Corporate Environmental Programs
General Electric Company
100 Woodlawn Avenue, Pittsfield, MA 01201

Transmitted Via Overnight Delivery

October 31, 2003

Mr. Bryan Olson
EPA Project Coordinator
U.S. Environmental Protection Agency
EPA New England
One Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

Re: GE-Pittsfield/Housatonic River Site
Lyman Street Area (GECD430)
Additional Supplemental Pre-Design Investigation Report

Dear Mr. Olson:

In April 2003, the General Electric Company (GE) submitted to the U.S. Environmental Protection Agency (EPA) a document titled *Pre-Design Investigation Report for the Lyman Street Area Removal Action* (PDI Report). The PDI Report included the results of pre-design soil investigations conducted by GE and EPA and assessed the overall adequacy of the pre-design results to support future Removal Design/Removal Action (RD/RA) activities. Based on that assessment, GE proposed in the PDI Report to perform certain supplemental soil investigations. EPA conditionally approved the PDI Report (and the proposed supplemental sampling) in a letter dated June 20, 2003. GE subsequently conducted that sampling and submitted a letter report on these supplemental pre-design soil investigations on August 18, 2003. Based on results from that round of supplemental sampling, GE proposed to perform additional supplemental sampling to further assess certain portions of this Removal Action Area (RAA). On August 27, 2003, after submission of the August 18 letter, results of separate EPA sampling conducted at Parcel I9-4-19 were provided to GE. GE's preliminary review of the EPA results indicated the need for additional supplemental sampling, which GE proposed in a letter dated September 5, 2003. In a letter dated September 9, 2003, EPA conditionally approved the sampling proposed by GE in its August 18 and September 5, 2003 letters, and GE performed that additional supplemental sampling on September 26, 2003.

This letter presents GE's Additional Supplemental Pre-Design Investigation Report (Additional Supplemental PDI Report), providing the results of the recent (September 2003) supplemental pre-design sampling. Figure 1, attached to this letter, shows the supplemental sample locations from both the first and recent rounds of supplemental sampling, as well as certain prior pre-design sample locations which had results that were subject to further delineation in the supplemental sampling. The attached Table 1 summarizes the scope and rationale for the most recent supplemental sampling and Table 2 summarizes the analytical results from those samples. A complete listing of the laboratory results from those additional supplemental samples is included in Attachment A. Subsurface boring logs and soil sampling data validation information are included as Attachments B and C, respectively.

A Summary of Additional Supplemental Pre-Design Soil Data

The recent additional supplemental pre-design soil sampling at the Lyman Street Area involved the collection and analysis of seven soil samples from six locations, as shown on Figure 1. The specific sample locations, depth intervals, analyses performed, and sampling rationale are shown in Table 1. This supplemental sampling was conducted on behalf of GE by Blasland, Bouck & Lee, Inc. (BBL). The analytical services were provided by CT&E Environmental Services, Inc. All field and analytical activities conducted were performed in accordance with GE's approved *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP). The samples were analyzed for certain groups of non-PCB Appendix IX+3 constituents (as shown in Table 1) utilizing methods and reporting limits consistent with those presented in the FSP/QAPP.

The analytical results for the constituents analyzed in this latest round of supplemental sampling are summarized in Table 2. This table presents only the results for constituents that were detected in one or more samples. A complete of listing of the results from this sampling round is included in Attachment A.

SVOC Sampling

As proposed in the August 18 letter report and shown in Table 1 and on Figure 1, supplemental soil samples were collected for analysis of semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs), at the 1- to 3-foot depth interval at locations RAA12-U8N and -U9N. These supplemental samples were collected to assess whether the elevated or potentially elevated concentrations of certain PAHs previously found at this depth increment at locations RAA12-U9, -U8, and -U8NE extend to the north of those locations. In addition, as proposed in GE's September 5 letter, supplemental samples were collected for SVOC analysis at the 1- to 3-foot depth interval at RAA12-V6NE, -V6SE, and -V6SW to further assess PAH concentrations found in EPA results from RAA12-V6 at this depth interval. Results for these supplemental SVOC soil samples are presented in Table 2.

As shown in Table 2, the PAH results from the supplemental 1- to 3-foot samples collected at locations RAA12-U9N, -V6NE, -V6SE, and -V6SW do not show elevated PAH concentrations for the non-residential recreational areas in which they were collected. The results from the supplemental 1- to 3-foot sample at location RAA12-U8N do show elevated concentrations of certain PAHs to the north of prior sample locations RAA12-U8 and -U8NE --- specifically on the northern boundary of the recreational area on Parcel I9-4-19. In addition, the SVOC data from the EPA sample collected from the 1- to 3-foot depth increment at location RAA12-V6, also located on the northern boundary of the recreational portion of Parcel I9-4-19 (see Figure 1), also show elevated concentrations of PAHs. These PAH results from the 1- to 3-foot samples at locations RAA12-U8N and -V6 suggest that the elevated PAHs at this depth increment may extend into the commercial/industrial portion of Parcel I9-4-19. To assess the extent of such elevated concentrations to the north, additional sampling for SVOCs is proposed for the commercial/industrial portion of this parcel, as described in Section B below.

PCDD/PCDF Sampling

As proposed in the August 18 letter report, supplemental soil samples were collected at RAA12-U9N (0- to 1-foot and 1- to 3-foot depth intervals) for analysis of polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). These supplemental samples were collected to further assess whether the elevated concentrations of these compounds, as expressed by toxicity equivalency quotients (TEQs), at one or more of these depth intervals at RAA12-U9 and -TU9.5 extend to the north of those locations (see Table 1 and Figure 1). The PCDD/PCDF results for these supplemental soil samples (including TEQs) are presented in Table 2. These results do not show elevated TEQ concentrations

relative to the applicable Preliminary Remediation Goals (PRGs) for dioxin/furan TEQs, as specified in the *Statement of Work for Removal Actions Outside the River*, and thus should be sufficient to delineate the northern extent of the elevated TEQ concentrations previously found at locations RAA12-U9 and -TU9.5.

Lead Sampling

As proposed in GE's September 5 letter, a supplemental soil sample was collected at RAA12-Y4NW (1- to 3-foot depth interval) for lead analysis to further assess the elevated concentration of lead previously found at this depth interval at RAA12-Y4 (see Table 1 and Figure 1). Results for this supplemental lead soil sample are presented in Table 2. These results show a lead concentration of 850 ppm, with a duplicate sample at 620 ppm, which are below the Risk-Based Concentration (RBC) of 1,313 ppm for lead previously approved by EPA for use in the RD/RA evaluations of recreational properties at Newell Street Area I. Accordingly, the lead results from the supplemental sample at RAA12-Y4NW should be sufficient to delineate the northern extent of the elevated lead concentration in the 1- to 3-foot depth interval at location RAA12-Y4.

B. Additional Sampling, Development of Conceptual RD/RA Work Plan, and Schedule

In combination with the pre-design investigation soil data, as well as other previous soil data, the results from the supplemental pre-design soil sampling performed to date appear generally sufficient to characterize soils within the Lyman Street Area and to support the necessary RD/RA evaluations for this RAA. However, as discussed above, GE has identified the need for additional sampling to determine whether and the extent to which the elevated PAH concentrations found in the 1- to 3-foot samples from RAA12-U8N and -V6 extend into the commercial/industrial portion of Parcel I9-4-19. To assess this issue, GE proposes to collect four additional 1- to 3-foot samples at the commercial/industrial portion of this parcel, at the locations shown on Figure 1, for analysis of SVOCs (including PAHs). GE proposes to collect these samples and obtain the analytical results within one month from EPA's approval of this Additional Supplemental PDI Report. GE will report these results to EPA in the monthly status report on the overall GE-Pittsfield/Housatonic River Site that follows receipt of the results, and will also include those results in the Conceptual RD/RA Work Plan discussed below.

In addition, concurrently with this additional sampling, GE will commence the RD/RA evaluations for the Lyman Street Area to assess the need for and scope of remediation to achieve the applicable Performance Standards for PCBs and other Appendix IX+3 constituents at each relevant property or other averaging area at this RAA. Based on these evaluations, GE will develop a Conceptual RD/RA Work Plan for this RAA.

As stated in GE's August 18 and September 5, 2003 letters to EPA, GE will submit that Conceptual RD/RA Work Plan to EPA within four months from EPA's approval of this Additional Supplemental PDI Report. This schedule assumes that, in the course of the RD/RA evaluations, no additional data needs (beyond those described above in this letter) are identified as necessary to complete the Conceptual RD/RA Work Plan. In the event that such additional data needs are identified, GE will instead, within three months from the date of EPA's approval of this Additional Supplemental PDI Report, submit a proposal for further sampling to satisfy those data needs, along with a proposed revised schedule for submitting the Conceptual RD/RA Work Plan.

