

TECHNICAL REPORT

*Preliminary Phase II
Scope of Work for
West Branch of Housatonic
River*

General Electric Company
Pittsfield, Massachusetts

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1. Introduction

1.1 General

This Preliminary Phase II Scope of Work (SOW) identifies the activities proposed by the General Electric Company (GE) to further evaluate the presence of polychlorinated biphenyls (PCBs) detected in the sediment of the West Branch of the Housatonic River (West Branch), located in Pittsfield, Massachusetts. The investigation activities to be conducted will focus on the West Branch from approximately 50 feet upstream of Dorothy Amos Park to the confluence with the East Branch of the Housatonic River, as shown on Figure 1. This SOW is being submitted to the Massachusetts Department of Environmental Protection (MDEP) pursuant to the Massachusetts Contingency Plan (MCP) and a letter from the MDEP to GE dated December 8, 1999, as modified by an MDEP letter to GE dated January 27, 2000, extending the date for submission of this SOW until February 7, 2000. However, in submitting this SOW, GE does not concede liability for any PCBs or other hazardous materials detected in the areas addressed in this SOW nor is it hereby agreeing to conduct the activities described in this SOW; rather GE reserves all its rights as discussed further below.

During 1999, the U.S. Environmental Protection Agency (USEPA), through its contractor Weston, sampled sediment collected from the West Branch. The sediment was collected and analyzed from two discrete areas of the West Branch: near the confluence of the East and West branches of the Housatonic River, and adjacent to Dorothy Amos Park. GE obtained from USEPA duplicate West Branch sediment samples (split samples) for analysis. USEPA's and GE's data indicated the presence of PCBs in the two areas of the West Branch sampled. In its letter to GE dated December 8, 1999, MDEP stated that: (a) these findings suggest that the West Branch sediment contamination is related to historical contamination at Dorothy Amos Park; (b) Dorothy Amos Park as well as relevant portions of the West Branch are areas outside the GE Pittsfield Facility where uncontrolled oil and/or hazardous material emanating from the GE Facility has come to be located; and (c) as such, the relevant portions of the West Branch are regulated by a July 2, 1990 Administrative Consent Order (ACO) executed by GE and MDEP, specifically the ACO provisions for the GE Facility (Remainder) Site (Pittsfield 1-0563R), as well as by the MCP. The MDEP's letter directed GE to prepare and submit a Preliminary Phase II Scope of Work for the West Branch to satisfy the following objectives:

- Define the nature and extent of the sediment contamination in the West Branch from upstream of Dorothy Amos Park to the confluence of the East and West Branches;

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- Delineate the presence of a PCB “hot spot” at a location in the West Branch adjacent to Dorothy Amos Park where PCBs were detected at concentrations of 3,144 ppm and 7,630 ppm; and
 - Evaluate groundwater beneath Dorothy Amos Park as a potential source of PCB contamination to the West Branch sediments, including determination of the presence or absence of non-aqueous-phase liquids (NAPLs) beneath Dorothy Amos Park.

GE does not concede that it is a liable party under federal or state law for the PCBs or other oil or hazardous materials detected at Dorothy Amos Park or in the West Branch, nor does it admit the MDEP’s statements in its December 8, 1999 letter, including those relating to the applicability of the 1990 ACO to these sites. GE reserves all its rights relating to these matters, including (but not limited to) its right to contest liability and to contest any requirements to conduct the activities described in this SOW and/or to perform further response actions at the West Branch or Dorothy Amos Park, as well as its rights against any and all third parties. Subject to these reservations, GE is submitting this SOW to describe the proposed investigative activities to meet the objectives specified in the MDEP’s letter. However, all proposals set forth below in this SOW should be considered as being subject to the foregoing reservations of rights and not as an agreement by GE at this time to carry out the proposed activities.

Sections 1.2 and 1.3 of this SOW provide background information and a chronology of previous sampling activities conducted at the West Branch. Section 2 describes the sediment investigations proposed for the West Branch (as well as related bank soil sampling) and the proposed evaluation of groundwater beneath Dorothy Amos Park as a potential source to the West Branch. Section 3 presents the proposed schedule for the performance and reporting of the investigative activities identified in this SOW.

1.2 Background Information

GE has owned and operated a manufacturing facility in Pittsfield, Massachusetts since the early 1900s. The primary industrial activities at this plant included the manufacturing and servicing of power transformers, defense and aerospace operations, and the manufacture of plastics. GE manufactured and serviced electrical transformers containing PCBs at this facility from approximately 1932 through 1977. The Transformer Division closed in 1977. The Transformer Division's activities included the construction and repair of electrical transformers utilizing dielectric fluid, some of which contained PCBs. As illustrated in Figure 1, GE's Pittsfield, Massachusetts facility is located along the bank of the East Branch of the Housatonic River.

The West Branch of the Housatonic River originates north of the City of Pittsfield at Pontoosuc Lake. The West Branch flows south, through the western part of the City of Pittsfield, to its confluence with the East Branch of the Housatonic River, collecting waters from Onota Lake and the Southwest Branch. Dorothy Amos Park is located east of and adjacent to the West Branch, upstream of West Street in the City of Pittsfield. Beginning in mid-1997, at MDEP's request, GE conducted extensive sampling at Dorothy Amos Park, and in 1998 GE carried out remedial actions to address the presence of PCBs in the soils at that Park, completing those remedial actions in September 1998. These actions were carried out under the direct oversight and approval of MDEP and consistent with the requirements of the MCP.

The portion of the West Branch covered by this SOW extends for approximately 11,300 feet, from approximately 50 feet upstream of Dorothy Amos Park to the West Branch's confluence with the East Branch of the Housatonic River.

