TECHNICAL REPORT

Conceptual Removal Design/ Removal Action Work Plan for Newell Street Area I

Volume I of III

General Electric Company
Pittsfield, Massachusetts

January 2002

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

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

January 16, 2002

Bryan Olson
EPA Project Coordinator
U.S. Environmental Protection Agency
EPA New England
One Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

Re: GE-Pittsfield/Housatonic River Site
Newell Street Area I (GECD440)
Conceptual Removal Design/Removal Action Work Plan

Dear Mr. Olson:

Enclosed is the General Electric Company's (GE's) Conceptual Removal Design/Removal Action (RD/RA) Work Plan for Newell Street Area I. This Work Plan includes a preliminary evaluation, based on currently available data, of the need for and scope of soil-related response actions at the properties within Newell Street Area I to achieve the applicable Performance Standards established in the Consent Decree (CD) for both PCBs and other constituents. The response actions identified include soil removal and replacement at several parcels and the installation of an engineered barrier at one parcel.

However, in the course of making these evaluations, GE has identified a number of data gaps, which will require additional sampling and analysis at certain properties and depth increments for PCBs or certain non-PCB constituents, as well as additional evaluations relating to certain constituents. These data needs and GE's proposed activities to satisfy them are described in the enclosed Work Plan.

In addition, there remain a number of other recalculations and design activities that need to be completed before the final extent of the soil removals at this area can be determined. These include incorporation of the impacts of the proposed soil removals to address deeper soil into the evaluations to shallower depth increments, as well as evaluation of excavation stability issues, particularly for soil removals adjacent to existing buildings or the street. These activities are also discussed in the enclosed Work Plan and will be conducted during further design efforts.

As a result, the limits and depths of the response actions identified in this Work Plan, including the soil removal limits depicted on Figure 3-1, must be regarded as preliminary and subject to modification based on the results of the proposed additional sampling, analyses, and evaluations for PCBs and other constituents, as well as the recalculations and other technical design activities mentioned above.

The enclosed Work Plan contains a proposed schedule for these future activities, including a proposal for submission of an Addendum to this Conceptual RD/RA Work Plan prior to proceeding to development of a Final RD/RA Work Plan for Newell Street Area I. GE also proposes that the time for submittal of the fully executed Grants of Environmental Restrictions and Easements (EREs) for the two privately owned non-GE properties for which the owners have agreed to EREs be deferred until 30 days after EPA approval of the Conceptual RD/RA Work Plan Addendum.

We look forward to discussing this Work Plan with EPA following its initial review.

Very truly yours,

Andrew T. Silfer /cmk

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

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Enclosure

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Teresa Bowers, Gradient
Affected Property Owner - 187 Newell Street
Affected Property Owner - 203 Newell Street
Affected Property Owner - 217 Newell Street
Affected Property Owner - 221, 229, 230 Newell Street
Affected Property Owner - 247/249 Newell Street
Affected Property Owner - 269 Newell Street
Affected Property Owner - 273 Newell Street
Cristóbal Bonifaz, Esq.
Public Information Repositories
GE Internal Repository

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1. Introduction

1.1 General

On October 27, 2000, a Consent Decree (CD) executed in 1999 by the General Electric Company (GE), the United States Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MDEP), and several other government agencies was entered by the United States District Court for the District of Massachusetts. The CD requires (among other things) the performance of Removal Actions to address polychlorinated biphenyls (PCBs) and other hazardous constituents present in soils, sediment, and groundwater in several Removal Action Areas (RAAs) located in or near Pittsfield, Massachusetts. These RAAs are part of the GE-Pittsfield/Housatonic River Site. For each Removal Action, the CD and accompanying *Statement of Work for Removal Actions Outside the River* (SOW) (Appendix E to the CD) establish Performance Standards that must be achieved, as well as specific work plans and other documents that must be prepared to support the response actions for each RAA. For most of the Removal Actions, these work plans/documents include the following: Pre-Design Investigation Work Plan, Pre-Design Investigation Report, Conceptual Removal Design/Removal Action (RD/RA) Work Plan, and Final RD/RA Work Plan.

This document constitutes the Conceptual RD/RA Work Plan for the Newell Street Area I RAA, which is one of several Former Oxbow Areas located in the vicinity of the GE Plant Area. The location of Newell Street Area I is shown on Figure 1-1. This Conceptual RD/RA Work Plan (Work Plan) builds upon the results of prior activities conducted by GE over the last several years. Most recently, in accordance with the CD and SOW, GE prepared and submitted to EPA a Pre-Design Investigation Work Plan (March 2000, with Addendum dated December 2000) and a Pre-Design Investigation Report (May 2001, and supplemental report in July 2001) for Newell Street Area I. Based on the results of the investigations described in those documents, this Work Plan summarizes the results of preliminary evaluations concerning the need for and scope of soil-related response actions to achieve the applicable Performance Standards for PCBs and the other constituents listed in Appendix IX of 40 CFR Part 264, plus three additional constituents -- benzidine, 2-chloroethyl vinyl ether, and 1,2-diphenylhydrazine (Appendix IX+3).

1.2 Description of Newell Street Area I

Newell Street Area I is generally bounded to the north by the Housatonic River, to the south by Newell Street, to the west by Ontario Street Extension and Newell Street Area II (an adjacent RAA), and to the east by the Lakewood Playground, as shown on Figure 1-1. This approximately 11-acre area originally consisted of land within or adjoining several oxbows or low-lying areas of the Housatonic River. Rechannelization and straightening of the Housatonic River in the early 1940s by the City of Pittsfield and United States Army Corps of Engineers separated these oxbows and low-lying areas from the active course of the river. The oxbows and low-lying areas were subsequently filled with various materials from a variety of sources. Newell Street Area I is considered one of the Former Oxbow Areas under the CD and the SOW.

As shown on Figure 1-2, Newell Street Area I is composed of 10 commercial/industrial parcels (three of which are owned by the same owner) and three recreational parcels:

Commercial/Industrial

- Parcel J9-23-13 (187 Newell Street);
- Parcel J9-23-16 (191 Newell Street);
- Parcel J9-23-18 (217 Newell Street);
- Parcels J9-23-19, -20, and -21 (221, 229, and 230 Newell Street);
- Parcel J9-23-22 (247/249 Newell Street);
- Parcel J9-23-23 (261 Newell Street);
- Parcel J9-23-24 (269 Newell Street); and
- Parcel J9-23-25 (273 Newell Street);

Recreational

- Parcel J9-23-17 (203 Newell Street);
- Parcel J9-23-26 (northwest portion of Lakewood Playground only); and
- Parcel J9-23-12*

* Note - only the non-riverbank portions of this parcel are included in the Newell Street Area I RAA. The riverbank portions of this parcel are subject to a separate Removal Action under the CD -- the Upper ½-Mile Reach Removal Action.

Certain of the parcels identified above are currently owned by GE, while the remaining properties are owned by private individuals and organizations, or the City of Pittsfield. Additional information related to each parcel --- as it relates to the applicable Performance Standards and need for response actions --- is presented in later sections of this Work Plan.

1.3 Scope of Conceptual RD/RA Work Plan

The contents of this Work Plan have been developed to satisfy the requirements specified in Section 3.3 of the SOW. As provided in the SOW, a Conceptual RD/RA Work Plan is intended to address the following information at such time as design activities are approximately 30% complete:

- Results of pre-design studies/investigations;
- Evaluation of the areas and depths (if any) subject to response actions to meet the PCB-related Performance Standards set forth in the CD and the SOW;
- Evaluation of the need for additional response actions to address non-PCB constituents and (if needed) the type of such response actions;
- Evaluation of other issues that may affect the type and extent of response actions [e.g., groundwater, non-aqueous phase liquid (NAPL)];
- Preliminary plans and specifications to support the response actions;
- Summary of preliminary response action quantities including soil removal, capping areas, etc.;
- Design assumptions and parameters; and
- Identification of Applicable or Relevant and Appropriate Requirements (ARARs) in accordance with Attachment B to the SOW.

