

08-037
SDms 41540

**United States Environmental Protection Agency
EPA New England
One Congress Street, Suite 1100
Boston, MA 02114-2023**

January 21, 2003

Mr. Andrew T. Silfer, P.E.
Corporate Environmental Programs
General Electric Company
100 Woodlawn Avenue
Pittsfield, Massachusetts 01201

**RE: Comments on GE's 2002 Annual Monitoring Report
Upper ½-Mile Reach Removal Action
General Electric-Pittsfield/Housatonic River Site**

Dear Mr. Silfer:

On December 13, 2002, GE submitted a document entitled *2002 Annual Monitoring Report, Upper ½-Mile Reach of the Housatonic River* (the "Monitoring Report") (December 2002). This document was submitted pursuant to the requirements contained in the *Removal Action Work Plan for Upper ½-Mile Reach of Housatonic River* (the "Work Plan") (BBL, 1999). Although the Work Plan does not require EPA to review and approve this document, EPA reviewed the Monitoring Report and has the following comments. Also, note that the Trustees are performing their own review focusing on the restored bank vegetation and aquatic habitat structure monitoring and response sections. The Trustees intend to provide comments on the Monitoring Report under separate cover.

General

For completeness, EPA recommends that subsequent monitoring reports include a summary of all EPA analytical data and all GE analytical data received in a given year. In addition, EPA requests that all interim inspection trip reports and, if applicable, any EPA approval or conditional approval letters be included as attachments in subsequent monitoring reports.

Section 3.1 Restored Bank Erosion Monitoring/Table 6-1

The Monitoring Report states that the bank erosion monitoring program consists of a semi-annual inspection the first year after the cover is installed and annually in years 2 through 5. EPA notes, and requests that subsequent monitoring reports state that the Work Plan requires that at the end of the five-year period, GE propose an appropriate long-term monitoring program, and implement the program upon approval by EPA.

Secondly, although the Work Plan allows GE to exclude the 170-foot section of the river bank excavated and restored as part of the Building 68 Removal Action from the restored bank monitoring and response requirements, EPA recommends GE include this area in the ½-Mile inspection and documentation process. Although the 170-foot section of the river bank is excluded from the monitoring requirements of the Work Plan, if EPA observes significant erosion and potential recontamination of the Housatonic River from this section of the river bank, EPA may request that GE take corrective action under other provisions of the Consent Decree and/or other EPA regulations.

Section 3.3 Response Actions

The Monitoring Report summarizes the outcome of the Spring 2002 bank erosion inspection that was conducted on May 22, 2002. However, the Monitoring Report does not include a copy of the July 19, 2002 letter from GE to EPA documenting the results of the May 22 inspection. This inspection report should have been included as an attachment to the monitoring report. For the record, a copy is included as an enclosure to this letter. Note that in addition to the corrective actions discussed in the Monitoring Report, GE also placed additional rip rap in a swale in Cell A to cover exposed soil adjacent to the swale.

Section 3.3.2 Area 2 (Adjacent to Cell I-1)

Note that EPA collected three samples from the material that eroded into the river in this location. The samples were analyzed for PCBs. The analytical results were 0.39 mg/kg, 1.2 mg/kg, and 0.79 mg/kg.

Section 4.2.2 Sampling Results/Table 4-1 Isolation Layer Sampling Results

EPA has previously notified GE that any total organic carbon (TOC) analytical data provided by Spectrum Analytical is unreliable and should not be cited or used to determine compliance with performance standards (see EPA letter to GE dated August 26, 2002). As such, EPA recommends that in subsequent monitoring reports and submittals, GE replace the TOC isolation layer baseline results shown in Table 4-1 for CAP-MON-4 and CAP-MON-5 with "Rejected". All other non-rejected TOC data shown in Table 4-1 was performed by Northeast Analytical, Inc.

Section 4.3 Response Actions

For completeness, enclosed with this letter is a Table (Table 1) of both the GE TOC analytical results and EPA split sample analytical results for the referenced TOC isolation layer sampling.