1.3 Previous Sampling Activities

This section provides a summary of the soil and sediment sampling activities that have previously been performed at the West Branch. The results of these activities are described below, and are further summarized in Tables 1 and 2, and on Figures 2 and 3.

1.3.1 Historic Sediment Sampling Activities and Results

Limited data collected in Massachusetts in 1975 suggested that sediment and fish in the upper reaches of the Housatonic River had higher concentrations of PCBs than those found in the lower reaches (Massachusetts Department of Environmental Quality Engineering data files). In December 1982, a cooperative study of the Housatonic River by the Connecticut Agricultural Experiment Station (CAES), the Connecticut Department of Environmental Protection, and the U.S. Geological Survey (USGS) was released. The objectives of this study were to determine the mass of PCBs in bottom sediments of the Housatonic River and to determine the rate of transport of suspended sediment and PCBs down the river. As part of this study, in January 1980, one surficial sediment sample was collected in the West Branch at one location, Location 3. Location 3 is on the West Branch, approximately 14,200 feet upstream of the confluence with the East Branch of the Housatonic River. Both the USGS and CAES analyzed the sample for PCBs. The PCB concentrations reported for Location 3 were 0.03 ppm and 0.56 ppm, respectively. Results are included in Table 1 (sample S3). An additional location, Location 8, on the Southwest Branch, approximately 2,600 feet upstream from its confluence with the West Branch of the

Housatonic River, was also sampled. The PCB result for Location 8 was 0.03 ppm as analyzed by the USGS, with no result reported by the CAES.

In addition, pursuant to 1981 Consent Orders executed by GE, USEPA, and MDEP (then known as the Massachusetts Department of Environmental Quality Engineering), Stewart Laboratories, Inc., on behalf of GE, conducted a study of the Housatonic River and issued a report in 1982. One of the objectives of this study was to determine the occurrence and distribution of PCBs in the bottom sediment of the river in Massachusetts. To make that determination, a total of 892 sediment samples were taken from the Housatonic River. One of the locations, S13, was located on the West Branch, at the confluence with the Southwest Branch, as shown on Figure 2. The total PCB concentration reported for sample location S13 was 0.91 ppm [individual sample interval concentrations ranged from 0.32 ppm (1-1.6 feet) to 1.9 ppm (0-0.5 feet)]. Sample results are included in Table 1.

1.3.2 Prior Dorothy Amos Park Activities and Sampling Results

At the request of the MDEP by letter dated June 13, 1997, GE performed a soil investigation at Dorothy Amos Park. Based on the investigation performed by GE at Dorothy Amos Park, it was determined that remedial actions were necessary to address the presence of PCBs. Between August 1997 and January 1998, over 410 soil samples were collected from 93 locations at Dorothy Amos Park. The results of this investigation, summarized on Figure 3, subsequently lead to remediation of the park. Approximately 4,000 cubic yards of soil were excavated in three select soil intervals: 0 to 1 foot, 1 to 4, and greater than 4 feet. Removal activities were completed in September of 1998. The removal limits are shown on Figure 3.

As part of the investigations of Dorothy Amos Park, a monitoring well installation program was conducted during the week of September 17, 1997, in an effort to provide hydrogeologic data regarding the direction of groundwater flow at the Park and to provide groundwater sampling points (if necessary) to determine groundwater quality. The details and results of the investigation are discussed further in Section 2.3 of this SOW.

1.3.3 1999 USEPA Sediment Sampling Activities and Results

As part of investigation activities relating to the East Branch of the Housatonic River in 1999, USEPA (through Weston) collected and analyzed sediment samples from two discrete areas of the West Branch: near the confluence of the East and West Branches of the Housatonic River, and adjacent to Dorothy Amos Park. The West Branch sediment samples were collected in approximate half-foot intervals to a maximum depth of 2 feet. Eleven locations

were sampled near Dorothy Amos Park. PCB concentrations in the sediment samples obtained near Dorothy Amos Park ranged from 0.417 ppm to 7,630 ppm. Forty-eight sediment samples were also collected from 30 West Branch locations near its confluence with the East Branch of the Housatonic River. PCB concentrations for 47 of these sediment samples ranged from non-detect to 4.2 ppm, and one sample (SE000388) showed a concentration of 60.5 ppm. In all, a total of 41 locations were sampled by the USEPA (Weston) in the West Branch, resulting in 82 samples. PCB concentrations were reported at less than 1 ppm in 49 of the 82 samples. The sample locations are shown on Figure 2, and PCB analytical results are summarized in Table 1. In addition, as part of the investigation activities relating to the East Branch of the Housatonic River, 48 sediment samples were collected in the Southwest Branch. Concentrations of PCBs in the sediment samples of the Southwest Branch ranged from non-detect to 0.165 ppm, with PCB concentrations being reported as non-detect in 25 samples. Samples also were collected from the West Branch for analysis of the constituents listed in Appendix IX of 40 CFR Part 264 plus one additional constituent (2-chloroethyl vinyl ether). The Appendix IX analytical results are summarized in Table 2.

2. Additional Site Assessment Activities

2.1 General

Since 1980, approximately 87 sediment samples have been collected from approximately 43 locations in the West Branch. Those samples were analyzed for PCBs and, a portion, for Appendix IX constituents. Results associated with those sampling and analysis activities are summarized in Section 1 of this SOW.

