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

Transmitted Via Overnight Courier

November 24, 2004

Mr. William P. Lovely, Jr. (MC HBO)
USEPA – New England
One Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

Re: GE-Pittsfield/Housatonic River Site
Former Oxbow Areas J and K (GECD420)
Additional Supplemental Pre-Design Investigation Report

Dear Mr. Lovely:

In July 2003, the General Electric Company (GE) submitted to the U.S. Environmental Protection Agency (EPA) a document titled *Pre-Design Investigation Report for the Former Oxbow Areas J and K Removal Action* (PDI Report). That document presented the results of the soil investigations performed by GE at this Removal Action Area (RAA). Further, the PDI Report assessed the overall adequacy of the available data set to support future Removal Design/Removal Action (RD/RA) activities concerning the presence of PCBs and other constituents listed in Appendix IX of 40 CFR 264, plus benzidine, 2-chloroethyl vinyl ether, and 1,2-diphenylhydrazine (Appendix IX+3) in the soils. The PDI Report concluded that available soil data may or may not be adequate to support the necessary RD/RA evaluations for this RAA and proposed further activities to determine if any additional soil sampling was required. EPA provided conditional approval of the PDI Report (including GE's proposed activities) in a letter dated September 29, 2003.

Following GE's performance of these activities, including a preliminary evaluation of the data, GE proposed supplemental sampling activities in a letter dated January 28, 2004. EPA conditionally approved the proposed supplemental sampling by letter dated March 29, 2004. GE subsequently conducted that sampling and submitted a Supplemental PDI Report and Additional Sampling Proposal letter (Supplemental PDI Report), dated June 28, 2004. Based on GE's assessment of the initial PDI data and the results contained in the Supplemental PDI Report, GE identified certain areas where soil remediation may be needed, and GE proposed to perform additional supplemental sampling for particular areas within recreational area R2 (comprised of portions of Parcels K10-11-1, K10-11-2 and the Zeno Street Right-of-Way) where a preliminary review of the data indicated that more sampling was needed to delineate polycyclic aromatic hydrocarbons (PAHs). In a letter dated August 26, 2004, EPA conditionally approved the Supplemental PDI Report. GE thereafter performed the proposed sampling, as modified by EPA's conditional approval letter.

The remainder of this letter addresses the following items related to the Former Oxbow Areas J and K RAA:

- A summary of the additional supplemental pre-design soil investigations concerning recreational area R2, including a data quality review and validation of the new Appendix IX+3 data;
- An assessment of the need for any further Appendix IX+3 or PCB soil investigations to support future RD/RA evaluations;

- An explanation, in response to condition number 2 in EPA's August 26, 2004 conditional approval letter, concerning why GE's inability to collect three samples from the 10- to 15-foot depth increment for Appendix IX+3 analysis does not significantly affect the overall intended use of the proposed samples; and

- A proposed schedule for submittal of the Conceptual RD/RA Work Plan that will summarize the results of the RD/RA evaluations concerning the need for and scope of soil-related response actions to achieve the applicable Performance Standards for PCB and the other Appendix IX+3 constituents.

I. Additional Supplemental Pre-Design Soil Investigations

In its January 28, 2004 letter, GE described its approach for conducting preliminary RD/RA evaluations for Former Oxbow Areas J and K. Based on that approach, the January 28, 2004 letter identified certain areas where existing conditions do not appear to meet the applicable Performance Standards established in the Consent Decree and Scope of Work and where removal therefore may be required. The January 28, 2004 letter proposed supplemental sampling to address additional data needs, including samples proposed to delineate areas where remediation may be required. The Supplemental PDI Report reported on the results of that sampling and concluded that the data collected generally satisfied the data needs they were intended to address. With regard to recreational area R2, however, the Supplemental PDI Report noted that PAH delineation sampling collected from the 1- to 3-foot depth increment at certain locations surrounding sample location RAA15-E8 remained elevated and therefore did not provide the necessary delineation. Specifically, the Supplemental PDI Report discussed that PAH concentrations remained elevated in the 1- to 3-foot samples from locations RAA15-E7(B), -E8NE, -E8SW, and –E8NW. Therefore, GE proposed additional supplemental sampling from the 1- to 3-foot depth increment in the area containing these samples in an effort to delineate the overall extent of elevated PAHs at this depth in this area. In addition, given the fact that sample locations RAA15-E7 (0-1') and RAA15-E7(B) (1-3') contained elevated levels of PAHs and are located on the east bank of a ravine through which an intermittent stream flows, GE proposed to collect additional supplemental samples on the west side of the ravine to confirm that the elevated PAH concentrations are not present on the west bank.

The sample locations proposed by GE, as modified by EPA's August 26, 2004 conditional approval letter, are described on Table 1 and shown on Figure 1. The nine samples collected from the 0- to 1-foot and/or 1- to 3-foot depth increments are shown on Figures 2 and 3, respectively. As shown in Table 1, these samples were collected for analysis for semivolatile organic compounds (SVOCs) including PAHs. These soil samples were collected on behalf of GE by Blasland, Bouck, & Lee, Inc. (BBL) between September 16 and September 20, 2004, while analytical services were provided by CT&E Environmental Services, Inc. All field and analytical activities were performed in accordance with GE's approved *Field Sampling Plan/Quality Assurance Plan* (FSP/QAPP). Soil boring logs for the additional supplemental pre-design investigations are presented in Attachment A.

The analytical results for the additional supplemental samples are presented in Table 2. This table presents SVOC results for only those constituents that were detected in one or more samples. A complete listing of the SVOC results is included in Attachment B.

With one exception (discussed below), the additional supplemental sampling activities were performed consistent with the proposals presented by GE and approved by EPA. The exception was that standing water at the proposed location for sample RAA15-E7BSE prevented sample collection at that location. Consequently, with the concurrence of EPA field personnel, the location for the RAA15-E7BSE was moved approximately 8 feet north from its proposed location. This movement did not affect the overall intended use of this or any of the other additional supplemental samples.

II. Data Quality Assessment

The additional supplemental soil data have undergone data quality review and validation in accordance with Section 7.5 of the FSP/QAPP. The results of this assessment are summarized in a data validation summary report presented in Attachment C. As indicated in that report, 100% of the supplemental pre-design data are considered to be usable. Further, there is no resampling needed as a result of this data validation.

III. Updates to Preliminary RD/RA Evaluations

As described above, at the time the Supplemental PDI Report was prepared, preliminary RD/RA evaluations for recreational area R2 indicated that concentrations of PAHs will likely not achieve applicable Performance Standards, due primarily to elevated PAHs at locations RAA15-E7 (0- to 1-foot depth increment) and RAA15-E8 (1- to 3-foot depth increment), as well as certain of the supplemental samples collected in the areas surrounding these locations. Consequently, as described in Part I, GE collected nine additional soil samples from the 0- to 1-foot and 1- to 3-foot at seven locations around RAA15-E7 and RAA15-E8 for analysis for SVOCs.

Based on the results of the recent data collection summarized in Part I, GE has determined that the additional supplemental samples collected from the 0- to 1-foot and 1- to 3-foot depth increments around the RAA15-E7 and RAA15-E8 locations do provide sufficient delineation to support removal of soil associated with the elevated PAHs at locations RAA15-E7 and RAA15-E8. In addition, samples RAA15-E7W and RAA15-F7, collected to the west of the ravine through which the intermittent stream flows in recreational area R2, show only low levels of PAHs. These samples therefore accomplish their objective of confirming that the elevated PAH concentrations found in the east bank of the ravine are not present on the west bank. In view of the results of the additional supplemental sampling, GE does not propose any additional subsurface sampling at the recreational area R2.

IV. Response to Condition No. 2 of EPA's August 26, 2004 Conditional Approval Letter

In Condition No. 2 of its August 26, 2004 conditional approval letter, EPA directed that GE clarify how three exceptions to the proposed supplemental Appendix IX+3 sampling conducted in May 2004, as identified in the Supplemental PDI Report, do not significantly affect the overall intended use of the proposed samples. As described in that report, refusal was encountered at three locations (RAA15-C5, RAA15-C11E, and YB-1) after several attempts to drill beyond subsurface obstructions at these locations. Specifically, at location RAA15-C6, during the initial pre-design investigation, refusal was met at ten feet, based on three attempts using jack-hammer equipment. In GE's January 28, 2004 submission, GE proposed (and EPA approved) that Appendix IX+3 samples be collected at the 10- to 15-foot depth increment at RAA15-C5, to replace the sample that could not be collected at this same depth at RAA15-C6. Refusal was met at RAA15-C5 at five feet, based on three attempts with a truck-mounted power probe. In the initial pre-design investigation, location RAA15-C11 was sampled and refusal was met at ten feet using a tractor-mounted power probe due to cobbles in the ground. Therefore, as proposed by GE (and approved by EPA) a replacement sample was to be collected from location RAA15-C11E at the 10- to 15-foot depth interval during the supplemental pre-design investigation. Refusal was met at seven feet at this location using a truck-mounted power probe. During the initial pre-design investigation, location RAA15-A11 was sampled, but refusal was encountered at three feet based on three attempts with a tractor-mounted power probe and a truck-mounted rig and augers. Therefore, in the supplemental pre-design investigation, location YB-1 was sampled, but refusal was met at three feet using a truck-mounted power probe. As a result of the refusals encountered during the supplemental pre-design investigation sampling, as discussed above, the proposed supplemental samples (10- to 15-foot depth interval) at locations RAA15-C5, RAA15-C11E, and YB-1 were not collected.

