SDMS : 287039

08-0066

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

January 9, 2001

Mr. Dean Tagliaferro
US Environmental Protection Agency
One Congress Street, Suite 1100
Boston, MA 02114-2023

Ms. Susan Steenstrup
Department of Environmental Protection
436 Dwight Street
Springfield, MA 01103

Re: Upper 1/2-Mile Reach of Housatonic River Removal Action
Monthly Report – December

Dear Mr. Tagliaferro and Ms. Steenstrup:

In accordance with the approved Removal Action Work Plan - Upper 1/2 Mile Reach of Housatonic River, enclosed please find the December 2000 Monthly Report.

Please call with any questions.

Yours truly,

william A Horne / for

Andrew T. Silfer, P.E.
Senior Technical Manager

cc: J.R. Bieke, Esquire, Shea & Gardner
M.T. Carroll, GE
T. Conway, EPA
R. Goff, ACE
W.A. Horne, GE
H. Inglis, EPA
J.H. Maxymillian, Maxymillian Technologies
S. Messur, BBL
K.C. Mitkevicius, USACE
T. O'Brien, MA EOEA
B. Olson, EPA
A.J. Thomas, Esquire, GE
A. Weinberg, DEP

1.0 Overview:

During December 2000, GE and its contractor Maxymillian Technologies Incorporated (MTI) continued work on the Upper ½ Mile Reach Removal Action. This work included efforts in both Cell G-2 and Cell G-3. In Cell G-2, GE began the remediation work to address the coal-tar-related non-aqueous-phase liquid (NAPL) in the downstream part of the cell. This work included installation of the permanent source control (Waterloo) sheetpile barrier. After access areas for equipment were established, the initial excavation in the downstream part of this cell was commenced.

Work in Cell G-3 included dewatering the cell, beginning sediment excavation, and completing the designed bank soil removal activities along the north bank of the cell. During this effort, stained soil was encountered and DNAPL was observed close to the location reported on November 28, 2000. After additional excavation and a subsurface investigation program was completed, another potential source of DNAPL was suspected. A solution to address the observed DNAPL was designed and being reviewed for submission as the month ended.

Work was impacted by a significant flood event on December 17-18, which caused the river to overtop the sheetpiles and flood both cells. By December 19, the floodwaters had receded, the cells were largely de-watered, and work resumed.

Weekly status meetings were held on December 6, 13, and 21. No status meeting was held on December 27 and no work took place on December 25.

2.0 Chronological description of the tasks performed:

Refer to the diagram (Exhibit A) referenced in Section 4.0 and attached to this report for an orientation of the sheetpile cells and their respective locations. In the month of December, GE Buildings 33-north, 33X and 65 were used as temporary storage facilities for TSCA and non-TSCA material. In addition, a new temporary storage area was constructed in Building 65 to stockpile potentially NAPL-impacted sediment excavated from Cells G–2 prior to off-site disposal.

At the beginning of December, GE received EPA approval to subdivide Cell G-2 and it installed an intermediate cutoff wall in that cell. Restoration activities for the sediment and bank areas in the upstream part of that cell were completed on December 12, 2000. Once the final restored elevations were recorded and approved by the EPA, de-watering efforts in that part of the cell were discontinued. Sheetpile in the upstream part of the cell was removed during the last part of December.

Work also progressed in the downstream part of Cell G-2 where NAPL was observed in the lower bank area. Stability calculations for excavated design conditions were completed, checked, and submitted to EPA on December 5, 2000. On December 11, 2000, EPA provided interim conditional approval of GE's NAPL remediation proposal for Cell G-2 and required submission of a contingency plan for an LNAPL collection system, if required, in Cell G-2. This plan was completed and submitted to EPA on December 19, 2000. GE confirmed the downstream limit of coal-tar LNAPL in Cell G-2 by additional bank excavation, completed layout for proposed source control sheetpile barrier along the downstream bank area, and removed additional bank soil to allow installation of that permanent sheetpile barrier. EPA's conditional approval also included increasing the length of the source control sheetpile barrier by 30 feet (10 feet upstream and 20 feet downstream) to a total of 135 feet. The order for this sheetpiling was placed and sheetpile arrived on site on December 15, 2000.

A significant flood event occurred on the river on December 17-18, resulting from a combination of rain and snowmelt on December 16 and heavy rain on December 17. These occurrences caused the river to overtop the sheetpiles and flood Cells G-2 and G-3. By December 19, the floodwaters had receded and the cells were mostly dewatered. Following the dewatering of Cell G-2, the permanent sheetpile barrier was installed in this cell. Installation of the sheetpile barrier was completed by December 21, 2000. Primary flushing of the sheetpile joints was initiated and the top of the wall was cut at the design elevation. As the month of December ended, initial bank excavation was complete and the primary removal of potentially NAPL-impacted material was set to begin in early January.

After observing and reporting DNAPL in late November in Cell G-3, work progressed in that cell. Analytical results were received from a sample of NAPL-saturated sediment that was collected from this cell in November and indicated a number of coal-tar constituents. Cell G-3 was completely de-watered utilizing the 500,000-gallon tank and the water handling system, and GE recorded existing sediment elevations for EPA review. Sediment removal activities and bank removal activities along the north bank were completed along with additional bank excavation adjacent to the observed DNAPL, which indicated a potential source at the lower bank area. Approximately 100 cy of potentially DNAPL-impacted material were stockpiled separately in Bldg. 65. After additional bank excavation was stopped, GE obtained a sample of the DNAPL oil, which indicated the presence of numerous coal-tar-related constituents and no PCBs. GE then installed one boring on top of the bank (behind the additional bank excavation). This confirmed the presence of DNAPL at a consistent elevation, which indicated another potential source area at the lower bank in Cell G-3 approximately 100 feet downstream from the interface of Cells G–2 and G-3.