To meet the objectives specified in the MDEP's December 8, 1999 letter, which are summarized in Section 1.1 above, additional investigations and evaluations are proposed. Specifically, additional sampling and analysis of the sediments of the West Branch will be conducted along a number of evenly-spaced transects to further define the nature and extent of PCB contamination in the West Branch sediments from upstream of Dorothy Amos Park to the confluence with the East Branch. Further, a limited number of additional sediment and bank soil samples will be collected for PCB analysis in the area around USEPA sampling location SDW22242 (where elevated PCB concentrations were detected) to better delineate the extent of PCBs in that specific area. These sampling and analysis activities are described in Section 2.2. In addition, GE has conducted a preliminary evaluation of the groundwater beneath Dorothy Amos Park as a potential source of PCB contamination to the West Branch sediments, including an evaluation of the potential presence of NAPL, and it proposes additional investigative activities to complete that evaluation. GE's preliminary evaluation and proposed additional groundwater-related activities are presented in Section 2.3. Finally, Section 2.4 describes the reporting of the data and an assessment of additional data needs (if any) to complete necessary investigations.

2.2 Sediment Investigation

2.2.1 Transect Sampling for PCBs

To further define the horizontal and vertical extent of PCBs in the West Branch sediments, GE proposes to collect approximately 415 samples at 36 transect locations. The sampling transects on the West Branch will begin approximately 50 feet upstream of the USEPA (Weston) sampling transect SDW223 (located adjacent to Dorothy Amos Park) and continue downstream to West Street bridge at 50-foot intervals, as shown on Figure 3. As three of the existing USEPA (Weston) sediment sampling transects adjacent to Dorothy Amos Park fall at proposed 50-foot sediment sampling transect locations, the data previously collected by the USEPA (Weston) will be used, with additional samples being collected from deeper depth intervals (to a maximum depth of 3 feet) along these three

transects (as well as the additional sampling described in Section 2.2.2). Sediment sampling transects will continue from the West Street bridge (approximately 10,500 feet from the confluence) downstream at 400-foot intervals to approximately 400 feet upstream from the USEPA (Weston) sampling transect SE00038, as shown on Figure 2. Each newly proposed transect will be sampled at two locations, one-third and two-thirds of the distance between the edges of the water. The sediment samples will be collected at 6-inch depth intervals to a maximum depth of 3 feet. The samples collected from the intervals between 0 and 2 feet will be analyzed for PCBs. The samples collected between 2 to 3 feet will be held and analyzed for PCBs, if necessary, based on the results from the above increments. All transect locations will be surveyed to establish their horizontal position.

2.2.2 Delineation of PCBs Near Location SDW22242

In addition to the transect sampling described in Section 2.2.1, samples will also be collected in the immediate vicinity of USEPA location SDW22242 (see Figure 3), where PCB concentrations of 3,144 ppm (USEPA analysis) and 7,630 (USEPA duplicate sample analysis) were reported in the 0.5- to 1-foot depth increment, in order to further delineate the extent of PCBs in that specific area. Sediment and adjacent bank soil samples will be collected as described below.

Sediment samples will be collected along two proposed transect locations, one approximately 25 feet upstream of USEPA location SDW22242 and the other approximately 25 feet downstream of that USEPA sample location. Each proposed transect will be sampled at three evenly-spaced locations across the river. Another sediment sample will be collected approximately 10 feet to the west of USEPA location SDW22242, at approximately the same location as USEPA location SDW22241 (where sampling by USEPA (Weston) was attempted, but no sample was collected reportedly due to cobble). Proposed locations are shown on Figure 3. The sediment samples will be collected at 6-inch depth intervals to a maximum depth of 3 feet. The samples collected from the intervals between 0 and 2 feet will be analyzed for PCBs. The samples collected between 2 to 3 feet will be held and analyzed for PCBs, if necessary, based on the results from the above increments. All transect locations will be surveyed to establish their horizontal position.

In addition to the proposed sediment sampling, bank soil sampling is also proposed in the vicinity of USEPA location SDW22242. The proposed bank soil sample locations are located on the west bank of the West Branch, along the westerly projection of the centerlines of the proposed sediment sample transects in the vicinity of the USEPA sample location. The sediment sample transects to be projected for bank soil sampling are located approximately 25 feet and 50 feet upstream and 25 feet and 50 feet downstream of USEPA location SDW22242 (see

Figure 3). Also, bank soil samples will be collected on the west bank along the transect of USEPA locations SDW22242/43 (see Figure 3). Samples will be collected near the top of bank and near the bottom of bank, at depth intervals of 0 to 0.5 foot, 0.5 to 1 foot, and 1 to 3 feet. Samples will be analyzed for PCBs. All locations will be surveyed to establish their horizontal position.

2.3 Groundwater/NAPL Evaluation

The December 8, 1999 MDEP letter states that the SOW should satisfy the objective of evaluating groundwater beneath Dorothy Amos Park as a potential source of PCBs to the West Branch sediments, including determining the presence or absence of NAPL beneath the Park. As discussed below, GE has conducted such an evaluation based on existing information, and proposes additional investigative activities to confirm that evaluation.

During the 1997 subsurface investigation conducted by GE at Dorothy Amos Park, GE initiated a monitoring well installation program during the week of September 17, 1997, in an effort to provide hydrogeologic data regarding the direction of groundwater flow and to provide groundwater sampling points (if necessary) to determine groundwater quality. Under this program, GE's contractors attempted to install two groundwater monitoring wells -- in soil borings SB-3 and SB-5 (as shown on Figure 3). Subsurface units encountered during the program included a dense gray silt unit, interpreted to be a glacial till, encountered at both proposed well locations. This unit approximately 5 to 6 feet below grade to the top of bedrock, which was encountered at a depth of approximately 26 feet below grade at both locations, as determined by split-spoon and auger refusal. The gray silt unit was very compact, and appeared to have a low moisture content. Due to the compact nature and observed grain size distribution, this material is interpreted to have a low permeability. No groundwater was encountered while drilling at these two proposed well locations, and the borings were allowed to remain open for at least 12 hours to permit monitoring of any groundwater infiltration into the borings.