This Work Plan addresses the above-listed items based on currently available information. However, in the course of developing this Work Plan, GE has identified several aspects that need further investigation and/or evaluation before a final design can be developed. Thus, although design activities for the Newell Street Area I Removal Action are more than 30% complete, those additional aspects still need to be addressed in order to complete the design activities. These aspects include the following:

- GE is currently evaluating the desirability of demolishing the buildings located on two GE-owned parcels at Newell Street Area I -- Parcels J9-23-16 and J9-23-23 -- and potentially leaving the building slabs in place for appropriate commercial use (e.g., as parking lots). In the event that GE does so, the underlying soil will need to have been characterized. Hence, to assist in evaluating this possibility, GE has elected to conduct additional sampling of the soil beneath these buildings.

- Based on the preliminary evaluation of PCB concentrations in soil in comparison to the applicable PCB Performance Standards, as described herein, it would be useful to conduct limited additional PCB sampling in an area in the front part of two parcels (Parcels J9-23-22 and J9-23-23) to further refine the limits of soil removal in that area.

- The preliminary evaluation of non-PCB Appendix IX+3 constituents in soil, as described herein, has identified several data needs:

  -- At all parcels, there are a number of sampling results in which the constituents were not detected but which had elevated detection limits such that one-half of those limits exceeded the applicable screening levels. Additional efforts are needed to assess whether and to what extent it is feasible to obtain lower detection/reporting limits for these constituents.

  -- At two parcels, there are no Appendix IX+3 data for the 1- to 6-foot depth increment, and at two other parcels, there are no Appendix IX+3 data for the 6- to 15-foot depth increment. Additional Appendix IX+3 sampling is thus needed to obtain such data.

  -- At one parcel (Parcel J9-23-17), all existing sample results for dioxin/furan compounds have been rejected. Hence, additional sampling for such compounds is necessary at that property.

- At one parcel where the need for soil removal to address non-PCB constituents has been identified based on current data, additional sampling around the sample locations driving that removal is warranted to assist in defining the extent of soil removal.

The activities proposed by GE to address these data needs are outlined in Section 5 of this Work Plan.

It should also be noted that this Work Plan evaluates the need for and (if necessary) scope of response actions to achieve the soil-related Performance Standards set forth in the CD and SOW. Groundwater and NAPL related to Newell Street Area I are being addressed as part of GE's groundwater-related activities for the Plant Site 1 Groundwater Management Area (GMA 1), pursuant to the CD and the SOW. At the present time, these activities consist of the performance of a baseline monitoring program in accordance with GE's Baseline Monitoring Program Proposal for GMA 1, as conditionally approved by EPA.

1.4 Format of Conceptual RD/RA Work Plan

The remainder of this Work Plan is presented in six sections and is supplemented by several tables, figures, attachments, and appendices. Section 2 presents a summary of pre-design activities performed by GE to support the RD/RA evaluations. Sections 3 and 4 present evaluations of the need for response actions to address PCB and non-PCB constituents, respectively. Section 5 of this Work Plan describes the investigations and other activities that will be performed to address the remaining data needs. Section 6 discusses preliminary design and related information for the response actions to be conducted at Newell Street Area I (including soil removal and installation of an engineered barrier) and future design-related activities. Finally, Section 7 describes future submittals for this area and provides a proposed schedule for future activities.

2. Summary of Pre-Design Activities

2.1 General

Prior to the submittal of a Conceptual RD/RA Work Plan for a given RAA, the CD and SOW require the characterization of soils within the RAA and the collection of other relevant site information. These activities, collectively referred to as pre-design activities, serve as the basis for the subsequent technical RD/RA submittals. This section provides a summary of the pre-design activities that have been performed by GE at Newell Street Area I. These activities have primarily involved the performance of soil sampling and analyses in accordance with the investigation requirements contained in the CD and SOW; such activities have been previously summarized in documents provided to the EPA. In addition, GE has also conducted other pre-design activities to supplement the soil characterization program and to support the evaluations presented herein. A summary of pre-design activities is provided below.

2.2 Summary of Soil Investigations and Sampling Data

GE performed pre-design soil investigations for the properties located within Newell Street Area I between January and April 2001 in accordance with GE's Pre-Design Work Plan and an Addendum thereto, as conditionally approved by EPA, as well as certain modifications subsequently agreed to by GE and EPA. (In addition, with approval from EPA and MDEP, GE had previously performed pre-design soil investigations at one property within this RAA, Parcel J9-23-17, in January 2000, in advance of the investigations for the rest of the RAA. That sampling is considered part of the pre-design soil investigations described herein.) These pre-design investigations included the collection and analysis of a total of approximately 325 soil samples for PCBs and approximately 125 to 160 soil samples (depending on the constituents) for other Appendix IX+3 constituents (generally excluding pesticides and herbicides, except in certain select samples in a targeted area). These sampling and analysis activities were conducted in accordance with GE's *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP). These pre-design investigations were described and their results were *presented in a document entitled Pre*-Design Investigation Report for the Newell Street Area I Removal Action (Pre-Design Report), which was submitted to EPA in May 2001.

In addition, the Pre-Design Report included soil sampling results from certain prior investigations of Newell Street Area I - specifically, the results that were considered usable or potentially usable to support response

action evaluations for this RAA. Further, following submission of the Pre-Design Report, GE submitted to EPA the results from additional soil sampling and analysis for arsenic in the soil at one parcel within this RAA (Parcel J9-23-26).

On July 25, 2001, GE submitted to EPA a Supplemental Data Validation/Assessment Report for the soil sampling data from Newell Street Area I. That submittal included: (1) a report on the data validation performed for the pre-design soil investigation sample results in accordance with GE's FSP/QAPP; and (2) a report on a more general data quality assessment for prior soil sampling data from this area, including proposals regarding the use of those prior data in the response action evaluations for Newell Street Area I. As discussed in those reports, all PCB data from the pre-design investigations, as well as all PCB data from the prior investigations, were proposed for use in the response action evaluations. For the data on other Appendix IX+3 constituents, the reports found that a limited portion of the pre-design investigation data had to be rejected, and that laboratory documentation could not be obtained for a limited portion of the historical Appendix IX+3 data. The reports noted that GE would re-evaluate the issues relating to the rejected non-PCB data (including the need for additional sampling) and relating to the usability of the historical non-PCB data that did not have full laboratory documentation, in the Conceptual RD/RA Work Plan, after the PCB-related response actions had been defined.

By letter of September 18, 2001, EPA conditionally approved GE's Pre-Design Report and its Supplemental Data Validation/Assessment Report. (In accordance with that letter, GE submitted to EPA on October 17, 2001, laboratory data packages representing a portion of the pre-design investigation analytical results.) Given EPA's conditional approval, the pre-design and historical investigation data that were proposed in the Supplemental Data Validation/Assessment Report for use in RD/RA evaluations have been used in the response action evaluations presented in this Conceptual RD/RA Work Plan. Thus, as stated in the Supplemental Data Validation/Assessment Report, all PCB data, including all historical data, have been used in the evaluations in this Work Plan. For the non-PCB data, all data with laboratory documentation have been considered in these evaluations except for the rejected data, and where necessary based on review of the rejected data (i.e., for dioxins/furans at Parcel J9-23-17), additional sampling is proposed. For the historical non-PCB data without full laboratory data packages, GE proposes to use the data which have Certificates of Analysis (as listed in Table 2-1 of Attachment 2 to the Supplemental Data Validation/Assessment Report), but not the one sample with no laboratory documentation at all (sample PK-14 [0-0.5'] analyzed for metals).

In addition to GE's investigations, EPA collected and analyzed soil samples from a number of locations at Newell Street Area I during GE's pre-design investigations as well as on prior occasions. The validated results

of these EPA analyses were provided to GE as part of a data exchange agreement between GE and EPA and have also been considered in the response action evaluations for this RAA (excluding the sample results rejected in EPA's data validation process).