GE investigated and determined the upstream and downstream limits of coal-tar DNAPL in Cell G-3 based on approximately 50 cy of additional bank and sediment excavation. Upon completing the sediment removal activities in Cell G-3, three borings were installed to determine depth to till along this bank area.

GE then completed the design details for a remedial solution to address the DNAPL source in this cell, which included installation of a 107-foot long, 25-foot deep permanent source control sheetpile barrier on the bank adjacent to Cell G-3. As the month of December ended, this proposal was under internal review prior to being submitted to EPA in early January. In addition, on December 19, GE submitted to EPA a request to subdivide Cell G-3 to isolate the downstream section of that cell, along with a figure showing the proposed permanent and temporary sheetpile wall locations.

On December 21, 2000, GE provided written notification to EPA and MDEP of GE's position that the finding of coal-tar NAPL in Cell G-3 constituted a "force majeure" event under the Consent Decree (CD) for the GE-Pittsfield/Housatonic River Site. In addition, on December 22, 2000, GE provided written notification to EPA and MDEP that the unrelated high-flow event on December 17-18 and resultant flooding of the cells could potentially constitute a "force majeure" event under the CD.

GE also continued to monitor coal-tar DNAPL from the 6-inch-diameter coal-tar DNAPL recovery well in former Cell C. In December, no measurable amounts of coal-tar DNAPL/water mixture were collected from that well. Monitoring of coal-tar DNAPL at this well will continue.

In addition to work in Cells G-2 and G-3, GE removed for off-site disposal approximately 200 cy of NAPL- and DNAPL-impacted sediment that had been removed from Cells G-2 and G-3 and temporarily stockpiled in Bldg. 65. GE also removed for off site disposal approximately 1200 cy of wood chips that had been temporarily stockpiled on site after chipping cleared trees.

Air monitoring for particulate matter was conducted daily and a PCB air monitoring event was conducted on December 8, 2000, during excavation of Cell G-2. Water column (PCB and TSS) monitoring also continued in December. Temporary stockpiles of material were maintained in Buildings 33, 33X, and 65 (TSCA and non-TSCA).

3.0 Number of samples collected:

Water column monitoring for total suspended solids (TSS) was conducted on a daily basis. Water column samples were collected for PCB analysis on December 13, 2000. The TSS and PCB results received in December for the months of November and December are attached to this report (Table 1A and 1B).

Table 2 presents a summary of analytical results, including PCBs, VOCs, SVOCs, and physical characteristics, from the DNAPL oil collected in Cell G-3. (Note: The analytical results from the sample of NAPL-saturated sediment collected from Cell G-3 were presented in the monthly progress report for November 2000.)

Table 3 presents a summary of analytical results for VOCs and SVOCs from LNAPL-saturated sediment collected along the bank area of Cell G-2.

Table 4 presents a summary of analytical results for PCBs from wood chips generated during tree/brush removal activities along the river bank.

Table 5 presents analytical results for PCBs from isolation (backfill) material used during the restoration.

Tables 6 and 7 include analytical results for PCBs (5 samples) and VOCs, SVOCs, and TCLP metals (1 sample) from sediment from Cell G-3 that was stockpiled in Bldg. 65.

In the month of December, particulate air monitoring was conducted from December 1 to December 29. PCB air monitoring was conducted on December 8-9, 2000. The results are attached to this report (Tables 8 and 9).

Table 10 includes the results from monthly monitoring of the coal-tar DNAPL recovery well in former Cell C.

Table 11 presents monitoring result from piezometers in Cell G-2.

4.0 Diagrams associated with the tasks performed:

A diagram labeled as Exhibit A shows the location of the Cells (A, B, C, D, E, F, and G) and is attached to this report for reference.

A summary chart (Exhibit B) has been developed to assist in tracking the analytical and physical testing requirements of the various sources of backfill (e.g., isolation material, soil back fill, riprap rock, etc.).

Exhibit B includes the volume of backfill materials used, the analytical and physical testing frequencies required by the Work Plan, and the testing that has been performed to date.

5.0 Identification of any reports received and prepared:

During the month of December, meeting summaries from various weekly project status meetings were submitted to EPA, MDEP and EOEA. Also, for work completed in November 2000, the monthly reports required by the CD and the Upper ½ Mile Reach Removal Action Work Plan were both submitted on December 8, 2000

In addition, in December, GE submitted the following:

- Submittal of December 6, 2000, including gradation results from the isolation material (3500-4000 cy) used during restoration activities.
- Preliminary analytical results from DNAPL obtained in the Cell G-3 bank area (December 13, 2000).
- Survey chart showing the final restored elevations in the upstream part of Cell G-2 (December 15, 2000).
- Letter of December 19, 2000, presenting a contingency plan required by EPA for collecting NAPL remaining in Cell G-2, if necessary.
- Letter of December 19, 2000, requesting approval for installation of an intermediate cutoff wall in Cell G-3.
- Letter of December 21, 2000, presenting and documenting GE's claim that finding of coal-tar DNAPL in Cell G-3 constituted a force majeure event under the CD.
- Letter of December 22, 2000 presenting and documenting GE's claim the high flow event on December 17-18, 2000 that overtopped sheetpile walls and flooded Cells G-2 and G-3 could potentially constitute a force majeure event under the CD.
- Survey chart showing the excavated elevations in Cell G-3 (December 22, 2000)

