Fluorophenol	*66 %*		*30-130*
Surrogate: Nitrobenzene-d5	*58 %*		*30-130*
Surrogate: Phenol-d6	*64 %*		*30-130*
Surrogate: p-Terphenyl-d14	*79 %*		*30-130*

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-1
Date Sampled: 01/24/07 11:30
Percent Solids: 83

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-01
Sample Matrix: Soil

Classical Chemistry

Analyte		Results	Units	MRL	Method	DF	Analyst	Analyzed
Corrosivity (pH)		**3.36**	S.U.	N/A	9045	1	KJK	01/24/07 18:33
Cyanide (PAC)		**9.6**	mg/kg dry	2.8	MA PAC	1	AR	01/30/07
Flashpoint	>	**200**	°F	N/A	1010	1	NMT	01/25/07
Reactive Cyanide		ND	mg/kg	2.0	7.3.3.2	1	KMW	01/25/07
Reactive Sulfide		ND	mg/kg	2.0	7.3.4.1	1	KMW	01/25/07
Total Cyanide		**268**	mg/kg dry	105	9014	50	NMT	01/25/07

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil

TCLP Date: 1/24/07

1311/6000/7000 TCLP Metals

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
Lead	ND	mg/L	0.50	1311/6010B	1	JP	01/25/07	5	50

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil

3050B/6000/7000 Total Metals

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
Arsenic	**115**	mg/kg dry	8.9	6010B	1	JP	01/24/07	1.85	100
Barium	**41.7**	mg/kg dry	4.4	6010B	1	JP	01/24/07	1.85	100
Cadmium	**1.78**	mg/kg dry	0.89	6010B	1	JP	01/24/07	1.85	100
Chromium	**16.3**	mg/kg dry	1.8	6010B	1	JP	01/24/07	1.85	100
Lead	**99.8**	mg/kg dry	8.9	6010B	1	JP	01/24/07	1.85	100
Mercury	**2.36**	mg/kg dry	0.546	7471A	10	EEM	01/25/07	0.6	40
Selenium	ND	mg/kg dry	8.9	6010B	1	JP	01/24/07	1.85	100
Silver	ND	mg/kg dry	0.89	6010B	1	JP	01/24/07	1.85	100

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 18.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: RES