The locations of all soil samples used in this Work Plan are shown on Figure 2-1. The analytical results for all samples used in this Work Plan are summarized in Tables 2-1 through 2-6. Specifically, the analytical results from GE's pre-design investigations are presented in Table 2-1 for PCBs and Table 2-2 for other Appendix IX+3 constituents; the analytical results from EPA's sampling are presented in Table 2-3 for PCBs and Table 2-4 for other Appendix IX constituents; and the usable analytical results from prior (historical) investigations at this RAA are presented in Table 2-5 for PCBs and 2-6 for other Appendix IX+3 constituents. For polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), Tables 2-2, 2-4, and 2-6 also present the total Toxicity Equivalency Quotient (TEQ) concentrations calculated using the Toxicity Equivalency Factors (TEFs) derived by the World Health Organization, as specified in the SOW. In calculating these TEQ concentrations, the concentrations of the individual dioxin/furan compounds that were not detected in a given sample were represented as one-half the analytical detection limit for such compounds. Finally, Table 2-7 presents the additional arsenic data from the portion of Parcel J9-23-26 outside the CD Site.

2.3 Site Survey and Mapping

At the time when the Pre-Design Report was submitted to EPA (May 2001), the current mapping available for Newell Street Area I was not sufficient to support the detailed remedial evaluations needed as part of the Conceptual RD/RA Work Plan. As a result, subsequent to the submittal of that report, GE developed detailed site mapping to include the following information:

- existing buildings;
- paved and unpaved areas;
- surface elevations and topography;
- 100-year floodplain (where applicable);
- property boundaries and easements;
- certain utilities (e.g., manholes, catch basins, etc.);
- soil sample locations; and
- other site features.

The site mapping resulting from this effort has been used to update the figures illustrating the soil sample locations and site features, and serves as the basis for the PCB and Appendix IX+3 evaluations presented in Sections 3 and 4 of this Work Plan.

3. PCB Soil Evaluations

3.1 General

This section of the Conceptual RD/RA Work Plan summarizes the current status of evaluations related to the presence of PCBs in soils at Newell Street Area I. Initially, this section provides an overview of the applicable PCB-related Performance Standards for this area (Section 3.2), a summary of the current status regarding the obtaining of Grants of Environmental Restrictions and Easements (EREs) at this area (Section 3.3), and a general description of the procedures established in the SOW for evaluating PCB soil data in relation to the Performance Standards to determine the need for and scope of response actions (Section 3.4). Then, using the available PCB soil data summarized in Section 2 of this Work Plan, the need for soil-related response actions to address PCBs is evaluated for each parcel within this RAA by comparing existing and/or anticipated soil conditions to the applicable Performance Standards. These evaluations are presented in Section 3.5. Further, in accordance with the CD and SOW, an assessment is provided in Section 3.6 regarding the need for response actions to address PCBs within subsurface utility corridors that may be subject to emergency repair in the future. Finally, Section 3.7 provides an overall summary of the PCB-related response actions at Newell Street Area I, based on the foregoing evaluations.

3.2 Overview of PCB-Related Performance Standards

For the Former Oxbow Areas at the CD Site, which include Newell Street Area I, the Performance Standards related to the presence of PCBs in soil are set forth in Paragraph 26 of the CD and Section 2.3.2 of the SOW. An overview of the pertinent Performance Standards related to the presence of PCBs in soil at Newell Street Area I is presented below:

- GE must execute and record EREs for properties owned by GE at Newell Street Area I, and must make "best efforts" (as defined in the CD) to obtain EREs at properties not owned by GE at this RAA. If an ERE cannot be obtained at a non-GE-owned property, GE must implement a Conditional Solution. The scope of soil-related response actions at a property is dependent upon whether an ERE is obtained or a Conditional Solution will be implemented, as discussed below.

- For the 10 commercial/industrial parcels (Parcels J9-23-13, J9-23-16, J9-23-18, J9-23-19, J9-23-20, J9-23-21, J9-23-22, J9-23-23, J9-23-24, and J9-23-25), GE must achieve the following standards:

  - For properties where an ERE is obtained, if the spatial average PCB concentration in the top foot of soil in the unpaved portion of the property exceeds 25 ppm, GE must remove and replace soils as necessary to achieve that average concentration in such portion. For the paved portion of the property, if the spatial average PCB concentration exceeds 25 ppm in the top foot of soil, GE must either remove and replace soils as necessary to achieve that spatial average concentration or else enhance the pavement in such portion in accordance with the specifications for pavement enhancement in the SOW. In addition, considering both paved and unpaved portions together, GE must remove/replace soils as necessary to achieve a spatial average PCB concentration of 200 ppm in the 1- to 6-foot depth increment and must install an engineered barrier if the remaining spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm.

  - For properties where an ERE cannot be obtained, GE must implement a Conditional Solution, which includes soil removal/replacement as necessary to achieve spatial average PCB concentrations of 25 ppm in both the top foot of soil (considering paved and unpaved portions together) and the top 3 feet of soil and 200 ppm in the 1- to 6-foot depth increment, and installation of an engineered barrier if the remaining spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm.

- For two recreational properties (Parcels J9-23-17 and J9-23-26), GE must achieve the following standards:

  - For properties where an ERE is obtained, GE must remove/replace soils as necessary to achieve spatial average PCB concentrations of 10 ppm in the top foot and 15 ppm in the 1- to 3-foot depth increment, and must install an engineered barrier if the remaining spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm.

  - For properties where an ERE cannot be obtained, GE must implement a Conditional Solution, which includes soil removal/replacement to achieve a spatial average PCB concentration of 10 ppm in both the top foot and the top 3 feet of soil, and installation of an engineered barrier if the remaining spatial average PCB concentration in the 0- to 15-foot depth interval exceeds 100 ppm.

- For the GE-owned riparian strip (Parcel J9-23-12) (excluding the riverbank portion), GE has the option of either: (a) removing and replacing soils as necessary to achieve spatial average PCB concentrations at or below 10 ppm in the top foot and 15 ppm in the 1- to 3-foot depth increment; or (b) removing the top foot of soil and installing a vegetative engineered barrier over portions of the strip until the spatial average PCB concentrations in the remainder of the strip do not exceed the above concentrations. In either case, if the remaining spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, GE must install a vegetative engineered barrier.

- Further, at each of the above properties that exceeds 0.5 acre in size, if GE elects to consider the entire property as an averaging area, GE must ensure the removal of all soils in the top foot in unpaved portions of the property that contain PCB concentrations greater than 125 ppm at commercial/industrial properties and 50 ppm at recreational properties -- the "not-to-exceed" (NTE) levels. Alternatively, GE may establish averaging areas that do not exceed 0.5 acre in size or may propose other specific averaging areas to EPA for approval, in which case the above NTE PCB levels will not apply.

- In addition, at all properties where utilities potentially subject to emergency repair requirements are present, if the spatial average PCB concentration in the utility corridor exceeds 200 ppm, GE must evaluate whether any additional response actions are necessary. Further, if utilities are installed, repaired, or replaced, GE must ensure that the spatial average PCB concentration in the backfill material is less than 25 ppm at commercial/industrial properties, and less than 10 ppm in the top 3 feet and 25 ppm at greater depths for recreational properties.

3.3 Status of EREs

As noted above, Newell Street Area I comprises 13 parcels. Three of those parcels (Parcels J9-23-12, J9-23-16, and J9-23-23) are owned by GE, which has agreed in the CD to execute EREs on its properties within the Site. Another parcel (Parcel J9-23-26, Lakewood Playground) is owned by the City of Pittsfield, which has likewise agreed in the CD to execute EREs on its properties at the Site. Under the provisions set forth in the CD, the EREs on GE and City properties will be executed and recorded after completion of the Removal Action.