At the first well location, SB-3, a small volume of water (0.3 feet) was measured in the bottom of the boring approximately 24 hours after its completion. A temporary monitoring well was installed to a depth of 25.9 feet below grade to assess the potential for groundwater infiltration into the monitoring well. The temporary well was constructed of 2-inch diameter, schedule-40 PVC materials and consisted of 10 feet of slotted (0.010-inch) screen, with a 0.3-foot silt trap on the bottom of the screened section. A silica sandpack was installed around the well screen to a height of 2 feet above the top of the well screen. The temporary well was monitored over the next 20 hours to assess groundwater infiltration into the well. No water was measured inside the temporary monitoring well following its installation on September 18, 1997, and during subsequent measurements on September 19, 1997.

A boring was installed at the second well location, SB-5, on September 18, 1997. Similar subsurface conditions were encountered at this location, and, as with SB-3, the boring was permitted to remain open overnight to determine if groundwater was present. Measurements taken on September 19, 1997 indicated no groundwater present in the boring at a depth of 26.2 feet below grade (top of bedrock). Thus, a temporary well was not installed.

Given the absence of groundwater at these two locations above bedrock (i.e., at a depth of approximately 26 feet below grade) and the interpreted low permeability of the silt unit beneath the Park, it seems unlikely that groundwater is a potential source of PCBs to the West Branch sediments.

In addition, soil samples collected during the well installation program at locations SB-3 and SB-5 and from 43 additional borings installed during the subsurface soil investigations at the Park revealed no evidence of NAPLs beneath Dorothy Amos Park. Borings were installed to depths ranging from 4 to 27 feet below grade, with an average depth of 10 feet. Samples collected from the borings provided a detailed characterization of the horizontal and vertical extent of PCBs. The analytical results from these borings (shown on Figure 3) and the visual observations made during the collection of the soil samples do not indicate that NAPLs are present beneath the Park. It should be noted, however, that when brush was removed along the river bank during remediation activities at the Park, a slight “sheen” on the surface water was visually observed in the vicinity of sample locations SDW22242 and SDW22243. The source of that sheen is unknown.

To further confirm the above conclusions and thus complete the groundwater/NAPL evaluation, additional activities, in the form of a focused groundwater investigation, are proposed. The focused groundwater investigation will concentrate on the area of the Park located in the vicinity of USEPA sediment sample locations SDW22242 and SDW22243. It was also in the vicinity of these two locations that the slight “sheen” was visually observed when brush was removed along the river bank during remediation activities at Dorothy Amos Park. The focused groundwater investigation will include the following components:

- Installation of three soil borings to 10 feet below the level of the river bottom or to refusal; and
- Installation of three monitoring wells if groundwater is encountered in the unconsolidated soil units.

The three proposed borings/monitoring wells will be installed at the top of the river bank in Dorothy Amos Park. One boring will be installed on the easterly projection of the transect of USEPA sample locations SDW22242/43 (as shown on Figure 3). The two additional borings will be installed approximately 100 feet upstream and

approximately 100 feet downstream of that well location (as shown on Figure 3). If groundwater is encountered in the unconsolidated soil units, monitoring wells will be installed, developed, and sampled for PCBs using low-flow groundwater sampling methods.

During boring/well installation, soil samples will be observed to assess the potential presence of NAPL (e.g., sheens or free product). Following monitoring well installation and development, the wells will be evaluated using an oil/water interface probe and clear bailers to determine the absence or presence of NAPL.

All proposed borings, monitoring well installations, and groundwater sampling will be performed following the protocols identified in GE's proposed Field Sampling Plan/Quality Assurance Project Plan, dated January 2000.

If groundwater analytical results and/or observations made during boring/well installation and monitoring indicate additional potential data needs, these needs will subsequently be identified and evaluated. If groundwater is determined not to be the source of PCBs to the West Branch sediments and no indications of potential NAPL are noted, no further evaluation will be conducted.

2.4 Reporting of Data and Assessment of Additional Data Needs

Data collected as part of the investigatory activities proposed herein will be reviewed by GE upon receipt from the laboratory. Following assessment of the analytical results, GE will prepare and submit a Preliminary Phase II Report to the MDEP. That report will present the results from the proposed investigations, together with the pre-existing PCB data and other information, and will evaluate the extent to which such data and information satisfy the objectives specified in the MDEP's December 8, 1999 letter. In addition, this report will present available information on the environmental setting of the West Branch (including a detailed site map), the history of this section of the river and potential sources of PCB contamination to it (to the extent known), the hydrogeologic characteristics of the West Branch, the nature and extent of the sediment PCB contamination, and the fate and transport of PCBs within the West Branch river system. Finally, the Preliminary Phase II Report will identify and evaluate potential remaining data needs, if any, to achieve the objectives specified in the MDEP's December 8, 1999 letter, subject to GE's reservations or rights described in Section 1.1.

3. Schedule

Following MDEP approval of this SOW, GE will initiate the activities proposed in this SOW, subject to the reservations of rights described in Section 1.1 and also subject to obtaining access to the appropriate properties and any necessary Pittsfield Conservation Commission approvals. GE proposes to complete the proposed investigations and to submit a Preliminary Phase II Report within 4 months from MDEP approval of this SOW or receipt of any necessary approvals from the Pittsfield Conservation Commission, whichever is later. If the MDEP requests the collection of additional data (beyond the investigations proposed herein) to meet the objectives in its December 8, 1999 letter, or if weather-related delays or delays in obtaining any necessary property access are encountered, it is possible that the overall time frame to complete the activities presented in this SOW may need to be extended. In that event, GE will propose a revised schedule to MDEP.