5035/8260B Volatile Organic Compounds / Methanol

Analyte		Results	Units	MRL	MDL	DF	Analyzed
1,1,1,2-Tetrachloroethane		ND	mg/kg dry	0.196	0.0628	1	01/26/07
1,1,1-Trichloroethane		ND	mg/kg dry	0.0981	0.0235	1	01/26/07
1,1,2,2-Tetrachloroethane		ND	mg/kg dry	0.0981	0.0275	1	01/26/07
1,1,2-Trichloroethane		ND	mg/kg dry	0.0981	0.0412	1	01/26/07
1,1-Dichloroethane		ND	mg/kg dry	0.0981	0.0275	1	01/26/07
1,1-Dichloroethene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
1,1-Dichloropropene		ND	mg/kg dry	0.0981	0.0177	1	01/26/07
1,2,3-Trichlorobenzene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
1,2,3-Trichloropropane		ND	mg/kg dry	0.0981	0.0490	1	01/26/07
1,2,4-Trichlorobenzene		ND	mg/kg dry	0.0981	0.0196	1	01/26/07
1,2,4-Trimethylbenzene		**0.239**	mg/kg dry	0.0981	0.0216	1	01/26/07
1,2-Dibromo-3-Chloropropane		ND	mg/kg dry	0.490	0.1960	1	01/26/07
1,2-Dibromoethane		ND	mg/kg dry	0.0981	0.0196	1	01/26/07
1,2-Dichlorobenzene		ND	mg/kg dry	0.0981	0.0196	1	01/26/07
1,2-Dichloroethane		ND	mg/kg dry	0.0981	0.0235	1	01/26/07
1,2-Dichloropropane		ND	mg/kg dry	0.0981	0.0275	1	01/26/07
1,3,5-Trimethylbenzene		**0.194**	mg/kg dry	0.0981	0.0255	1	01/26/07
1,3-Dichlorobenzene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
1,3-Dichloropropane		ND	mg/kg dry	0.0981	0.0177	1	01/26/07
1,4-Dichlorobenzene		ND	mg/kg dry	0.0981	0.0255	1	01/26/07
1,4-Dioxane - Screen		ND	mg/kg dry	9.81	4.7100	1	01/26/07
1-Chlorohexane		ND	mg/kg dry	0.0981	0.0235	1	01/26/07
2,2-Dichloropropane		ND	mg/kg dry	0.196	0.0451	1	01/26/07
2-Butanone		ND	mg/kg dry	2.45	0.4000	1	01/26/07
2-Chlorotoluene		ND	mg/kg dry	0.0981	0.0275	1	01/26/07
2-Hexanone		ND	mg/kg dry	0.981	0.0981	1	01/26/07
4-Chlorotoluene		ND	mg/kg dry	0.0981	0.0235	1	01/26/07
4-Isopropyltoluene	J	**0.0588**	mg/kg dry	0.0981	0.0235	1	01/26/07
4-Methyl-2-Pentanone		ND	mg/kg dry	0.981	0.1240	1	01/26/07
Acetone		ND	mg/kg dry	2.45	0.8340	1	01/26/07
Benzene		**0.106**	mg/kg dry	0.0981	0.0275	1	01/26/07
Bromobenzene		ND	mg/kg dry	0.0981	0.0196	1	01/26/07
Bromochloromethane		ND	mg/kg dry	0.0981	0.0294	1	01/26/07
Bromodichloromethane		ND	mg/kg dry	0.0981	0.0255	1	01/26/07
Bromoform		ND	mg/kg dry	0.0981	0.0216	1	01/26/07

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 18.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: RES

5035/8260B Volatile Organic Compounds / Methanol

Bromomethane		ND	mg/kg dry	0.196	0.0196	1	01/26/07
Carbon Disulfide	J	**0.0471**	mg/kg dry	0.0981	0.0235	1	01/26/07
Carbon Tetrachloride		ND	mg/kg dry	0.0981	0.0255	1	01/26/07
Chlorobenzene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Chloroethane		ND	mg/kg dry	0.196	0.0588	1	01/26/07
Chloroform		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Chloromethane		ND	mg/kg dry	0.196	0.0294	1	01/26/07
cis-1,2-Dichloroethene		ND	mg/kg dry	0.0981	0.0275	1	01/26/07
cis-1,3-Dichloropropene		ND	mg/kg dry	0.0981	0.0196	1	01/26/07
Dibromochloromethane		ND	mg/kg dry	0.0981	0.0157	1	01/26/07
Dibromomethane		ND	mg/kg dry	0.0981	0.0255	1	01/26/07
Dichlorodifluoromethane		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Diethyl Ether		ND	mg/kg dry	0.0981	0.0275	1	01/26/07
Di-isopropyl ether		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Ethyl tertiary-butyl ether		ND	mg/kg dry	0.0981	0.0196	1	01/26/07
Ethylbenzene	J	**0.0353**	mg/kg dry	0.0981	0.0216	1	01/26/07
Hexachlorobutadiene		ND	mg/kg dry	0.0981	0.0432	1	01/26/07
Isopropylbenzene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Methyl tert-Butyl Ether		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Methylene Chloride		ND	mg/kg dry	0.490	0.0373	1	01/26/07
Naphthalene		**46.3**	mg/kg dry	0.981	0.1570	10	01/26/07
n-Butylbenzene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
n-Propylbenzene		ND	mg/kg dry	0.0981	0.0196	1	01/26/07
sec-Butylbenzene		ND	mg/kg dry	0.0981	0.0235	1	01/26/07
Styrene		**0.679**	mg/kg dry	0.0981	0.0235	1	01/26/07
tert-Butylbenzene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Tertiary-amyl methyl ether		ND	mg/kg dry	0.0981	0.0275	1	01/26/07
Tetrachloroethene		ND	mg/kg dry	0.0981	0.0235	1	01/26/07
Tetrahydrofuran		ND	mg/kg dry	0.490	0.1960	1	01/26/07
Toluene		**0.124**	mg/kg dry	0.0981	0.0255	1	01/26/07
trans-1,2-Dichloroethene		ND	mg/kg dry	0.0981	0.0314	1	01/26/07
trans-1,3-Dichloropropene		ND	mg/kg dry	0.0981	0.0235	1	01/26/07
Trichloroethene		ND	mg/kg dry	0.0981	0.0216	1	01/26/07
Trichlorofluoromethane		ND	mg/kg dry	0.0981	0.0255	1	01/26/07
Vinyl Acetate		ND	mg/kg dry	0.490	0.0373	1	01/26/07
Vinyl Chloride		ND	mg/kg dry	0.0981	0.0235	1	01/26/07