The remaining nine parcels are privately owned (with three of them owned by the same owner). As described in GE's letter to EPA and MDEP dated August 15, 2001, GE has made "best efforts" (as defined in the CD) to

obtain EREs for these parcels. Two of these property owners -- the owners of Parcels J9-23-17 and J9-23-24 -- have agreed to execute and record EREs on their properties. GE has obtained information regarding the encumbrances on these properties. Based on review of this information, it appears that the only encumbrances on these properties that will require subordination agreements are easements held by GE or the City, and that the necessary subordination agreements will be obtained. Based on discussions with EPA and MDEP, GE is currently planning to submit fully executed EREs for these two properties, together with supporting documentation (including subordination agreements, title work, surveyed plans, etc.), in accordance with the schedule proposed in Section 7 of this Work Plan. The five remaining property owners at this area -- i.e., the owners of Parcels J9-23-13, J9-23-18, J9-23-19, -20, and -21, J9-22-22, and J9-23-25 -- have advised GE, either directly or through their attorney, that they do not wish to impose EREs on their properties.

Based on the above information, the following chart summarizes the status of each property within Newell Street Area I. This information served as the basis for determining the applicable PCB Performance Standards and for the PCB evaluations presented in Section 3.4.

Parcel ID	Property Type	Ownership	ERE
J9-23-12	Recreational	GE	Yes
J9-23-13	Commercial/Industrial	Non-GE	No
J9-23-16	Commercial/Industrial	GE	Yes
J9-23-17	Recreational	Non-GE	Yes
J9-23-18	Commercial/Industrial	Non-GE	No
J9-23-19, -20, and -21	Commercial/Industrial	Non-GE	No
J9-23-22	Commercial/Industrial	Non-GE	No
J9-23-23	Commercial/Industrial	GE	Yes
J9-23-24	Commercial/Industrial	Non-GE	Yes
J9-23-25	Commercial/Industrial	Non-GE	No
J9-23-26	Recreational	Non-GE	Yes

3.4 Summary of PCB Evaluation Procedures

The general procedures used to calculate spatial average PCB concentrations for each parcel within Newell Street Area I are established in Attachment E to the SOW (Protocols for PCB Spatial Averaging) and are summarized below, while the evaluation results are presented in Section 3.4. To perform the evaluations summarized in this section, several detailed maps and computer spreadsheets have been prepared. Such information is included as appendices to this Work Plan, and referenced below as appropriate.

The initial step in the calculation of spatial average PCB concentrations involves the preparation of a detailed site plan to illustrate the following features:

- property/area boundaries;
- surface topography;
- soil sampling locations within and adjacent to area;
- presence of roadways, utilities, easements, etc.;
- presence of buildings, pavement, and other permanent structures; and
- other significant site features.

The next step in the evaluation process is the development of Theissen polygon maps for each averaging area and depth interval subject to the Performance Standards established in the CD and SOW. Theissen polygon mapping involves the use of computer software to draw perpendicular bisector lines between adjacent sample locations to create two-dimensional, sample-specific polygon areas. Certain boundary conditions impact the generation of Theissen polygons, such as the boundaries of the area subject to averaging, presence of paved and unpaved areas, easement boundaries, building footprints, property lines, etc. As appropriate, the computer-generated Theissen polygons are modified to reflect actual site conditions, presence/absence of soil at a given depth, locations of property ownership lines, or other specific or unique site considerations. Once the Theissen polygon mapping is complete, the soil areas and depths subject to Performance Standards (and possible response actions) are adequately defined for use in subsequent evaluations. After generation of the Theissen polygons, polygon identification numbers are assigned to each polygon and the surface area of each polygon is calculated.

The next step in the calculation of spatial average PCB concentrations is the development of computer spreadsheets to combine information obtained from the Theissen polygon mapping (i.e., polygon ID and area for each polygon) with the analytical results of soil sampling to provide a three-dimensional characterization of the soils associated with each polygon. The volume of soil associated with each polygon is based on the surface area of the polygon multiplied by the corresponding depth of soil for which samples were collected. Using the information described above, a spatial average PCB concentration is derived by multiplying the volume of each polygon by its assigned PCB concentration, summing the results of this calculation for each polygon involved in the evaluation, and then dividing that sum by the cumulative soil volume associated with all of the polygons. This procedure yields a spatial average PCB concentration that incorporates both volume- and area-weighted considerations.

The procedures outlined above are used to initially characterize the presence of PCBs in soils at various depth increments under existing conditions. In some cases, the results of this assessment can be directly compared to the applicable Performance Standards, so that the need for response actions can be determined. For example, the existing spatial average PCB concentration for the uppermost foot of soil within a given area can be compared to the corresponding Performance Standard for that depth increment. However, in other cases, the comparison of a spatial average PCB concentration for a specific depth increment (e.g., the 0- to 15-foot depth increment) to its corresponding Performance Standard is not always based on existing soil conditions and may incorporate the anticipated performance of response actions within portions of that depth increment. In these types of applications, the procedures outlined above are modified (as discussed below) to incorporate the results of any response actions that may be required.

For areas where response actions are determined to be necessary, Attachment E to the SOW establishes the evaluation procedures to be followed to determine the necessary response actions, depending on the type of response action required for the area and depth increment in question. The objective of these procedures is to ensure that response actions are designed that will meet the applicable Performance Standards for all areas and depth increments at the property (or other averaging area). In general, the same information that is used to develop a spatial average concentration for a given area and depth increment (e.g., site and polygon mapping, computer data spreadsheets, etc.) is to be used as the basis for determining the scope of the particular response action. A summary of the procedures to be used for response actions involving soil removal and/or installation of a surface cover, such as enhanced pavement or an engineered barrier, is provided below:

- For response actions that involve soil excavation and subsequent backfilling, the spatial averaging procedures summarized above are to be used to assess the effectiveness of the response actions by: 1) assuming the removal of soils within the subject polygon to the depth selected for evaluation; 2) assuming that the excavated soils are replaced with backfill material that contains levels of PCBs as determined through sampling of the actual backfill source(s), or if non-detect, at one-half the typical laboratory detection limit of 0.075 ppm (so that a PCB concentration of 0.0375 ppm would be assumed for the backfill); and 3) recalculating the overall spatial average PCB concentration.

- For response actions involving the placement of a surface cover, such as enhanced pavement or an engineered barrier, the spatial averaging procedures summarized above are to be used to assess the effectiveness of the response actions as follows: For those Theissen polygons identified for a surface cover/engineered barrier, the materials to be used in the construction of the new cover/barrier are to be

incorporated into re-calculations of the spatial average PCB concentration of the uppermost depth increment. Such calculations are to assume that the cover materials will contain PCBs as determined through sampling of the actual materials (or if non-detect, at one-half the typical laboratory detection limit of 0.075 ppm so that a PCB concentration of 0.0375 ppm would be assumed). Soils (and their corresponding analytical data) present at all depths below an anticipated surface cover/engineered barrier are to be excluded from subsequent spatial average calculations and the spatial average concentrations are then to be recalculated for the remaining portion(s) of the averaging area.

3.5 Summary of PCB Evaluations and Preliminary Identification of Response Actions

Using the available PCB soils data and spatial averaging procedures summarized in Section 3.4, spatial average PCB concentrations have been calculated for several depth increments within each property. Once calculated, these concentrations were compared to the applicable Performance Standards, taking into account the property type, specific depth increment, the property's status with respect to EREs, and -- depending on the phase of the evaluation -- the anticipated performance of response actions already identified for other depth increments within the subject property. Based on these comparisons, the need for and general type of response actions necessary to address PCBs in soil have been determined.

For purposes of this Conceptual Work Plan, these procedures have been applied in an iterative fashion, beginning with the uppermost depth increment and then proceeding to successively deeper soil increments. As a result, the soil removals identified for the shallower depth increments have been factored into the evaluations of the deeper increments. However, the soil removals identified for the deeper increments have not been used to recalculate spatial average concentrations for the shallower increments. For example, if soil removal is identified for the 1- to 3-foot depth at a location where soil removal was not identified for the 0- to 1-foot depth, the removal of the top foot of soil at that location (necessary to remove the 1- to 3-foot depth increment) was not considered – that is, the spatial average concentration for the 0- to 1-foot depth increment at the property was not recalculated after taking into account the necessary removal of the top foot at that location. Such a recalculation could result in less soil removal from the top foot at other locations. These sorts of re-evaluations will be made, if warranted, prior to submitting the Final RD/RA Work Plan.