Please contact Dick Gates or me with any questions.

Sincerely,

Andrew T. Silfer /DAT

Andrew T. Silfer, P.E.
GE Project Coordinator

Attachments
V:\GE_Pittsfield_CD_Lyman_St\Reports\1973199.doc

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Property Owner – Parcels I9-4-14 & -19
Property Owner – Parcels I9-5-25, -202, & -203
Property Owner – Parcel I9-4-201
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Public Information Repositories
GE Internal Repository

** cover letter only*

Tables

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TABLE 1
SUMMARY OF ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION SOIL SAMPLE LOCATIONS FOR APPENDIX IX+3 CONSTITUENTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Parcel ID	Sample ID	Sample Depth (feet)	Nearest Grid Coordinate	Performed Analyses			
				SVOCs	PCDDs/ PCDFs	Lead	Rationale
I9-4-14	RAA12-Y4NW	1-3	Y4	--	--	X	Delineation of Potentially Elevated Lead Concentration at RAA12-Y4 Area
I9-4-19	RAA12-U8N	1-3	U8	X	--	--	Delineation of Potentially Elevated PAH Concentrations at RAA12-U8 Area
	RAA12-V6NE	1-3	V6	X	--	--	Delineation of Potentially Elevated PAH Concentrations at RAA12-V6 Area
	RAA12-V6SE	1-3	V6	X	--	--	
	RAA12-V6SW	1-3	V6	X	--	--	
I9-4-25	RAA12-U9N	0-1	U9	--	X	--	Delineation of Potentially Elevated PCDD/PCDF Concentrations at RAA12-U9 Area
		1-3	U9	X	X	--	Delineation of Potentially Elevated PAH and PCDD/PCDF Concentrations at RAA12-U9 Area

Notes:
-- = No analyses were proposed.

TABLE 2
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 CONSTITUENTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter / Sample ID:	RAA12-U8N	RAA12-U9N	RAA12-U9N	RAA12-V6NE
Sample Depth(Feet):	1-3	0-1	1-3	1-3
Date Collected:	09/26/03	09/26/03	09/26/03	09/26/03
Semivolatile Organics				
1,2,4-Trichlorobenzene	ND(0.36)	NA	ND(0.44)	ND(0.38)
2-Methylnaphthalene	3.8	NA	ND(0.44)	ND(0.38)
2-Methylphenol	0.087 J	NA	ND(0.44)	ND(0.38)
3&4-Methylphenol	0.38 J	NA	ND(0.89)	0.27 J
Acenaphthene	2.6	NA	ND(0.44)	0.088 J
Acenaphthylene	9.9	NA	0.13 J	0.22 J
Aniline	ND(0.36)	NA	0.28 J	0.099 J
Anthracene	13	NA	0.16 J	0.33 J
Benzo(a)anthracene	20	NA	0.72	0.91
Benzo(a)pyrene	20	NA	0.82	0.91
Benzo(b)fluoranthene	15	NA	0.75	0.77
Benzo(g,h,i)perylene	11	NA	0.59	0.53
Benzo(k)fluoranthene	17	NA	0.80	0.89
Butylbenzylphthalate	ND(0.36)	NA	0.74	ND(0.38)
Chrysene	20	NA	0.80	0.90
Dibenzo(a,h)anthracene	2.7	NA	0.23 J	0.22 J
Dibenzofuran	3.1	NA	ND(0.44)	ND(0.38)
Di-n-Butylphthalate	ND(0.36)	NA	ND(0.44)	ND(0.38)
Fluoranthene	44	NA	1.0	1.5
Fluorene	9.7	NA	ND(0.44)	0.11 J
Indeno(1,2,3-cd)pyrene	13	NA	0.63	0.62
Naphthalene	9.4	NA	ND(0.44)	0.10 J
Pentachloronitrobenzene	0.41 J	NA	ND(0.89)	ND(0.77)
Phenanthrene	46	NA	0.66	0.97
Phenol	0.31 J	NA	ND(0.44)	ND(0.38)
Pyrene	58	NA	1.4	1.9 J
Furans				
2,3,7,8-TCDF	NA	0.000011 J	0.00014 Y [0.00016 Y]	NA
TCDFs (total)	NA	0.00016 I	0.0023 IQ [0.0024 IQ]	NA
1,2,3,7,8-PeCDF	NA	0.0000072	0.000084 [0.000088]	NA
2,3,4,7,8-PeCDF	NA	0.000048	0.00043 [0.00046]	NA
PeCDFs (total)	NA	0.00078 IQ	0.0050 IQ [0.0048 IQ]	NA
1,2,3,4,7,8-HxCDF	NA	0.000031	0.00032 [0.00034]	NA
1,2,3,6,7,8-HxCDF	NA	0.000037	0.00028 [0.00032]	NA
1,2,3,7,8,9-HxCDF	NA	0.000012	ND(0.000056) X [0.000098]	NA
2,3,4,6,7,8-HxCDF	NA	0.00014 J	0.0011 [0.0012]	NA
HxCDFs (total)	NA	0.0018	0.016 [0.017]	NA
1,2,3,4,6,7,8-HpCDF	NA	0.00020 J	0.0018 E [0.0018 EJ]	NA
1,2,3,4,7,8,9-HpCDF	NA	0.000026	0.00019 [0.00019]	NA
HpCDFs (total)	NA	0.00054	0.0047 [0.0048]	NA
OCDF	NA	0.000063	0.00061 [0.00063]	NA
Dioxins				
2,3,7,8-TCDD	NA	0.00000056 J	0.0000047 [0.0000049]	NA
TCDDs (total)	NA	0.0000048	0.000093 Q [0.00011 Q]	NA
1,2,3,7,8-PeCDD	NA	0.0000038	0.000041 [0.000040]	NA
PeCDDs (total)	NA	0.000031	0.00031 [0.00034 Q]	NA
1,2,3,4,7,8-HxCDD	NA	0.0000067	0.000073 [0.000064]	NA
1,2,3,6,7,8-HxCDD	NA	0.0000081	0.000070 [0.000076]	NA
1,2,3,7,8,9-HxCDD	NA	0.0000059	0.000060 [0.000057]	NA
HxCDDs (total)	NA	0.00010	0.0010 [0.0010]	NA
1,2,3,4,6,7,8-HpCDD	NA	0.000068	0.00059 [0.00058]	NA
HpCDDs (total)	NA	0.00013	0.0012 [0.0012]	NA
OCDD	NA	0.00029	0.0026 [0.0025]	NA
Total TEQs (WHO TEFs)	NA	0.000057	0.00050 [0.00054]	NA
Inorganics				
Lead	NA	NA	NA	NA