Section 5. Aquatic Habitat Structures and Armor Stone Layer Monitoring/Table 6-1

The Monitoring Report states that armor stone monitoring is required on an annual basis for five years. EPA notes, and requests that subsequent monitoring reports state that the

Work Plan requires that at the end of the five-year period, GE propose an appropriate long-term monitoring frequency, as well as any other monitoring program, and implement the long-term program upon approval by EPA.

Section 6.2 Sediment Cap Isolation Layer Monitoring

Based on the outcome of the issues raised in EPA's August 26, 2002 letter to GE regarding the amount of TOC in the isolation layer and subsequent investigation activities performed or to be performed by GE, EPA may require GE to perform additional investigation, monitoring and/or response activities to ensure that the sediment isolation layer meets the appropriate performance specifications.

Section 6.3 Restored Bank Areas

See previous comments.

Section 6.5 Water Column Monitoring/Table 6-1

The Monitoring Report states that post-removal water column monitoring program consists of water column sampling performed three times annually (high flow, storm flow and low flow) for the first five years following completion of restoration activities. EPA notes, and requests that subsequent monitoring reports state that the Work Plan requires that at the end of the five-year period, the data be evaluated and, if appropriate, modification or the elimination of the water column monitoring be proposed by GE to EPA for approval.

Table 6-1 Monitoring/Frequency and Requirements

General. The table attempts to summarize the post-construction Performance Standards listed in Section 2.2 and the Monitoring Requirements listed in Section 11 of the Work Plan. EPA notes that Table 6-1 of the Monitoring Report and the EPA comments below are summaries of the Work Plan requirements. In the event of differences, the Work Plan requirements and performance standards, and any modifications, supercede the summaries contained in the Monitoring Report and in this comment letter. EPA recommends that subsequent monitoring reports include a modified table that addresses EPA's comments provided in this comment letter to more accurately summarize the Work Plan requirements. Attached is an example table (Table 2) that more accurately reflects GE's long-term monitoring requirements.

Monitoring/sampling frequencies. See previous comments for comments on the monitoring/sampling frequency for the restored bank soil erosion inspections, the armor stone layer inspections, and the water column monitoring. For the isolation layer sampling, Table 6-1 indicates that sampling will be performed one year and five years after placement. EPA notes, and requests that subsequent monitoring reports state that the Work Plan requires that at the end of the five-year period, the data be evaluated and,

if appropriate, modification or the elimination of the water column monitoring be proposed to EPA for approval.

Requirements. For the isolation layer, see previous comments. EPA also notes that the Work Plan requires that in event that the sampling indicates that the isolation layer is not performing in general accordance with the predications on which it was designed, then GE will evaluate and propose to EPA appropriate corrective actions and will implement such corrective actions upon EPA approval.

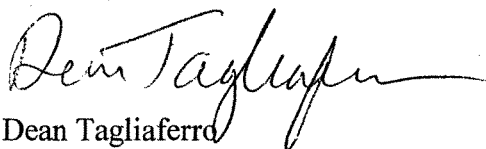
For the restored bank soil, EPA notes that along with repairing any significant erosion, the Work Plan requires GE, to the extent practical, to identify the cause of the erosion and if it is in GE's control, to take appropriate actions to reduce future erosion. Also, the Work Plan requires GE to evaluate the source, dispersal, and quantity of the eroded soil in the River, and propose to EPA appropriate measures to remove any significant quantity of contaminated eroded soils to the extent practical, and to implement such measures upon approval from EPA.

For the sediments on armor stone, EPA notes that along with evaluating the data to determine the source of PCBs, the Work Plan requires that, under certain circumstances, GE may also have to evaluate potential source control measures, propose appropriate source control measures, and implement such measures upon approval from EPA.

EPA's comments on this submittal do not preclude EPA from requiring additional investigations and response activities pursuant to the Consent Decree, the Upper 1/2-Mile Reach Removal Action Work Plan and/or the *Statement of Work for Removal Actions Outside the River* (Appendix E to the Consent Decree).