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 18.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: RES

5035/8260B Volatile Organic Compounds / Methanol

Xylene O	J	**0.0902**	mg/kg dry	0.0981	0.0177	1	01/26/07
Xylene P,M	J	**0.110**	mg/kg dry	0.196	0.0471	1	01/26/07
Xylenes (Total)		ND	mg/kg dry	0.294			01/26/07

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*92 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*76 %*		*70-130*
Surrogate: Dibromofluoromethane	*100 %*		*70-130*
Surrogate: Toluene-d8	*82 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3541

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: sep
Prepared: 01/25/07

8082 Polychlorinated Biphenyls (PCB)

Analyte	Results	Units	MRL	DF	Analyzed
Aroclor 1016	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1221	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1232	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1242	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1248	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1254	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1260	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1262	ND	mg/kg dry	0.0799	1	01/25/07
Aroclor 1268	ND	mg/kg dry	0.0799	1	01/25/07

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*9 %*	*+*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*97 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*1330 %*	*+*	*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 19.8
Final Volume: 5
Extraction Method: 3541

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: JLS
Prepared: 01/24/07

8100M Total Petroleum Hydrocarbons

Analyte	Results	Units	MRL	DF	Analyzed
Total Petroleum Hydrocarbons	**25300**	mg/kg dry	1550	5	01/29/07

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	%	DL	40-140

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 29.9
Final Volume: 5
Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Semi-Volatile Organic Compounds