6.0 Photo documentation of activities performed: See attached Figure 1

7.0 Brief description of work to be performed in January 2001:

Throughout the upcoming weeks in the month of January, the following activities are anticipated to take place:

- Complete the remediation for the observed coal-tar NAPL in the downstream portion of Cell G-2 by removing all NAPL-impacted sediments and sealing/grouting the permanent source control sheetpile barrier.
- Complete restoration activities in the downstream part of Cell G-2, including installation of the northern half of the "W" rock weir.
- Submit GE proposal to address the coal-tar DNAPL at the lower bank area in Cell G-3 via installation of source control sheetpile barrier. Upon receipt of EPA approval, order sheetpile and begin installation.
- Upon approval from EPA, potentially install temporary intermediate sheetpile cutoff wall in Cell G-3 to isolate downstream part of that cell and conduct excavation activities in that portion of the cell.
- Begin installing sheetpile in Cells H-1 and H-2 (south side of river).
- Maintain temporary stockpiles of material in Buildings 33, 33X, and 65 (TSCA and non-TSCA).
- Continue monitoring coal-tar DNAPL recovery well in former Cell C.
- Conduct air and water column monitoring.

8.0 Attachments to this report:

- Table 1A and 1B - Water column monitoring TSS and PCB results.
- Table 2 - Analytical results for DNAPL oil collected from Cell G-3.
- Table 3 - Analytical results from sediment collected along the bank in Cell G-2.
- Table 4 - Analytical results from wood chips.
- Table 5 - Analytical results for backfill material.
- Tables 6 and 7 – Analytical results from Cell G-3 sediment stockpiled in Bldg. 65.

- Tables 8 and 9 – PCB and particulate air monitoring results.
- Table 10 - Monitoring results from the coal-tar DNAPL recovery well in former Cell C.
- Table 11- Cell G-2 piezometer monitoring results.
- Exhibit A - Diagram to show the locations of cells within the upstream part of the Upper ½ Mile Reach Removal Action.
- Exhibit B – Backfill quantity summary chart.
- Figure 1 - Photo documentation.

TABLE 1A

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

DECEMBER 2000

UPPER 1/2 MILE REACH REMOVAL ACTION
HOUSATONIC RIVER PCB/TSS/TURBIDITY MONITORING DURING CONSTRUCTION

Location	Date	Water Depth (ft)	Water Temp. (°C)	Estimated Flow [14] (cfs)	Turbidity (ntu) [12]			Sample ID	Total PCB Concentration [13] (ug/l)	Filtered PCB Concentration (ug/l)	TSS (mg/l)
					High	Low	Daily Composite				
Upstream of Newell St. Bridge	12/1/2000	1.7	3	---	4	2	2	---	---	---	---
Downstream of Lyman St. Bridge	12/1/2000	2.8	3		2	2	2	---	---	---	---
Upstream of Newell St. Bridge	12/4/2000	1.7	4	---	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/4/2000	2.7	4		5	2	3	---	---	---	---
Upstream of Newell St. Bridge	12/5/2000	---	---	---	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/5/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/6/2000	---	---	---	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/6/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/7/2000	---	---	---	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/7/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/8/2000	---	---	72	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/8/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/11/2000	1.8	1	75	5	4	4	---	---	---	---
Downstream of Lyman St. Bridge	12/11/2000	2.9	1		6	4	4	---	---	---	---
Upstream of Newell St. Bridge	12/12/2000	1.8	3	67	17	5	8	---	---	---	---
Downstream of Lyman St. Bridge	12/12/2000	2.9	3		16	4	8	---	---	---	---
Upstream of Newell St. Bridge	12/13/2000	1.8	2	43	NS	NS	NS	HR-12-13-00-U1	ND(0.0250)	ND(0.0278)	1.68
Downstream of Lyman St. Bridge	12/13/2000	2.8	2		NS	NS	NS	HR-12-13-00-D1	ND(0.0250)	ND(0.0250)	ND (1.44)
Upstream of Newell St. Bridge	12/14/2000	---	---	46	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/14/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/15/2000	---	---	42	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/15/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/18/2000	---	---	800	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/18/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/19/2000	---	---	300	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/19/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/20/2000	---	---	210	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/20/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/21/2000	---	---	154	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/21/2000	---	---		NS	NS	NS	---	---	---	---

TABLE 1A

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

DECEMBER 2000

UPPER 1/2 MILE REACH REMOVAL ACTION
HOUSATONIC RIVER PCB/TSS/TURBIDITY MONITORING DURING CONSTRUCTION

Location	Date	Water Depth (ft)	Water Temp. (°C)	Estimated Flow [14] (cfs)	Turbidity (ntu) [12]			Sample ID	Total PCB Concentration [13] (ug/l)	Filtered PCB Concentration (ug/l)	TSS (mg/l)
					High	Low	Daily Composite				
Upstream of Newell St. Bridge	12/22/2000	---	---	147	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/22/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/26/2000	---	---	350	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/26/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/27/2000	---	---	175	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/27/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/28/2000	---	---	135	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/28/2000	---	---		NS	NS	NS	---	---	---	---
Upstream of Newell St. Bridge	12/29/2000	---	---	122	NS	NS	NS	---	---	---	---
Downstream of Lyman St. Bridge	12/29/2000	---	---		NS	NS	NS	---	---	---	---

Notes:

1. PCB and TSS samples were collected by Blasland, Bouck & Lee, Inc. and analyzed by Northeast Analytical, Inc..
2. Water depth taken at sampling point (i.e. middle of river).
3. ft - Feet
4. °C - degrees Celsius
5. cfs - cubic feet per second
6. ntu - nephelometric turbidity units
7. --- - No data obtained
8. ND(0.25) - Compound was analyzed for but not detected at the quantitation limit indicated in parentheses.
9. NR - Not yet reported
10. ug/l - micrograms per liter
11. mg/l - milligrams per liter
12. Turbidity Action Level = Turbidity downstream ≤ Turbidity upstream + 50 ntu
13. PCB Action Level = PCBs downstream ≤ PCBs upstream + 5 ug/l
14. Readings were obtained from the USGS station at Coltsville at approximately midday.