If you have any questions, please contact me at (413) 236-0969.

Sincerely,



Dean Tagliaferro

Attachments: July 19, 2002 Letter from GE to EPA, RE: Spring 2002 Bank Inspection
Table 1: Sediment Cap Isolation Layer Date—October 2002
Table 2: Post-Removal Monitoring Activities Summary

cc: Tim Conway, EPA
Bryan Olson, EPA
Mike Nalipinski, EPA
Holly Inglis, EPA
Rose Howell, EPA
Tom O'Brien, MA EOE
Dale Young, MA EOE

Sue Steenstrup, DEP (2 copies)
Rob Bell, MA DEP
Al Weinberg, MA DEP
Nancy Harper, MA AG
Mayor Hathaway, City of Pittsfield
Ray Goff, USACE
Mark Gravelding, BBL
Stu Messur, BBL
J. Bieke, Shea and Gardner
Judy Morris, Weston
Public Information Repositories
Site File

**TABLE 1
HOUSATONIC RIVER - UPPER 1/2 MILE REACH
SEDIMENT CAP ISOLATION LAYER SAMPLING
DATA RECEIVED DURING OCTOBER 2002**

Results are presented in dry weight mg/kg (ppm)

GE Location ID	A-1	B-1	B-2	C-1	C-2	F1-1	F1-2	
WESTON Sample ID	H1-SE001523-0-2C10	H1-SE001526-0-2C11	H1-SE001527-0-2C11	H1-SE001524-0-2C10	H1-SE001525-0-2C10	H1-SE001519-0-2C09	H1-SE001517-0-2C09	
EPA Lab ID	AA26016	AA26019	AA26020	AA26017	AA26018	AA25769	AA25767	
Sample Depth (Feet)	0-1.2	0-0.5	0-0.5	0-1.8	0-1.7	0-1.0	0-0.6	
Parameter	Date Collected	10/10/2002	10/11/2002	10/11/2002	10/10/2002	10/10/2002	10/08/2002	10/09/2002
Total Organic Carbon - Average Results								
GE Sample Result	1900	2500	780	590	570	840	550	
EPA Split Sample Result	1600	2600	800	700	1000	900	1000	
%D	17.1	3.9	2.5	17.1	54.8	6.9	58.1	

GE Location ID	F2-1	F2-2	F3-1	G1-1	G1-2	G2-1	G2-2	
WESTON Sample ID	H1-SE001530-0-2C15	H1-SE001529-0-2C14	H1-SE001528-0-2C14	H1-SE001520-0-2C09	H1-SE001518-0-2C09	H1-SE001531-0-2C15	H1-SE001521-0-2C09	
EPA Lab ID	AA26023	AA26022	AA26021	AA25770	AA25768	AA26024	AA25771	
Sample Depth (Feet)	0-0.6	0-1.0	0-2.05	0-0.5	0-2.4	0-0.9	0-0.6	
Parameter	Date Collected	10/15/2002	10/14/2002	10/14/2002	10/08/2002	10/09/2002	10/15/2002	10/08/2002
Total Organic Carbon - Average Results								
GE Sample Result	820	450	2700	510	620	1100	580	
EPA Split Sample Result	1000	1100	4000	600	800	1400	900	
%D	19.8	83.9	38.8	16.2	25.4	24.0	43.2	

GE Location ID	G3-1	H1-1	H1-2	H2-1	H2-2	H1-1	H1-2
WESTON Sample ID	H1-SE001516-0-2C09	H1-SE001514-0-2C08	H1-SE001515-0-2C08	H1-SE001513-0-2C08	H1-SE001512-0-2C08	H1-SE001511-0-2C08	H1-SE001522-0-2C08
EPA Lab ID	AA25766	AA25764	AA25765	AA25763	AA25762	AA25761	AA25760
Sample Depth (Feet)	0-0.85	0-0.6	0-0.6	0-0.8	0-0.9	0-0.4	0-0.8
Parameter	Date Collected	10/09/2002	10/09/2002	10/09/2002	10/09/2002	10/08/2002	10/08/2002
Total Organic Carbon - Average Results							
GE Sample Result	4300	2200	3400	3900	3900	6300	5200
EPA Split Sample Result	4000	6200	2200	4800	3400	9000	10300
%D	7.2	95.2	42.9	20.7	13.7	35.3	65.8