Analyte	Results	Units	MRL	MDL	DF	Analyzed
1,1-Biphenyl	**5.77**	mg/kg dry	2.74	0.1400	1	01/25/07
1,2,4-Trichlorobenzene	ND	mg/kg dry	2.74	0.1790	1	01/25/07
1,2-Dichlorobenzene	ND	mg/kg dry	2.74	0.1550	1	01/25/07
1,3-Dichlorobenzene	ND	mg/kg dry	2.74	0.1630	1	01/25/07
1,4-Dichlorobenzene	ND	mg/kg dry	2.74	0.1540	1	01/25/07
2,3,4,6-Tetrachlorophenol	ND	mg/kg dry	13.7	0.1890	1	01/25/07
2,4,5-Trichlorophenol	ND	mg/kg dry	2.74	0.2550	1	01/25/07
2,4,6-Trichlorophenol	ND	mg/kg dry	2.74	0.1430	1	01/25/07
2,4-Dichlorophenol	ND	mg/kg dry	2.74	0.1600	1	01/25/07
2,4-Dimethylphenol	ND	mg/kg dry	2.74	0.1150	1	01/25/07
2,4-Dinitrophenol	ND	mg/kg dry	13.7	1.5900	1	01/25/07
2,4-Dinitrotoluene	ND	mg/kg dry	2.74	0.2060	1	01/25/07
2,6-Dinitrotoluene	ND	mg/kg dry	2.74	0.1430	1	01/25/07
2-Chloronaphthalene	ND	mg/kg dry	2.74	0.1480	1	01/25/07
2-Chlorophenol	ND	mg/kg dry	2.74	0.1830	1	01/25/07
2-Methylnaphthalene	**27.1**	mg/kg dry	2.74	0.1360	1	01/25/07
2-Methylphenol	ND	mg/kg dry	2.74	0.0987	1	01/25/07
2-Nitroaniline	ND	mg/kg dry	2.74	0.1780	1	01/25/07
2-Nitrophenol	ND	mg/kg dry	2.74	0.1470	1	01/25/07
3,3'-Dichlorobenzidine	ND	mg/kg dry	5.49	0.1830	1	01/25/07
3+4-Methylphenol	ND	mg/kg dry	5.49	0.1280	1	01/25/07
3-Nitroaniline	ND	mg/kg dry	2.74	0.1730	1	01/25/07
4,6-Dinitro-2-Methylphenol	ND	mg/kg dry	13.7	0.1680	1	01/25/07
4-Bromophenyl-phenylether	ND	mg/kg dry	2.74	0.2100	1	01/25/07
4-Chloro-3-Methylphenol	ND	mg/kg dry	2.74	0.1850	1	01/25/07
4-Chloroaniline	ND	mg/kg dry	5.49	0.9380	1	01/25/07
4-Chloro-phenyl-phenyl ether	ND	mg/kg dry	2.74	0.1570	1	01/25/07
4-Nitroaniline	ND	mg/kg dry	2.74	0.1830	1	01/25/07
4-Nitrophenol	ND	mg/kg dry	13.7	1.5100	1	01/25/07
Acenaphthene	ND	mg/kg dry	2.74	0.2010	1	01/25/07
Acenaphthylene	**13.4**	mg/kg dry	2.74	0.1320	1	01/25/07
Acetophenone	**12.3**	mg/kg dry	5.49	1.7600	1	01/25/07
Aniline	ND	mg/kg dry	13.7	0.1970	1	01/25/07
Anthracene	**3.00**	mg/kg dry	2.74	0.1550	1	01/25/07
Azobenzene	ND	mg/kg dry	2.74	0.2870	1	01/25/07

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 29.9
Final Volume: 5
Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Semi-Volatile Organic Compounds

Benzo(a)anthracene		**15.3**	mg/kg dry	2.74	0.1410	1	01/25/07
Benzo(a)pyrene		**17.5**	mg/kg dry	1.37	0.1460	1	01/25/07
Benzo(b)fluoranthene		**28.3**	mg/kg dry	2.74	0.2530	1	01/25/07
Benzo(g,h,i)perylene		**6.33**	mg/kg dry	2.74	0.1600	1	01/25/07
Benzo(k)fluoranthene		**28.7**	mg/kg dry	2.74	0.2390	1	01/25/07
Benzoic Acid		ND	mg/kg dry	13.7	1.7300	1	01/25/07
Benzyl Alcohol		ND	mg/kg dry	2.74	0.1640	1	01/25/07
bis(2-Chloroethoxy)methane		ND	mg/kg dry	2.74	0.1150	1	01/25/07
bis(2-Chloroethyl)ether		ND	mg/kg dry	2.74	0.2160	1	01/25/07
bis(2-chloroisopropyl)Ether		ND	mg/kg dry	2.74	0.1550	1	01/25/07
bis(2-Ethylhexyl)phthalate		ND	mg/kg dry	2.74	0.1810	1	01/25/07
Butylbenzylphthalate		ND	mg/kg dry	2.74	0.1430	1	01/25/07
Carbazole		**3.05**	mg/kg dry	2.74	0.1790	1	01/25/07
Chrysene		**44.5**	mg/kg dry	1.37	0.1720	1	01/25/07
Dibenzo(a,h)Anthracene	J	**0.482**	mg/kg dry	1.37	0.1690	1	01/25/07
Dibenzofuran		**11.3**	mg/kg dry	2.74	0.1520	1	01/25/07
Diethylphthalate		ND	mg/kg dry	2.74	0.1990	1	01/25/07
Dimethylphthalate		ND	mg/kg dry	2.74	0.1890	1	01/25/07
Di-n-butylphthalate		ND	mg/kg dry	2.74	0.1700	1	01/25/07
Di-n-octylphthalate		ND	mg/kg dry	2.74	0.1870	1	01/25/07
Fluoranthene		**72.2**	mg/kg dry	13.7	0.8220	5	01/26/07
Fluorene		ND	mg/kg dry	2.74	0.1310	1	01/25/07
Hexachlorobenzene		ND	mg/kg dry	2.74	0.1930	1	01/25/07
Hexachlorobutadiene		ND	mg/kg dry	2.74	0.2520	1	01/25/07
Hexachlorocyclopentadiene		ND	mg/kg dry	13.7	0.7820	1	01/25/07
Hexachloroethane		ND	mg/kg dry	2.74	0.1550	1	01/25/07
Indeno(1,2,3-cd)Pyrene		**7.97**	mg/kg dry	2.74	0.1970	1	01/25/07
Isophorone		ND	mg/kg dry	2.74	0.1150	1	01/25/07
Naphthalene		**50.3**	mg/kg dry	2.74	0.1370	1	01/25/07
Nitrobenzene		ND	mg/kg dry	2.74	0.1780	1	01/25/07
N-Nitrosodimethylamine		ND	mg/kg dry	2.74	0.2320	1	01/25/07
N-Nitroso-Di-n-Propylamine		ND	mg/kg dry	2.74	0.1690	1	01/25/07
N-nitrosodiphenylamine		ND	mg/kg dry	2.74	0.1460	1	01/25/07
Pentachlorophenol		ND	mg/kg dry	13.7	1.4100	1	01/25/07
Phenanthrene		**21.6**	mg/kg dry	2.74	0.1880	1	01/25/07
Phenol		ND	mg/kg dry	2.74	0.1400	1	01/25/07