TABLE 1B

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
HOUSATONIC RIVER PCB/TSS/TURBIDITY MONITORING DURING CONSTRUCTION
DATA RECEIVED DURING DECEMBER 2000

(Results are presented in parts per million, ppm)

Sample ID	Location	Date Collected	Aroclor 1016, 1221, 1232, 1242, & 1248	Aroclor 1254	Aroclor 1260	Total PCBs	TSS
HR-11-29-00-U1	Upstream of Newell St. Bridge	11/29/2000	ND(0.0000750)	0.000807 AF	ND(0.0000750)	0.000807	3.18
HR-11-29-00-D1	Downstream of Lyman St. Bridge	11/29/2000	ND(0.000100)	0.00104 AF	ND(0.000100)	0.00104	2.56
HR-11-29-00-U1 (FILTERED)	Upstream of Newell St. Bridge	11/29/2000	ND(0.0000250)	0.000152 AF	ND(0.0000250)	0.000152	---
HR-11-29-00-D1 (FILTERED)	Downstream of Lyman St. Bridge	11/29/2000	ND(0.0000250)	0.000221 AF	ND(0.0000250)	0.000221	---
HR-12-13-00-U1	Upstream of Newell St. Bridge	12/13/2000	ND(0.0000250)	ND(0.0000250)	ND(0.0000250)	ND(0.0000250)	1.68
HR-12-13-00-D1	Downstream of Lyman St. Bridge	12/13/2000	ND(0.0000250)	ND(0.0000250)	ND(0.0000250)	ND(0.0000250)	ND(1.44)
HR-12-13-00-U1 (FILTERED)	Upstream of Newell St. Bridge	12/13/2000	ND(0.0000278)	ND(0.0000278)	ND(0.0000278)	ND(0.0000278)	---
HR-12-13-00-D1 (FILTERED)	Downstream of Lyman St. Bridge	12/13/2000	ND(0.0000250)	ND(0.0000250)	ND(0.0000250)	ND(0.0000250)	---

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc. and submitted to Northeast Analytical Services, Inc. for analysis of filtered and unfiltered PCBs and Total Suspended Solids (TSS).
2. ND(0.10) - Analyte was not detected. The value in parentheses is the associated detection limit.
3. --- - Not analyzed.
4. AF - Aroclor 1254 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

TABLE 2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
CELL G3 REMOVAL ACTION OIL SAMPLING
SAMPLE DATA RECEIVED DURING DECEMBER 2000

Parameter / Sample ID: / Date Collected:	HR-G3-OIL-1 12/08/00
Volatile Organics (ppm)	
Chlorobenzene	180
Ethylbenzene	332
m&p-Xylene	120
PCBs (ppm)	
None Detected	ND(1.00)
Semivolatile Organics (ppm)	
2-Methylnaphthalene	11700
Acenaphthene	13600
Naphthalene	25100
Phenanthrene	24600
Pyrene	8630
Conventional Parameters	
Density (g/mL)	1.0462
Kinematic Viscosity @ 60° (cSt)	27.274
Specific Gravity	1.077

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc. and submitted to Northeast Analytical, Inc. for analysis of PCBs, volatiles, semivolatiles and specific gravity and were submitted to Adirondack Environmental Services, Inc. for analysis of density and kinematic viscosity.
2. Only detected constituents are summarized.

TABLE 3

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
CELL G2 BANK SEDIMENT SPLIT SAMPLING
SAMPLE DATA RECEIVED DURING DECEMBER 2000

(Results are presented in dry weight parts per million, ppm)

Parameter	Sample ID: / Date Collected:	HR-G2-BSED-1 / 11/15/00
Volatile Organics		
Chlorobenzene		0.143
Semivolatile Organics		
1,4-Dichlorobenzene		0.461
Acenaphthene		0.660

Notes:

1. Sample was collected by Blasland, Bouck & Lee, Inc. and submitted to Northeast Analytical, Inc. for analysis of volatiles and semivolatiles. Sample was split with Berkshire Gas.
2. Only detected constituents are summarized.

TABLE 4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
WOOD CHIP SAMPLING
DATA RECEIVED DURING DECEMBER 2000

(Results are presented in dry weight parts per million, ppm)

Sample ID	Date Collected	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Total PCBs
HR-WCHIPS-1	12/13/2000	ND(0.19) [ND(0.17)]	ND(0.19) [ND(0.17)]	ND(0.19) [ND(0.17)]	ND(0.19) [ND(0.17)]	ND(0.19) [ND(0.17)]	ND(0.19) [ND(0.17)]	ND(0.19) [ND(0.17)]	ND(0.19) [ND(0.17)]
HR-WCHIPS-2	12/13/2000	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)
HR-WCHIPS-3	12/13/2000	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc. and submitted to CT&E Environmental Services, Inc. for analysis of PCBs.
2. ND - Analyte was not detected. The value in parentheses is the associated detection limit.
3. Duplicate results are presented in brackets.