**Table 2
Post-Removal Monitoring Activities Summary
Upper ½ Mile Reach Removal Action**

Category	Media	Work Plan §	Frequency	Parameter	Requirements
Water column	Water	Sec. 11.2 (see Note 1)	3x/year for 5 years*	PCBs, Total suspended solids, turbidity, temperature, water flow, water depth	Compare to baseline data.
Biota	Caged mussels	Sec. 11.3	1 Event	PCBs, % Lipids	Compare to baseline data.
Isolation Layer	Sediment	Sec. 11.5.1	1 and 5 years after placement.*	PCBs, Total organic carbon	Compare to Work Plan predictions re PCB migration through isolation layer. If migration >than predicted, potentially perform corrective action
Armor Stone Layer	Rip rap stone	Sec. 11.5.2	1x/year for 5 years*	Armor stone thickness	Repair significant movement or reduction in armor stone thickness
Habitat Enhancement Structures	Boulders	Sec. 11.5.3	1x/year for 5 years	Stability	Address unstable conditions
				Effects on aquatic habitat	Document observations in report.
				Potential for bank-side erosion	Repair increased bank erosion, if any.
Sediments on armor stone	Sediment	Sec. 11.5.4	3 rounds (5, 10, and 15 years after completion).	PCBs	If PCBs found, evaluate data to determine source. Potentially perform source control corrective actions.
Restored Bank Soil	Soil	Sec. 11.6.1	2x/year for first year 1x/year for years 2 -5*	Erosion	Repair significant erosion of bank soils. If practical, remove eroded material (if contaminated) from the river.
Restored Bank Vegetation	Planting inventory	Sec. 11.6.2	2x/year for years 1 - 3 1x/year for years 5 and 7 (see note 2)	Planting quantity	Survival of >80% of planting quantity
	Invasive species			Invasive type	Presence of <5% of surface area
	Herbaceous groundcover			% groundcover	Presence of 100% in area outside foliar area

This monitoring activities summary chart is designed to summarize the Upper ½ Mile Reach long-term monitoring requirements, and is not intended to alter any term or obligation of the Consent Decree, or the Upper ½ Mile Reach Removal Action Work Plan. In the event of any differences between this Table and the Upper ½ Mile Reach Removal Action Work Plan, the Work Plan requirements and performance standards, and any modifications, supercede the summaries in this Table.

Notes: *After five years, GE will propose to EPA, for approval, a long-term monitoring program. For the water column sampling, the data will be evaluated and, if appropriate, the monitoring program will modified or eliminated subject to EPA approval.

1. Information presented in table obtained from Upper ½ Mile Reach Removal Action Work Plan (Blasland, Bouck and Lee, August 1999).
2. Bank vegetation inspection activities to be performed in phases dependent upon actual planting date for specific planting area.



0870139
Attachments

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

July 19, 2002

Dean Tagliaferro
On-Scene Coordinator
U.S. Environmental Protection Agency
c/o Weston Environmental Engineering
One Lyman Street
Pittsfield, MA 01201

**Re: GE Pittsfield/Housatonic River Site
Upper 1/2-Mile Reach Removal Action (GEC800)
Erosion Inspection Following High Flow Event (Spring 2002)**

Dear Mr. Tagliaferro:

Consistent with requirements set forth in the final *Removal Action Work Plan – Upper 1/2-Mile Reach of Housatonic River* (Work Plan) (Blasland, Bouck & Lee, Inc. [BBL], August 1999), GE has performed monitoring activities for the restored banks of the Upper 1/2 Mile Reach to assess both the cleared and restored areas for evidence of erosion following the occurrence of a high flow event (i.e., greater than 440 cfs at Coltsville). This monitoring event (spring 2002) occurred on May 22, 2002 with representatives of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Executive Office of Environmental Affairs (EOEA), and BBL. The following people performed the inspection:

- Dean Tagliaferro, EPA;
- Joe Wasiuk, Weston, Inc.;
- Tom O'Brien, EOEA;
- Bill Stack, Woodlot Alternatives; and
- Brian McKinsey, BBL.