Tables

Table 1

General Electric Company - Pittsfield, Massachusetts
West Branch Housatonic River

PCB Sediment Data
(ppm, dry weight)

Sample ID	Date	Depth (ft)	PCBs (ppm)
S3*	1/1/1980	0-0.5	0.03
		0-0.5	0.56
S13	7/7/1980	0-0.5	1.9
		0.5-1	0.51
		1-1.6	0.32
SDW22081	3/3/1999	0-0.5	2.72
		0.5-1	1.18
		1-1.5	1.02
		1.5-1.67	1.13
SDW22082	3/3/1999	0-0.5	0.5
		0.5-1	0.501
		1-1.5	2.09
		1.5-1.75	6.89
SDW22083	3/3/1999	0-0.5	23.9
		0.5-1	1.7
		1-1.5	6.31
SDW22161	3/3/1999	0-0.5	3.97
		0.5-1	3.32
		1-1.5	0.417
SDW22162	3/3/1999	0-0.5	2.9
		0.5-1	2.24
		1-1.5	44.6
SDW22163	3/3/1999	0-0.5	18 {ND(0.630)}
		0.5-1	4.83
		1-1.5	18.3
SDW10041	3/30/1999	0-0.5	1.06
		0.5-1	0.031
		1-1.5	1.3
		1.5-2	0.034
SDW10042	3/30/1999	0-0.5	0.075
		0.5-1	0.065
SDW10043	3/30/1999	0-0.5	0.032
		0.5-1	0.028
SDW10081	3/30/1999	0-0.5	0.42
		0.5-1	4.2
SDW10082	3/30/1999	0-0.5	0.26
		0.5-1	2.4
		1-1.5	0.839
		1.5-2	1.73
SDW10083	3/30/1999	0-0.5	0.018 {ND (0.0600)}
		0.5-1	0.019
SDW10121	3/30/1999	0-0.5	1.2
		0.5-1	0.14
		1-1.5	0.03 {ND (0.106)}
SDW10122	3/30/1999	0-0.5	0.3
SDW10123	3/30/1999	0-0.5	0.4
		0.5-1	0.81
		1-1.5	0.862
SDW10161	3/30/1999	0-0.5	0.663
		0.5-1	1.27 {ND (0.700)}
		1-1.5	0.02
SDW10162	3/30/1999	0-0.5	0.13
		0.5-1	1.28
SDW10163	3/30/1999	0-0.5	0.028
		0.5-1	0.13 {0.206}
		1-1.5	0.026

Table 1

General Electric Company - Pittsfield, Massachusetts
West Branch Housatonic River

PCB Sediment Data
(ppm, dry weight)

Sample ID	Date	Depth (ft)	PCBs (ppm)
SE000386	5/14/1999	0-0.5	0.509
SE000387	5/14/1999	0-0.5	0.506
SE000388	5/14/1999	0-0.5	60.5
SE000398	5/24/1999	0-0.5	ND(0.503)
SE000399	5/24/1999	0-0.5	ND(0.503)
SE000400	5/24/1999	0-0.5	0.344J
SE000559	7/1/1999	0-0.5	0.311J
SE000560	7/1/1999	0-0.5	ND(0.631)
SE000561	7/1/1999	0-0.5	ND(0.611)
SE000562	7/1/1999	0-0.5	ND(0.559)
SE000563	7/1/1999	0-0.5	ND(0.581)
SE000564	7/1/1999	0-0.5	ND(0.585)
SE000565	7/1/1999	0-0.5	0.513J
SE000566	7/1/1999	0-0.5	ND(0.592)
SE000567	7/1/1999	0-0.5	ND(0.555)
SE000568	7/1/1999	0-0.5	ND(0.592)
SE000569	7/1/1999	0-0.5	ND(0.562)
SE000570	7/1/1999	0-0.5	0.447J
SDW22241	No Sample Collected		
SDW22242	8/5/1999	0-0.5	35.7
		0.5-1	3144 [7360]
SDW22243	8/5/1999	0-0.5	63.3
		0.5-1	76.8 {111}
		1-1.5	84.8
SDW22321	8/5/1999	0-0.5	1.45
		0.5-1	1.37
SDW22322	8/5/1999	0-0.5	0.501
		0.5-1	0.501
SDW22323	8/5/1999	0-0.5	0.504
		0.5-1	0.503
		1-1.5	0.504
		1.5-2	0.501

Notes:

- 1) * Samples are described as surficial samples with no specific depth interval provided so a 0-0.5 ft interval is assumed.
- 2) Samples with IDs beginning with SDW_ and SE_ were collected by USEPA.
- 3) { } -Values are GE split sample results.
- 4) J- Indicates an estimated value less than the CLP-required quantitation limit.
- 5) ND - Analyte was not detected. The number in parenthesis is the associated detection limit.
- 6) [] - Indicates the result of a duplicate sample.

Table 2

General Electric Company - Pittsfield, Massachusetts
West Branch Housatonic River

Appendix IX Sediment Data
(ppm, dry weight)