TABLE 5

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
BUSHIKA SAND AND GRAVEL BACKFILL SOIL SAMPLING
PCB SAMPLE DATA RECEIVED DURING DECEMBER 2000

(Results are presented in dry weight parts per million, ppm)

Sample ID	Date Collected	Aroclor-1016, -1221, -1232, 1242, -1254, -1260	Aroclor-1248	Total PCBs
BSG-BF-5	12/5/2000	ND(0.0541) [ND(0.0519)]	ND(0.0541) [0.130 AE]	ND(0.0541) [0.130]
BSG-BF-6	12/5/2000	ND(0.0519)	ND(0.0519)	ND(0.0519)

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc. and submitted to Northeast Analytical, Inc. for analysis of PCBs.
2. ND - Analyte was not detected. The value in parentheses is the associated detection limit.
3. Duplicate results are presented in brackets.
4. AE - Aroclor 1248 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

PRELIMINARY ANALYTICAL DATA
SUBJECT TO VERIFICATION

TABLE 6

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
CELL G3 SEDIMENT PILE SAMPLING
PCB SAMPLE DATA RECEIVED DURING DECEMBER 2000

(Results are presented in dry weight parts per million, ppm)

Sample ID	Date Collected	Aroclor-1016, -1221, -1232, -1242, -1248	Aroclor-1254	Aroclor-1260
HR-G3-SEDPILE-C1	12/15/2000	ND(0.514)	ND(0.514)	7.09
HR-G3-SEDPILE-C2	12/15/2000	ND(1.38)	26.9	11.7
HR-G3-SEDPILE-C3	12/15/2000	ND(1.35)	22.0	13.0
HR-G3-SEDPILE-C4	12/15/2000	ND(0.635)	8.16	7.24
HR-G3-SEDPILE-C5	12/15/2000	ND(0.999) [ND(1.16)]	20.6 [24.5]	7.93 [10.2]

Notes:
1. Samples were collected by Blasland, Bouck & Lee, Inc. and submitted to Northeast Analytical, Inc. for analysis of PCBs.
2. ND - Analyte was not detected. The value in parentheses is the associated detection limit.
3. Duplicate results are presented in brackets.

TABLE 7

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
CELL G3 SEDIMENT PILE SAMPLING
VOC, SVOC, AND TCLP SAMPLE DATA RECEIVED DURING DECEMBER 2000

(Results are presented in parts per million, ppm)

Parameter / Sample ID: / Date Collected:	HR-G3-SEDPILE-C6 12/15/00
Volatile Organics (mg/Kg - dry weight)	
Acetone	0.35 JB
Chlorobenzene	0.35 J
Ethylbenzene	0.16 J
Semivolatile Organics (mg/Kg - dry weight)	
2-Methylnaphthalene	11
Acenaphthene	20
Anthracene	13
Benzo(a)anthracene	6.5
Benzo(a)pyrene	4.3
Benzo(b)fluoranthene	4.9
Benzo(g,h,i)perylene	2.4
Benzo(k)fluoranthene	1.8
Carbazole	0.61
Chrysene	5.3
Dibenzo(a,h)anthracene	1.3
Dibenzofuran	0.87
Fluoranthene	13
Fluorene	9.7
Indeno(1,2,3-cd)pyrene	2.1
Nitrobenzene	14
Phenanthrene	39
Pyrene	27
TCLP Metals (mg/L)	
Barium	0.465
Lead	0.382

Notes:

1. Sample was collected by Blasland, Bouck & Lee, Inc. and submitted to Northeast Analytical, Inc. for analysis of volatiles, semivolatiles and TCLP metals.
2. Only detected constituents are summarized.

TABLE 8

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
AMBIENT AIR PARTICULATE MATTER DATA RECEIVED DURING DECEMBER 2000

Date	Sampler Location	Average Site Concentration (mg/m^3)	BM-1 (mg/m^3)	Average Period (Hours:Min)	Predominant Wind Direction
12/1/2000	AM-4 (south side of river)	0.006	0.002	11:00	WNW, NW
12/4/2000	AM-4 (south side of river)	0.021	0.015	9:45	WSW
12/5/2000	AM-4 (south side of river)	0.024	0.022	9:30	SW
12/6/2000	AM-4 (south side of river)	0.009	0.004	10:00	WNW
12/7/2000	AM-4 (south side of river)	0.014	0.009	10:00	WSW, W, WNW
12/8/00[1]	AM-4 (south side of river)	NA	NA	NA	NA
12/11/00[1]	AM-4 (south side of river)	NA	NA	NA	NA
12/12/00[1]	AM-4 (south side of river)	NA	NA	NA	NA
12/13/2000	AM-4 (south side of river)	0.006	0.010	9:45	WSW
12/14/00[1]	AM-4 (south side of river)	NA	NA	NA	NA
12/15/2000	AM-4 (south side of river)	0.012	0.011	3:152	WSW, W, NNW
12/18/2000	AM-4 (south side of river)	0.008	0.009	10:15	W, WNW
12/19/2000	AM-4 (south side of river)	0.019	0.022	2:45[3]	Variable
12/20/00[1]	AM-4 (south side of river)	NA	NA	NA	NA
12/21/2000	AM-4 (south side of river)	0.010	0.013	8:30	SSW
12/22/2000	AM-4 (south side of river)	0.026	0.024	8:30	W, WNW
12/25/00[4]	AM-4 (south side of river)	NA	NA	NA	NA
12/26/2000	AM-4 (south side of river)	0.011	0.010	9:30	WNW
12/27/2000	AM-4 (south side of river)	0.012	0.013	8:15	W, WNW
12/28/2000	AM-4 (south side of river)	0.011	0.012	9:15	WNW
12/29/2000	AM-4 (south side of river)	0.013	0.015	9:30	WSW
Notification Level		0.120			

Notes:

NA - Not Available

BM-1: Background monitoring location west of Bldg. 42.