Based on discussions with EPA and EOEA, this trip report has been prepared following the spring 2002 bank erosion monitoring event to allow for response activities to be performed within a reasonable time period after completion of the bank monitoring event. During the bank monitoring event two areas were identified with evidence of measurable erosion and four other impacted areas requiring further action primarily due to settlement or exposed sheeting. These five areas are shown on Exhibits A and B. In addition, in accordance with requirements of the Work Plan, GE has identified, to the extent practicable, the cause of erosion, has evaluated the source, dispersal, and quantity of eroded soil in the River, and where necessary and feasible, has developed proposed measures for removal of the eroded material from the river. GE's proposed measures to replace/restore the eroded areas to the previous restoration conditions and to reduce the potential for future erosion (if appropriate) are provided below.

Areas with Measurable Erosion

During the May 22, 2002 bank inspection, a measurable loss of bank soil was noted at two areas, most likely resulting from erosion caused by recent storm/high flow events. These areas are identified as Area 1 on Exhibit A and Area 2 on Exhibit B. A description of each area, along with the proposed response action, is presented below and summarized in Table 1

Area 1 - Approximately 2.0 cubic yards (cy) of soil appears to have eroded into the River from the northern bank area downstream of the Newell Street Bridge and upstream of Cell A (see Exhibit A). The source of eroded material was from the non-removal bank area near the edge of the river. The cause of erosion appears to be the combination of a high flow event (providing scouring action) flowing over the unprotected toe of bank. No evidence of eroded soil was observed in the adjacent River and, therefore, no removal activities are planned at this location. To reduce potential for future erosion in this area, the toe of the bank will be restored by placing and consolidating 9 to 12-inch diameter rocks (rip-rap) and blending into the existing adjacent bank areas (upstream and downstream) for a length of approximately 90 feet.

Area 2 – Approximately 1 to 5 cy of soil backfill eroded into the River near swale No. 11 (Cell I-1) on the south side of the River (see Exhibit B). The source of eroded soil appears to be from the sand layer that was installed as the bottom layer (below geotextile fabric) of restored swale No. 11. The erosion appears to have been caused by stormwater runoff flow below the geotextile fabric washing the underlying sand into the River at the base of the swale. To address the eroded material in the River, GE removed the sand from the River and placed the material in a stockpile at the top of the bank. This material will be disposed off-site with the additional bank soil to be removed from the top of the bank in the same area (associated with polygon for sample point RB-7). Analytical results from in-situ samples of the eroded material are presented in Table 2. To reduce possible future erosion in this area, stone dust was placed over the swale to fill the voids between the rip-rap to reduce the flow of water within the voids and below the geotextile.

Other Impacted Areas

During the May 22, 2002 bank inspection, observations of the remaining restored bank areas indicated minimal evidence of erosion, and four areas were identified that required limited further action. These areas are identified as Areas A through D on Exhibit A and B. These areas include locations where the source control sheetpiling was exposed, the restored bank areas had settled, and an area where an equipment pad had not yet been restored. These areas will be addressed by placing additional rip-rap and/or topsoil, seed, and erosion mats as required to restore the areas to final design conditions (see Table 1).

After completion of the above activities, GE will continue to conduct inspections of cleared and restored areas for evidence of erosion after each storm and high-water event (i.e., a flow of 440 cubic feet per second [cfs] or greater, as reported at the Coltsville gauging station) until herbaceous cover is established. If signs of erosion are observed following a high-flow event, GE will propose measures to address the areas and minimize future erosion.

Please contact me if you have any questions.