Using the procedures discussed above, PCB evaluations have been conducted for each of the parcels comprising Newell Street Area I. A summary of these evaluations and their results is presented below on a parcel-specific basis, and the preliminary removal limits and depths identified based on these evaluations are depicted on Figure

3-1. It should be emphasized, however, that those limits and depths are preliminary and subject to modification based on: (a) the additional PCB sampling proposed to address data needs at certain properties (as discussed in the individual subsections below); (b) any recalculation of spatial average concentrations for shallower depth increments taking into account the necessary soil removals associated with deeper samples (as discussed in the preceding paragraph); and (c) other technical design activities (as discussed in Section 6 of this Work Plan).

To support the PCB evaluations discussed below, the following evaluation materials have been prepared for each property:

- Site mapping identifying specific Theissen polygons for several depth increments within each property (Attachment A);

- Computer spreadsheets for several depth increments to incorporate the site plan information (i.e., Theissen polygon size) and the corresponding PCB analytical data (Appendix A); and

- Calculations (summarized on the individual spreadsheets and then combined as appropriate) of the spatial average PCB concentrations for several depth increments (Appendix A).

A summary of the preliminary evaluation results is provided below.

3.5.1 Parcel J9-23-12

As previously described and as shown on Figure 1-2, Parcel J9-23-12 is a strip-like riparian recreational property owned by GE. For this parcel, the applicable PCB Performance Standards require either: (a) the removal/replacement of soils as necessary to achieve spatial average PCB concentrations of 10 ppm in the top foot and 15 ppm in the 1- to 3-foot depth increment; or (b) removal of the top foot of soil and installation of a vegetative engineered barrier over portions of this strip until the spatial average PCB concentrations in the remainder of the strip do not exceed the foregoing concentrations. In either case, the installation of an engineered barrier is required if, after incorporating any response actions anticipated to occur within the uppermost 3 feet, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm.

Using the available PCB soils data and spatial averaging procedures previously summarized in this Work Plan, the existing spatial average PCB concentration for soils in the 0- to 1-foot depth increment is 52 ppm and that

for the 1- to 3-foot depth increment is 428 ppm – both of which exceed the applicable Performance Standards. Tables A-1 and A-2 of Appendix A provide a summary of the spatial average PCB calculations for these depth increments. Based on these concentrations, response actions are necessary to achieve the applicable Performance Standards. Upon review of these data, as well as the contours of this riparian strip, GE has elected to meet the Performance Standards through the removal and replacement of soil to achieve spatial average PCB concentrations of 10 ppm in the top foot and 15 ppm in the 1- to 3-foot depth increment.

To determine the soil removal areas and depths necessary to achieve these Performance Standards, the information presented in Tables A-1 and A-2 of Appendix A was reviewed. This review involved the identification of specific PCB data (and the corresponding soil volume and volume-weighted PCB concentration) whose removal from the spreadsheet computations and replacement with an equal volume of clean backfill (at an assumed PCB concentration of 0.0375 ppm) would result in a spatial average PCB concentrations below the applicable PCB Performance Standards. For the top foot of the parcel, this process identified soil removal for the soil associated with the following samples:

- 081198CT26/SL0076;
- 081298BT17/SL0090;
- 081298CT08/SL0093;
- 091098MK08/SL0469;
- FW-16;
- J9-23-12-B-18;
- J9-23-16-D-6;
- J9-23-17-D-9;
- J9-23-22-C-16/N1-BH000323;
- J9-23-23-C-17/N1-BH000341;
- MO-6N3;
- QP-20; and
- RB-1-3.

As shown on Figure 2-1, several of the soil samples identified above are not located within Parcel J9-23-12, but are instead located on adjacent parcels and/or areas of J9-23-12 (i.e., the riverbank section) that are not subject to response actions for Newell Street Area I. For such samples, the portions of the associated polygon area that extend into the portion of Parcel J9-23-12 that is part of Newell Street Area I were considered in the evaluations. This is a common occurrence in the PCB evaluations presented in this section but is only specifically identified in this discussion of Parcel J9-23-12. Appendix A to this Work Plan presents the polygon mapping (for various depth intervals) used in the PCB evaluations summarized herein.

With the removal of soils associated with the soil samples identified above, the post-removal spatial average PCB concentration within the 0- to 1-foot depth increment of Parcel J9-23-12 will be 5 ppm, as shown in Table A-3 of Appendix A.

With respect to the 1- to 3-foot depth increment, using the same procedures summarized above, soils associated with following samples were identified for removal:

- 081298BT17/SL0086
- 081298BT17/SL0090
- 090998MK15/SL0457
- J9-23-12-B-16

With the removal of soils related to the above samples, the anticipated post-removal spatial average PCB concentration in the 1- to 3-foot depth increment will be 13 ppm, as shown in Table A-4 of Appendix A.

In accordance with the evaluation procedures outlined in the SOW, the calculated spatial average PCB concentration for the 0- to 15-foot depth increment has incorporated the anticipated performance of response actions for other depth increments within this parcel --- i.e., the 0- to 1-foot and 1- to 3-foot depth increments. After incorporating those anticipated response actions, the spatial average PCB concentration for the 0- to 15-foot depth increment is 81 ppm, as shown in Table A-5 of Appendix A. Since that concentration is below the applicable Performance Standard for the 0- to 15-foot depth increment (100 ppm), no additional response actions beyond those identified for the 0- to 1-foot and 1- to 3-foot depth increments are necessary at Parcel J9-23-12.

Based on the evaluations presented above, it is estimated that at Parcel J9-23-12, to achieve the PCB Performance Standards, approximately 765 cubic yards of soil will be subject to removal from the areas and depths identified on Figure 3-1. The removal limits shown on Figure 3-1 and this preliminary volume estimate are subject to modification as part of future recalculations (if any) and other technical design activities, as discussed in Section 6 of this Work Plan.

3.5.2 Parcel J9-23-13

Parcel J9-23-13 is one of several commercial/industrial properties within Newell Street Area I that is not owned by GE and for which the property owner has declined to agree to an ERE. As a result, in accordance with the CD and SOW, GE must implement a Conditional Solution for this parcel. The applicable Performance Standards for a Conditional Solution require the removal/replacement of soils as necessary to achieve spatial average PCB concentrations of 25 ppm in both the 0- to 1- and 0- to 3-foot depth increments, and 200 ppm in the 1- to 6-foot depth increment. (These evaluations are performed sequentially, with any anticipated response actions related to shallower depth increments incorporated into the evaluations for the deeper depth increments.) Further, if, after incorporating any response actions anticipated to occur within the uppermost 6 feet, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. Finally, since this parcel is greater than 0.5 acre, the maximum PCB concentration in the top foot of unpaved soils within this parcel must be less than the 125 ppm not-to-exceed (NTE) concentration established in the CD and SOW for commercial/industrial properties.

Based on the PCB soils data available for this parcel, the existing spatial average PCB concentration for the 0- to 1-foot depth increment is 58 ppm (Table A-6 of Appendix A), which exceeds the applicable Performance Standard. Further, most of the data that contribute to this spatial average concentration are located in unpaved areas and contain PCBs at levels exceeding the 125 ppm NTE concentration. As a result, response actions are necessary for the 0- to 1-foot depth increment.