AM-4: Air monitoring location behind the former F.W. Webb building on Newell Street.

[1] Sampling was not performed due to precipitation/threat of precipitation.

[2] Sampling period was shortened due to instrument failure (dead battery).

[3] Sampling period was shortened due to precipitation/threat of precipitation.

[4] Sampling was not performed due to lack of site activity on the Christmas holiday.

TABLE 9

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

HOUSATONIC RIVER - UPPER 1/2 MILE REACH
AMBIENT AIR PCB DATA RECEIVED DURING DECEMBER 2000

Date	BM-1 ug/m^3	AM-3 ug/m^3	AM-3 co-located ug/m^3	AM-4 ug/m^3	AM-5 ug/m^3	AM-6 ug/m^3
12/08 - 12/09/00	ND	0.0003	0.0004	0.0003	ND	ND
Notification Level	0.05	0.05	0.05	0.05	0.05	0.05

Notes:
BM-1: Background monitoring location west of Bldg. 42.
AM-3: Air monitoring location north bank, north of Bldg. 64W. This location is also a co-located site.
AM-4: Air monitoring location south bank, at 261 Newell St. behind building fomerly known as F.W. Webb.
AM-5: Air monitoring location north bank, east of Bldg. 63.
AM-6: Air monitoring location south bank, north edge of GE Newell St. parking area.
ND - Non Detect (< 0.0003)

TABLE 10

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

UPPER 1/2-MILE REACH OF HOUSATONIC RIVER

DNAPL MONITORING RESULTS - DECEMBER 2000

Date	Depth to Water (Feet below MP)	Depth to DNAPL (Feet below MP)	Total Depth (Feet below MP)	DNAPL Thickness (Feet)	DNAPL Removal (Liters)
12/12/2000	7.25	22.50	22.70	0.20	N/A

Notes:

1. Measurement collected from coal tar DNAPL recovery well installed near oil/water separator 64X.
2. DNAPL - Dense Non-Aqueous Phase Liquid.
3. DNAPL removal is not conducted if the observed DNAPL thickness is less than 0.25 feet.

TABLE 11

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

REMOVAL ACTION - UPPER 1/2-MILE REACH OF HOUSATONIC RIVER

CELL G2 PIEZOMETER MONITORING RESULTS - DECEMBER 2000

Piezometer ID.	Date	Ground Elevation (Feet AMSL)	Measuring Point Elevation (Feet AMSL)	Depth to Water (Feet below MP)	Depth to NAPL (Feet below MP)	NAPL Thickness (Feet)	Groundwater Elevation (Feet AMSL)
G2-PZ-1	12/1/2000	975.47	976.97	8.19	ND	0.00	968.78
G2-PZ-1	12/4/2000	975.47	976.97	8.22	ND	0.00	968.75
G2-PZ-1	12/5/2000	975.47	976.97	8.25	ND	0.00	968.72
G2-PZ-1	12/6/2000	975.47	976.97	8.29	ND	0.00	968.68
G2-PZ-1	12/7/2000	975.47	976.97	8.29	ND	0.00	968.68
G2-PZ-1	12/8/2000	975.47	976.97	8.30	ND	0.00	968.67
G2-PZ-1	12/11/2000	975.47	976.97	8.31	ND	0.00	968.66
G2-PZ-1	12/12/2000	975.47	976.97	8.29	ND	0.00	968.68
G2-PZ-1	12/13/2000	975.47	976.97	8.31	ND	0.00	968.66
G2-PZ-1	12/14/2000	975.47	976.97	0.00	ND	0.00	976.97
G2-PZ-2	12/1/2000	974.61	977.11	9.15	ND	0.00	967.96
G2-PZ-2	12/4/2000	974.61	977.11	9.14	ND	0.00	967.97
G2-PZ-2	12/5/2000	974.61	977.11	9.11	ND	0.00	968.00
G2-PZ-2	12/6/2000	974.61	977.11	9.11	ND	0.00	968.00
G2-PZ-2	12/7/2000	974.61	977.11	9.12	ND	0.00	967.99
G2-PZ-2	12/8/2000	974.61	977.11	8.76	ND	0.00	968.35
G2-PZ-2	12/11/2000	974.61	977.11	8.58	ND	0.00	968.53
G2-PZ-2	12/12/2000	974.61	977.11	8.64	ND	0.00	968.47
G2-PZ-2	12/13/2000	974.61	977.11	8.60	ND	0.00	968.51
G2-PZ-2	12/14/2000	974.61	977.11	0.00	ND	0.00	977.11

Notes:

1. Piezometers were installed by Blasland, Bouck & Lee, Incorporated on October 19, 2000, utilizing a jackhammer and macrocores fitted with dedicated disposable steel knockout tips.
2. Piezometers were constructed with 1-inch inside diameter PVC screens and risers.
3. The piezometers were removed on December 14, 2000 due to construction activities along the 1/2-Mile Reach of the Housatonic River.