Sincerely,

Andrew T. Silfer /dmm

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

Attachments

cc: T. Angus, MDEP
R. Bell, DEP
J. Bieke, Shea & Gardner*
M. Carroll, GE
T. Conway, EPA*
Mayor Hathaway, City of Pittsfield
C. Fredette, CDEP
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B. Olson, EPA*
S. Steenstrup, DEP*
D. Jamros, Weston*
A. Weinberg, DEP
J. H. Maxymillian, Maxymillian Technologies
Public Information Repositories*

(* with attachments)

**General Electric Company - Pittsfield Massachusetts
1/2-Mile Reach Removal Action**

**Table 1
Spring 2002 Bank Inspection Summary**

Area	Description	Approximate Size	Action
Areas with Measurable Erosion			
1 - Cell A/Newell St. Bridge	Non-removal/restored bank area eroded (2 scallops)	~2 CY ~ 90 LF of bank	Place rip rap to fill eroded areas and stabilize.
2 - Cell I1/Swale #11	Erosion from below swale. Sand deposited in river.	1-5 CY	Remove sand from river and place stone dust in rip rap (has been performed).
Other Impacted Areas			
A - Cell A Swale	Exposed soil adjacent to swale	~ 1 SY	Place additional rip-rap to cover exposed soil adjacent to swale.
B - Cell C/D Waterloo wall	Exposed Waterloo sheeting along bank near 64X oil/water separator.	~ 40 LF	Place additional rip-rap at exposed sheet locations along top of wall (has been performed).
C - Cell F3 bank	Settlement at 3 areas near top of bank.	~1 SY each	Fill depressions (as necessary) by placing topsoil, spreading grass seed, and erosion mats (has been performed).
D - Cells J1/J2 top of north bank.	Exposed soil at former crane pad.	~30'x6' - top of bank ~30'x20' - ROW area	Place topsoil, spread seed, and place erosion mat at top of bank. Spread wood chips over ROW area. (To be performed upon removal of water transfer line)