Sample ID: Depth Interval (feet): Date:	SDW10041 1-1.5 3/30/1999	SDW10082 1-1.5 3/30/1999	SDW10123 1-1.5 3/30/1999	SDW10161 0-0.5 3/30/1999	SDW22083 0.5-1 3/3/1999	SDW22162 0-0.5 3/3/1999	SDW22323 0.5-1 3/4/1999	SE000398 0-0.5 5/24/1999	SE000477 0-0.5 6/24/1999
Volatile Organics									
Acetone	NS	NS	NS (ND(0.016))	NS	NS	NS (0.27)	NS	NS	NS
Semivolatiles									
1,2,4-Trichlorobenzene	ND(0.77)	ND(1.4)	ND(1.3) (ND(1.1))	ND(0.43)	0.052 J	ND(0.48) (ND(0.45))	ND(0.97)	ND(0.5)	ND(0.85)
1,2-Dichlorobenzene	ND(0.77)	0.1 J	ND(1.3) (ND(1.1))	ND(0.43)	0.051 J	ND(0.48) (ND(0.45))	0.06 J	0.046 J	ND(0.85)
1,3-Dichlorobenzene	ND(0.77)	ND(1.4)	ND(1.3) (ND(1.1))	ND(0.43)	0.053 J	ND(0.48) (ND(0.45))	ND(0.97)	ND(0.5)	ND(0.85)
1,4-Dichlorobenzene	ND(0.77)	0.26 J	ND(1.3) (ND(1.1))	0.024 J	0.19 J	0.03 J (ND(0.45))	0.12 J	0.056 J	0.041 J
2-Methylnaphthalene	ND(0.77)	0.39 J	0.29 J (ND(1.1))	0.026 J	0.31 J	0.11 J (ND(0.45))	0.1 J	0.24 J	ND(0.85) J
4-Methylphenol	ND(0.77)	ND(1.4)	ND(1.3) (NS)	ND(0.43)	0.16 J	0.16 J (NS)	ND(0.97)	0.046 J	ND(0.85)
Acenaphthene	ND(0.77)	0.71 J	0.87 J (ND(1.1))	ND(0.43)	0.41 J	0.12 J (ND(0.45))	0.22 J	0.77	0.064 J
Acenaphthylene	ND(0.77)	ND(1.4)	ND(1.3) (ND(1.1))	0.02 J	0.27 J	0.065 J (ND(0.45))	0.051 J	0.24 J	0.14 J
Acetophenone	ND(0.77)	ND(1.4)	ND(1.3) (ND(1.1))	ND(0.43)	0.066 J	ND(0.48) (ND(0.45))	ND(0.97)	ND(0.5)	ND(0.85)
Anthracene	0.04 J	1.3 J	1.1 J (0.69 J)	0.042 J	1.7	0.38 J (0.57)	0.4 J	1.7	0.84 J
Benzo(a)anthracene	0.18 J	2.5	3.1 (1.7)	0.25 J	6.1 J	1.4 J (1.6)	1.8	4.3	2.6
Benzo(a)pyrene	0.16 J	2	3 (1.8)	0.25 J	6.6	1.5 J (1.6)	1.9 J	4	1.4
Benzo(b)fluoranthene	0.17 J	2.2	3.3 (1.6)	0.26 J	5.6 J	1.4 J (1.6)	1.7 J	3.3	1.6
Benzo(ghi)perylene	0.089 J	1.2 J	1.4 (0.56 J)	0.19 J	3.9 J	1.1 J (0.46)	1.4 J	2.2	0.47 J
Benzo(k)fluoranthene	0.19 J	1.9	2.9 (1.6)	0.29 J	7.2	1.3 J (0.97)	2.1 J	3.6	0.9
Bis(2-ethylhexyl)phthalate	ND(0.77)	ND(1.4)	0.074 J (ND(1.1))	0.03 J	0.46 J	ND(0.48) J (ND(0.45))	0.62 J	0.33 J	ND(0.85)
Butylbenzylphthalate	ND(0.77)	ND(1.4)	ND(1.3) (ND(1.1))	ND(0.43)	ND(0.63) J	ND(0.48) J (ND(0.45))	0.11 J	0.078 J	ND(0.85)
Chrysene	0.19 J	2.9	3.6 (2.0)	0.34 J	8.8	1.6 J (1.7)	2.3	4.8	1.8
Dibenzo(a,h)anthracene	ND(0.77) J	0.3 J	0.4 J (0.24 J)	0.049 J	1.7 J	0.26 J (0.23)	0.36 J	0.56 J	0.2 J
Dibenzofuran	ND(0.77)	0.56 J	0.68 J (ND(1.1))	ND(0.43)	0.3 J	0.11 J (ND(0.45))	0.11 J	0.49 J	0.066 J
Diethyl phthalate	ND(0.77)	ND(1.4) J	0.14 J (ND(1.1))	ND(0.43) J	ND(0.63)	ND(0.48) (ND(0.45))	ND(0.97)	ND(0.5)	ND(0.85)
Di-n-butyl phthalate	ND(0.77)	ND(1.4)	0.1 J (ND(1.1))	ND(0.43)	ND(0.63)	0.046 J (ND(0.45))	ND(0.97)	ND(0.5)	ND(0.85)
Fluoranthene	0.3 J	5.8	6.9 (3.7)	0.47	15	3 (3.5)	3.8	9.7	3.1
Fluorene	ND(0.77)	0.9 J	0.97 J (ND(1.1))	0.034 J	1	0.17 J (0.25)	0.26 J	0.89	ND(0.85)
Indeno(1,2,3-c,d)pyrene	0.097 J	1.2 J	1.5 (0.68 J)	0.18 J	3.7 J	1 J (0.58)	1.3 J	2 J	0.44 J
Naphthalene	ND(0.77)	0.84 J	0.74 J (ND(1.1))	0.053 J	0.61 J	0.31 J (ND(0.45))	0.18 J	0.58 J	0.14 J
Phenanthrene	0.16 J	6.8	7.8 (2.9)	0.31 J	9.8	1.5 (2.3)	2.5	8.3	1.8
Phenol	ND(0.77)	0.2 J	ND(1.3) (ND(1.1))	ND(0.43)	ND(0.63)	ND(0.48) (ND(0.45))	ND(0.97)	ND(0.5)	ND(0.85)
Pyrene	0.39 J	5.4	6.8 (3.0)	0.52	15	3.5 (2.4)	5.1	8.7	3.7
Pesticides									
4,4'-DDD	ND(0.0079)	ND(0.11)	0.011 J (NS)	ND(0.0088)	0.053	ND(0.05) (ND(0.023)J)	0.03 J	ND(0.0052)	ND(0.44)
4,4'-DDE	ND(0.0079)	ND(0.11)	ND(0.0053) (NS)	ND(0.0088)	0.047	ND(0.05) (ND(0.023))	0.015 J	ND(0.0052)	ND(0.44)
Endrin aldehyde	ND(0.0079)	ND(0.11)	ND(0.0053) (NS)	ND(0.0088)	ND(0.033)	ND(0.05) (ND(0.023))	ND(0.01)	0.0066 J	ND(0.44)
Kepona	0.004 R	0.12 R	0.028 J (NS)	0.005 R	0.11 R	0.18 R (ND(0.45))	0.014 R	0.0078 R	ND(0.22) J
Dioxin/Furans									
Total TEQs (per WHO TEFs)	1.52E-05	7.20E-05	1.7E-5 (6.7E-6)	1.76E-05	8.47E-05	9.0E-6 (9.6E-6)	2.82E-05	1.23E-05	NS
Inorganics									
Sulfide	ND(18.1) J	123 J	254 J (352)	ND(10) J	305	98.4 (273)	157	ND(11.8)	
Antimony	ND(0.98)	2.8	ND(0.85) (ND(1.6) J)	ND(0.73)	2.7 J	1.8 J (0.720)	1.6 J	0.59	ND(0.61)
Arsenic	5	7.6	3.6 (4.60)	4	8	7.5 (5.7)	5.8	4.2	ND(1.7)
Barium	43.4	34.7	17.6 (16.0 J*)	20.3	81.3	56.6 (46.3)	42.3 J	20.3	16.7
Beryllium	0.54	0.43	0.27 (0.190 J*)	0.31	ND(0.7)	ND(0.42) (0.200)	ND(0.46)	0.38	0.21
Cadmium	ND(0.07)	0.43	ND(0.04) (0.230 J*)	ND(0.03)	1.9	ND(0.02) (0.470)	0.7 J	ND(0.04)	ND(0.05)
Chromium	20.6	238	46.7 (44.4 J)	38.7	212	103 (91.4)	101	33.4	11.9
Cobalt	16.3	12.1	8.4 (11.3)	9.4	12.2	9.4 (9.00)	8.8 J	8.8	6.9