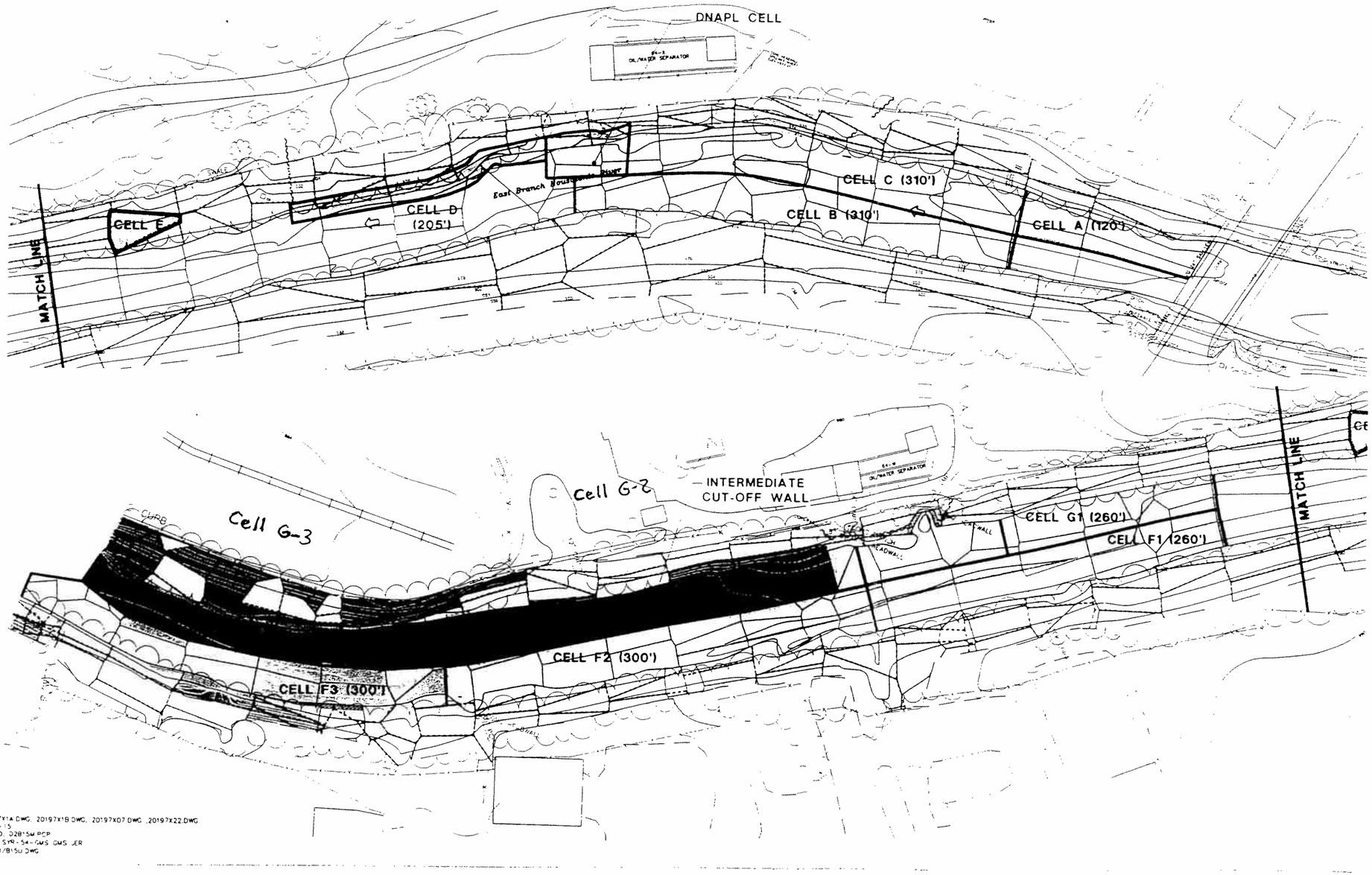
1/2-Mile Removal Action Backfill Tracking Log