To determine the soil removal area necessary to achieve the applicable PCB Performance Standard, a two-step evaluation was conducted. First, for each discrete sample location where the PCB concentration is greater than the NTE criterion (125 ppm in the top foot of unpaved soils), the PCB data from adjacent sample locations were reviewed to establish an overall delineation of PCBs at levels above the NTE concentration. This area was then adjusted as appropriate to: i) ensure that the specific evaluation polygon associated with each NTE sample was included in the delineated area; and ii) reflect the presence of physical site features within the parcel (e.g., presence of buildings, pavement, etc.). From this process, the limits of soil removal for each NTE sample in unpaved soils were determined. The second evaluation component involved a review of the information presented in Table A-6 of Appendix A. Specifically, in addition to the removal of the PCB soil data (and associated polygon volumes) associated with the NTE exceedances described above, this review identified other PCB data whose removal from the spreadsheet and replacement with an equal volume of clean backfill (at an assumed PCB concentration of 0.0375 ppm) would result in a spatial average PCB concentration below the

applicable PCB Performance Standard. For Parcel J9-23-13, these evaluations identified soil removal associated with the following PCB soil samples:

- B-6;
- B-10;
- B-13;
- QP-3; and
- QP-31.

Removal of the soils corresponding to the above samples will result in a post-removal spatial average PCB concentration of 4 ppm for the 0- to 1-foot depth increment at Parcel J9-23-13, as shown in Table A-7 of Appendix A. Such removal will also result in no remaining sample location with a discrete PCB concentration exceeding 125 ppm in the top foot of soil in unpaved areas.

Consistent with the procedures established in the SOW, the anticipated post-removal soil conditions for the 0- to 1-foot depth increment were then incorporated into the evaluations for the 0- to 3-foot depth increment. After incorporating these conditions, the resulting spatial average PCB concentration for the 0- to 3-foot depth increment is 54 ppm, which exceeds the applicable Performance Standard of 25 ppm, as shown in Table A-8 of Appendix A. In a manner similar to that described above, two additional sample locations (and corresponding polygons) were identified for soil removal and replacement with clean fill:

- B-13; and
- J9-23-13-D-4.

Removal of the soils corresponding to the above samples will result in a post-removal average PCB concentration of approximately 14 ppm for the 0- to 3-foot depth increment, as shown in Table A-9 of Appendix A.

The anticipated post-removal soil conditions for the 0- to 3-foot depth increment (more specifically the conditions corresponding to the 1- to 3-foot depth) were then incorporated into the evaluations related to the 1- to 6-foot depth increment. After incorporating these anticipated post-removal conditions, the spatial average PCB concentration for the 1- to 6-foot depth increment is 26 ppm, as shown in Table A-10 of Appendix A.

Since this concentration is less than the applicable PCB Performance Standard for this depth increment (200 ppm), no further response actions are required.

The final component of the PCB evaluations for Parcel J9-23-13 involved the calculation of the spatial average PCB concentration for the 0- to 15-foot depth increment, after incorporating the anticipated performance of response actions described above for the uppermost 3 feet of soil within the parcel. When including these anticipated post-removal conditions, the spatial average PCB concentration for the 0- to 15-foot depth increment is 48 ppm, which is less than the applicable Performance Standard (100 ppm). Table A-11 provides information supporting this calculation. As a result, no additional response actions beyond those already identified for the 0- to 3-foot depth increment are required.

Based on the evaluations presented above, it is estimated that at Parcel J9-23-13, to achieve the PCB Performance Standards, approximately 855 cubic yards of soil will be subject to removal from the areas and depths identified on Figure 3-1. The removal limits shown on Figure 3-1 and this preliminary volume estimate are subject to modification as part of future recalculations (if any) and other technical design activities, as discussed in Section 6 of this Work Plan.

3.5.3 Parcel J9-23-16

As previously described, Parcel J9-23-16 is a commercial/industrial property owned by GE. For this parcel, the applicable Performance Standards require the following for the top foot of soil: (a) for unpaved areas, removal/replacement of soils as necessary to achieve a spatial average PCB concentration of 25 ppm; and (b) for paved areas, either soil removal/replacement as necessary to achieve that same spatial average concentration or else enhancement of the pavement in portions that exceed that spatial average concentration. In addition, if the spatial average PCB concentration in the 1- to 6-foot depth increment exceeds 200 ppm, soil removal/replacement is required to achieve that average concentration. Further, if, after incorporating any anticipated response actions for the uppermost 6 feet of soil, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. Finally, since this parcel exceeds 0.5 acre, the maximum PCB concentration in the top foot of unpaved soils must be less than the 125 ppm NTE concentration established in the CD and SOW for commercial/industrial properties.

GE is currently evaluating the possibility of demolishing the existing building on this parcel and potentially leaving the concrete slab in place for future commercial use (e.g., as a parking lot). To further assess this

possibility, additional soil sampling will be conducted for soil beneath the building, as discussed in Section 5 of this Work Plan. Hence, the evaluation of this property presented below, which is based on currently existing data, is subject to modification after the results of that additional sampling are available.

Based on current data, using the procedures previously summarized in this Work Plan, the calculated spatial average PCB concentrations for the top foot of soils are 690 in unpaved areas and 644 in paved areas. Tables A-12 and A-13 of Appendix A summarize these calculations. Since both spatial average concentrations exceed the 25 ppm PCB Performance Standard, response actions are required.

For this property, GE has elected to achieve the 25 ppm Performance Standard for the top foot of soil in both unpaved and paved areas through the removal and replacement of soils. That Performance Standard can be achieved for both types of areas through the removal of those soils (and related polygon areas) that exceed the NTE criterion of 125 ppm in unpaved areas. Specifically, for Parcel J9-23-16, removal of the top foot of soils associated with the following samples will achieve the applicable Performance Standards:

- IA-8
- IA-42
- IA-49
- IA-56
- IA-93
- J9-23-16-D-6
- QP-3
- QP-9
- QP-12
- QP-18
- QP-20
- QP-25
- QP-27
- QP-31
- QP-32
- QP-SWALE-1
- QP-SWALE-2
- QP-SWALE-3
- RB-1-3

Removal of the soils within Parcel J9-23-16 corresponding to the above samples results (and subsequent replacement with an equal volume of backfill at an assumed PCB concentration of 0.0375 ppm) will result in post-removal spatial average PCB concentrations of 16 ppm and 11 ppm for the top foot of soil in unpaved and paved areas, respectively (refer to Tables A-14 and A-15 of Appendix A for additional details). It will also ensure that there are no remaining soils in the top foot in unpaved areas that would exceed the NTE criterion of 125 ppm.

With respect to the 1- to 6-foot depth increment, the existing spatial average PCB concentration was determined to be 3,422 ppm (as shown in Table A-16 of Appendix A), which is above the applicable PCB Performance Standard (200 ppm). As a result, soil associated with samples QP-9 and QP-27 (and their corresponding polygons) were identified for removal. Removal and replacement with clean backfill (at an assumed PCB concentration of 0.0375 ppm) of the soils corresponding to these sample locations will result in a post-removal spatial average PCB concentration of 90 ppm for the 1- to 6-foot depth increment for Parcel J9-23-16, as shown in Table A-17 of Appendix A.

The final component of the PCB evaluations for Parcel J9-23-16 involved the calculation of the spatial average PCB concentration for the 0- to 15-foot depth increment, after incorporating the anticipated performance of response actions described above for the uppermost 6 feet of soil. After including these anticipated conditions, the spatial average PCB concentration for the 0- to 15-foot depth increment is 108 ppm, as shown in Table A-18 of Appendix A. As a result, response actions are necessary to address PCB-containing soils in the 0- to 15-foot depth increment at Parcel J9-23-16. In accordance with the CD and SOW, GE has the option of installing an engineered barrier as needed to lower the spatial average PCB concentration to below 100 ppm. However, given the circumstances associated with this particular parcel (i.e., a marginal exceedance of the applicable Performance Standard and the performance of excavations to a depth of 6 feet regardless of the installation of an engineered barrier), GE has elected to remove soil from the polygons associated with samples J9-23-16-QP-9 and J9-23-17-IA-8 to a depth of 8 feet below ground surface. The effect of this additional soil removal is a reduction in the post-removal spatial average PCB concentration for the 0- to 15-foot depth increment to 87 ppm, as shown in Table A-19 of Appendix A.

Based on the evaluations presented above, it is estimated that at Parcel J9-23-16, to achieve the PCB Performance Standards, approximately 875 cubic yards of soil will be subject to removal from the areas and depths identified on Figure 3-1. These preliminary removal limits and volume estimate are subject to modification following receipt of the sample results for soil beneath the building, as well as based on future recalculations (if any) and other technical design activities, as discussed in Section 6.

3.5.4 Parcel J9-23-17

Parcel J9-23-17 is a recreational property that is not owned by GE, and for which the property owner has agreed to execute an ERE. As a result, the applicable Performance Standards require the removal/replacement of soils as necessary to achieve spatial average PCB concentrations of 10 ppm in the top foot and 15 ppm in the 1- to 3-

foot depth increment. Further, if, after incorporating any response actions anticipated for the uppermost 3 feet, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. In addition, since the parcel size exceeds 0.5 acre, the maximum PCB concentration in the top foot of soils in unpaved areas must be less than the 50 ppm NTE concentration established in the CD and SOW for recreational properties.

Using the available PCB soil data and spatial averaging procedures previously summarized in this Work Plan, the existing spatial average PCB concentration for the 0- to 1-foot depth increment is 50 ppm and that for the 1- to 3-foot depth increment is 98 ppm – both of which exceed the applicable Performance Standards. Tables A-20 and A-21 of Appendix A provide a summary of the spatial average calculations. In addition, certain sample locations in unpaved soils in the top foot contain PCBs above the applicable NTE concentration of 50 ppm. As a result, response actions consisting of soil removal and replacement with clean backfill are required.

The areas subject to soil removal were determined using the same general procedures outlined above for Parcel J9-23-13 -- i.e., soil removal to address the NTE criterion (in this case, 50 ppm), followed by the identification and removal of targeted soil polygons to effect a reduction in the spatial average PCB concentration. For Parcel J9-23-17, these procedures resulted in the identification of the following PCB soil sample locations for removal:

- 081298BT18/SL0090
- BH000466
- IA-2
- IA-7
- IA-8
- IA-28S
- IA-42
- IA-93
- IA-94
- IA-100
- J9-23-16-QP-12
- J9-23-17-D-9

Removal of the soils corresponding to the above samples (and their corresponding depths and polygon areas) and subsequent placement of backfill will result in post-removal spatial average PCB concentrations for the 0- to 1-foot and 1- to 3-foot depth increments of 9 and 12 ppm, respectively (refer to Tables A-22 and A-23 of Appendix A). It will also ensure that there is no soil in the top foot in unpaved areas with PCB concentrations exceeding the NTE criterion of 50 ppm.

Following the incorporation of the anticipated post-removal soil conditions for the 0- to 1-foot and 1- to 3-foot depth increments, the spatial average PCB concentration for the 0- to 15-foot depth increment was estimated to

be 300 ppm, as shown in Table A-24 of Appendix A. Since this concentration exceeds the applicable Performance Standard (100 ppm), additional response actions beyond those identified for the 0- to 1-foot and 1- to 3-foot depth increments are necessary and will involve the installation of an engineered barrier. To determine the area(s) subject to such a barrier, the information presented in Table A-24 of Appendix A was further reviewed. This review resulted in the identification of specific PCB soil data (and associated polygon areas) whose removal from the spreadsheet calculations (in accordance with the procedures outlined in Attachment E of the SOW for areas underneath an engineered barrier) would result in a spatial average PCB concentration below the applicable Performance Standard. For Parcel J9-23-16, this process resulted in the identification of an engineered barrier for the polygon corresponding to sample location IA-98. With the installation of an engineered barrier over the polygon area associated with that sample (and thus the removal of the underlying PCB concentration from the spatial average calculation), the remaining spatial average PCB concentration for the 0- to 15-foot depth increment is 38 ppm, as shown in Table A-25 of Appendix A.

Based on the evaluations presented above, it is estimated that at Parcel J9-23-17, to achieve the PCB Performance Standards, approximately 1,380 cubic yards of soil will be subject to removal from the areas and depths identified on Figure 3-1. These preliminary removal limits and volume estimate are subject to modification as part of future recalculations (if any) and other technical design activities, as discussed in Section 6. In addition, an engineered barrier will need to be installed over an area estimated at approximately 6,500 square feet, as also shown on Figure 3-1. The final configuration and design of the engineered barrier for this parcel will consider several factors, such as the property owner's plans for construction within the parcel, coordination with the necessary soil removal activities, and flood storage considerations. Additional information regarding the engineered barrier installation is presented in Section 6 of this Work Plan.

3.5.5 Parcel J9-23-18

Parcel J9-23-18 is a commercial/industrial property that is not owned by GE and for which the property owner has declined to agree to an ERE. As a result, in accordance with the CD and SOW, GE must implement a Conditional Solution. The applicable Performance Standards for a Conditional Solution require the removal/ replacement of soils as necessary to achieve spatial average PCB concentrations of 25 ppm in both the 0- to 1- and 0- to 3-foot depth increments and 200 ppm in the 1- to 6-foot depth increment. (These evaluations are performed sequentially, with any anticipated response actions related to shallower depth increments incorporated into the evaluations for the deeper depth increments.) Further, if, after incorporating any response actions anticipated for the uppermost 6 feet, the spatial average PCB concentration in the 0- to 15-foot depth

increment exceeds 100 ppm, an engineered barrier must be installed. (Since this parcel is less than 0.5 acre, the NTE criterion does not apply.)

Based on the available PCB soils data, the existing spatial average PCB concentrations for soils at Parcel J9-23-18 are 5 ppm for the 0- to 1-foot depth increment, 14 ppm for the 0- to 3-foot depth increment, 41 ppm for the 1- to 6-foot depth increment, and 98 ppm for the 0- to 15-foot depth increment. These concentrations are all below the applicable Performance Standards. Tables A-26 through A-29 of Appendix A provide additional information related to the calculation of these spatial average PCB concentrations. As a result, no response actions are necessary at this parcel at the present time to address PCBs in soils. (However, the other conditions for a Conditional Solution, as set forth in Paragraphs 34-38 of the CD, will still apply. These include GE's obligation to conduct an annual inspection of the property, as specified in Paragraph 38 of the CD, and its agreement to conduct further response actions in the future in the event that the property owner meets the conditions set forth in the CD regarding legally permissible future uses, as specified in Paragraph 34.d of the CD.)

3.5.6 Parcels J9-23-19, -20, and -21

Parcels J9-23-19, -20, and -21 are commercial/industrial parcels that are all owned by the same private owner and for which the property owner has declined to agree to an ERE. As a result, GE must implement a Conditional Solution for these parcels. Although these parcels are commonly owned and treated by the owner as a single property, they have been evaluated as separate averaging areas, as required by the SOW. For each parcel, the applicable Performance Standards for a Conditional Solution require the removal/replacement of soils as necessary to achieve spatial average PCB concentrations of 25 ppm in both the 0- to 1- and 0- to 3-foot depth increments and 200 ppm in the 1- to 6-foot depth increment. (These evaluations are performed sequentially, with any anticipated response actions related to shallower depth increments incorporated into the evaluations for the deeper depth increments.) Further, if, after incorporating the response actions anticipated to occur within the uppermost 6 feet, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. Finally, since Parcels J9-23-19 and J9-23-21 each exceed 0.5 acre, the maximum PCB concentration in the top foot of unpaved soils at each such parcel must be less than the 125 ppm NTE concentration established in the CD and SOW for commercial/industrial properties.

The following paragraphs present the results of the PCB evaluation for each of these parcels individually.