TABLE 2
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 CONSTITUENTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Sample Depth(Feet): / Date Collected:	RAA12-V6SE 1-3 09/26/03	RAA12-V6SW 1-3 09/26/03	RAA12-Y4NW 1-3 09/26/03
Semivolatile Organics				
1,2,4-Trichlorobenzene		ND(0.46) [ND(0.45)]	0.34 J	NA
2-Methylnaphthalene		ND(0.46) [ND(0.45)]	0.11 J	NA
2-Methylphenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
3&4-Methylphenol		1.2 [0.95]	ND(0.79)	NA
Acenaphthene		ND(0.46) [ND(0.45)]	0.36 J	NA
Acenaphthylene		0.10 J [0.20 J]	0.082 J	NA
Aniline		0.22 J [0.21 J]	0.25 J	NA
Anthracene		0.13 J [0.14 J]	0.71	NA
Benzo(a)anthracene		0.44 J [0.48]	1.4	NA
Benzo(a)pyrene		0.55 [0.60]	1.4	NA
Benzo(b)fluoranthene		0.54 [0.60]	0.93	NA
Benzo(g,h,i)perylene		0.37 J [0.43 J]	0.83	NA
Benzo(k)fluoranthene		0.65 [0.58]	1.5	NA
Butylbenzylphthalate		0.51 [0.48]	ND(0.39)	NA
Chrysene		0.56 [0.54]	1.4	NA
Dibenzo(a,h)anthracene		ND(0.46) [0.13 J]	0.27 J	NA
Dibenzofuran		ND(0.46) [ND(0.45)]	0.25 J	NA
Di-n-Butylphthalate		ND(0.46) [ND(0.45)]	0.078 J	NA
Fluoranthene		0.77 [0.71]	2.7	NA
Fluorene		ND(0.46) [ND(0.45)]	0.35 J	NA
Indeno(1,2,3-cd)pyrene		0.41 J [0.48]	0.88	NA
Naphthalene		ND(0.46) [ND(0.45)]	0.22 J	NA
Pentachloronitrobenzene		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Phenanthrene		0.49 [0.39 J]	2.8	NA
Phenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Pyrene		1.1 [0.97]	3.2	NA
Furans				
2,3,7,8-TCDF		NA	NA	NA
TCDFs (total)		NA	NA	NA
1,2,3,7,8-PeCDF		NA	NA	NA
2,3,4,7,8-PeCDF		NA	NA	NA
PeCDFs (total)		NA	NA	NA
1,2,3,4,7,8-HxCDF		NA	NA	NA
1,2,3,6,7,8-HxCDF		NA	NA	NA
1,2,3,7,8,9-HxCDF		NA	NA	NA
2,3,4,6,7,8-HxCDF		NA	NA	NA
HxCDFs (total)		NA	NA	NA
1,2,3,4,6,7,8-HpCDF		NA	NA	NA
1,2,3,4,7,8,9-HpCDF		NA	NA	NA
HpCDFs (total)		NA	NA	NA
OCDF		NA	NA	NA
Dioxins				
2,3,7,8-TCDD		NA	NA	NA
TCDDs (total)		NA	NA	NA
1,2,3,7,8-PeCDD		NA	NA	NA
PeCDDs (total)		NA	NA	NA
1,2,3,4,7,8-HxCDD		NA	NA	NA
1,2,3,6,7,8-HxCDD		NA	NA	NA
1,2,3,7,8,9-HxCDD		NA	NA	NA
HxCDDs (total)		NA	NA	NA
1,2,3,4,6,7,8-HpCDD		NA	NA	NA
HpCDDs (total)		NA	NA	NA
OCDD		NA	NA	NA
Total TEQs (WHO TEFs)		NA	NA	NA
Inorganics				
Lead		NA	NA	850 J [620 J]

TABLE 2
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 CONSTITUENTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Notes:

1. Samples were collected by Blasland Bouck & Lee, Inc., and were submitted to CT&E Environmental Services, Inc. for analysis of semivolatiles, dioxin/furans and lead.
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan, General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved November 4, 2002 and resubmitted December 10, 2002).
3. NA - Not Analyzed.
4. ND - Analyte was not detected. The number in parentheses is the associated detection limit.
5. Total 2,3,7,8-TCDD toxicity equivalents (TEQs) were calculated using Toxicity Equivalency Factors (TEFs) derived by the World Health Organization (WHO) and published by Van den Berg et al. in Environmental Health Perspectives 106(2), December 1998.
6. Field duplicate sample results are presented in brackets.
7. With the exception of dioxin/furans, only those constituents detected in one or more samples are summarized.

Data Qualifiers:

Organics (semivolatiles, dioxin/furans)

E - Analyte exceeded calibration range.
J - Indicates that the associated numerical value is an estimated concentration.
I - Polychlorinated Diphenyl Ether (PCDPE) Interference.
Q - Indicates the presence of quantitative interferences.
X - Estimated maximum possible concentration.
Y - 2,3,7,8-TCDF results have been confirmed on a DB-225 column.

Inorganics

J - Indicates that the associated numerical value is an estimated concentration.

Figure

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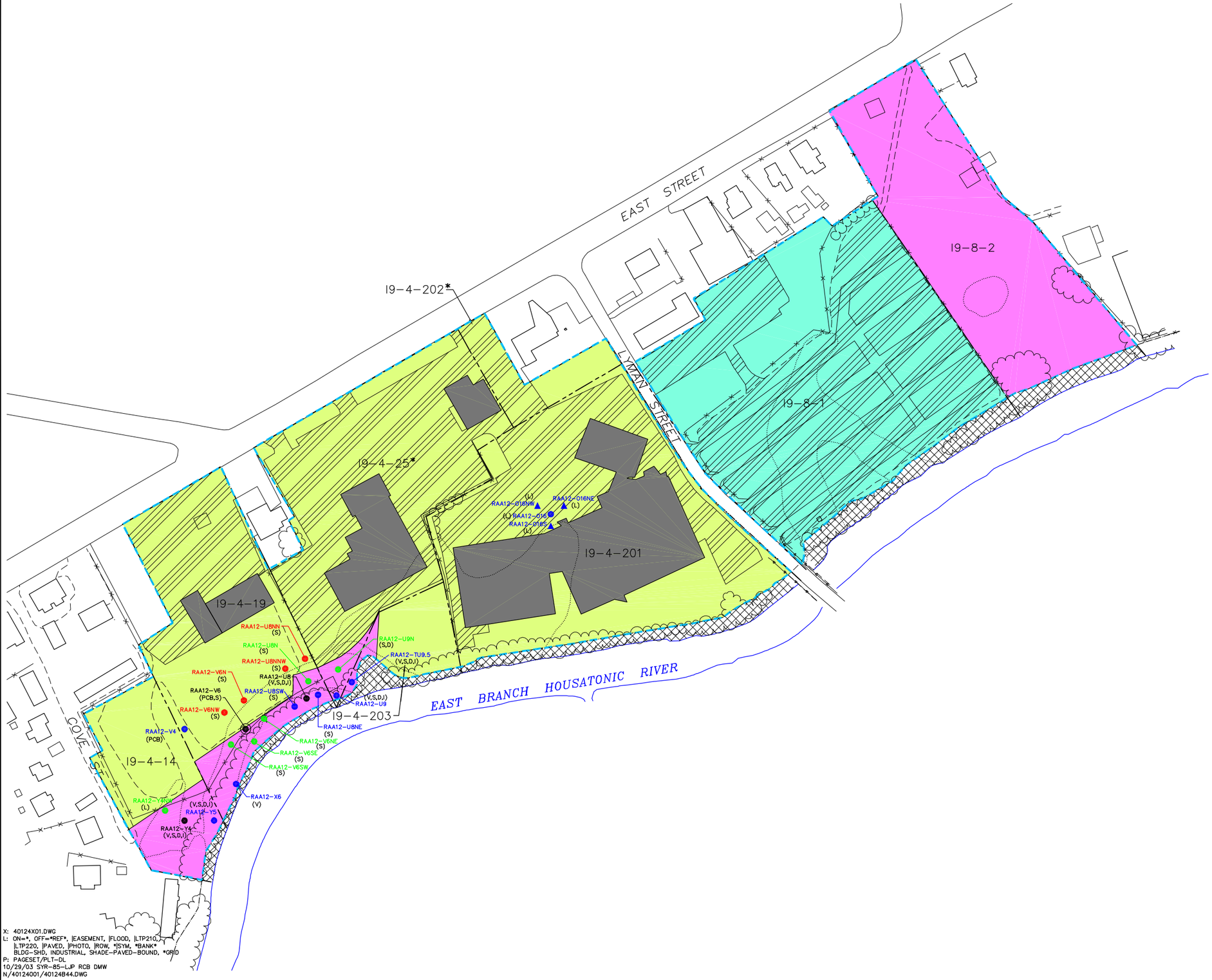

LEGEND

- APPROXIMATE REMOVAL ACTION AREA BOUNDARY
- FENCE
- PROPERTY LINE (APPROXIMATE)
- FORMER OXBOW/LOW LYING AREA
- BUILDING
- PAVED AREA
- AREA ADDRESSED AS PART OF 1/2-MILE REACH REMOVAL ACTION OR 1 1/2-MILE REACH REMOVAL ACTION
- RECREATIONAL PROPERTY (GE OWNED)
- RECREATIONAL PROPERTY (NON-GE OWNED)
- COMMERCIAL/INDUSTRIAL PROPERTY (NON-GE OWNED)
- RAA12-V6 — PRIOR PDI AND EPA SOIL BORING SAMPLE LOCATION
- RAA12-Y4 — PRIOR PDI SOIL BORING SAMPLE LOCATION
- RAA12-016NE — SUPPLEMENTAL PDI SURFACE SOIL SAMPLE LOCATION (JULY 2003)
- RAA12-U9 — SUPPLEMENTAL PDI SOIL BORING SAMPLE LOCATION (JULY 2003)
- RAA12-U8N — SUPPLEMENTAL PDI SOIL BORING SAMPLE LOCATION (SEPTEMBER 2003)
- RAA12-V6N — PROPOSED ADDITIONAL SUPPLEMENTAL SOIL BORING SAMPLE LOCATION

FIGURE NOTES:

1. MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. -FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY; AND BLASLAND, BOUCK & LEE, INC. (BBL) CONSTRUCTION PLANS, AND ON OBSERVATIONS DURING A SITE VISIT BY BBL PERSONNNEL ON DECEMBER 3, 1997.
2. SITE BOUNDARY IS APPROXIMATE.
3. NOT ALL PHYSICAL FEATURES SHOWN.
4. SOIL SAMPLES WERE ANALYZED FOR THOSE CONSTITUENTS INDICATED IN PARENTHESES. THE CONSTITUENT GROUPS ARE:
   - V = VOLATILE ORGANIC COMPOUNDS (VOCs)
   - S = SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)
   - D = POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs) AND POLYCHLORINATED DIBENZOFURANS (PCDFs)
   - I = INORGANICS
   - PCB = POLYCHLORINATED BIPHENYLS (PCBs)
   - L = LEAD ONLY

* PARCEL 19-4-25 AND 19-4-202 ARE UNDER COMMON OWNERSHIP AND WILL BE CONSIDERED AS A SINGLE PROPERTY DURING REMOVAL DESIGN/REMOVAL ACTION EVALUATIONS.