Material	Testing Required	Frequency (per ___ cy)	Submittal from MTI		Submittal to EPA		Sample Date	Number of Samples	Quantity Approved for Placement	Quantity Placed (cy)	Comments
			No.	Date	No.	Date					
Soil Backfill/Granular Fill (Brown's Pit)	Grain Size	2000	13/13A	11/17 & 11/18/99	8	12/1/1999	11/16/1999	1	1000	584	
	PCBs	500	NA	NA	8A	12/15/1999	12/8/1999	2			
			NA	NA	14	5/31/2000	5/18/2000	2			
	VOCs	2000	NA	NA	8A	12/15/1999	7/21-7/28/99	6			Samples Collected as part of Allendale School Project
	SVOCs	2000	NA	NA	8A	12/15/1999	7/21-7/28/99	6			
	Metals	2000	NA	NA	8A	12/15/1999	7/21-7/28/99	6			
	TPH	2000	NA	NA	8A	12/15/1999	12/1/1999	3			
Isolation Layer (Pittsfield Sand & Gravel)	Grain Size	500	12	11/17/1999	Letter	11/19/1999	11/1/1999	1	1000	770	
			12C	3/30/2000	Letter	4/20/2000	3/24/2000	1			
	TOC	500	12	11/17/1999	Letter	11/19/1999	11/2/1999	1			
			12C	3/30/2000	Letter	4/20/2000	3/30/2000	1			
	PCBs	500	NA	NA	Letter	11/19/1999	9/20/1999	4			Samples collected as part of off-site residential fill program
			NA	NA	7	12/1/1999	11/19/1999	2			
			NA	NA	Letter	4/20/2000	3/29/2000	2			
	VOCs	2000	NA	NA	Letter	11/19/1999	9/20/1999	4			Samples collected as part of off-site residential fill program
	SVOCs	2000	NA	NA	Letter	11/19/1999	9/20/1999	4			
	Metals	2000	NA	NA	Letter	11/19/1999	9/20/1999	4			
	TPH	2000	NA	NA	7	12/1/1999	11/19/1999	2			
Isolation Layer (Bushika Sand & Gravel)	Grain Size	500	12A	1/3/2000	Letter	1/6/2000	12/28/1999	1	2500	2327	
			12B	1/24/2000	11	2/14/2000	1/19/2000	1			
			12D	5/8/2000	13	5/19/2000	5/2/2000	1			
			12E	9/11/2000	14	9/27/2000	9/7/2000	1			
			12F	9/29/2000	17	10/4/2000	9/26/2000	1			
			12G	11/30/2000			11/20/2000	1			
	TOC	500	12A	1/3/2000	Letter	1/6/2000	12/28/1999	1			
			12B	1/24/2000	11	2/14/2000	1/19/2000	1			
			12D	5/8/2000	13	5/19/2000	5/2/2000	1			
			12E	9/11/2000	14	9/27/2000	9/6/2000	1			
			12F	9/29/2000	17	10/4/2000	9/26/2000	1			
			12G	11/30/2000			11/20/2000	1			
	PCBs	500	NA	NA	10	1/14/2000	1/5/2000	2			
			NA	NA	11	2/14/2000	2/2/2000	2			
			NA	NA	13A	6/28/2000	6/2/2000	2			
			NA	NA	16A	10/4/2000	9/26/2000	3			
			NA	NA	18A	10/5/2000	9/28/2000	2			
	VOCs	2000	NA	NA	10	1/14/2000	1/5/2000	2			
			NA	NA	18A	10/5/2000	9/28/2000	2			
	SVOCs	2000	NA	NA	10	1/14/2000	1/5/2000	2			
			NA	NA	18A	10/5/2000	9/28/2000	2			
	Metals	2000	NA	NA	10	1/14/2000	1/5/2000	2			
			NA	NA	18A	10/5/2000	9/28/2000	2			
	TPH	2000	NA	NA	10	1/14/2000	1/5/2000	2			
			NA	NA	11	2/14/2000	2/2/2000	2			
			NA	NA	18A	10/5/2000	9/28/2000	2			
Rip-Rap (9")	Grain Size	2000	15A	11/30/1999	Letter	12/1/1999	11/23/1999	1	4000	1742	
			15B	10/4/2000	19	10/11/2000	9/28/2000	1			
Rip-Rap (12")	Grain Size	2000	18	1/4/2000	Letter	1/6/2000	12/29/1999	1	2000	299	
Topsoil (Woodmont)	Organic Content	500	11/14	11/16 & 11/17/99	9	12/15/1999	11/8/1999	2	500	242	
	pH	500	11/14	11/16 & 11/17/99	9	12/15/1999	11/8/1999	2			
	PCBs	500	NA	NA	9	12/15/1999	12/8/1999	4			
	VOCs	2000	NA	NA	9	12/15/1999	8/24/1999	4			Samples collected as part of off-site residential fill program
	SVOCs	2000	NA	NA	9	12/15/1999	8/24/1999	4			
	Metals	2000	NA	NA	9	12/15/1999	8/24/1999	4			
	TPH	2000	NA	NA	9	12/15/1999	12/8/1999	2			

Notes:
Granular Fill and Soil Backfill have been combined as the same material
Quantities placed include Cells A, B, C, D, DNAPL, E, F-1, G-1, G-2 (upstream), and F-2

Exhibit A - Upper 1/2 Mile Reach Removal Action

Sediment and Bank Soil Removal Areas (Cells A-G)



LEGEND:

- 1.5 FEET SEDIMENT REMOVAL DEPTH
- 2 FEET SEDIMENT REMOVAL DEPTH
- 2.5 FEET SEDIMENT REMOVAL DEPTH
- 1 FOOT BANK SOIL REMOVAL DEPTH
- 2 FEET BANK SOIL REMOVAL DEPTH
- 3 FEET BANK SOIL REMOVAL DEPTH
- UPPER 1/2-MILE REMOVAL AREAS COMPLETED
- UPPER 1/2-MILE REMOVAL AREAS IN PROGRESS
- AREA SUBJECT TO BANK STABILIZATION ACTIVITIES
- EXISTING CONTAINMENT BARRIER LOCATION
- 0'-1' BANK SOIL POLYGON
- 1'-3' BANK SOIL POLYGON
- TOP OF BANK
- BANK SOIL AREA BOUNDARY
- CAP AND ARMOR TIE-IN BUFFER
- REMOVAL CELL
- A B C — ADDITIONAL EXCAVATION TO OCCUR IN CONJUNCTION WITH SOURCE CONTROL ACTIVITIES

NOTES:

1. MAPPING IS BEST AVAILABLE INFORMATION AS OF 12/10/98 BASED ON MAPPING PROVIDED BY LOCKWOOD MAPPING, INC. PREPARED FROM 1990 AERIAL PHOTOGRAPHY; DATA PROVIDED BY GENERAL ELECTRIC; AND BLASLAND AND BOUCK, P.C. CONSTRUCTION PLANS, RIVERBANK AND RIVER BED TOPOGRAPHIC INFORMATION PROVIDED BBL FROM OCTOBER 12-23, 1998 FIELD SURVEY.
2. COORDINATE GRID BASED ON 1927 STATE PLAN COORDINATES.
3. ELEVATION DATUM REFERENCED TO NGVD 1929.
4. CELL LOCATIONS AND DISTANCES ARE APPROXIMATE.

0 40 80
GRAPHIC SCALE

DRAFT

K_20197X1A.DWG, 20197X1B.DWG, 20197X07.DWG, 20197X22.DWG
LMAN 9-15
P:\SWD\20281SW.PCP
12/5/00 SYR-54-GMS GMS JER
20197030/B15U.DWG

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