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61
Initial Volume: 29.9
Final Volume: 5
Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Semi-Volatile Organic Compounds

Pyrene	**54.7**	mg/kg dry	13.7	0.6370	5	01/26/07
Pyridine	ND	mg/kg dry	13.7	0.3090	1	01/25/07

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichlorobenzene-d4	*66 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*75 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*69 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*72 %*		*30-130*
Surrogate: 2-Fluorophenol	*84 %*		*30-130*
Surrogate: Nitrobenzene-d5	*116 %*		*30-130*
Surrogate: Phenol-d6	*101 %*		*30-130*
Surrogate: p-Terphenyl-d14	*95 %*		*30-130*

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: 61

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-02
Sample Matrix: Soil

Classical Chemistry

Analyte		Results	Units	MRL	Method	DF	Analyst	Analyzed
Corrosivity (pH)		**1.98**	S.U.	N/A	9045	1	KJK	01/24/07 18:33
Cyanide (PAC)		**57.8**	mg/kg dry	18.7	MA PAC	5	AR	01/30/07
Flashpoint	>	**200**	°F	N/A	1010	1	NMT	01/25/07
Reactive Cyanide		ND	mg/kg	2.0	7.3.3.2	1	KMW	01/25/07
Reactive Sulfide		ND	mg/kg	2.0	7.3.4.1	1	KMW	01/25/07
Total Cyanide		**1870**	mg/kg dry	189	9014	50	NMT	01/25/07

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-3
Date Sampled: 01/24/07 11:30
Percent Solids: 92
Initial Volume: 20.2
Final Volume: 1
Extraction Method: 3541

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-03
Sample Matrix: Soil
Analyst: JLS
Prepared: 01/24/07

8100M Total Petroleum Hydrocarbons

Analyte	Results	Units	MRL	DF	Analyzed
Total Petroleum Hydrocarbons	**126**	mg/kg dry	40.4	1	01/27/07

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*115 %*		*40-140*

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-3
Date Sampled: 01/24/07 11:30
Percent Solids: 92
Initial Volume: 29.8
Final Volume: 1
Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-03
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Polynuclear Aromatic Hydrocarbons