Table 2

General Electric Company - Pittsfield, Massachusetts
West Branch Housatonic River

Appendix IX Sediment Data
(ppm, dry weight)

Sample ID: Depth Interval (feet): Date:	SDW10041 1-1.5 3/30/1999	SDW10082 1-1.5 3/30/1999	SDW10123 1-1.5 3/30/1999	SDW10161 0-0.5 3/30/1999	SDW22083 0.5-1 3/3/1999	SDW22162 0-0.5 3/3/1999	SDW22323 0.5-1 3/4/1999	SE000398 0-0.5 5/24/1999	SE000477 0-0.5 6/24/1999
Copper	24.4	65.5	31.8 {29.4}	31.2	94.3	62.6 {58.1}	66.2	34.9	9.2
Lead	17.3 J	99.3 J	79.4 J {97.5}	36.5 J	317	201 {152 }	166	70.1	12.9
Mercury	0.1 J	0.49 J	0.27 J {0.210}	0.14 J	0.71	0.41 {0.340}	0.46	0.11 J	0.03
Nickel	31.7	24.4	17.2 {20.7}	18.2	25.8	19.3 {22.4}	18.5	15.9	11.8
Selenium	ND(0.4)	ND(0.29)	ND(0.25) {ND(0.820)}	ND(0.18)	ND(0.67)	ND(0.39) {0.280}	1.3	ND(0.24)	ND(0.34)
Silver	ND(0.2)	ND(0.15)	ND(0.13) {0.110 J*}	ND(0.09)	0.28 J	ND(0.11) {0.130}	ND(0.26)	0.65	ND(0.24)
Thallium	ND(1.9)	ND(1.8)	ND(1.1) {ND(1.60)}	ND(1.7)	2.3	0.61 J {ND(1.40)}	ND(0.95)	2.1	0.35 J
Tin	ND(2)	9.9	9.8 { ND(18.2)}	ND(2.9)	17.4	149 {58.1}	14.5	8.4	ND(2.2)
Vanadium	17.6	13.8	10.2 {10.4}	10.3	20.7	12.2 {7.50}	17.2	12.7	7.1
Zinc	117 J	224 J	121 J {137}	99.8 J	332	226 {159}	237	119	73.1

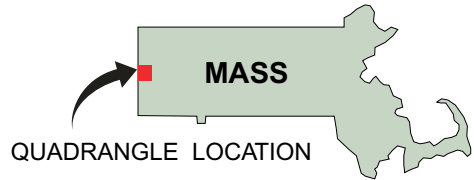
Notes:

- 1) Samples were collected by USEPA, and were submitted for analysis of Appendix IX constituents plus one additional constituent (2-chloroethyl vinyl ether).
- 2) ND - Analyte was not detected. The number in parentheses is the associated quantitation limit for volatiles and semivolatiles and the associated detection limit for other constituents.
- 3) J - Indicates an estimated value less than the CLP-required quantitation limit.
- 4) J* - Indicates an estimated value between the instrument detection limit and the CLP-required detection limit.
- 5) NS - Not Sampled - Parameter was not requested on sample chain of custody form.
- 6) Total 2,3,7,8-TCDD toxicity equivalents (TEQs) were calculated using the World Health Organization Toxicity Equivalency Factors (WHO TEFs) for all PCDD/PCDF congeners.
- 7) { } - Indicates GE split sample result.
- 8) R - Indicates a rejected result.
- 9) Constituents presented on this table indicate that at least one detection of the constituent has occurred at the site.