0 80' 160'
GRAPHIC SCALE

X: 40124X01.DWG
L: ON=*, OFF=*REF*, |EASEMENT, |FLOOD, |LTP21D, |LTP22D, |PAVED, |PHOTO, |ROW, *SYM, *BANK* BLDG-SHD, INDUSTRIAL, SHADE-PAVED-BOUND, *GRID
P: PAGESET/PLT-DL
10/29/03 SYR-85-LJP RCB DMW
N/40124001/40124B44.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
LYMAN STREET AREA

SUMMARY OF SUPPLEMENTAL SOIL SAMPLE LOCATIONS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 1

Attachments

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Attachment A

Additional Supplemental Pre-Design Soil Investigation Sampling Data for Appendix IX+3 Analytical Results

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

TABLE A-1
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Sample Depth(Feet): / Date Collected:	RAA12-U8N 1-3 09/26/03	RAA12-U9N 0-1 09/26/03	RAA12-U9N 1-3 09/26/03	RAA12-V6NE 1-3 09/26/03
Semivolatile Organics					
1,2,4,5-Tetrachlorobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
1,2,4-Trichlorobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
1,2-Dichlorobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
1,2-Diphenylhydrazine		ND(0.36)	NA	ND(0.44)	ND(0.38)
1,3,5-Trinitrobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38) J
1,3-Dichlorobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
1,3-Dinitrobenzene		ND(0.72) J	NA	ND(0.89) J	ND(0.77) J
1,4-Dichlorobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
1,4-Naphthoquinone		ND(0.72)	NA	ND(0.89)	ND(0.77)
1-Naphthylamine		ND(0.72)	NA	ND(0.89)	ND(0.77)
2,3,4,6-Tetrachlorophenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
2,4,5-Trichlorophenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
2,4,6-Trichlorophenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
2,4-Dichlorophenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
2,4-Dimethylphenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
2,4-Dinitrophenol		ND(1.8)	NA	ND(2.3)	ND(2.0)
2,4-Dinitrotoluene		ND(0.36)	NA	ND(0.44)	ND(0.38)
2,6-Dichlorophenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
2,6-Dinitrotoluene		ND(0.36)	NA	ND(0.44)	ND(0.38)
2-Acetylaminofluorene		ND(0.72)	NA	ND(0.89)	ND(0.77)
2-Chloronaphthalene		ND(0.36)	NA	ND(0.44)	ND(0.38)
2-Chlorophenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
2-Methylnaphthalene		3.8	NA	ND(0.44)	ND(0.38)
2-Methylphenol		0.087 J	NA	ND(0.44)	ND(0.38)
2-Naphthylamine		ND(0.72)	NA	ND(0.89)	ND(0.77)
2-Nitroaniline		ND(1.8) J	NA	ND(2.3) J	ND(2.0) J
2-Nitrophenol		ND(0.72)	NA	ND(0.89)	ND(0.77)
2-Picoline		ND(0.36)	NA	ND(0.44)	ND(0.38)
3&4-Methylphenol		0.38 J	NA	ND(0.89)	0.27 J
3,3'-Dichlorobenzidine		ND(0.72)	NA	ND(0.89)	ND(0.77)
3,3'-Dimethylbenzidine		ND(0.36)	NA	ND(0.44)	ND(0.38)
3-Methylcholanthrene		ND(0.72)	NA	ND(0.89)	ND(0.77)
3-Nitroaniline		ND(1.8)	NA	ND(2.3)	ND(2.0)
4,6-Dinitro-2-methylphenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
4-Aminobiphenyl		ND(0.72)	NA	ND(0.89)	ND(0.77)
4-Bromophenyl-phenylether		ND(0.36)	NA	ND(0.44)	ND(0.38)
4-Chloro-3-Methylphenol		ND(0.36)	NA	ND(0.44)	ND(0.38)
4-Chloroaniline		ND(0.36)	NA	ND(0.44)	ND(0.38)
4-Chlorobenzilate		ND(0.72)	NA	ND(0.89)	ND(0.77)
4-Chlorophenyl-phenylether		ND(0.36)	NA	ND(0.44)	ND(0.38)
4-Nitroaniline		ND(1.8)	NA	ND(2.3)	ND(2.0)
4-Nitrophenol		ND(1.8)	NA	ND(2.3)	ND(2.0) J
4-Nitroquinoline-1-oxide		ND(0.72)	NA	ND(0.89)	ND(0.77)
4-Phenylenediamine		ND(0.72)	NA	ND(0.89)	ND(0.77)
5-Nitro-o-toluidine		ND(0.72)	NA	ND(0.89)	ND(0.77)
7,12-Dimethylbenz(a)anthracene		ND(0.72)	NA	ND(0.89)	ND(0.77)
a,a'-Dimethylphenethylamine		ND(0.72)	NA	ND(0.89)	ND(0.77)
Acenaphthene		2.6	NA	ND(0.44)	0.088 J
Acenaphthylene		9.9	NA	0.13 J	0.22 J
Acetophenone		ND(0.36)	NA	ND(0.44)	ND(0.38)
Aniline		ND(0.36)	NA	0.28 J	0.099 J
Anthracene		13	NA	0.16 J	0.33 J
Aramite		ND(0.72)	NA	ND(0.89)	ND(0.77)