The inability to collect these samples, however, does not affect the ability to conduct appropriate RD/RA evaluations because data exist from other locations that are sufficient to support Appendix IX+3 RD/RA evaluations for the commercial part of Parcels K10-11-1 and K10-11-2 (where these samples would have been located). In addition, preliminary evaluations indicate that existing conditions within the parcels achieve the applicable Performance Standards for the 0- to 15-foot depth interval for these commercial properties. Further, levels of Appendix IX+3 constituents for the 6- to 10-foot interval at these averaging areas were low. Therefore, based on review of the available data for the commercial part of Parcels K10-11-2 and K10-11-2, GE has determined that sufficient Appendix IX+3 data exist to characterize surface and subsurface soils as described above.

V. Future Activities

In combination with the pre-design investigation soil data, as well as other previous soil data, the results from the additional pre-design soil sampling performed to date appear sufficient to characterize soils within the Former Oxbows Areas J and K and to support the necessary RD/RA evaluations for this RAA. As such, GE will submit the Conceptual RD/RA Work Plan for the Former Oxbow Area J and K RAA within two months from EPA's approval of this letter.

Please call Dick Gates or me if you have any questions or comments regarding this letter.

Sincerely,

Andrew T. Silfer /DAT

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

Attachments

V:\GE_Pittsfield_CD_Former_Oxbow_Areas_J_and_K\Reports and Presentations\Additional Supplemental PDI\71542196Ltr.doc

cc: Dean Tagliaferro, EPA
Tim Conway, EPA
Holly Inglis, EPA
Rose Howell, EPA*
Linda Palmieri, Weston
K.C. Mitkevicius, USACE
Susan Steenstrup, MDEP (2 copies)
Anna Symington, MDEP*
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Pittsfield Department of Health
Michael Carroll, GE*
Rod McLaren, GE
Richard Gates, GE
James Nuss, BBL
James Bieke, Goodwin Procter LLP
Property Owner - Parcel K10-10-3
Property Owner - Parcel K10-10-4
Property Owner - Parcel K10-10-5/6
Property Owner - Parcel K10-10-33
Property Owner - Parcel K10-11-1
Property Owner - Parcel K10-11-2
Anthony Doyle, Esq.
Property Owner - Parcel K10-11-3
Property Owner - Parcel K10-11-5
Emil George, Esq., George, DeGregorio, Massimiano & McCarthy
Property Owner - Parcel K10-12-1
Property Owner - Parcel K10-13-1
Public Information Repositories
GE Internal Repository

* *without attachments*

Tables

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TABLE 1
SUMMARY OF ADDITIONAL SUPPLEMENTAL SAMPLING LOCATIONS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREA J AND K REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Nearest Grid Node	Sample ID	Sample Depth (ft)	Analysis	Rationale
E7	RAA15-E7W	0-1	SVOCs	Further delineation for SVOCs (0- to 1-foot) on the west bank of recreational area R2.
		1-3	SVOCs	Further delineation for SVOCs (1- to 3-foot) on the west bank of recreational area R2.
E7	RAA15-E7BSE	1-3	SVOCs	Further delineation for SVOCs surrounding RAA15-E8 (1- to 3-foot) at recreational area R2.
E8	RAA15-E8NEE	1-3	SVOCs	Further delineation for SVOCs surrounding RAA15-E8 (1- to 3-foot) at recreational area R2.
E8	RAA15-E8NWNE	1-3	SVOCs	Further delineation for SVOCs surrounding RAA15-E8 (1- to 3-foot) at recreational area R2.
E8	RAA15-E8NENE	1-3	SVOCs	Further delineation for SVOCs surrounding RAA15-E8 (1- to 3-foot) at recreational area R2.
E8	RAA15-E8NWNW	1-3	SVOCs	Further delineation for SVOCs surrounding RAA15-E8 (1- to 3-foot) at recreational area R2.
F7	RAA15-F7	0-1	SVOCs	Further delineation for SVOCs (0- to 1-foot) on the west bank of recreational area R2.
		1-3	SVOCs	Further delineation for SVOCs (1- to 3-foot) on the west bank of recreational area R2.

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

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K 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 / Parcel Type:	EPA Region 9 Residential PRGs	RAA15-E7BSE 1-3 09/20/04 Recreational	RAA15-E7W 0-1 09/20/04 Recreational	RAA15-E7W 1-3 09/20/04 Recreational	RAA15-E8NEE 1-3 09/16/04 Recreational	RAA15-E8NENE 1-3 09/16/04 Recreational
Semivolatile Organics						
2-Picoline	***55***	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
3&4-Methylphenol	270	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)	ND(0.76)
Acenaphthene	2600	0.27 J	ND(0.49)	ND(0.44) [ND(0.44) J]	ND(0.35)	ND(0.38)
Acenaphthylene	55	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Acetophenone	0.49	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Anthracene	14000	0.57	ND(0.49)	ND(0.44) [ND(0.44)]	0.12 J	ND(0.38)
Benzo(a)anthracene	0.56	0.75	ND(0.49)	ND(0.44) [ND(0.44)]	0.19 J	ND(0.38)
Benzo(a)pyrene	0.056	0.33 J	ND(0.49)	ND(0.44) [ND(0.44)]	0.14 J	ND(0.38)
Benzo(b)fluoranthene	0.56	0.20 J	ND(0.49)	ND(0.44) [ND(0.44)]	0.10 J	ND(0.38)
Benzo(g,h,i)perylene	55	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	0.098 J	ND(0.38)
Benzo(k)fluoranthene	0.56	0.50	ND(0.49)	ND(0.44) [ND(0.44)]	0.16 J	ND(0.38)
Chrysene	56	0.86	ND(0.49)	ND(0.44) [ND(0.44)]	0.25 J	0.085 J
Dibenzo(a,h)anthracene	0.056	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Dibenzofuran	210	0.14 J	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Fluoranthene	2000	3.2	0.25 J	ND(0.44) [ND(0.44)]	0.54	0.16 J
Fluorene	1800	0.26 J	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Indeno(1,2,3-cd)pyrene	0.56	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Naphthalene	55	0.12 J	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Phenanthrene	55	2.6	0.16 J	ND(0.44) [ND(0.44)]	0.34 J	0.078 J
Phenol	33000	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)	ND(0.38)
Pyrene	1500	2.4	0.20 J	ND(0.44) [ND(0.44) J]	0.42	0.16 J

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

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K 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: / Parcel Type:	EPA Region 9 Residential PRGs	RAA15-E8NWNE 1-3 09/16/04 Recreational	RAA15-E8NWNW 1-3 09/16/04 Recreational	RAA15-F7 0-1 09/16/04 Recreational	RAA15-F7 1-3 09/16/04 Recreational
Semivolatile Organics					
2-Picoline	***55***	ND(0.36)	0.076 J	ND(0.50)	ND(0.46)
3&4-Methylphenol	270	ND(0.72)	0.28 J	ND(1.0)	ND(0.92)
Acenaphthene	2600	ND(0.36)	2.8	ND(0.50)	ND(0.46)
Acenaphthylene	55	ND(0.36)	4.0	0.13 J	ND(0.46)
Acetophenone	0.49	ND(0.36)	0.16 J	ND(0.50)	ND(0.46)
Anthracene	14000	ND(0.36)	14	0.25 J	0.11 J
Benzo(a)anthracene	0.56	0.10 J	27	0.57	0.18 J
Benzo(a)pyrene	0.056	ND(0.36)	14	0.46 J	0.12 J
Benzo(b)fluoranthene	0.56	ND(0.36)	11	0.23 J	ND(0.46)
Benzo(g,h,i)perylene	55	ND(0.36)	4.5	0.20 J	ND(0.46)
Benzo(k)fluoranthene	0.56	0.092 J	16	0.65	0.13 J
Chrysene	56	0.13 J	29	0.90	0.26 J
Dibenzo(a,h)anthracene	0.056	ND(0.36)	1.7	ND(0.50)	ND(0.46)
Dibenzofuran	210	ND(0.36)	4.3	ND(0.50)	ND(0.46)
Fluoranthene	2000	0.26 J	74	1.8	0.52
Fluorene	1800	ND(0.36)	6.3	ND(0.50)	ND(0.46)
Indeno(1,2,3-cd)pyrene	0.56	ND(0.36)	4.6	0.20 J	ND(0.46)
Naphthalene	55	ND(0.36)	3.2	ND(0.50)	ND(0.46)
Phenanthrene	55	0.15 J	57	0.99	0.47
Phenol	33000	ND(0.36)	0.24 J	ND(0.50)	ND(0.46)
Pyrene	1500	0.22 J	59	1.5	0.48

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

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K 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 submitted to SGS Environmental Services, Inc. for analysis of semivolatiles.
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved November 4, 2002 and resubmitted December 10, 2002).
3. ND - Analyte was not detected. The number in parentheses is the associated detection limit.
4. Only those constituents detected in one or more samples are summarized.
5. Field duplicate sample results are presented in brackets.
6. Shaded constituents indicate that one or more detected constituents exceed the corresponding soil PRG. The PRGs listed are those set forth in Attachment F to the *Statement of Work for Removal Actions Outside the River* or an EPA-approved surrogate (unless otherwise noted).
7. Recreational properties are compared to residential soil PRGs.
8. Shaded values indicate an exceedance of the corresponding soil PRG.
9. For 2-picoline, there is no Residential PRG. GE's risk assessment consultants at AMEC Earth and Environmental have identified pyridine as an appropriate surrogate based on chemical and toxicological similarity. The surrogate PRG is indicated in bold and italics.