Figures



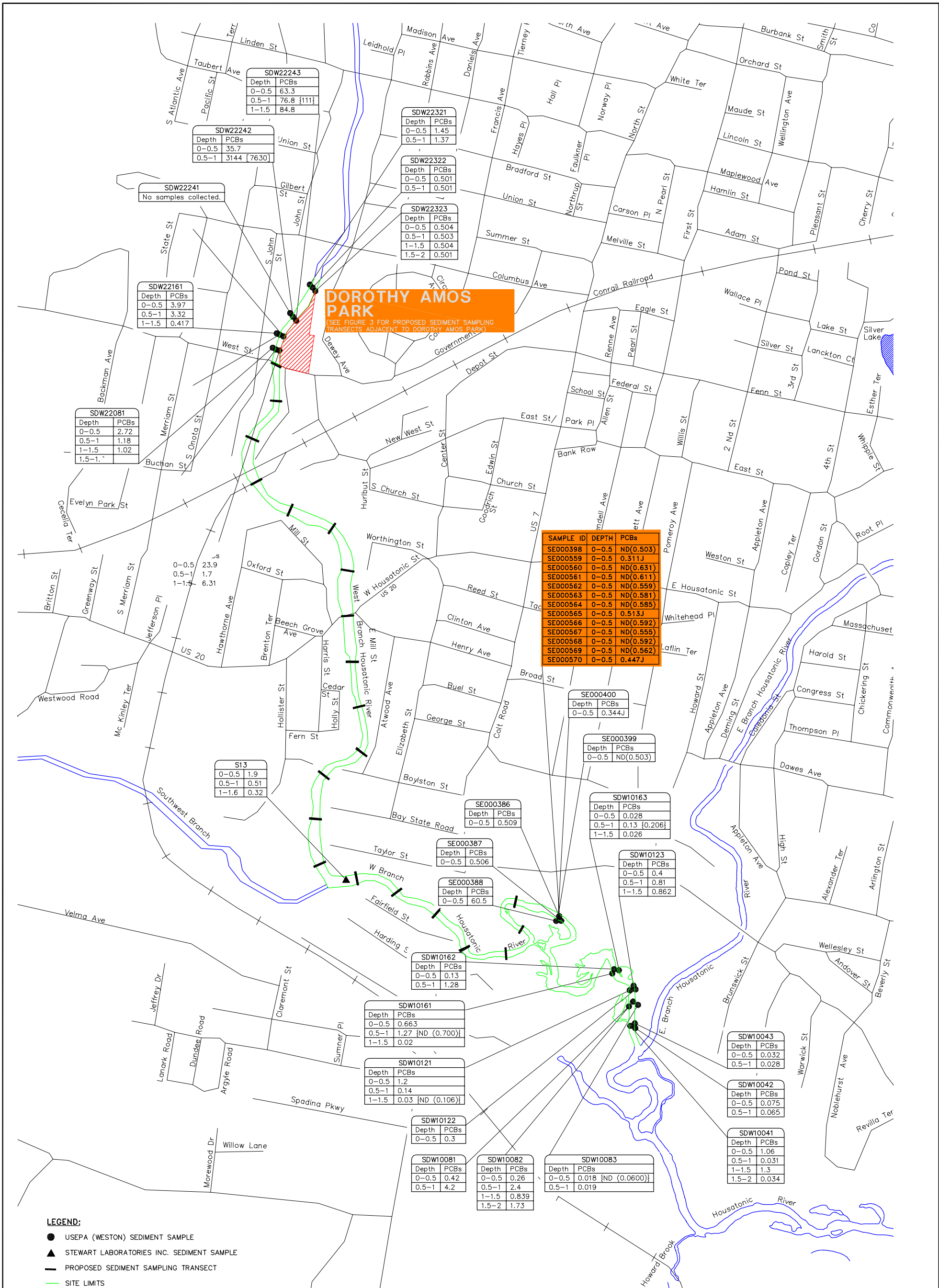
REFERENCE: PITTSFIELD EAST, AND PITTSFIELD WEST, MASS. USGS QUADS., 7.5 MIN. SERIES, 1988.



GENERAL ELECTRIC COMPANY
 PITTSFIELD, MASSACHUSETTS
 PRELIMINARY MCP PHASE II SCOPE OF WORK
 WEST BRANCH HOUSATONIC RIVER
 LOCATION PLAN

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FIGURE
1



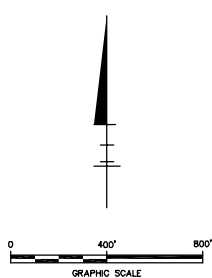
LEGEND:

- USEPA (WESTON) SEDIMENT SAMPLE
- ▲ STEWART LABORATORIES INC. SEDIMENT SAMPLE
- PROPOSED SEDIMENT SAMPLING TRANSECT
- SITE LIMITS
- J INDICATES AN ESTIMATED VALUE
- ND () CONSTITUENT WAS NOT DETECTED. THE NUMBER IN PARENTHESIS IS THE ASSOCIATED DETECTION LIMIT.
- [] INDICATES USEPA DUPLICATE SAMPLE RESULT
- { } INDICATES GE SPLIT SAMPLE RESULT

NOTES:

1. DEPTHS SHOWN ARE IN FEET.
2. CONCENTRATIONS SHOWN ARE IN PARTS PER MILLION (ppm).
3. BASE MAP FROM MASSGIS AND 1990 PHOTOGRAMMETRIC MAPPING BY BBL INC.

X: NONE
 L: ON=*, OFF=REF*
 P: ONGOING, ONGOINGB
 12/28/99 SYR-54-CBM KMD
 20199001/20199615.DWG



GENERAL ELECTRIC COMPANY
 PITTSFIELD, MASSACHUSETTS
PRELIMINARY PHASE II SCOPE OF WORK
**USEPA SEDIMENT SAMPLE LOCATIONS
 AND PROPOSED SEDIMENT TRANSECT
 LOCATIONS (WEST ST. TO CONFLUENCE)**

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