TABLE A-1
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Sample Depth(Feet): / Date Collected:	RAA12-U8N 1-3 09/26/03	RAA12-U9N 0-1 09/26/03	RAA12-U9N 1-3 09/26/03	RAA12-V6NE 1-3 09/26/03
Semivolatile Organics (continued)					
Benzidine		ND(0.72)	NA	ND(0.89)	ND(0.77)
Benzo(a)anthracene		20	NA	0.72	0.91
Benzo(a)pyrene		20	NA	0.82	0.91
Benzo(b)fluoranthene		15	NA	0.75	0.77
Benzo(g,h,i)perylene		11	NA	0.59	0.53
Benzo(k)fluoranthene		17	NA	0.80	0.89
Benzyl Alcohol		ND(0.72)	NA	ND(0.89)	ND(0.77)
bis(2-Chloroethoxy)methane		ND(0.36)	NA	ND(0.44)	ND(0.38)
bis(2-Chloroethyl)ether		ND(0.36)	NA	ND(0.44)	ND(0.38)
bis(2-Chloroisopropyl)ether		ND(0.36)	NA	ND(0.44)	ND(0.38) J
bis(2-Ethylhexyl)phthalate		ND(0.36)	NA	ND(0.44)	ND(0.38)
Butylbenzylphthalate		ND(0.36)	NA	0.74	ND(0.38)
Chrysene		20	NA	0.80	0.90
Diallate		ND(0.72)	NA	ND(0.89)	ND(0.77)
Dibenzo(a,h)anthracene		2.7	NA	0.23 J	0.22 J
Dibenzofuran		3.1	NA	ND(0.44)	ND(0.38)
Diethylphthalate		ND(0.36)	NA	ND(0.44)	ND(0.38)
Dimethylphthalate		ND(0.36)	NA	ND(0.44)	ND(0.38)
Di-n-Butylphthalate		ND(0.36)	NA	ND(0.44)	ND(0.38)
Di-n-Octylphthalate		ND(0.36)	NA	ND(0.44)	ND(0.38)
Diphenylamine		ND(0.36)	NA	ND(0.44)	ND(0.38)
Ethyl Methanesulfonate		ND(0.36)	NA	ND(0.44)	ND(0.38)
Fluoranthene		44	NA	1.0	1.5
Fluorene		9.7	NA	ND(0.44)	0.11 J
Hexachlorobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
Hexachlorobutadiene		ND(0.36)	NA	ND(0.44)	ND(0.38)
Hexachlorocyclopentadiene		ND(0.36)	NA	ND(0.44)	ND(0.38)
Hexachloroethane		ND(0.36)	NA	ND(0.44)	ND(0.38)
Hexachlorophene		ND(0.72) J	NA	ND(0.89) J	ND(0.77)
Hexachloropropene		ND(0.36)	NA	ND(0.44)	ND(0.38)
Indeno(1,2,3-cd)pyrene		13	NA	0.63	0.62
Isodrin		ND(0.36)	NA	ND(0.44)	ND(0.38)
Isophorone		ND(0.36)	NA	ND(0.44)	ND(0.38)
Isosafrole		ND(0.72)	NA	ND(0.89)	ND(0.77)
Methapyrilene		ND(0.72)	NA	ND(0.89)	ND(0.77) J
Methyl Methanesulfonate		ND(0.36)	NA	ND(0.44)	ND(0.38)
Naphthalene		9.4	NA	ND(0.44)	0.10 J
Nitrobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
N-Nitrosodiethylamine		ND(0.36)	NA	ND(0.44)	ND(0.38)
N-Nitrosodimethylamine		ND(0.36)	NA	ND(0.44)	ND(0.38)
N-Nitroso-di-n-butylamine		ND(0.72)	NA	ND(0.89)	ND(0.77)
N-Nitroso-di-n-propylamine		ND(0.36)	NA	ND(0.44)	ND(0.38)
N-Nitrosodiphenylamine		ND(0.36)	NA	ND(0.44)	ND(0.38)
N-Nitrosomethylethylamine		ND(0.72)	NA	ND(0.89)	ND(0.77)
N-Nitrosomorpholine		ND(0.36)	NA	ND(0.44)	ND(0.38)
N-Nitrosopiperidine		ND(0.36)	NA	ND(0.44)	ND(0.38)
N-Nitrosopyrrolidine		ND(0.72)	NA	ND(0.89)	ND(0.77)
o,o,o-Triethylphosphorothioate		ND(0.36)	NA	ND(0.44)	ND(0.38)
o-Toluidine		ND(0.36)	NA	ND(0.44)	ND(0.38)
p-Dimethylaminoazobenzene		ND(0.72)	NA	ND(0.89)	ND(0.77)
Pentachlorobenzene		ND(0.36)	NA	ND(0.44)	ND(0.38)
Pentachloroethane		ND(0.36)	NA	ND(0.44)	ND(0.38)
Pentachloronitrobenzene		0.41 J	NA	ND(0.89)	ND(0.77)

TABLE A-1
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Sample Depth(Feet): / Date Collected:	RAA12-U8N 1-3 09/26/03	RAA12-U9N 0-1 09/26/03	RAA12-U9N 1-3 09/26/03	RAA12-V6NE 1-3 09/26/03
Semivolatile Organics (continued)					
Pentachlorophenol		ND(1.8)	NA	ND(2.3)	ND(2.0) J
Phenacetin		ND(0.72)	NA	ND(0.89)	ND(0.77)
Phenanthrene		46	NA	0.66	0.97
Phenol		0.31 J	NA	ND(0.44)	ND(0.38)
Pronamide		ND(0.36)	NA	ND(0.44)	ND(0.38)
Pyrene		58	NA	1.4	1.9 J
Pyridine		ND(0.36)	NA	ND(0.44)	ND(0.38)
Safrole		ND(0.36)	NA	ND(0.44)	ND(0.38) J
Thionazin		ND(0.36)	NA	ND(0.44)	ND(0.38)
Furans					
2,3,7,8-TCDF		NA	0.000011 J	0.00014 Y [0.00016 Y]	NA
TCDFs (total)		NA	0.00016 I	0.0023 IQ [0.0024 IQ]	NA
1,2,3,7,8-PeCDF		NA	0.0000072	0.000084 [0.000088]	NA
2,3,4,7,8-PeCDF		NA	0.000048	0.00043 [0.00046]	NA
PeCDFs (total)		NA	0.00078 IQ	0.0050 IQ [0.0048 IQ]	NA
1,2,3,4,7,8-HxCDF		NA	0.000031	0.00032 [0.00034]	NA
1,2,3,6,7,8-HxCDF		NA	0.000037	0.00028 [0.00032]	NA
1,2,3,7,8,9-HxCDF		NA	0.000012	ND(0.000056) X [0.000098]	NA
2,3,4,6,7,8-HxCDF		NA	0.00014 J	0.0011 [0.0012]	NA
HxCDFs (total)		NA	0.0018	0.016 [0.017]	NA
1,2,3,4,6,7,8-HpCDF		NA	0.00020 J	0.0018 E [0.0018 EJ]	NA
1,2,3,4,7,8,9-HpCDF		NA	0.000026	0.00019 [0.00019]	NA
HpCDFs (total)		NA	0.00054	0.0047 [0.0048]	NA
OCDF		NA	0.000063	0.00061 [0.00063]	NA
Dioxins					
2,3,7,8-TCDD		NA	0.00000056 J	0.0000047 [0.0000049]	NA
TCDDs (total)		NA	0.0000048	0.000093 Q [0.00011 Q]	NA
1,2,3,7,8-PeCDD		NA	0.0000038	0.000041 [0.000040]	NA
PeCDDs (total)		NA	0.000031	0.00031 [0.00034 Q]	NA
1,2,3,4,7,8-HxCDD		NA	0.0000067	0.000073 [0.000064]	NA
1,2,3,6,7,8-HxCDD		NA	0.0000081	0.000070 [0.000076]	NA
1,2,3,7,8,9-HxCDD		NA	0.0000059	0.000060 [0.000057]	NA
HxCDDs (total)		NA	0.00010	0.0010 [0.0010]	NA
1,2,3,4,6,7,8-HpCDD		NA	0.000068	0.00059 [0.00058]	NA
HpCDDs (total)		NA	0.00013	0.0012 [0.0012]	NA
OCDD		NA	0.00029	0.0026 [0.0025]	NA
Total TEQs (WHO TEFs)		NA	0.000057	0.00050 [0.00054]	NA
Inorganics					
Lead		NA	NA	NA	NA

TABLE A-1
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Sample Depth(Feet): / Date Collected:	RAA12-V6SE 1-3 09/26/03	RAA12-V6SW 1-3 09/26/03	RAA12-Y4NW 1-3 09/26/03
Semivolatile Organics				
1,2,4,5-Tetrachlorobenzene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
1,2,4-Trichlorobenzene		ND(0.46) [ND(0.45)]	0.34 J	NA
1,2-Dichlorobenzene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
1,2-Diphenylhydrazine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
1,3,5-Trinitrobenzene		ND(0.46) J [ND(0.45) J]	ND(0.39) J	NA
1,3-Dichlorobenzene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
1,3-Dinitrobenzene		ND(0.92) J [ND(0.90) J]	ND(0.79) J	NA
1,4-Dichlorobenzene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
1,4-Naphthoquinone		ND(0.92) [ND(0.90)]	ND(0.79)	NA
1-Naphthylamine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
2,3,4,6-Tetrachlorophenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2,4,5-Trichlorophenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2,4,6-Trichlorophenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2,4-Dichlorophenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2,4-Dimethylphenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2,4-Dinitrophenol		ND(2.3) [ND(2.3)]	ND(2.0)	NA
2,4-Dinitrotoluene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2,6-Dichlorophenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2,6-Dinitrotoluene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2-Acetylaminofluorene		ND(0.92) [ND(0.90)]	ND(0.79)	NA
2-Chloronaphthalene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2-Chlorophenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2-Methylnaphthalene		ND(0.46) [ND(0.45)]	0.11 J	NA
2-Methylphenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
2-Naphthylamine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
2-Nitroaniline		ND(2.3) J [ND(2.3) J]	ND(2.0) J	NA
2-Nitrophenol		ND(0.92) [ND(0.90)]	ND(0.79)	NA
2-Picoline		ND(0.46) [ND(0.45)]	ND(0.39)	NA
3&4-Methylphenol		1.2 [0.95]	ND(0.79)	NA
3,3'-Dichlorobenzidine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
3,3'-Dimethylbenzidine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
3-Methylcholanthrene		ND(0.92) [ND(0.90)]	ND(0.79)	NA
3-Nitroaniline		ND(2.3) [ND(2.3)]	ND(2.0)	NA
4,6-Dinitro-2-methylphenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
4-Aminobiphenyl		ND(0.92) [ND(0.90)]	ND(0.79)	NA
4-Bromophenyl-phenylether		ND(0.46) [ND(0.45)]	ND(0.39)	NA
4-Chloro-3-Methylphenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
4-Chloroaniline		ND(0.46) [ND(0.45)]	ND(0.39)	NA
4-Chlorobenzilate		ND(0.92) [ND(0.90)]	ND(0.79)	NA
4-Chlorophenyl-phenylether		ND(0.46) [ND(0.45)]	ND(0.39)	NA
4-Nitroaniline		ND(2.3) [ND(2.3)]	ND(2.0)	NA
4-Nitrophenol		ND(2.3) [ND(2.3)]	ND(2.0)	NA
4-Nitroquinoline-1-oxide		ND(0.92) [ND(0.90)]	ND(0.79)	NA
4-Phenylenediamine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
5-Nitro-o-toluidine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
7,12-Dimethylbenz(a)anthracene		ND(0.92) [ND(0.90)]	ND(0.79)	NA
a,a'-Dimethylphenethylamine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Acenaphthene		ND(0.46) [ND(0.45)]	0.36 J	NA
Acenaphthylene		0.10 J [0.20 J]	0.082 J	NA
Acetophenone		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Aniline		0.22 J [0.21 J]	0.25 J	NA
Anthracene		0.13 J [0.14 J]	0.71	NA
Aramite		ND(0.92) [ND(0.90)]	ND(0.79)	NA