Analyte		Results	Units	MRL	MDL	DF	Analyzed
2-Methylnaphthalene		ND	mg/kg dry	0.364	0.0180	1	01/25/07
Acenaphthene		ND	mg/kg dry	0.364	0.0270	1	01/25/07
Acenaphthylene	J	**0.076**	mg/kg dry	0.364	0.0180	1	01/25/07
Anthracene	J	**0.116**	mg/kg dry	0.364	0.0210	1	01/25/07
Benzo(a)anthracene		**0.648**	mg/kg dry	0.364	0.0190	1	01/25/07
Benzo(a)pyrene		**0.637**	mg/kg dry	0.183	0.0190	1	01/25/07
Benzo(b)fluoranthene		**0.794**	mg/kg dry	0.364	0.0340	1	01/25/07
Benzo(g,h,i)perylene	J	**0.260**	mg/kg dry	0.364	0.0210	1	01/25/07
Benzo(k)fluoranthene		**0.515**	mg/kg dry	0.364	0.0320	1	01/25/07
Chrysene		**0.788**	mg/kg dry	0.183	0.0230	1	01/25/07
Dibenzo(a,h)Anthracene	J	**0.024**	mg/kg dry	0.183	0.0220	1	01/25/07
Fluoranthene		**1.55**	mg/kg dry	0.364	0.0220	1	01/25/07
Fluorene	J	**0.041**	mg/kg dry	0.364	0.0170	1	01/25/07
Indeno(1,2,3-cd)Pyrene	J	**0.252**	mg/kg dry	0.364	0.0260	1	01/25/07
Naphthalene		ND	mg/kg dry	0.364	0.0180	1	01/25/07
Phenanthrene		**0.640**	mg/kg dry	0.364	0.0250	1	01/25/07
Pyrene		**1.43**	mg/kg dry	0.364	0.0170	1	01/25/07

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*56 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*69 %*		*30-130*
Surrogate: Nitrobenzene-d5	*64 %*		*30-130*
Surrogate: p-Terphenyl-d14	*92 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-3
Date Sampled: 01/24/07 11:30
Percent Solids: 92

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-03
Sample Matrix: Soil

Classical Chemistry

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Cyanide (PAC)	ND	mg/kg dry	1.8	MA PAC	1	AR	01/30/07
Total Cyanide	**12.6**	mg/kg dry	1.6	9014	1	NMT	01/25/07

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-4
Date Sampled: 01/24/07 11:30
Percent Solids: 90
Initial Volume: 19.8
Final Volume: 1
Extraction Method: 3541

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-04
Sample Matrix: Soil
Analyst: JLS
Prepared: 01/24/07

8100M Total Petroleum Hydrocarbons

Analyte	Results	Units	MRL	DF	Analyzed
Total Petroleum Hydrocarbons	**262**	mg/kg dry	210	5	01/29/07

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-4
Date Sampled: 01/24/07 11:30
Percent Solids: 90
Initial Volume: 29.9
Final Volume: 1
Extraction Method: 3550B

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-04
Sample Matrix: Soil
Analyst: VSC
Prepared: 01/25/07