Key:
 NA = Not applicable
 CY = cubic yard
 SY = square yard
 LF = linear feet

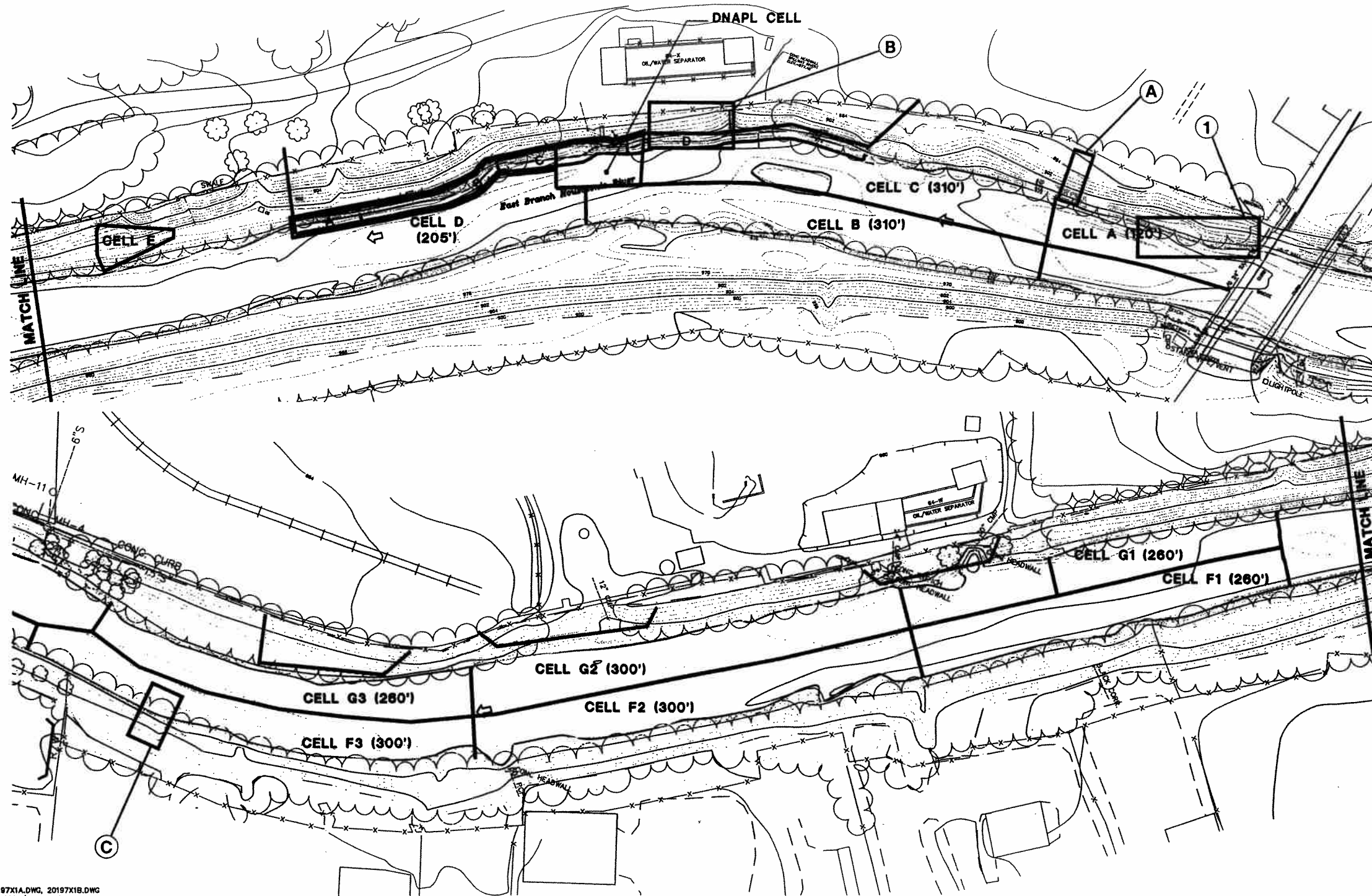
**General Electric Company - Pittsfield Massachusetts
1/2-Mile Reach Removal Action**

**Table 2
EPA Results from Swale No. 11 Eroded Soil Sampling**

Location ID	Aroclor 1254 Result (mg/kg)	Aroclor 1250 Result (mg/kg)	PCB Total Result (mg/kg)
SE001506	0.320	0.074	0.390
SE001507	0.980	0.180	1.200
SE001508	0.620	0.170	0.790