Data Qualifiers:

Organics (semivolatiles)

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

Figures

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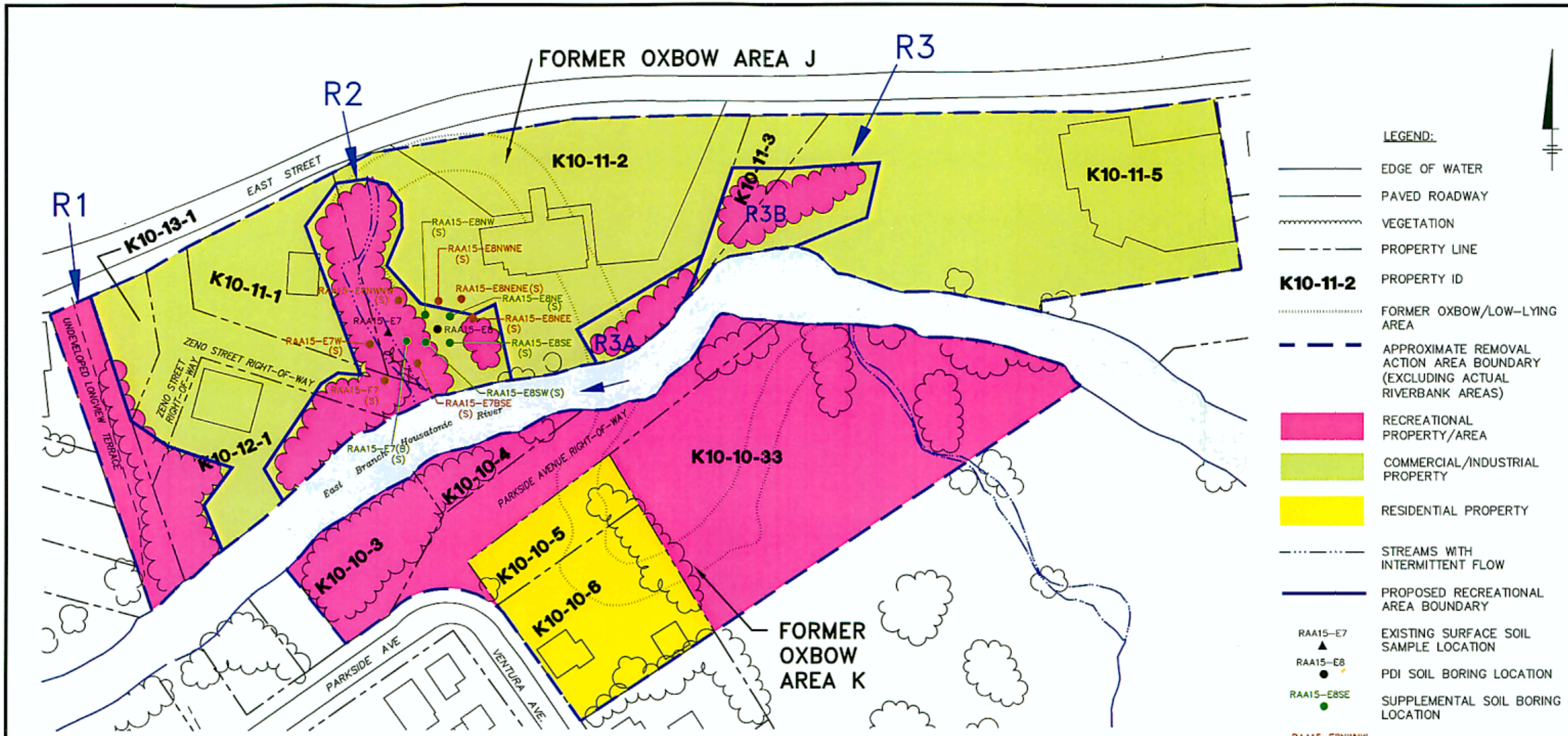

NOTES:

1. THE BASE MAP FEATURES PRESENTED ON THIS FIGURE WERE PHOTOGRAMMETRICALLY MAPPED FROM APRIL 1990 AERIAL PHOTOGRAPHS.
2. TAX ASSESSOR'S PARCEL IDENTIFICATION NUMBERS AND BOUNDARY INFORMATION OBTAINED FROM CITY OF PITTSFIELD'S TAX ASSESSOR'S OFFICE, CURRENT THROUGH MAY 2002.
3. PROPERTY USE DESIGNATIONS REFLECT CURRENT AND FORESEEABLE FUTURE USE.

X: 20425X04.DWG
L: ON=*, OFF=REF*
P: PAGESET/PLT-BL1
11/23/04 SYR-54-LAF DJP DMW
N/20425001/APPEN_IX/20425G13.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD MASSACHUSETTS

FORMER OXBOW AREAS J AND K

SUMMARY OF ADDITIONAL SUPPLEMENTAL SAMPLE LOCATIONS

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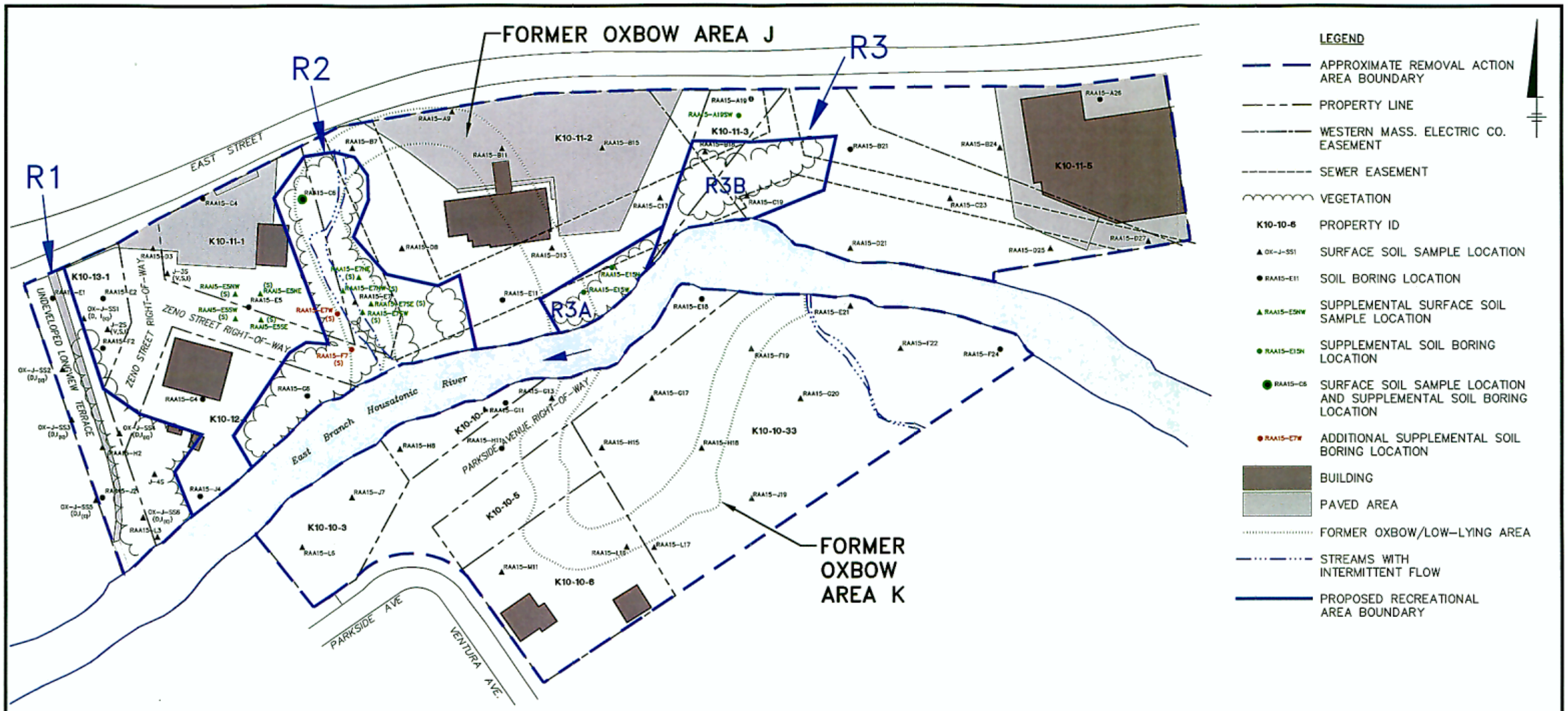
FIGURE 1



GENERAL NOTES:

1. BASE MAP MODIFIED FROM PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC – FLOWN IN APRIL 1990.
2. FORMER RIVER CHANNEL AND OXBOW/LOW-LYING AREAS DELINEATED USING THE CITY OF PITTSFIELD'S RECHANNELIZATION MAPPING, 1940.
3. EASEMENTS AND PROPERTY LINES ARE APPROXIMATE.
4. SOIL SAMPLES HAVE BEEN ANALYZED FOR ALL APPENDIX IX+3 CONSTITUENTS (EXCLUDING PESTICIDES AND HERBICIDES) UNLESS INDICATED IN PARENTHESES THAT THEY WERE ANALYZED ONLY FOR ONE OR MORE OF THE FOLLOWING CONSTITUENT GROUPS:

   V = VOLATILE ORGANIC COMPOUNDS (VOCs)
   S = SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)
   D = POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs) AND POLYCHLORINATED DIBENZOFURANS (PCDFs)
   I = INORGANICS
   $I_{(C)}$ = SAMPLE WAS ANALYZED FOR CYANIDE ONLY

0 100' 200'
GRAPHIC SCALE

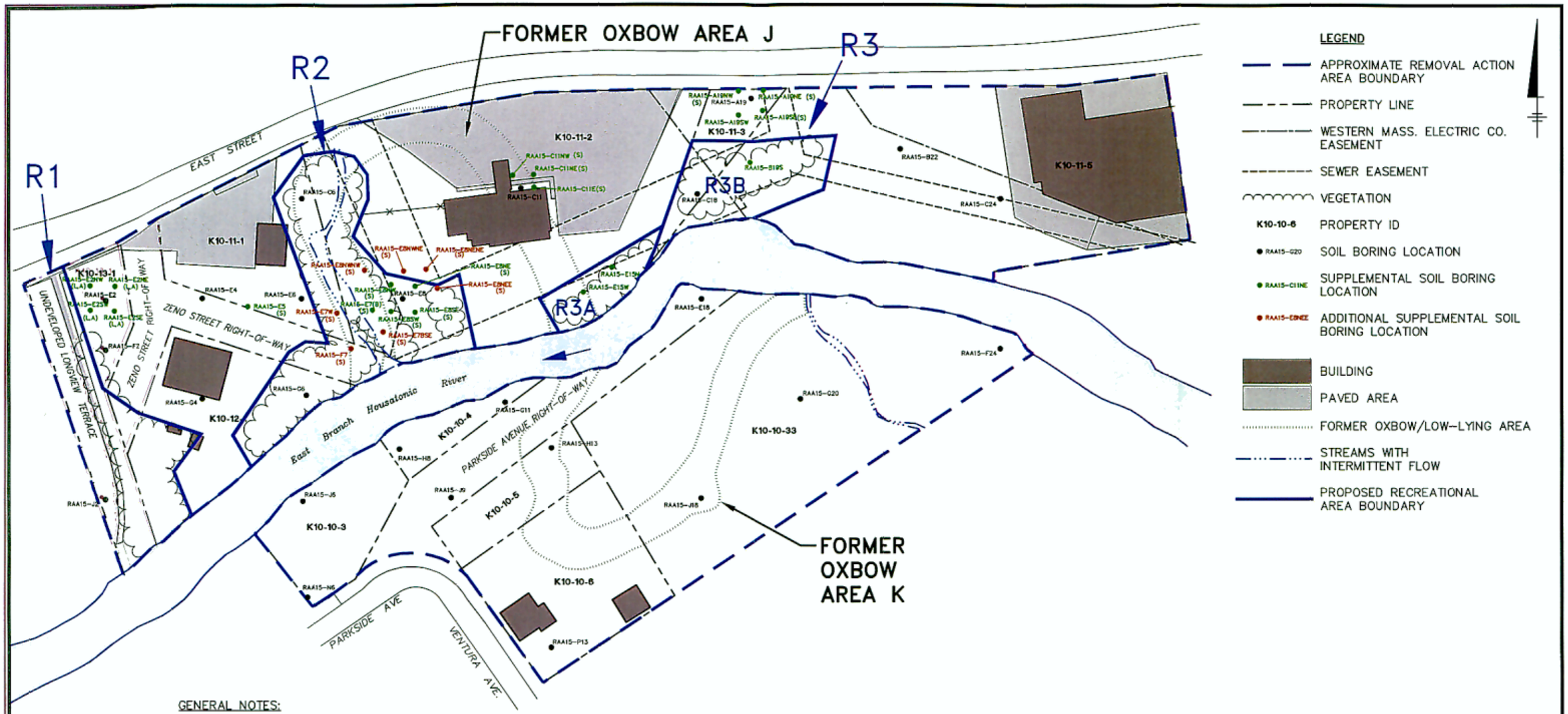
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
FORMER OXBOW AREAS J AND K

EXISTING APPENDIX IX + 3 SOIL SAMPLE LOCATIONS (0- TO 1- FOOT INTERVAL)

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

FIGURE 2

X: 20425X05.DWG
L: ON=*, OFF=REF*, |EASE-25, |FENCE, |*GRID, |SEWER, |SHD-ESMT, |STORM, *|U-
P: PAGESET/SYR-BL
11/19/04 SYR-BS-NES LAF DJP
N/20425001/APPEN_IX/20425G08.DWG



GENERAL NOTES:

1. BASE MAP MODIFIED FROM PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC – FLOWN IN APRIL 1990.
2. FORMER RIVER CHANNEL AND OXBOW/LOW-LYING AREAS DELINEATED USING THE CITY OF PITTSFIELD'S RECHANNELIZATION MAPPING, 1940.
3. EASEMENTS AND PROPERTY LINES ARE APPROXIMATE.
4. SOIL SAMPLES HAVE BEEN ANALYZED FOR ALL APPENDIX IX+3 CONSTITUENTS (EXCLUDING PESTICIDES AND HERBICIDES) UNLESS INDICATED IN PARENTHESES THAT THEY WERE ANALYZED ONLY FOR ONE OR MORE OF THE FOLLOWING CONSTITUENT GROUPS:

   V = VOLATILE ORGANIC COMPOUNDS (VOCs)
   S = SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)
   D = POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs) AND POLYCHLORINATED DIBENZOFURANS (PCDFs)
   I = INORGANICS
   L,A = LEAD AND ANTIMONY ONLY

5. (B) REFERS TO ADDITIONAL SUPPLEMENTAL DRILLING LOCATION NEEDED FOR VERTICAL DELINEATION.

0 100' 200'
GRAPHIC SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
FORMER OXBOW AREAS J AND K

EXISTING APPENDIX IX + 3 SOIL SAMPLE LOCATIONS (1- TO 3- FOOT INTERVAL)

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

FIGURE 3

X: 20425X05.DWG
L: ON=*, OFF=*REF, [EASE-25, [FENCE, [*GRID, [SEWER, [SHD-ESMT, [STORM,' *)-
P: PAGESET/SYR-BL1
11/23/04 SYR-85-LJP GNS DWW
N/20425001/APPEN_IX/20425G09.DWG

Attachments

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Attachment A

Soil Boring Logs

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Date Start/Finish: 9/20/04
Drilling Company: BBL
Driller's Name: JJB
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Hand Driven Macrocore
Sample Method: NA

Northing: 534223.6
Easting: 135535.6
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 974.5

Descriptions By: GAR

Boring ID: RAA15-E7BSE

Client: General Electric Company

Location: Former Oxbow Areas J and K
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
975 / 0							
	1	0-1	1.0	0.2		Brown fine SAND, some Silt, little organic material (roots).	Borehole backfilled with Bentonite.
	2	1-3	1.5	0.4		Brown fine to coarse SAND, some brick.	
970 / 5							
965 / 10							
960 / 15							

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

Project: 20425.002 Template:V:\GE_Pittsfield_CD_Former_Oxbow_Areas_J_and_K\Notes and Data\Logs\Addl_Suppl_Logs\J&Kaddlsuppl.ldf
Data File:RAA15-E7BSE.dat Date: 10/19/04

Date Start/Finish: 9/20/04
Drilling Company: BBL
Driller's Name: JJB
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Hand Driven Macrocore
Sample Method: NA

Northing: 534242.4
Easting: 135489.1
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 979.5

Descriptions By: GAR

Boring ID: RAA15-E7W

Client: General Electric Company

Location: Former Oxbow Areas J and K
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	1.0	0.2		Brown SILT, little fine Sand and Organic Material (roots).	Borehole backfilled with Bentonite.
	2	1-3	1.8	0.0		Light brown fine SAND, little Silt.	
975 / 5							
970 / 10							
965 / 15							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 0-1': SVOCs; 1-3': SVOCs;
MS/MSD collected (SVOCs, 0-1');
Duplicate Sample ID: RAA15-JKS-DUP-5 (SVOCs, 1-3').

Date Start/Finish: 9/16/04
Drilling Company: BBL
Driller's Name: NPL
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Tractor Mounted Power Probe
Sample Method: 4' Macrocore

Northing: 534267.3
Easting: 135589.7
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 986.1

Descriptions By: RCD

Boring ID: RAA15-E8NEE

Client: General Electric Company

Location: Former Oxbow Areas J and K
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
0							
985	1	0-1	2.9	0.0		Dark brown SILT, fine Sand, trace organic material, dry.	Borehole backfilled with Bentonite.
	2	1-3		0.0		Brown SILT and fine SAND, trace fine to medium Gravel, Concrete, and Asphalt debris, dry. [FILL]	
5							
980							
10							
975							
15							

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

Date Start/Finish: 9/16/04
Drilling Company: BBL
Driller's Name: NPL
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Tractor Mounted Power Probe
Sample Method: 4' Macrocore

Northing: 534286.4
Easting: 135578.4
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 987.1

Descriptions By: RCD

Boring ID: RAA15-E8NENE

Client: General Electric Company

Location: Former Oxbow Areas J and K
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
990							
0	1	0-1	3.0	0.0		Dark brown SILT and fine SAND, trace Organic Material and Asphalt debris, dry.	Borehole backfilled with Bentonite.
985	2	1-3		0.0		Brown SILT and fine SAND, fine to medium Gravel.	
5							
980							
10							
975							
15							

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

Date Start/Finish: 9/16/04
Drilling Company: BBL
Driller's Name: NPL
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Tractor Mounted Power Probe
Sample Method: 4' Macrocore

Northing: 534284.6
Easting: 135555.9
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 986.9

Descriptions By: RCD

Boring ID: RAA15-E8NWNE

Client: General Electric Company

Location: Former Oxbow Areas J and K
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
0							
	1	0-1	3.0	0.0		Dark brown SILT and fine SAND, Concrete and Asphalt debris, dry. [FILL]	Borehole backfilled with Bentonite.
985	2	1-3		0.0		Brown SILT and fine SAND, fine to medium Gravel, dry.	
5							
980							
10							
975							
15							

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

Date Start/Finish: 9/16/04
Drilling Company: BBL
Driller's Name: NPL
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Tractor Mounted Power Probe
Sample Method: 4' Macrocore

Northing: 534285.4
Easting: 135516.9
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 985.2

Descriptions By: RCD

Boring ID: RAA15-E8NWNW

Client: General Electric Company

Location: Former Oxbow Areas J and K
Additional Supplemental Sampling

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Boring Construction
0 / 985	1	0-1	2.5	0.0		Dark brown SILT and fine SAND, trace Organic Material, dry.	Borehole backfilled with Bentonite.
	2	1-3		0.0		Brown SILT and fine SAND, trace fine to medium Gravel and Organic Material (wood), dry.	
5 / 980							
10 / 975							
15 / 970							

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

Date Start/Finish: 9/16/04
Drilling Company: BBL
Driller's Name: NPL
Drilling Method: Direct Push
Auger Size: NA
Rig Type: Slide Hammer
Sample Method: 4' Macrocore

Northing: 534206.7
Easting: 135503.5
Casing Elevation: NA

Borehole Depth: 3' below grade
Surface Elevation: 980.9

Descriptions By: RCD

Boring ID: RAA15-F7

Client: General Electric Company

Location: Former Oxbow Areas J and K
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	1.0	0.0		Brown fine SAND, some Silt, trace organic material (roots), moist.	Borehole backfilled with Bentonite.
	2	1-3	2.0	0.0		Brown fine SAND, some Silt and fine to medium Gravel, wet.	
5 / 975							
10 / 970							
15 / 965							

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.
Analyses: 0-1': SVOCs; 1-3': SVOCs.

Attachment B

Appendix IX+3 Soil Analytical Results

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ATTACHMENT B
ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION SOIL SAMPLING DATA FOR APPENDIX IX+3 SOIL ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Sample ID: / Sample Depth(Feet): / Parameter / Date Collected:	RAA15-E7BSE 1-3 09/20/04	RAA15-E7W 0-1 09/20/04	RAA15-E7W 1-3 09/20/04	RAA15-E8NEE 1-3 09/16/04
Semivolatile Organics				
1,2,4,5-Tetrachlorobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
1,2,4-Trichlorobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44) J]	ND(0.35)
1,2-Dichlorobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
1,2-Diphenylhydrazine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
1,3,5-Trinitrobenzene	ND(0.47) J	ND(0.49) J	ND(0.44) J [ND(0.44) J]	ND(0.35) J
1,3-Dichlorobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
1,3-Dinitrobenzene	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
1,4-Dichlorobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44) J]	ND(0.35)
1,4-Naphthoquinone	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71) J
1-Naphthylamine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
2,3,4,6-Tetrachlorophenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2,4,5-Trichlorophenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2,4,6-Trichlorophenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2,4-Dichlorophenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2,4-Dimethylphenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2,4-Dinitrophenol	ND(2.4)	ND(2.5)	ND(2.3) [ND(2.3)]	ND(1.8) J
2,4-Dinitrotoluene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44) J]	ND(0.35)
2,6-Dichlorophenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2,6-Dinitrotoluene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2-Acetylaminofluorene	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
2-Chloronaphthalene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2-Chlorophenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2-Methylnaphthalene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2-Methylphenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
2-Naphthylamine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
2-Nitroaniline	ND(2.4)	ND(2.5)	ND(2.3) [ND(2.3)]	ND(1.8)
2-Nitrophenol	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
2-Picoline	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
3&4-Methylphenol	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
3,3'-Dichlorobenzidine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
3,3'-Dimethylbenzidine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
3-Methylcholanthrene	ND(0.94) J	ND(0.98) J	ND(0.89) J [ND(0.89) J]	ND(0.71) J
3-Nitroaniline	ND(2.4)	ND(2.5)	ND(2.3) [ND(2.3)]	ND(1.8)
4,6-Dinitro-2-methylphenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
4-Aminobiphenyl	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
4-Bromophenyl-phenylether	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
4-Chloro-3-Methylphenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
4-Chloroaniline	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
4-Chlorobenzilate	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
4-Chlorophenyl-phenylether	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
4-Nitroaniline	ND(2.4)	ND(2.5)	ND(2.3) [ND(2.3)]	ND(1.8)
4-Nitrophenol	ND(2.4) J	ND(2.5) J	ND(2.3) J [ND(2.3) J]	ND(1.8) J
4-Nitroquinoline-1-oxide	ND(0.94) J	ND(0.98) J	ND(0.89) J [ND(0.89) J]	ND(0.71) J
4-Phenylenediamine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
5-Nitro-o-toluidine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
7,12-Dimethylbenz(a)anthracene	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
a,a'-Dimethylphenethylamine	ND(0.94) J	ND(0.98) J	ND(0.89) J [ND(0.89) J]	ND(0.71)
Acenaphthene	0.27 J	ND(0.49)	ND(0.44) [ND(0.44) J]	ND(0.35)
Acenaphthylene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Acetophenone	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Aniline	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Anthracene	0.57	ND(0.49)	ND(0.44) [ND(0.44)]	0.12 J
Aramite	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
Benzidine	ND(0.94) J	ND(0.98) J	ND(0.89) J [ND(0.89) J]	ND(0.71) J
Benzo(a)anthracene	0.75	ND(0.49)	ND(0.44) [ND(0.44)]	0.19 J
Benzo(a)pyrene	0.33 J	ND(0.49)	ND(0.44) [ND(0.44)]	0.14 J
Benzo(b)fluoranthene	0.20 J	ND(0.49)	ND(0.44) [ND(0.44)]	0.10 J

ATTACHMENT B
ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION SOIL SAMPLING DATA FOR APPENDIX IX+3 SOIL ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Parameter / Sample ID:	RAA15-E7BSE	RAA15-E7W	RAA15-E7W	RAA15-E8NEE
Sample Depth(Feet):	1-3	0-1	1-3	1-3
Date Collected:	09/20/04	09/20/04	09/20/04	09/16/04
Semivolatile Organics (continued)				
Benzo(g,h,i)perylene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	0.098 J
Benzo(k)fluoranthene	0.50	ND(0.49)	ND(0.44) [ND(0.44)]	0.16 J
Benzyl Alcohol	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
bis(2-Chloroethoxy)methane	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
bis(2-Chloroethyl)ether	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
bis(2-Chloroisopropyl)ether	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
bis(2-Ethylhexyl)phthalate	ND(0.46)	ND(0.48)	ND(0.44) [ND(0.44)]	ND(0.35)
Butylbenzylphthalate	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Chrysene	0.86	ND(0.49)	ND(0.44) [ND(0.44)]	0.25 J
Diallate	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
Dibenzo(a,h)anthracene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Dibenzofuran	0.14 J	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Diethylphthalate	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Dimethylphthalate	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Di-n-Butylphthalate	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Di-n-Octylphthalate	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Diphenylamine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Ethyl Methanesulfonate	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Fluoranthene	3.2	0.25 J	ND(0.44) [ND(0.44)]	0.54
Fluorene	0.26 J	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Hexachlorobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Hexachlorobutadiene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Hexachlorocyclopentadiene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Hexachloroethane	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Hexachlorophene	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
Hexachloropropene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Indeno(1,2,3-cd)pyrene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Isodrin	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Isophorone	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Isosafrole	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71) J
Methapyrilene	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71) J
Methyl Methanesulfonate	ND(0.47) J	ND(0.49) J	ND(0.44) J [ND(0.44) J]	ND(0.35)
Naphthalene	0.12 J	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Nitrobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
N-Nitrosodiethylamine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
N-Nitrosodimethylamine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
N-Nitroso-di-n-butylamine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
N-Nitroso-di-n-propylamine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44) J]	ND(0.35)
N-Nitrosodiphenylamine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
N-Nitrosomethylethylamine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
N-Nitrosomorpholine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
N-Nitrosopiperidine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
N-Nitrosopyrrolidine	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
o,o,o-Triethylphosphorothioate	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
o-Toluidine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
p-Dimethylaminoazobenzene	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71) J
Pentachlorobenzene	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Pentachloroethane	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Pentachloronitrobenzene	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
Pentachlorophenol	ND(2.4)	ND(2.5)	ND(2.3) [ND(2.3)]	ND(1.8)
Phenacetin	ND(0.94)	ND(0.98)	ND(0.89) [ND(0.89)]	ND(0.71)
Phenanthrene	2.6	0.16 J	ND(0.44) [ND(0.44)]	0.34 J
Phenol	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Pronamide	ND(0.47) J	ND(0.49) J	ND(0.44) J [ND(0.44) J]	ND(0.35)
Pyrene	2.4	0.20 J	ND(0.44) [ND(0.44) J]	0.42
Pyridine	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Safrole	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)
Thionazin	ND(0.47)	ND(0.49)	ND(0.44) [ND(0.44)]	ND(0.35)

ATTACHMENT B
ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION SOIL SAMPLING DATA FOR APPENDIX IX+3 SOIL ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Sample ID: / Sample Depth(Feet): / Parameter / Date Collected:	RAA15-E8NENE 1-3 09/16/04	RAA15-E8NWNE 1-3 09/16/04	RAA15-E8NWNW 1-3 09/16/04	RAA15-F7 0-1 09/16/04	RAA15-F7 1-3 09/16/04
Semivolatile Organics					
1,2,4,5-Tetrachlorobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
1,2,4-Trichlorobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
1,2-Dichlorobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
1,2-Diphenylhydrazine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
1,3,5-Trinitrobenzene	ND(0.38) J	ND(0.36) J	ND(0.35) J	ND(0.50) J	ND(0.46) J
1,3-Dichlorobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
1,3-Dinitrobenzene	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
1,4-Dichlorobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
1,4-Naphthoquinone	ND(0.76) J	ND(0.72) J	ND(0.70) J	ND(1.0) J	ND(0.92) J
1-Naphthylamine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
2,3,4,6-Tetrachlorophenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2,4,5-Trichlorophenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2,4,6-Trichlorophenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2,4-Dichlorophenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2,4-Dimethylphenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2,4-Dinitrophenol	ND(1.9) J	ND(1.8) J	ND(1.8) J	ND(2.6) J	ND(2.3) J
2,4-Dinitrotoluene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2,6-Dichlorophenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2,6-Dinitrotoluene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2-Acetylaminofluorene	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
2-Chloronaphthalene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2-Chlorophenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2-Methylnaphthalene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2-Methylphenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
2-Naphthylamine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
2-Nitroaniline	ND(1.9)	ND(1.8)	ND(1.8)	ND(2.6)	ND(2.3)
2-Nitrophenol	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
2-Picoline	ND(0.38)	ND(0.36)	0.076 J	ND(0.50)	ND(0.46)
3&4-Methylphenol	ND(0.76)	ND(0.72)	0.28 J	ND(1.0)	ND(0.92)
3,3'-Dichlorobenzidine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
3,3'-Dimethylbenzidine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
3-Methylcholanthrene	ND(0.76) J	ND(0.72) J	ND(0.70) J	ND(1.0) J	ND(0.92) J
3-Nitroaniline	ND(1.9)	ND(1.8)	ND(1.8)	ND(2.6)	ND(2.3)
4,6-Dinitro-2-methylphenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
4-Aminobiphenyl	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
4-Bromophenyl-phenylether	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
4-Chloro-3-Methylphenol	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
4-Chloroaniline	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
4-Chlorobenzilate	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
4-Chlorophenyl-phenylether	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
4-Nitroaniline	ND(1.9)	ND(1.8)	ND(1.8)	ND(2.6)	ND(2.3)
4-Nitrophenol	ND(1.9) J	ND(1.8) J	ND(1.8) J	ND(2.6) J	ND(2.3) J
4-Nitroquinoline-1-oxide	ND(0.76) J	ND(0.72) J	ND(0.70) J	ND(1.0) J	ND(0.92) J
4-Phenylenediamine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
5-Nitro-o-toluidine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
7,12-Dimethylbenz(a)anthracene	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
a,a'-Dimethylphenethylamine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
Acenaphthene	ND(0.38)	ND(0.36)	2.8	ND(0.50)	ND(0.46)
Acenaphthylene	ND(0.38)	ND(0.36)	4.0	0.13 J	ND(0.46)
Acetophenone	ND(0.38)	ND(0.36)	0.16 J	ND(0.50)	ND(0.46)
Aniline	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Anthracene	ND(0.38)	ND(0.36)	14	0.25 J	0.11 J
Aramite	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
Benzidine	ND(0.76) J	ND(0.72) J	ND(0.70) J	ND(1.0) J	ND(0.92) J
Benzo(a)anthracene	ND(0.38)	0.10 J	27	0.57	0.18 J
Benzo(a)pyrene	ND(0.38)	ND(0.36)	14	0.46 J	0.12 J
Benzo(b)fluoranthene	ND(0.38)	ND(0.36)	11	0.23 J	ND(0.46)

ATTACHMENT B
ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION SOIL SAMPLING DATA FOR APPENDIX IX+3 SOIL ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight parts per million, ppm)

Sample ID: / Sample Depth(Feet): / Parameter / Date Collected:	RAA15-E8NENE 1-3 09/16/04	RAA15-E8NWNE 1-3 09/16/04	RAA15-E8NWNW 1-3 09/16/04	RAA15-F7 0-1 09/16/04	RAA15-F7 1-3 09/16/04
Semivolatile Organics (continued)					
Benzo(g,h,i)perylene	ND(0.38)	ND(0.36)	4.5	0.20 J	ND(0.46)
Benzo(k)fluoranthene	ND(0.38)	0.092 J	16	0.65	0.13 J
Benzyl Alcohol	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
bis(2-Chloroethoxy)methane	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
bis(2-Chloroethyl)ether	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
bis(2-Chloroisopropyl)ether	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
bis(2-Ethylhexyl)phthalate	ND(0.37)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.45)
Butylbenzylphthalate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Chrysene	0.085 J	0.13 J	29	0.90	0.26 J
Diallate	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
Dibenzo(a,h)anthracene	ND(0.38)	ND(0.36)	1.7	ND(0.50)	ND(0.46)
Dibenzofuran	ND(0.38)	ND(0.36)	4.3	ND(0.50)	ND(0.46)
Diethylphthalate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Dimethylphthalate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Di-n-Butylphthalate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Di-n-Octylphthalate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Diphenylamine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Ethyl Methanesulfonate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Fluoranthene	0.16 J	0.26 J	74	1.8	0.52
Fluorene	ND(0.38)	ND(0.36)	6.3	ND(0.50)	ND(0.46)
Hexachlorobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Hexachlorobutadiene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Hexachlorocyclopentadiene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Hexachloroethane	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Hexachlorophene	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
Hexachloropropene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Indeno(1,2,3-cd)pyrene	ND(0.38)	ND(0.36)	4.6	0.20 J	ND(0.46)
Isodrin	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Isophorone	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Isosafrole	ND(0.76) J	ND(0.72) J	ND(0.70) J	ND(1.0) J	ND(0.92) J
Methapyrilene	ND(0.76) J	ND(0.72) J	ND(0.70) J	ND(1.0) J	ND(0.92) J
Methyl Methanesulfonate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Naphthalene	ND(0.38)	ND(0.36)	3.2	ND(0.50)	ND(0.46)
Nitrobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
N-Nitrosodiethylamine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
N-Nitrosodimethylamine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
N-Nitroso-di-n-butylamine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
N-Nitroso-di-n-propylamine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
N-Nitrosodiphenylamine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
N-Nitrosomethylethylamine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
N-Nitrosomorpholine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
N-Nitrosopiperidine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
N-Nitrosopyrrolidine	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
o,o,o-Triethylphosphorothioate	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
o-Toluidine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
p-Dimethylaminoazobenzene	ND(0.76) J	ND(0.72) J	ND(0.70) J	ND(1.0) J	ND(0.92) J
Pentachlorobenzene	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Pentachloroethane	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Pentachloronitrobenzene	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
Pentachlorophenol	ND(1.9)	ND(1.8)	ND(1.8)	ND(2.6)	ND(2.3)
Phenacetin	ND(0.76)	ND(0.72)	ND(0.70)	ND(1.0)	ND(0.92)
Phenanthrene	0.078 J	0.15 J	57	0.99	0.47
Phenol	ND(0.38)	ND(0.36)	0.24 J	ND(0.50)	ND(0.46)
Pronamide	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Pyrene	0.16 J	0.22 J	59	1.5	0.48
Pyridine	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Safrole	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)
Thionazin	ND(0.38)	ND(0.36)	ND(0.35)	ND(0.50)	ND(0.46)

ATTACHMENT B
ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION SOIL SAMPLING DATA FOR APPENDIX IX+3 SOIL ANALYTICAL RESULTS

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR FORMER OXBOW AREAS J AND K 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 submitted to SGS Environmental Services, Inc. for analysis of semivolatiles.
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved November 4, 2002 and resubmitted December 10, 2002).
3. ND - Analyte was not detected. The number in parentheses is the associated detection limit.
4. Field duplicate sample results are presented in brackets.

Data Qualifiers:

Organics (semivolatiles)

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

Attachment C

Soil Sampling Validation Report for Additional Supplemental Samples

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engineers, scientists, economists

ATTACHMENT C
SOIL SAMPLING DATA VALIDATION REPORT

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR THE FORMER OXBOW AREAS J AND K REMOVAL ACTION

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

1.0 General

This attachment summarizes the Tier I and Tier II data reviews performed for additional soil samples collected during Supplemental Pre-Design Investigation activities conducted in support of the Removal Design/Removal Action (RD/RA) for the Former Oxbow Areas J and K Removal Action in Pittsfield, Massachusetts. The samples were analyzed for semi-volatile organic compounds (SVOC) listed in Appendix IX of 40 CFR Part 264, plus two additional SVOC constituents -- benzidine, and 1,2-diphenylhydrazine by SGS Environmental Services, Inc. (formerly CT&E) of Charleston, West Virginia. Data validation was performed for 11 SVOC 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 review was 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 May 25, 2004 and resubmitted June 15, 2004);
- *Region I Tiered Organic and Inorganic Data Validation Guidelines*, USEPA Region I (July 1, 1993);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (February 1, 1988) (Modified November 1, 1988); and
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (Draft, December 1996).

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

The following data qualifiers were used in this data evaluation:

J The compound was positively identified, but the associated numerical 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 is detected at an estimated concentration less than the corresponding practical quantitation limit (PQL).

U The compound 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-detect sample results are presented as ND(PQL) within this report and in Table C-1 for consistency with documents previously prepared for investigations conducted at this site.

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

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, July 31, 1991), to ensure that all laboratory data and documentation were present. In the event that 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 the USEPA Region I Tier I data completeness requirements. A tabulated summary of the samples subjected to Tier I and Tier II data evaluation is presented in the following table.

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	9	1	1	11
Total	**0**	**0**	**0**	**9**	**1**	**1**	**11**

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, approximately 25% of the laboratory sample delivery group packages were randomly chosen to be subjected to Tier II review. 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 initial calibration criterion for organic analyses requires that the average relative response factor (RRF) has a value greater than 0.05. Sample results were qualified as estimated (J) when this criterion was not met. The compound that did not meet the initial calibration criterion and the number of samples qualified are presented in the following table.

Compound Qualified Due to Initial Calibration Deviations (RRF)

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	4-Nitroquinoline-1-oxide	11	J

The continuing calibration criterion for SVOCs requires that the continuing calibration RRF have a value greater than 0.05. Sample data for detect and non-detect compounds with RRF values greater than 0.05 were qualified as estimated (J). The compound that exceeded continuing calibration criterion and the number of samples qualified due to those exceedences are presented in the following table.

Compound Qualified Due to Continuing Calibration Deviations (RRF)

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	1,3,5-Trinitrobenzene	11	J

Several of the organic compounds (including the compounds presented in the above tables detailing RRF deviations) exhibit instrument response factors (RFs) below the USEPA Region I minimum value of 0.05, but meet the analytical method criterion, which does not specify minimum RFs for these compounds. These compounds were analyzed by the laboratory at a higher concentration than the compounds that normally exhibit RFs greater than the USEPA Region I minimum value of 0.05 in an effort to demonstrate acceptable response. USEPA Region I guidelines state that non-detect compound results associated with a RF less than the minimum value of 0.05 are to be rejected (R). However, in the case of these select organic compounds, the RF is an inherent problem with the current analytical methodology; therefore, the non-detect sample results were qualified as estimated (J).

The initial calibration criterion requires that the percent relative standard deviation (%RSD) must be less than or equal to 30%. Sample data for detect and non-detect compounds with %RSD values greater than 30% were qualified as estimated (J). The compound that exceeded initial calibration criterion and the number of samples qualified due to those deviations are presented in the following table.

Compound Qualified Due to Exceedence of %RSD Values

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	4-Nitrophenol	11	J

The continuing calibration criterion requires that the percent difference (%D) between the initial calibration RRF and the continuing calibration RRF for SVOCs be less than 25%. Sample data for detected and non-detect compounds with %D values that exceeded the continuing calibration criteria were qualified as estimated (J). A summary of the compounds that exceeded the continuing calibration criterion and the number of samples qualified due to those deviations are presented in the following table.

Compounds Qualified Due to Continuing Calibration of %D Values

Analysis	Compounds	Number of Affected Samples	Qualification
SVOCs	1,4-Naphthoquinone	6	J
	2,4-Dinitrophenol	6	J
	3-Methylcholanthrene	11	J
	4-Nitrophenol	6	J
	4-Nitroquinoline-1-oxide	6	J
	a,a'-Dimethylphenethylamine	5	J
	Benzidine	11	J
	Isosafrole	6	J
	Methapyrilene	6	J
	Methyl Methanesulfonate	5	J
	p-Dimethylaminoazobenzene	6	J
	Pronamide	5	J

Matrix spike/matrix spike duplicate (MS/MSD) sample analysis recovery criteria for organics require that the MS/MSD recovery be within the laboratory-generated QC control limits specified on the MS reporting form. Associated sample results with MS/MSD recoveries that were less than the laboratory-generated QC control limits and have recoveries greater than 10% were qualified as estimated (J). The compounds that did not meet MS/MSD recovery criteria and the number of samples qualified due to those deviations are presented in the following table.

Compounds Qualified Due to MS/MSD Recovery Deviations

Analysis	Compounds	Number of Affected Samples	Qualification
SVOCs	1,2,4-Trichlorobenzene	1	J
	1,4-Dichlorobenzene	1	J
	2,4-Dinitrotoluene	1	J
	4-Nitrophenol	1	J
	Acenaphthene	1	J
	N-Nitroso-di-n-propylamine	1	J
	Pyrene	1	J

MS/MSD sample analysis recovery criteria for organics require that the RPD between the MS and MSD be less than the laboratory-generated QC acceptance limits specified on the MS/MSD reporting form. The compounds that exceeded RPD limits and the number of samples qualified due to deviations are presented in the following table.

Compounds Qualified Due to MS/MSD RPD Deviations

Analysis	Compounds	Number of Affected Samples	Qualification
SVOCs	1,2,4-Trichlorobenzene	1	J
	Acenaphthene	1	J
	Pyrene	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 that have been determined to be usable during the data validation process. The percent usability calculation included analyses evaluated under both the Tier I and Tier II data validation reviews. Data completeness with respect to usability was calculated separately for inorganic and each of the organic analysis. 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 in the following table.

Data Usability

Parameter	Percent Usability	Rejected Data
SVOCs	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 field duplicates and MS/MSD samples. For this analytical program, 0.24% of the data required qualification due to MS/MSD RPD deviations. None of the data required qualification due to field duplicate 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, and surrogate compound recoveries. For this analytical program, 6.8% of the data required qualification due to instrument calibration deviations, and 0.95% of the data required qualification due to MS/MSD recovery deviations. None of the data required qualification due to internal standard deviations, Laboratory Control Standards (LCSs) recovery deviations or surrogate recovery deviations.

5.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents 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 MDEP-approved work plans, and by following the procedures for sample collection/analyses that were described in the FSP/QAPP. Additionally, the analytical program used procedures 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 due to holding time requirements.

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 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. This analytical data set had an overall usability of 100%.

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

TABLE C - 1
ANALYTICAL DATA VALIDATION SUMMARY

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR THE FORMER OXBOW AREAS J AND K REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs											
410P382	RAA15-E8NEE (1 - 3)	9/16/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.042	>0.05	ND(0.35) J	
						1,4-Naphthoquinone	CCAL %D	37.5%	<25%	ND(0.71) J	
						2,4-Dinitrophenol	CCAL %D	82.6%	<25%	ND(1.8) J	
						3-Methylcholanthrene	CCAL %D	32.2%	<25%	ND(0.71) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(1.8) J	
						4-Nitrophenol	CCAL %D	80.8%	<25%	ND(1.8) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.71) J	
						4-Nitroquinoline-1-oxide	CCAL %D	79.4%	<25%	ND(0.71) J	
						Benzidine	CCAL %D	88.4%	<25%	ND(0.71) J	
						Isosafrole	CCAL %D	40.4%	<25%	ND(0.71) J	
						Methapyrilene	CCAL %D	44.3%	<25%	ND(0.71) J	
						p-Dimethylaminoazobenzene	CCAL %D	29.5%	<25%	ND(0.71) J	
410P382	RAA15-E8NENE (1 - 3)	9/16/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.042	>0.05	ND(0.38) J	
						1,4-Naphthoquinone	CCAL %D	37.5%	<25%	ND(0.76) J	
						2,4-Dinitrophenol	CCAL %D	82.6%	<25%	ND(1.9) J	
						3-Methylcholanthrene	CCAL %D	32.2%	<25%	ND(0.76) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(1.9) J	
						4-Nitrophenol	CCAL %D	80.8%	<25%	ND(1.9) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.76) J	
						4-Nitroquinoline-1-oxide	CCAL %D	79.4%	<25%	ND(0.76) J	
						Benzidine	CCAL %D	88.4%	<25%	ND(0.76) J	
						Isosafrole	CCAL %D	40.4%	<25%	ND(0.76) J	
						Methapyrilene	CCAL %D	44.3%	<25%	ND(0.76) J	
						p-Dimethylaminoazobenzene	CCAL %D	29.5%	<25%	ND(0.76) J	
410P382	RAA15-E8NWNE (1 - 3)	9/16/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.042	>0.05	ND(0.36) J	
						1,4-Naphthoquinone	CCAL %D	37.5%	<25%	ND(0.72) J	
						2,4-Dinitrophenol	CCAL %D	82.6%	<25%	ND(1.8) J	
						3-Methylcholanthrene	CCAL %D	32.2%	<25%	ND(0.72) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(1.8) J	
						4-Nitrophenol	CCAL %D	80.8%	<25%	ND(1.8) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.72) J	
						4-Nitroquinoline-1-oxide	CCAL %D	79.4%	<25%	ND(0.72) J	
						Benzidine	CCAL %D	88.4%	<25%	ND(0.72) J	
						Isosafrole	CCAL %D	40.4%	<25%	ND(0.72) J	
						Methapyrilene	CCAL %D	44.3%	<25%	ND(0.72) J	
						p-Dimethylaminoazobenzene	CCAL %D	29.5%	<25%	ND(0.72) J	
410P382	RAA15-E8NWNW (1 - 3)	9/16/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.042	>0.05	ND(0.35) J	
						1,4-Naphthoquinone	CCAL %D	37.5%	<25%	ND(0.70) J	
						2,4-Dinitrophenol	CCAL %D	82.6%	<25%	ND(1.8) J	
						3-Methylcholanthrene	CCAL %D	32.2%	<25%	ND(0.70) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(1.8) J	
						4-Nitrophenol	CCAL %D	80.8%	<25%	ND(1.8) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.70) J	
						4-Nitroquinoline-1-oxide	CCAL %D	79.4%	<25%	ND(0.70) J	
						Benzidine	CCAL %D	88.4%	<25%	ND(0.70) J	
						Isosafrole	CCAL %D	40.4%	<25%	ND(0.70) J	
						Methapyrilene	CCAL %D	44.3%	<25%	ND(0.70) J	
						p-Dimethylaminoazobenzene	CCAL %D	29.5%	<25%	ND(0.70) J	
410P382	RAA15-F7 (0 - 1)	9/16/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.042	>0.05	ND(0.50) J	
						1,4-Naphthoquinone	CCAL %D	37.5%	<25%	ND(1.0) J	
						2,4-Dinitrophenol	CCAL %D	82.6%	<25%	ND(2.6) J	
						3-Methylcholanthrene	CCAL %D	32.2%	<25%	ND(1.0) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(2.6) J	
						4-Nitrophenol	CCAL %D	80.8%	<25%	ND(2.6) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(1.0) J	
						4-Nitroquinoline-1-oxide	CCAL %D	79.4%	<25%	ND(1.0) J	
						Benzidine	CCAL %D	88.4%	<25%	ND(1.0) J	
						Isosafrole	CCAL %D	40.4%	<25%	ND(1.0) J	
						Methapyrilene	CCAL %D	44.3%	<25%	ND(1.0) J	
						p-Dimethylaminoazobenzene	CCAL %D	29.5%	<25%	ND(1.0) J	
410P382	RAA15-F7 (1 - 3)	9/16/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.042	>0.05	ND(0.46) J	
						1,4-Naphthoquinone	CCAL %D	37.5%	<25%	ND(0.92) J	
						2,4-Dinitrophenol	CCAL %D	82.6%	<25%	ND(2.3) J	
						3-Methylcholanthrene	CCAL %D	32.2%	<25%	ND(0.92) J	

TABLE C - 1
ANALYTICAL DATA VALIDATION SUMMARY

ADDITIONAL SUPPLEMENTAL PRE-DESIGN INVESTIGATION REPORT FOR THE FORMER OXBOW AREAS J AND K REMOVAL ACTION
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs (continued)											
410P382	RAA15-F7 (1 - 3)	9/16/2004	Soil	Tier II	Yes	4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(2.3) J	
						4-Nitrophenol	CCAL %D	80.8%	<25%	ND(2.3) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.92) J	
						4-Nitroquinoline-1-oxide	CCAL %D	79.4%	<25%	ND(0.92) J	
						Benzidine	CCAL %D	88.4%	<25%	ND(0.92) J	
						Isosafrole	CCAL %D	40.4%	<25%	ND(0.92) J	
						Methapyrilene	CCAL %D	44.3%	<25%	ND(0.92) J	
						p-Dimethylaminoazobenzene	CCAL %D	29.5%	<25%	ND(0.92) J	
410P457	RAA15-E7BSE (1 - 3)	9/20/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.038	>0.05	ND(0.47) J	
						3-Methylcholanthrene	CCAL %D	28.3%	<25%	ND(0.94) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(2.4) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.94) J	
						a,a'-Dimethylphenethylamine	CCAL %D	37.6%	<25%	ND(0.94) J	
						Benzidine	CCAL %D	31.7%	<25%	ND(0.94) J	
						Methyl Methanesulfonate	CCAL %D	33.5%	<25%	ND(0.47) J	
						Pronamide	CCAL %D	36.9%	<25%	ND(0.47) J	
410P457	RAA15-E7W (0 - 1)	9/20/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.038	>0.05	ND(0.49) J	
						3-Methylcholanthrene	CCAL %D	28.3%	<25%	ND(0.98) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(2.5) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.98) J	
						a,a'-Dimethylphenethylamine	CCAL %D	37.6%	<25%	ND(0.98) J	
						Benzidine	CCAL %D	31.7%	<25%	ND(0.98) J	
						Methyl Methanesulfonate	CCAL %D	33.5%	<25%	ND(0.49) J	
						Pronamide	CCAL %D	36.9%	<25%	ND(0.49) J	
410P457	RAA15-E7W (1 - 3)	9/20/2004	Soil	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.038	>0.05	ND(0.44) J	
						3-Methylcholanthrene	CCAL %D	28.3%	<25%	ND(0.89) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(2.3) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.89) J	
						a,a'-Dimethylphenethylamine	CCAL %D	37.6%	<25%	ND(0.89) J	
						Benzidine	CCAL %D	31.7%	<25%	ND(0.89) J	
						Methyl Methanesulfonate	CCAL %D	33.5%	<25%	ND(0.44) J	
						Pronamide	CCAL %D	36.9%	<25%	ND(0.44) J	
410P457	RAA15-JKS-DUP-5 (1 - 3)	9/20/2004	Soil	Tier II	Yes	1,2,4-Trichlorobenzene	MS %R	14.1%	38% to 107%	ND(0.44) J	RAA15-E7W
						1,2,4-Trichlorobenzene	MSD %R	23.4%	38% to 107%	ND(0.44) J	
						1,2,4-Trichlorobenzene	MS/MSD RPD	49.4%	<23%	ND(0.44) J	
						1,3,5-Trinitrobenzene	CCAL RRF	0.038	>0.05	ND(0.44) J	
						1,4-Dichlorobenzene	MS %R	19.5%	28% to 104%	ND(0.44) J	
						1,4-Dichlorobenzene	MSD %R	23.4%	28% to 104%	ND(0.44) J	
						2,4-Dinitrotoluene	MS %R	23.9%	28% to 89%	ND(0.44) J	
						3-Methylcholanthrene	CCAL %D	28.3%	<25%	ND(0.89) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(2.3) J	
						4-Nitrophenol	MS %R	10.0%	11% to 114%	ND(2.3) J	
						4-Nitrophenol	MSD %R	10.0%	11% to 114%	ND(2.3) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.89) J	
						a,a'-Dimethylphenethylamine	CCAL %D	37.6%	<25%	ND(0.89) J	
						Acenaphthene	MS %R	16.5%	31% to 137%	ND(0.44) J	
						Acenaphthene	MSD %R	30.0%	31% to 137%	ND(0.44) J	
						Acenaphthene	MS/MSD RPD	57.8%	<19%	ND(0.44) J	
						Benzidine	CCAL %D	31.7%	<25%	ND(0.89) J	
						Methyl Methanesulfonate	CCAL %D	33.5%	<25%	ND(0.44) J	
						N-Nitroso-di-n-propylamine	MS %R	27.1%	41% to 126%	ND(0.44) J	
						N-Nitroso-di-n-propylamine	MSD %R	31.2%	41% to 126%	ND(0.44) J	
						Pronamide	CCAL %D	36.9%	<25%	ND(0.44) J	
						Pyrene	MS %R	14.1%	35% to 142%	ND(0.44) J	
						Pyrene	MS/MSD RPD	94.8%	<36%	ND(0.44) J	
410P457	RAA15-RB-092004-1	9/20/2004	Water	Tier II	Yes	1,3,5-Trinitrobenzene	CCAL RRF	0.038	>0.05	ND(0.010) J	
						3-Methylcholanthrene	CCAL %D	28.3%	<25%	ND(0.010) J	
						4-Nitrophenol	ICAL %RSD	37.0%	<30%	ND(0.050) J	
						4-Nitroquinoline-1-oxide	ICAL RRF	0.034	>0.05	ND(0.010) J	
						a,a'-Dimethylphenethylamine	CCAL %D	37.6%	<25%	ND(0.010) J	
						Benzidine	CCAL %D	31.7%	<25%	ND(0.020) J	
						Methyl Methanesulfonate	CCAL %D	33.5%	<25%	ND(0.010) J	
						Pronamide	CCAL %D	36.9%	<25%	ND(0.010) J	