8270C Polynuclear Aromatic Hydrocarbons

Analyte		Results	Units	MRL	MDL	DF	Analyzed
2-Methylnaphthalene	J	**0.129**	mg/kg dry	0.371	0.0180	1	01/26/07
Acenaphthene		ND	mg/kg dry	0.371	0.0270	1	01/26/07
Acenaphthylene	J	**0.080**	mg/kg dry	0.371	0.0180	1	01/26/07
Anthracene	J	**0.132**	mg/kg dry	0.371	0.0210	1	01/26/07
Benzo(a)anthracene		**0.627**	mg/kg dry	0.371	0.0190	1	01/26/07
Benzo(a)pyrene		**0.572**	mg/kg dry	0.186	0.0200	1	01/26/07
Benzo(b)fluoranthene		**0.573**	mg/kg dry	0.371	0.0340	1	01/26/07
Benzo(g,h,i)perylene	J	**0.277**	mg/kg dry	0.371	0.0220	1	01/26/07
Benzo(k)fluoranthene		**0.575**	mg/kg dry	0.371	0.0320	1	01/26/07
Chrysene		**0.754**	mg/kg dry	0.186	0.0230	1	01/26/07
Dibenzo(a,h)Anthracene		ND	mg/kg dry	0.186	0.0230	1	01/26/07
Fluoranthene		**1.33**	mg/kg dry	0.371	0.0220	1	01/26/07
Fluorene	J	**0.065**	mg/kg dry	0.371	0.0180	1	01/26/07
Indeno(1,2,3-cd)Pyrene	J	**0.263**	mg/kg dry	0.371	0.0270	1	01/26/07
Naphthalene	J	**0.068**	mg/kg dry	0.371	0.0190	1	01/26/07
Phenanthrene		**0.805**	mg/kg dry	0.371	0.0260	1	01/26/07
Pyrene		**1.35**	mg/kg dry	0.371	0.0170	1	01/26/07

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*71 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*87 %*		*30-130*
Surrogate: Nitrobenzene-d5	*70 %*		*30-130*
Surrogate: p-Terphenyl-d14	*108 %*		*30-130*

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-4
Date Sampled: 01/24/07 11:30
Percent Solids: 90

ESS Laboratory Work Order: 0701342
ESS Laboratory Sample ID: 0701342-04
Sample Matrix: Soil

Classical Chemistry

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Cyanide (PAC)	ND	mg/kg dry	2.5	MA PAC	1	AR	01/30/07
Total Cyanide	**14.5**	mg/kg dry	2.6	9014	1	NMT	01/25/07

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation ESS Laboratory Work Order: 0701342

Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Reported between MDL and MRL; Estimated value.
DL	Diluted out of sample.
D	Diluted.
>	Greater than.
+	Outside QC Limits.
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
mg/kg	Results reported as wet weight
TCLP	Toxicity Characteristic Leachate Procedure
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
TIC	A forward library search of the NBS Mass Spectral Library was performed on this sample using the McLafferty Probability Base Matching (PBM) Algorithm. An estimated concentration of non-TCL compounds tentatively identified is quantified by the internal standard method. The nearest internal standard free of interferences was used to quantify. A response factor of one was assumed. This search was inclusive of the ten largest peaks greater than ten percent of the nearest internal standard.
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
¶	The state of RI does not grant certification for this method for non-potables.

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time: X Standard Other ____
If faster than 5 days, prior approval by laboratory is required # ____

State where samples were collected from:
MA (RI) CT NH NJ NY ME Other ____

Is this project for any of the following:
MA-MCP Navy USACE Other ____

Reporting Limits

ESS LAB PROJECT ID: 0701342

Electronic Deliverable ___ Yes ___ No
Format: Excel (Access PDF) Other ____

Co. Name: GZA GeoEnvironmental	Project #: TMSC001 43654.00	Project Name (20 Char. or less): Pawtucket Substation	
Contact Person: Meg Kilpatrick	Address: 140 Broadway		
City: Prov	State: RI	Zip	PO#:
Telephone #: 401-421-4140	Fax #:	Email Address: mkilpatrick@gza.com	

Write Required Analysis:

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	Total Cyanide	Free Cyanide PAC Method	TPH 8100M	8270 PAHs Only	VOC-8260	8270 - Full List	PCBs Method 8082	RCRA Metals	TCLP - Lead Only	Flash Point / Ignitability	Reactivity	Corrosivity
1	01-24-07	11:30		X	S	SS-GZ2007-1	NP	5	G	X	X	X		X	X	X	X	X	X	X	X
2	"	"		X	S	SS-GZ2007-2	NP	5	G	X	X	X		X	X	X	X	X	X	X	X
3	"	"		X	S	SS-GZ2007-3	NP	2	G	X	X	X	X								
4	"	"		X	S	SS-GZ-2007	NP	2	G	X	X	X	X								
						-Note: Need to meet RDEC detection limits For all Analysis - May be high levels of ~~Arsenic~~ Cyanide															