TABLE A-1
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Sample Depth(Feet): / Date Collected:	RAA12-V6SE 1-3 09/26/03	RAA12-V6SW 1-3 09/26/03	RAA12-Y4NW 1-3 09/26/03
Furans				
Benzidine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Benzo(a)anthracene		0.44 J [0.48]	1.4	NA
Benzo(a)pyrene		0.55 [0.60]	1.4	NA
Benzo(b)fluoranthene		0.54 [0.60]	0.93	NA
Benzo(g,h,i)perylene		0.37 J [0.43 J]	0.83	NA
Benzo(k)fluoranthene		0.65 [0.58]	1.5	NA
Benzyl Alcohol		ND(0.92) [ND(0.90)]	ND(0.79)	NA
bis(2-Chloroethoxy)methane		ND(0.46) [ND(0.45)]	ND(0.39)	NA
bis(2-Chloroethyl)ether		ND(0.46) [ND(0.45)]	ND(0.39)	NA
bis(2-Chloroisopropyl)ether		ND(0.46) J [ND(0.45) J]	ND(0.39) J	NA
bis(2-Ethylhexyl)phthalate		ND(0.45) [ND(0.44)]	ND(0.39)	NA
Butylbenzylphthalate		0.51 [0.48]	ND(0.39)	NA
Chrysene		0.56 [0.54]	1.4	NA
Diallate		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Dibenzo(a,h)anthracene		ND(0.46) [0.13 J]	0.27 J	NA
Dibenzofuran		ND(0.46) [ND(0.45)]	0.25 J	NA
Diethylphthalate		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Dimethylphthalate		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Di-n-Butylphthalate		ND(0.46) [ND(0.45)]	0.078 J	NA
Di-n-Octylphthalate		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Diphenylamine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Ethyl Methanesulfonate		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Fluoranthene		0.77 [0.71]	2.7	NA
Fluorene		ND(0.46) [ND(0.45)]	0.35 J	NA
Hexachlorobenzene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Hexachlorobutadiene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Hexachlorocyclopentadiene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Hexachloroethane		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Hexachlorophene		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Hexachloropropene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Indeno(1,2,3-cd)pyrene		0.41 J [0.48]	0.88	NA
Isodrin		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Isophorone		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Isosafrole		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Methapyrilene		ND(0.92) J [ND(0.90) J]	ND(0.79) J	NA
Methyl Methanesulfonate		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Naphthalene		ND(0.46) [ND(0.45)]	0.22 J	NA
Nitrobenzene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
N-Nitrosodiethylamine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
N-Nitrosodimethylamine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
N-Nitroso-di-n-butylamine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
N-Nitroso-di-n-propylamine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
N-Nitrosodiphenylamine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
N-Nitrosomethylethylamine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
N-Nitrosomorpholine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
N-Nitrosopiperidine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
N-Nitrosopyrrolidine		ND(0.92) [ND(0.90)]	ND(0.79)	NA
o,o,o-Triethylphosphorothioate		ND(0.46) [ND(0.45)]	ND(0.39)	NA
o-Toluidine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
p-Dimethylaminoazobenzene		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Pentachlorobenzene		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Pentachloroethane		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Pentachloronitrobenzene		ND(0.92) [ND(0.90)]	ND(0.79)	NA

TABLE A-1
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Sample Depth(Feet): / Date Collected:	RAA12-V6SE 1-3 09/26/03	RAA12-V6SW 1-3 09/26/03	RAA12-Y4NW 1-3 09/26/03
Furans				
Pentachlorophenol		ND(2.3) [ND(2.3)]	ND(2.0)	NA
Phenacetin		ND(0.92) [ND(0.90)]	ND(0.79)	NA
Phenanthrene		0.49 [0.39 J]	2.8	NA
Phenol		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Pronamide		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Pyrene		1.1 [0.97]	3.2	NA
Pyridine		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Safrole		ND(0.46) J [ND(0.45) J]	ND(0.39) J	NA
Thionazin		ND(0.46) [ND(0.45)]	ND(0.39)	NA
Furans				
2,3,7,8-TCDF		NA	NA	NA
TCDFs (total)		NA	NA	NA
1,2,3,7,8-PeCDF		NA	NA	NA
2,3,4,7,8-PeCDF		NA	NA	NA
PeCDFs (total)		NA	NA	NA
1,2,3,4,7,8-HxCDF		NA	NA	NA
1,2,3,6,7,8-HxCDF		NA	NA	NA
1,2,3,7,8,9-HxCDF		NA	NA	NA
2,3,4,6,7,8-HxCDF		NA	NA	NA
HxCDFs (total)		NA	NA	NA
1,2,3,4,6,7,8-HpCDF		NA	NA	NA
1,2,3,4,7,8,9-HpCDF		NA	NA	NA
HpCDFs (total)		NA	NA	NA
OCDF		NA	NA	NA
Dioxins				
2,3,7,8-TCDD		NA	NA	NA
TCDDs (total)		NA	NA	NA
1,2,3,7,8-PeCDD		NA	NA	NA
PeCDDs (total)		NA	NA	NA
1,2,3,4,7,8-HxCDD		NA	NA	NA
1,2,3,6,7,8-HxCDD		NA	NA	NA
1,2,3,7,8,9-HxCDD		NA	NA	NA
HxCDDs (total)		NA	NA	NA
1,2,3,4,6,7,8-HpCDD		NA	NA	NA
HpCDDs (total)		NA	NA	NA
OCDD		NA	NA	NA
Total TEQs (WHO TEFs)		NA	NA	NA
Inorganics				
Lead		NA	NA	850 J [620 J]

TABLE A-1
ADDITIONAL SUPPLEMENTAL PRE-DESIGN SOIL INVESTIGATION SAMPLING DATA FOR APPENDIX IX+3 ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR LYMAN STREET AREA REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Notes:

1. Samples were collected by Blasland Bouck & Lee, Inc., and were submitted to CT&E Environmental Services, Inc. for analysis of semivolatiles, dioxin/furans and lead.
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan, General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved November 4, 2002 and resubmitted December 10, 2002).
3. NA - Not Analyzed.
4. ND - Analyte was not detected. The number in parentheses is the associated detection limit.
5. Total 2,3,7,8-TCDD toxicity equivalents (TEQs) were calculated using Toxicity Equivalency Factors (TEFs) derived by the World Health Organization (WHO) and published by Van den Berg et al. in Environmental Health Perspectives 106(2), December 1998.
6. Field duplicate sample results are presented in brackets.

Data Qualifiers:

Organics (semivolatiles, dioxin/furans)

E - Analyte exceeded calibration range.
J - Indicates that the associated numerical value is an estimated concentration.
I - Polychlorinated Diphenyl Ether (PCDPE) Interference.
Q - Indicates the presence of quantitative interferences.
X - Estimated maximum possible concentration.
Y - 2,3,7,8-TCDF results have been confirmed on a DB-225 column.

Inorganics

J - Indicates that the associated numerical value is an estimated concentration.

Attachment B

Soil Boring Logs

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Date Start/Finish: 9/26/03 **Drilling Company:** BBL **Driller's Name:** JJB **Drilling Method:** Direct Push **Auger Size:** NA **Rig Type:** Tractor-mounted Power Probe **Sample Method:** 4' Macrocore	**Northing:** 532235.51 **Easting:** 130056.88 **Casing Elevation:** NA **Borehole Depth:** 3' below grade **Surface Elevation:** 980.28 **Descriptions By:** JAB	**Boring ID:** RAA12-U8N **Client:** General Electric Company **Location:** Lyman Street Area Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
0 980	1	0-1	2.0	0.0		Brown fine to medium SAND, some Silt, little fine to medium gravel, coal/ash, and slag, moist. [FILL]	Borehole backfilled with Bentonite.
	2	1-3		0.0			
5 975							
10 970							
15 965							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 1-3': SVOCs.

Date Start/Finish: 9/26/03
Drilling Company: BBL
Driller's Name: JJB
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Tractor-mounted Power Probe
Sample Method: 4' Macrocore

Northing: 532254.98
Easting: 130105.63
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 979.42

Descriptions By: JAB

Boring ID: RAA12-U9N

Client: General Electric Company

Location: Lyman Street Area
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
980 / 0							
	1	0-1	2.2	0.0		Orange-brown fine to medium SAND, little Silt, moist.	Borehole backfilled with Bentonite.
	2	1-3		0.0		COAL/ASH, some brown fine to medium Sand, little silt and fine to medium gravel, moist. [FILL]	
975 / 5							
970 / 10							
965 / 15							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 0-1': PCDD/PCDF;
1-3': SVOCs, PCDD/PCDF;
Duplicate sample ID: RAA12-Dup-37 (PCDD/PCDF, 1-3');
MS/MSD collected (PCDD/PCDF, 0-1')

Date Start/Finish: 9/26/03
Drilling Company: BBL
Driller's Name: JJB
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Tractor-mounted Power Probe
Sample Method: 4' Macrocore

Northing: 532174.07
Easting: 129984.26
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 979.50

Descriptions By: JAB

Boring ID: RAA12-V6NE

Client: General Electric Company

Location: Lyman Street Area
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
980 / 0							
	1	0-1	2.0	0.0		Dark brown fine to medium SAND, some Silt, little fine to medium gravel, trace coal/ash and brick. [FILL]	Borehole backfilled with Bentonite.
	2	1-3		0.0			
975 / 5							
970 / 10							
965 / 15							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 1-3': SVOCs;
MS/MSD collected (SVOCs, 1-3').

Date Start/Finish: 9/26/03
Drilling Company: BBL
Driller's Name: JJB
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Tractor-mounted Power Probe
Sample Method: 4' Macrocore

Northing: 532136.81
Easting: 129967.97
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 978.96

Descriptions By: JAB

Boring ID: RAA12-V6SE

Client: General Electric Company

Location: Lyman Street Area
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
980 / 0							
	1	0-1	2.4	0.0		Brown fine to medium SAND, little Silt and fine to medium Gravel.	Borehole backfilled with Bentonite.
	2	1-3		0.0		Dark brown SILT and fine SAND, trace Organic material and Litter. [FILL]	
975 / 5							
970 / 10							
965 / 15							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 1-3': SVOCs;
Duplicate sample ID: RAA12-Dup-36 (SVOCs, 1-3).

Date Start/Finish: 9/26/03 **Drilling Company:** BBL **Driller's Name:** JJB **Drilling Method:** Direct Push **Auger Size:** NA **Rig Type:** Tractor-mounted Power Probe **Sample Method:** 4' Macrocore	**Northing:** 532131.81 **Easting:** 129929.99 **Casing Elevation:** NA **Borehole Depth:** 3' below grade **Surface Elevation:** 978.67 **Descriptions By:** JAB	**Boring ID:** RAA12-V6SW **Client:** General Electric Company **Location:** Lyman Street Area Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
980							
0	1	0-1	2.5	0.0		Black fine to medium GRAVEL, trace black fine to medium Sand.	Borehole backfilled with Bentonite.
	2	1-3		0.0		Brown fine to coarse GRAVEL, some Coal/Ash, little fine to medium gravel. [FILL]	
5							
965							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 1-3': SVOC.

Date Start/Finish: 9/26/03 **Drilling Company:** BBL **Driller's Name:** JJB **Drilling Method:** Direct Push **Auger Size:** NA **Rig Type:** Tractor-mounted Power Probe **Sample Method:** 4' Macrocore	**Northing:** 532023.37 **Easting:** 129821.84 **Casing Elevation:** NA **Borehole Depth:** 3' below grade **Surface Elevation:** 979.38 **Descriptions By:** JAB	**Boring ID:** RAA12-Y4NW **Client:** General Electric Company **Location:** Lyman Street Area Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
980							
0	1	0-1	2.1	0.0		Dark brown fine to coarse SAND, little Silt and fine to coarse Gravel, trace coal/ash, moist. [FILL]	Borehole backfilled with Bentonite.
	2	1-3		0.0		COAL/ASH/SLAG/GLASS, trace fine to coarse Sand and Silt, moist. [FILL]	
975							
970							
10							
965							
15							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 1-3': Lead;
Duplicate sample ID: RAA12-Dup-35 (Lead, 1-3');
MS/MSD collected (Lead, 1-3').

Attachment C

Soil Sampling Data Validation Report

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ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

AREA REMOVAL ACTION PRE-DESIGN INVESTIGATION

SOIL SAMPLING DATA VALIDATION REPORT

1.0 General

This attachment summarizes the Tier I and Tier II data reviews performed for soil samples collected for the pre-design investigation activities at a portion of the Supplemental Lyman Pre-Design Investigation located in Pittsfield, Massachusetts. The samples were analyzed for various constituents listed in Appendix IX of 40 CFR Part 264, plus two additional constituents -- benzidine and 1,2-diphenylhydrazine (hereafter referred to as Appendix IX+2), excluding pesticides and herbicides, by CT&E Environmental Services, Inc., of Charleston, West Virginia. Data validation was performed for seven semi-volatile organic compound (SVOC) samples, four polychlorinated dibenzo-p-dioxin (PCDD)/polychlorinated dibenzofuran (PCDF) samples, and three metals samples.

2.0 Data Evaluation Procedures

This attachment outlines the applicable quality control criteria utilized during the data review process and any deviations from those criteria. The data reviews were conducted in accordance with the following documents:

- *Field Sampling Plan/Quality Assurance Project Plan, General Electric Company, Pittsfield, Massachusetts*, Blasland, Bouck & Lee, Inc. ([BBL]; FSP/QAPP, approved October 17, 2000);
- *Region I Tiered Organic and Inorganic Data Validation Guidelines*, USEPA Region I (July 1, 1993);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses,* USEPA Region I (June 13, 1988) (Modified February 1989);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses,* USEPA Region I (February 1, 1988) (Modified November 1, 1988);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses,* USEPA Region I (Draft, December 1996); and
- *National Functional Guidelines for Dioxin/Furan Data Validation,* USEPA (Draft, January 1996).

A tabulated summary of the Tier I and Tier II data evaluations is presented in Table C-1. Each sample that was subjected to evaluation is listed in Table C-1 to document that the data review was performed, as well as present the highest level of data validation (Tier I or Tier II) that was performed. Samples that required data qualification are listed separately for each parameter (compound or analyte) that required qualification.

The following data qualifiers have been used in this data evaluation.

J The compound or analyte was positively identified, but the associated numeric value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at an estimated concentration less than the practical quantitation limit (PQL).

U The compound or analyte was analyzed for, but was not detected. The sample quantitation limit is presented and adjusted for dilution and (for solid samples only) percent moisture. Non-detected sample results are presented as ND(PQL) within this report and in Table C-1 for consistency with previous documents prepared for this investigation.

UJ The compound or analyte was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual level of quantitation. Non-detected sample results that required qualification are presented as ND(PQL) J within this report and in Table C-1 for consistency with previous documents prepared for this investigation.

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

3.0 Data Validation Procedures

The FSP/QAPP provides (in Section 7.5) that all analytical data will be validated to a Tier I level following the procedures presented in the *Region I Tiered Organic and Inorganic Data Validation Guidelines* (USEPA guidelines). Accordingly, 100% of the analytical data for these investigations were subjected to Tier I review. The Tier I review consisted of a completeness evidence audit, as outlined in the *USEPA Region I CSF Completeness Evidence Audit Program* (USEPA Region I, 7/31/91), to ensure that all laboratory data and documentation were present. A tabulated summary of the samples subjected to Tier I and Tier II data evaluation is presented below.

Summary of Samples Subjected to Tier I and Tier II Data Validation

Parameter	Tier I Only			Tier I &Tier II			Total
	Samples	Duplicates	Blanks	Samples	Duplicates	Blanks	
SVOCs	0	0	0	5	1	1	7
PCDDs/PCDFs	0	0	0	2	1	1	4
Metals	0	0	0	1	1	1	3
Total	**0**	**0**	**0**	**8**	**3**	**3**	**14**

In the event data packages were determined to be incomplete, the missing information was requested from the laboratory. Upon completion of the Tier I review, the data packages complied with USEPA Region I Tier I data completeness requirements.

As specified in the FSP/QAPP, a Tier II review was also performed to resolve data usability limitations identified from laboratory qualification of the data during the Tier I data review. The Tier II data review consisted of a review of all data package summary forms for identification of quality assurance/quality control (QA/QC) deviations and qualification of the data according to the Region I Data Validation Functional Guidelines. The Tier II review resulted in the qualification of data for several samples due to minor QA/QC deficiencies. Additionally,

all field duplicates were examined for relative percent difference (RPD) compliance with the criteria specified in the FSP/QAPP.

When qualification of the sample data was required, the sample results associated with a QA/QC parameter deviation were qualified in accordance with the procedures outlined in USEPA Region I data validation guidance documents. When the data validation process identified several quality control deficiencies, the cumulative effect of the various deficiencies was employed in assigning the final data qualifier. A summary of the QA/QC parameter deviations that resulted in data qualification is presented below for each analytical method.

4.0 Data Review

The continuing calibration criterion requires that the %D between the initial calibration relative response factor (RRF) and the continuing calibration RRF for SVOCs be less than 25%. Sample data for detected and non-detected compounds with %D values that exceeded the continuing calibration criterion were qualified as estimated (J). A summary of the compounds that exceeded continuing calibration criterion and the number of samples qualified due to those deviations are identified below.

Compounds Qualified Due to Continuing Calibration of %D Values

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	1,3,5-Trinitrobenzene	4	J
	1,3-Dinitrobenzene	7	J
	2-Nitroaniline	7	J
	bis(2-Chloroisopropyl)ether	4	J
	Hexachlorophene	3	J
	Methapyrilene	4	J
	Safrole	4	J

Matrix spike (MS) sample analysis recovery criteria for inorganics require that spike recoveries be between 75 and 125%, and for organics the MS recoveries must be within the laboratory-generated quality control acceptance limits specified on the MS reporting form. Sample results that exceeded these limits were qualified as estimated (J). Analytes/compounds that did not meet MS recovery criteria and the samples qualified due to those deviations are presented below.

Analytes/Compounds Qualified Due to MS Recovery Deviations

Analysis	Analyte/Compound	Number of Affected Samples	Qualification
Inorganics	Lead	2	J
SVOCs	Pyrene	1	J
PCDDs/PCDFs	1,2,3,4,6,7,8-HpCDF	1	J
	2,3,7,8-TCDF	1	J

MS sample analysis recovery criteria for organics require that the RPD between the MS and matrix spike duplicate (MSD) be less than the laboratory-generated quality control acceptance limits specified on the MS reporting form. The compounds that exceeded RPD limits and the number of samples qualified due to deviations are presented below.

Compounds Qualified Due to MS RPD Deviations

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	4-Nitrophenol	1	J
	Pentachlorophenol	1	J
	Pyrene	1	J
PCDDs/PCDFs	1,2,3,4,6,7,8-HpCDF	1	J
	2,3,4,6,7,8-HxCDF	1	J

The quantitation criteria require that detected organic sample results be quantitated within the linear range of the five-point calibration curve. Detected sample results which are above the linear range of the calibration are required to be re-analyzed at a dilution yielding a sample result within the linear range of the calibration (preferable at the midpoint). Sample data for detected compounds which were not re-analyzed at a dilution within the calibration range were qualified as estimated (J). A summary of the compound that exceeded quantitation criteria and the number of samples qualified due to those deviations are identified below.

Compounds Qualified Due to Quantitation Criteria

Analysis	Compound	Number of Affected Samples	Qualification
PCDDs/PCDFs	1,2,3,4,6,7,8-HpCDF	1	J

5.0 Overall Data Usability

This section summarizes the analytical data in terms of its completeness and usability for site characterization purposes. Data completeness is defined as the percentage of sample results determined to be usable during the data validation process. Data completeness with respect to usability was calculated separately for inorganic and each of the organic analyses. The percent usability calculation included analyses evaluated under both the Tier I and Tier II data validation reviews. The percent usability calculation also includes quality control samples collected to aid in the evaluation of data usability. Therefore, field/equipment blank, trip blank, and field duplicate data determined to be unusable as a result of the validation process are represented in the percent usability value tabulated below.

Data Usability

Parameter	Percent Usability	Rejected Data
Inorganics	100	None
SVOCs	100	None
PCDDs/PCDFs	100	None

The data package completeness, as determined from the Tier I data review, was used in combination with the data quality deviations identified during the Tier II data review to determine overall data quality. As specified in the FSP/QAPP, the overall precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters determined from the Tier I and Tier II data reviews were used as indicators of overall data quality. These parameters were assessed through an evaluation of the results of the field and laboratory QA/QC sample analyses to provide a measure of compliance of the analytical data with the data quality objectives (DQOs) specified in the FSP/QAPP. Therefore, the following sections present summaries of the PARCC parameters assessment with regard to the DQOs specified in the FSP/QAPP.

5.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. For this investigation, precision was defined as the RPD between duplicate sample results. The duplicate samples used to evaluate precision included laboratory duplicates, field duplicates, MS/MSD samples, and ion coupling plasma (ICP) serial dilution samples. For this analytical program, 0.52% of the data required qualification for MS/MSD RPD deviations and 0.04% of the data required qualification for field duplicate RPD deviations. None of the data required qualification for ICP serial dilution deviations or laboratory duplicate RPD deviations.

5.2 Accuracy

Accuracy measures the bias in an analytical system or the degree of agreement of a measurement with a known reference value. For this investigation, accuracy was defined as the percent recovery of QA/QC samples that were spiked with a known concentration of an analyte or compound of interest. The QA/QC samples used to evaluate analytical accuracy included instrument calibration, internal standards, Laboratory Control Standards (LCSs), MS/MSD samples, CRDL samples, and surrogate compound recoveries. For this analytical program, 3.6% of the data required qualification for calibration deviations, 0.70% required qualification for CRDL standard recoveries, 0.04% required qualification for internal standard recoveries, and 0.52% required qualification for MS/MSD recoveries. None of the data required qualification for surrogate compound standard recovery deviations, internal standard recovery deviations, CRDL standard recovery deviations, or LCS recovery deviations.

5.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of the sampling program. The representativeness criterion is best satisfied by making certain that sampling locations are selected properly and a sufficient number of samples are collected. This parameter has been addressed by collecting samples at locations specified in Agency-approved work plans and by following the procedures for sample collection/analyses described in the FSP/QAPP. Additionally, the analytical program used procedures that were consistent with USEPA-approved analytical methodology. A QA/QC parameter that is an indicator of the representativeness of a sample is holding time. Holding time criteria are established to maintain the samples in a state that is representative of the in-situ field conditions before analysis. For this analytical program, none of the data required qualification for holding time analysis deviations.

5.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. This goal was achieved through the use of the standardized techniques for sample collection and analysis presented in the FSP/QAPP. The USEPA SW-846[1] analytical methods presented in the FSP/QAPP are updated on occasion by the USEPA to benefit from recent technological advancements in analytical chemistry and instrumentation. In most cases, the method upgrades include the incorporation of new technology that improves the sensitivity and stability of the instrumentation or allows the laboratory to increase throughput without hindering accuracy and precision. Overall, the analytical methods for this investigation have remained consistent in their general approach through continued use of the basic analytical

[1] Test Methods for evaluating Solid Waste, SW-846, USEPA, Final Update III, December 1996.

techniques (e.g., sample extraction/preparation, instrument calibration, QA/QC procedures). Through this use of consistent base analytical procedures and by requiring that updated procedures meet the QA/QC criteria specified in the FSP/QAPP, the analytical data from past, present, and future sampling events will be comparable to allow for qualitative and quantitative assessment of site conditions.

5.5 Completeness

Completeness is defined as the percentage of measurements that are judged to be valid or usable to meet the prescribed DQOs. The completeness criterion is essentially the same for all data uses -- the generation of a sufficient amount of valid data. The actual completeness of this analytical data for individual analytical parameters and overall usability of this data set is 100%.