Exhibit A - Upper 1/2 Mile Reach Removal Action

BANK INSPECTION-SPRING 2002



- LEGEND:**
- (A) 1** BANK INSPECTION AREAS
 - EXISTING CONTAINMENT BARRIER LOCATION
 - TOP OF BANK
 - REMOVAL CELL

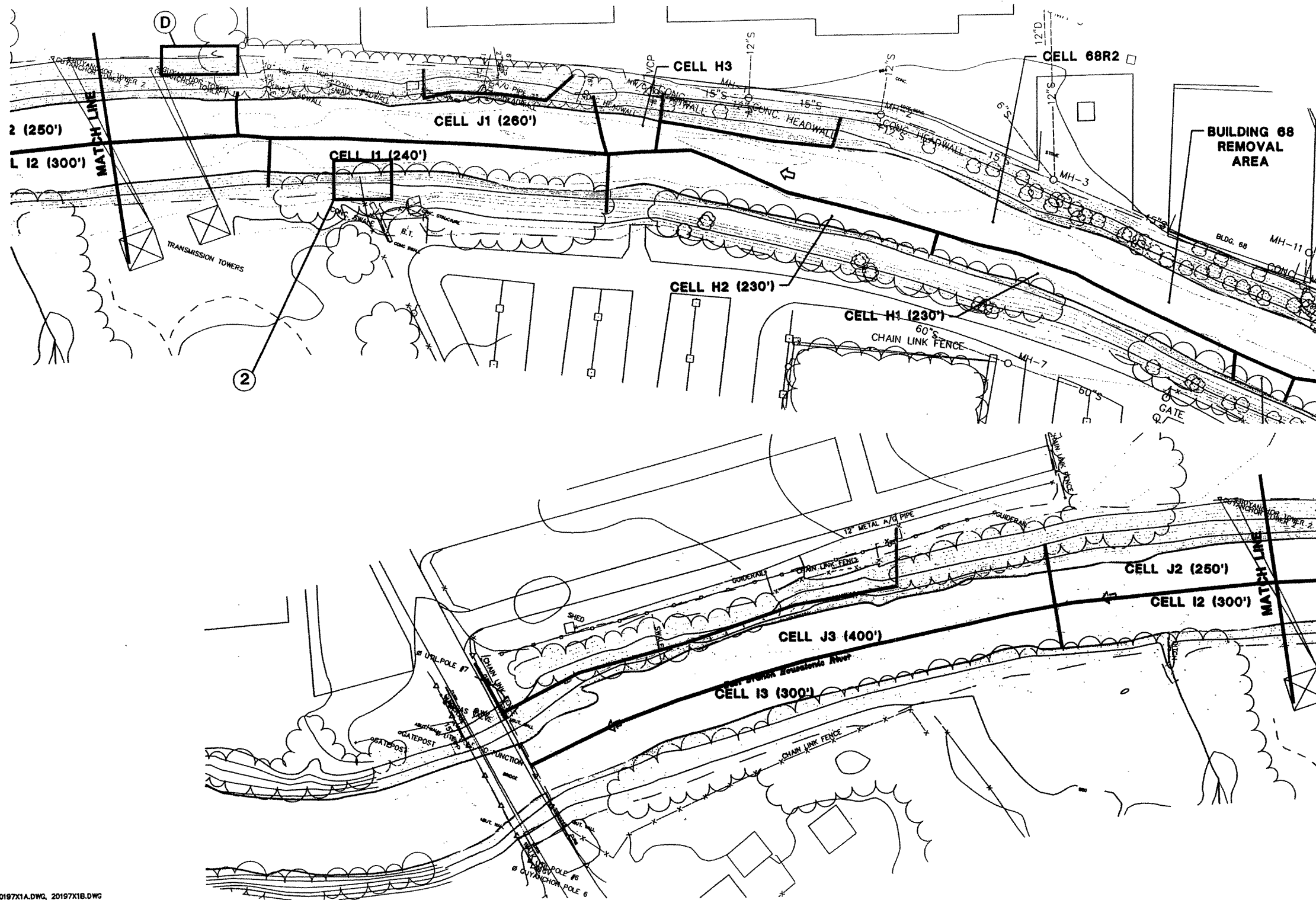
- NOTES:**
1. MAPPING IS BEST AVAILABLE INFORMATION AS OF 12/10/88 BASED ON MAPPING PROVIDED BY LOCKWOOD MAPPING, INC. PREPARED FROM 1990 AERIAL PHOTOGRAPHY; DATA PROVIDED BY GENERAL ELECTRIC; AND BLASLAND AND BOUCK, P.C. CONSTRUCTION PLANS, RIVERBANK AND RIVER BED TOPOGRAPHIC INFORMATION PROVIDED BBL FROM OCTOBER 12-23, 1998 FIELD SURVEY.
 2. COORDINATE GRID BASED ON 1927 STATE PLAN COORDINATES.
 3. ELEVATION DATUM REFERENCED TO NGVD 1929.
 4. ALL LOCATIONS AND DISTANCES ARE APPROXIMATE.



DRAFT

Exhibit B - Upper 1/2 Mile Reach Removal Action

BANK INSPECTION-SPRING 2002



- LEGEND:**
- C 2 BANK INSPECTION AREAS
 - EXISTING CONTAINMENT BARRIER LOCATION
 - TOP OF BANK
 - REMOVAL CELL

- 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.
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 4. ALL LOCATIONS AND DISTANCES ARE APPROXIMATE.



DRAFT