Container Type: P-Poly G-Glass S-Sterile V-VOA | Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present: √ Yes ___ No
Seals Intact: ___ Yes ___ No NA: ___
Cooler Temp: 4.7

Internal Use Only
[ ] Pickup
[ ] Technicians ____

Preservation Code: 1- NP, 2- HCl, 3- H_2SO_4, 4- HNO_3, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- ____

Sampled by: Steve Andrus

Comments: See above

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Stephen Andrus	01-24-07 13:00	J Daws	1/24/07 1300				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*By circling MA-MCP, client acknowledges samples were collected

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation
Client Sample ID: SS-GZ2007-2
Date Sampled: 01/24/07 11:30
Percent Solids: N/A

ESS Laboratory Work Order: 0702163
ESS Laboratory Sample ID: 0702163-01
Sample Matrix: Soil

TCLP Date: 1/24/07

1311/6000/7000 TCLP Metals

Analyte	Results	Units	MRL	Limit	Method	DF	Analyst	Analyzed	I/V	F/V
Arsenic	ND	mg/L	0.50	5	1311/6010B	1	JP	01/25/07	5	50

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Pawtucket Substation ESS Laboratory Work Order: 0702163

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
mg/kg	Results reported as wet weight
TCLP	Toxicity Characteristic Leachate Procedure
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
TIC	A forward library search of the NBS Mass Spectral Library was performed on this sample using the McLafferty Probability Base Matching (PBM) Algorithm. An estimated concentration of non-TCL compounds tentatively identified is quantified by the internal standard method. The nearest internal standard free of interferences was used to quantify. A response factor of one was assumed. This search was inclusive of the ten largest peaks greater than ten percent of the nearest internal standard.
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
¶	The state of RI does not grant certification for this method for non-potables.

ESS Laboratory

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www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time: X Standard Other ____
If faster than 5 days, prior approval by laboratory is required # ____
State where samples were collected from: MA (RI) CT NH NJ NY ME Other ____
Is this project for any of the following: MA-MCP Navy USACE Other ____

Reporting Limits: JD 2-13-07
ESS LAB PROJECT ID: ~~0701342~~ 0702163
Electronic Deliverable ___ Yes ___ No
Format: Excel Access PDF Other

Co. Name: GZA GeoEnvironmental
Project #: THS6001 43659.00
Project Name (20 Char. or less): Pawtucket Substation
Contact Person: Meg Kilpatrick
Address: 140 Broadway
City: Prov
State: RI
Zip:
PO#:
Telephone #: 401-421-4140
Fax #:
Email Address: mkilpatrick@gza.com

Write Required Analysis:

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	Total Cyanide	Free Cyanide PAC Method	TPH 8100	8270 PAHs Only	VOC-8260	8270 Full list	PCB 8082	RCRA 8 Metals	TCLP-Lead	Flashpoint/Ignitability	Reactivity	Corrosivity
1	01-24-07	11:30		X	S	SS-GZ2007-1	6/1	5	G	X	X	X		X	X	X	X	X	X	X	X
2	|	|		X	S	SS-GZ2007-2	6/1	5	G	X	X	X		X	X	X	X	X	X	X	X
3	|	|		X	S	SS-GZ2007-3	NP	2	G	X	X	X	X								
4	|	|		X	S	SS-GZ-2007	NP	2	G	X	X	X	X								

02 2-13-07

-Note: Need to meet RDEC detection limits For oil analysis
-May be high levels of ~~[illegible]~~ Cyanide

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present: ✓ Yes ___ No
Seals Intact: ___ Yes ___ No NA: ___
Cooler Temp: 4.7

Internal Use Only
[ ] Pickup
[ ] Technicians ____

Preservation Code: 1- NP, 2- HCl, 3- H_2SO_4, 4- HNO_3, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- ____
Sampled by: Steve Andrus
Comments: See above

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Stephen Andrus	01-24-07 1300	J Daues	1-24-07 1300				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt