



*The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative*

08-0139
50MS:42561

February 7, 2003

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

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

Dear Mr. Silfer:

On behalf of the Natural Resources Trustees (the Trustees), I am writing in regard to the *2002 Annual Monitoring Report* submitted to the U.S. Environmental Protection Agency (EPA) by General Electric Company (GE) on December 13, 2002. Our comments on this report are attached for your review.

The Trustees restricted its comments to substantive issues only, in the interest of establishing an accurate record of restoration monitoring in the ½ Mile Reach. Our comments are intended to improve the monitoring process so that a clear and reproducible monitoring and reporting methodology is developed for the long-term monitoring period. We hope that our comments will be considered and incorporated into subsequent monitoring visits, response actions, and reports.

The monitoring process has steadily improved from its inception and the Trustees look forward to continuing this progress with GE. As always, if you have any questions or concerns with these comments please don't hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Thomas W. O'Brien".

For the Natural Resources Trustees
Thomas W. O'Brien, Watershed Team Leader
Executive Office of Environmental Affairs
78 Center Street, Federal Building Room 206
Pittsfield, MA 01201

Cc: Dale Young, MA EOE
Veronica Varela, DOI, USFWS

Ken Finkelstein, NOAA
Tim Conway, EPA
Bryan Olson, EPA
Dean Tagliaferro, EPA
Sue Steenstrup, DEP (2 copies)
Mark Graveling, BBL
Bill Stack, Woodlot Alternatives, Inc.
Public Information Repositories
Site File

NRD Trustees' Comments on GE's 2002 Annual Monitoring Report, GE Pittsfield/Housatonic River Site, Upper ½-Mile Reach Removal Action, Pittsfield, Massachusetts

Comments on 2.1 General

- **Page 2-1, Paragraph 4, 2nd Sentence:** The Massachusetts Executive Office of Environmental Affairs (EOEA) is the lead representative for the Trustees. Change Massachusetts EOEA to *NRD Trustees*. [This is a global edit as it occurs in many other parts of the document.]
- **Page 2-1, Paragraph 4, 4th Sentence:** "...*this section describes the agreed-upon...*" The report should state who agreed to the monitoring approach. Although field personnel make many on-site decisions, the record should specify who made these decisions between GE and the Trustees.

Comments on 2.2 General Monitoring Approach

- **Page 2-1, Paragraph 1, 1st Sentence:** The first sentence is confusing. Survivorship of planted trees, shrubs, and vines are based on a stem count. There is no survival estimate for herbaceous cover. Suggest that this sentence be revised and the details added to their respective definitions of the performance standard, which are listed later in the report.
- **Page 2-1, Item #1, 1st Sentence:** Survival rate of planted stock is for trees, shrubs, and *vines*. Vines are also included in the 80% survival rate performance standard. The Trustees find the second part of this sentence unclear and suggest the following revision: "...*supplemental plantings of appropriate species will be made if survivorship is less than 80%.*"
- **Page 2-1, Item #2, 2nd Sentence:** GE needs to state that the specified seed mix, originally in the Work Plan and later modified by mutual agreement of GE, EPA and the Trustees, will be used for supplemental seeding. "Other activities" associated with establishing 100% herbaceous cover should be better described (resoiling, fertilizing, mulching, irrigating, etc.).
- **Page 2-2, Item #3:** GE needs to state that the invasive species noted are plants. In the 2nd sentence, GE states that "*appropriate means*" will be used to control invasive plants in excess of 5% coverage in any planting area. GE needs to clarify "*appropriate means*" (e.g., based on invasive species control plan, in consultation with the Trustees). The Trustees think that the current practices used by GE contractors have generally been effective, although the previously submitted invasive species control plan is vague.
- **Page 2-2, Paragraph 3:** GE needs to note that Staghorn Sumac (*Rhus typhina*) is not included on the invasive plant list provided by Weatherbee, et al. (1996). This species was added to the ½ Mile Reach working list based on an agreed-upon decision between GE and the Trustees to remove sumac during invasive plant control efforts to the extent necessary, incidental to the removal of listed species.

Comments on 2.3 Detailed Approach

- **Page 2-3, Item #2, 3rd Sentence:** The Trustees do not concur with this sentence, that the "*certified arborist will have the final authority on the condition of a planted tree or shrub.*" The intent of the

arborist, as described in the Work Plan, is to *assist* in completing the monitoring program by assessing the apparent vigor of installed plants.

- **Page 2-3, Item #6:** The upstream shrub clump in Planting Area 10 was also divided into sections and needs to be included in this list.
- **Pages 2-3 and 2-4, Item #8, 2nd Sentence:** GE needs to revise to include vines (i.e., “... *the counter will visually note the number of planted trees, shrubs, and vines based...*”).
- **Page 2-4, Item #8, 3rd Sentence:** The Trustees recommend revising this sentence to more accurately describe the field methodology: “*After stem counts have been completed for the planting area (or 100-ft section) then the team will estimate herbaceous cover and invasive species cover.*” The initial stem count, estimate of invasive plant coverage, and estimated of herbaceous cover is done by 100-ft. sections, then aggregated for the entire planting area.
- **Page 2-4, Item #10, 1st Sentence:** GE needs to define whom the two observers are (i.e. representatives of both GE and the Trustees). [This comment also pertains to items #14 and # 16.]
- **Page 2-4, Item #12, 1st Sentence:** Additional clarification is needed. The Trustees concur that during this year’s monitoring, stump sprouts of appropriate species were counted as live, but does not concur that they were tallied in the “stressed” column. Stump sprouts were tallied as both “stressed” and “unstressed” depending on their respective condition (as described in item #10).
- **Page 2-4, Item #14, 1st Sentence:** The Trustees suggest revising this sentence to add clarity to the field methodology: “...*by walking through each planting area (or 100-ft section) and visually estimating...*”
- **Page 2-4, Item #15, Last Sentence:** GE needs to quantify what “large” bare soil areas mean. The Trustees recommend defining “large” as areas greater than 15-20 ft².
- **General comment:** GE has described many of the monitoring methodology details that GE and the Trustees have discussed and modified over the last three years. GE has incorporated many of the Trustees’ comments from last year’s GE monitoring report and other comments regarding GE monitoring trip reports. We think that this description of the methodology is a significant improvement from previous GE reports.

Consistent with previous comments to GE, the Trustees remain committed to formalizing with GE a written monitoring methodology document, so as to clearly describe the methods used to evaluate each performance standard (i.e., sub-sections on the methods used to assess plant survivorship, herbaceous cover, and invasive species cover). Toward that end, the Trustees suggest that sections 2.2 and 2.3 be combined to create an all-inclusive monitoring method section so that subsequent revegetation restoration evaluations can be done consistently each year during the long-term monitoring period.

Comments on 2.4.1 Spring 2002 Monitoring Results

- **Page 2-5, Paragraph 1, Last Sentence:** The Trustees do not concur. Planting Area 10 did not show a loss in understory species.

- **Page 2-5, Paragraph 3, 5th Sentence:** The Trustees do not concur. Our understanding is that during the first year of planting the mortality rate of planted serviceberry was initially high (>50%). Based on these results, the Trustees and GE decided to replace subsequent plantings of serviceberry with chokecherry. The Trustees do, however, concur with GE that the remaining serviceberries appear to be healthy and growing well.
- **Page 2-5, Paragraph 4, 2nd Sentence:** The Trustees do not concur with GE's vine assessment. The reason why the vines were not growing well is complex and related to many factors [i.e., set-back due to drought stress the previous year, lack of maintenance, planting stock size, existing soil conditions, plant disease, time of year assessment completed (before bud break)]. The Trustees believe that if these additional factors were assessed more fully and any needed modifications made (e.g., irrigation) then river grape, which is native to the Housatonic River area in Pittsfield, would likely grow more vigorously.
- **Page 2-6, Paragraph 1, 1st Sentence:** The Trustees do not concur with GE's invasive plant cover performance standard assessment. The data tables provided in GE Attachment A (Spring 2002 Trip Report) as well as the GE/Trustees field notes show that three planting areas (3, 4A, and 4B) are not meeting this performance standard. The Trustees do concur that invasive plant cover was significantly reduced from 2001 distributions.
- **General Comment:** For planted trees, shrubs, and vines, the results described are unclear in regards to which planting areas met the performance standard for plant survivorship (see Page 2-5, Paragraph 2, 3, & 4). GE needs to more clearly specify the planting areas when providing performance standard assessments.

Comments on 2.4.2 Summer 2002 Monitoring Visit

- **Page 2-6, Paragraph 4, 2nd Sentence:** The Trustees have observed and noted that wild river grape had increased in some planting areas but not in all. The Trustees did agree to count quantities of wild river grape as vine credits to help meet the performance standard, but only for those planting areas where a vine clump was planned to be installed. GE needs to clarify this in future monitoring reports.
- **Page 2-6, Paragraph 5, 1st Sentence:** The Trustees do not concur with GE's herbaceous cover assessment. Based on the results of the summer monitoring visit, none of the planting areas met the herbaceous cover performance standard (See GE Attachment A).
- **Page 2-6, Paragraph 5, 4th and 5th Sentences:** The Trustees find these two sentences confusing and conflicting. The Trustees do not understand how GE can state that *only* supplemental watering can improve herbaceous cover, but then implement response actions to address bare soil areas that include other actions besides watering (i.e., seeding, top dressing of top soil, fertilizing, mulching and erosion blankets). The Trustees expect that this range of potential actions will also be implemented, if needed, during the entire monitoring period to meet the herbaceous cover performance standard.
- **Page 2-6, Paragraph 6, 2nd Sentence:** The Trustees do not concur with GE's invasive plant cover performance standard assessment. All planting areas did meet the performance standard except for Planting Area 2 (See GE Attachment A).

- **General Comment:** For planted trees, shrubs, and vines, the results described are unclear and, in some cases, inaccurate in regard to which planting areas met the performance standards (see Page 2-6, Paragraphs 2, 3, & 4). GE needs to clearly specify the planting areas that have met the performance standard.

The Trustees recommend a table be added to this section that summarizes whether performance standards are being met for plant survivorship, herbaceous cover, and invasive species cover in each planting area. [This was previously noted to GE in last year's Trustees comments on the GE 2001 Monitoring Report].

Comments on 3.2 Monitoring Activities

- **Page 3-1, Paragraph 2, 1st Sentence:** The Trustees find this sentence unclear because the trip report results mentioned are not included in Attachment A. We recall a spring monitoring event on April 8, 2002, with Mark Graveling (BBL) to inspect banks after a high water event (>440 cfs) that occurred shortly before this inspection. The trip report in Attachment A pertains to the revegetation monitoring conducted in May and makes no mention of the spring bank assessment results referred to in this section. The Trustees, however, do recall getting a letter from GE (July 25, 2002) that did summarize the findings of the April 8th inspection. The Trustees recommend that GE includes all supporting trip report results in subsequent monitoring reports.

Comments on Section 4.0 Sediment Cap Isolation Layer Monitoring

- The Trustees did not participate in sediment cap isolation layer monitoring and have therefore not provided comments to this section.

Comments on 5.2.1 Aquatic Habitat Structures

- **Page 5-2, Paragraph on top of page, Last Sentence:** GE notes that "*each structure, along with corresponding observations is presented below.*" However, there are no discussions regarding whether structures (e.g., rock weirs, deflectors, or W-rock weirs) installed upstream of Cells I3/J3, which represents about 90% of the ½-Mile Reach, are meeting the aquatic habitat objectives.
- **Page 5-2, 2nd Complete Paragraph, 1st Sentence:** The single-wing rock deflector was installed in Cell I3, not Cell J3 as noted in the report.
- **Page 5-2, 2nd Complete Paragraph, Last Sentence:** The Trustees do not concur with GE's bank erosion assessment of the vortex rock weir in Cell J3. As noted in Attachment A of the report, the aquatic habitat assessment was conducted on August 14, 2002, during low-flow conditions. Cell J3 was not complete when this assessment was performed (Cell J3 was finished in late August) and the results reported do not accurately reflect the findings of the field assessment.
- **Page 5-2, 3rd Complete Paragraph:** The Trustees do not concur with GE's assessment of bank erosion or aquatic habitat functions of the single-wing rock deflector installed in Cell I3. As noted in Attachment A (Table B-1), assessment of structures in Cells I3 and J3 was not conducted during the low-flow inspection on August 14, 2002. This was because these cells were either under construction

(Cell J3) or had altered flow levels due to flow constriction caused by the remediation cell sheet piles (Cell I3) and could not be accurately assessed. The Trustees believe that the aquatic habitat enhancement structures in Cells I3 and J3 cannot be accurately assessed for bank erosion, stability, or aquatic habitat functions until the summer of 2003 when these structures are likely to have experienced a high flow event.

- **General Comments:** The Trustees concur with GE's observations on the effects of the aquatic habitat enhancement structures regarding bank erosion and structure stability for the structures assessed during the August monitoring visit. However, as mentioned above, there is very limited information regarding the specific effects of these structures on aquatic habitat.

For example, during the low-flow assessment, the Trustees noted that about 75% of the boulder and boulder clusters were functioning as intended: providing channel depth diversity, bed armor maintenance (sand scour areas), and hiding cover. Additionally, some of these clusters had trapped small woody debris, which has enhanced cover during low-flow conditions. Flow diversity is limited at these lower flows (e.g., 15 to 20 cfs) given the existing low channel gradient and channel geometry.

The remaining 25% of the boulder and boulder clusters provide hiding cover, but only limited channel depth diversity and water velocity. This is because these boulders are in habitat units (e.g., pools and runs) that are relatively deep (> 3.5 ft) with uniform depths. At these locations the water velocities appear low and uniform and do not have the needed energy to erode the fines off the riverbed around the boulders.

These types of observations, along with supporting photographs and specific habitat measurements at low-flow conditions (e.g., velocity), are needed to accurately evaluate whether these structures are meeting the aquatic habitat enhancement objectives as specified in the Work Plan (i.e., increasing the variability in water velocity and depth, and providing cover).

The field map (Figure B-1) provided by GE in Attachment A of the report does provide some supporting documentation of habitat and channel changes around the enhancement structures (e.g., deposition areas). The Trustees request that GE include such field maps in their monitoring report each year (revised if needed), which can be used along with other field observations to help assess whether the aquatic habitat objectives are being achieved during the long-term monitoring period.

The Trustees assisted GE during this year's low-flow assessment by providing field observations of the aquatic habitat enhancement structures. Although the Trustees appreciate GE efforts to include the Trustees in completing the assessment, the Trustees believe that such support is outside the Trustees work scope as intended by the Consent Decree. Therefore, the Trustees will not provide field data collection assistance to GE in subsequent aquatic habitat assessments. The Trustees, however, still intend to continue to provide monitoring oversight during such assessments and wish to be notified in advance of their occurrence.

Lastly, GE developed and utilized a field form to collect observations during the low-flow aquatic habitat assessment. They have not, however, provided any documentation in this section that describes the methodology that they intend to use to evaluate whether or not the aquatic habitat objectives, as described in the Work Plan, are being met. The Trustees request that GE provide such a methodology for review prior to conducting the 2003 low-flow habitat assessment so that field data is collected consistently and accurately each year.

Comments on 6.1 Vegetation Monitoring

- **Page 6-1, 1st Paragraph, Last Sentence:** The Trustees do not concur that bare soil areas were watered on a regular basis. The Trustees observed that the GE subcontractor watered some areas for a few days during early September, immediately following reseeding, before removing all irrigation equipment. The Trustees request that GE provide irrigation records in subsequent monitoring reports.

General Comments on Section 6.0

- GE's analysis of the results section was generally very brief and did not speak directly to the performance standards (i.e., did the planting areas meet the standards for survivorship, herbaceous cover, and invasive species?). Also, the actual percent survivorship is not mentioned in the text (e.g., paragraph 1: "Area 1 showed the lowest success rate."). The Trustees request that such details be included in future monitoring reports to more fully assess performance standards and to develop response actions, if necessary. This was mentioned in last year's Trustees comments to GE on 2001 Monitoring Report.

Comments on Table 2-1 (Planting Summary)

- There are summary errors within the table. For example, the total quantities of shrubs installed (1058) do not equal the cumulative total based on each species of shrub installed (i.e., $310+290+299+293=1192$). A similar error exists with total quantities of trees installed. The Trustees request that GE correct these errors and issue a revised plant summary table. With minor proofing, it is otherwise a good summary table.

Comments on Figure 2-1 (As-Built Planting Areas)

- The Trustees note the following edits to this figure: (1) Planting Area 11A (Shrub clump is located approximately 40 ft upstream); (2) Planting Area 13 (Shrub clump is located approximately 70 ft upstream); and (3) Planting Area 14 (Shrub clump is located approximately 60 ft downstream). There were also sections of red-osier dogwood that were relocated (not planted where originally planned), because of excessive tree roots and invasive plants, from Planting Area 14 to an area within the power line easement. The Trustees recommend that actual position of these shrub clumps and red-osier shrub bands be field verified during the 2003 spring monitoring visit and Figure 2-1 revised.

Comments on Figure 4-1 (Habitat Structure Locations)

- The two boulders in Cell J1 should be shown as one boulder. The other boulder was actually located in Cell I1 about 20 ft downstream of its present position. The Trustees request that this location be field verified during the 2003 monitoring visit and Figure 4-1 revised.

Comments on Attachment A (Aquatic Habitat Assessment – Attachment B)

- **General Comments:** GE needs to include the discharge (river flow rate - based on USGS gage in Coltsville) during the time of the assessment in subsequent monitoring reports. The Trustees concur with some of the results presented in Table B-1, such as observations of scour and deposition. The Trustees disagree with some of the aquatic fauna observed (e.g., GE noted more frogs, fishes, and

macroinvertebrates than were observed and noted by the Trustees, whose field representative conducted joint site inspections with the GE recorder).