Parcel J9-23-19

For Parcel J9-23-19, using the available PCB soils data and the spatial averaging procedures previously summarized in this Work Plan, the existing spatial average PCB concentrations for soils are 2 ppm for the 0- to 1-foot depth increment, 6 ppm for the 0- to 3-foot depth increment, 84 ppm for the 1- to 6-foot depth increment, and 71 ppm for the 0- to 15-foot depth increment. These concentrations are all below the applicable Performance Standards. Tables A-30 through A-33 of Appendix A provide additional information related to the calculation of these spatial average concentrations. In addition, the maximum discrete PCB sample result within the top foot of unpaved soil within this parcel is 78 ppm, which is below the 125 ppm NTE concentration. As a result, no response actions are necessary at this parcel at the present time to address PCBs in soils. (However, as at Parcel J9-23-18, the other conditions for a Conditional Solution, as set forth in Paragraphs 34-38 of the CD, will still apply.)

Parcel J9-23-20

For Parcel J9-23-20, using the available PCB soils data and the spatial averaging procedures previously summarized in this Work Plan, the existing spatial average PCB concentrations for soils are 2 ppm for the 0- to 1-foot depth increment, 16 ppm for the 0- to 3-foot depth increment, 58 ppm for the 1- to 6-foot depth increment, and 81 ppm for the 0- to 15-foot depth increment. These concentrations are all below the applicable Performance Standards. Tables A-34 through A-37 of Appendix A provide additional information related to the calculation of these spatial average concentrations. As a result, no remedial actions are necessary at this parcel at the present time to address PCBs in soils. (Again, the other conditions for a Conditional Solution, as set forth in Paragraph 34-38 of the CD, will still apply.)

Parcel J9-23-21

For Parcel J9-23-21, based on the PCB soils data from this parcel, the existing spatial average PCB concentration for soils in the 0- to 1-foot depth increment is 5 ppm (Table A-38 of Appendix A), which is below the applicable Performance Standard. However, within the adjacent parcel (J9-23-22), there are two samples (MO-1 and MO-6N3) where PCB concentrations in the top foot of unpaved soils exceed the 125 ppm NTE criterion for commercial/industrial properties. Although these sample locations are situated on the adjacent parcel, the process used to determine the appropriate removal limits (i.e., the identification of adjacent sampling data containing PCBs at levels less than 125 ppm) results in removal limits that extend onto Parcel J9-23-21.

With the removal of soils from these areas, the spatial average PCB concentration for the 0- to 1-foot depth increment at Parcel J9-23-21was re-calculated. As shown in Table A-39 of Appendix A, that post-removal spatial average PCB concentration is 3 ppm. Further, there will be no sample locations in the top foot of soils in unpaved areas with PCB concentrations exceeding the 125 ppm NTE criterion.

After incorporating the anticipated post-removal conditions for the 0- to 1-foot depth increment, the resulting spatial average PCB concentration for the 0- to 3-foot depth increment is 42 ppm (as shown in Table A-40 of Appendix A), which exceeds the applicable Performance Standard (25 ppm). To determine the area(s) where soil removal is necessary to achieve that Performance Standard, the information presented in Table A-40 of Appendix A was further reviewed. From this review, it was determined that the removal of soils from the polygon associated with sample location J9-23-22-F-16 (located on Parcel J9-23-22) and replacement of those soils with clean backfill (at an assumed PCB concentration of 0.0375 ppm) will result in a spatial average PCB concentration of 21 ppm for the 0- to 3-foot depth increment at Parcel J9-23-21, as shown in Table A-41 of Appendix A.

The anticipated post-removal soil conditions for the 0- to 3-foot depth increment were then incorporated into the evaluations related to the 1- to 6-foot depth increment. After incorporating these anticipated post-removal conditions, the spatial average PCB concentration for the 1- to 6-foot depth increment is 72 ppm, as shown in Table A-42 of Appendix A. Since this concentration is less than the applicable PCB Performance Standard for this depth (200 ppm), no PCB response actions are required.

The final component of the PCB evaluations for Parcel J9-23-21 involved the calculation of the spatial average PCB concentration for the 0- to 15-foot depth increment, after incorporating the anticipated performance of response actions described above. When including these anticipated conditions, the spatial average PCB concentration for the 0- to 15-foot depth increment is 35 ppm (as shown in Table A-43 of Appendix A), which is less than the applicable Performance Standard (100 ppm). As a result, no additional response actions beyond those already identified for the uppermost 3 feet are required.

Based on the evaluations presented above, it is estimated that at Parcel J9-23-21, to achieve the PCB Performance Standards, approximately 240 cubic yards of soil will be subject to removal from the areas and depths identified on Figure 3-1. These preliminary soil removal limits and this volume estimate are subject to modification as part of future recalculations (if any) and other technical design activities, as discussed in Section 6.

3.5.7 Parcel J9-23-22

Parcel J9-23-22 is a commercial/industrial property that is not owned by GE and for which the property owner has declined to agree to an ERE. As a result, in accordance with the CD and SOW, GE must implement a Conditional Solution for this parcel. The applicable Performance Standards for a Conditional Solution require the removal/replacement of soils as necessary to achieve spatial average PCB concentrations of 25 ppm in both the 0- to 1-foot and 0- to 3-foot depth increments and 200 ppm in the 1- to 6-foot depth increment. (These evaluations are performed sequentially, with any anticipated response actions related to shallower depth increments incorporated into the evaluations for the deeper depth increments.) Further, if, after incorporating any response actions anticipated for the uppermost 6 feet, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. Finally, since this parcel is greater than 0.5 acre in size, the maximum PCB concentration in the top foot of unpaved soils cannot be greater than the 125 ppm NTE concentration for commercial/industrial properties.

Using the available PCB soils data within and adjacent to this parcel, the existing spatial average PCB concentration for soils in the 0- to 1-foot depth increment is 268 ppm (Table A-44 of Appendix A), which exceeds the applicable Performance Standard. Also, several sample locations in unpaved soils in the 0- to 1-foot depth increment have PCB concentrations exceeding 125 ppm. As a result, remedial actions are necessary for the 0- to 1-foot depth increment.

To determine the soil removal area necessary to achieve the applicable PCB Performance Standard, a two-step evaluation was conducted. First, for each discrete sample location where the PCB concentration is greater than the NTE criterion (125 ppm in the top foot of unpaved soils), the PCB data from adjacent sample locations were reviewed to establish an overall delineation of PCBs at levels above the NTE concentration. This area was then adjusted as appropriate to: i) ensure that the specific evaluation polygon associated with each NTE sample was included in the delineated area; and ii) reflect the presence of physical site features within the parcel (e.g., presence of buildings, pavement, etc.). From this process, the limits of soil removal for each NTE sample in unpaved soils were determined. The second evaluation component involved a review of the information presented in Table A-44 of Appendix A. Specifically, in addition to the removal of the PCB soil data (and associated polygon volumes) associated with the NTE exceedances described above, this review identified other PCB data whose removal from the spreadsheet and replacement with an equal volume of clean backfill (at an assumed PCB concentration of 0.0375 ppm) would result in a spatial average PCB concentration below the

applicable Performance Standard. For Parcel J9-23-22, these evaluations identified soil removal in the top foot associated with the following PCB soil samples:

- FW-16;
- FW-25;
- J9-23-22-H-17;
- MO-1;
- MO-4E3;
- MO-6N3;
- MO-P1; and
- MO-P2.

Removal of the soils corresponding to the above samples will result in a post-remediation average PCB concentration of 17 ppm for the 0- to 1-foot depth increment at Parcel J9-23-22, as shown in Table 45 of Appendix A. Also, as noted above, this removal will also ensure that there are no exceedances of the 125 ppm NTE criterion.

Consistent with the procedures established in the SOW and Attachment E to the SOW, the anticipated post-removal soil conditions for the 0- to 1-foot depth increment were incorporated into the evaluations related to the 0- to 3-foot depth increment. After incorporating these anticipated conditions, the spatial average PCB concentration for the 0- to 3-foot depth increment is 203 ppm, which exceeds the applicable Performance Standard (25 ppm). In a manner similar to that described above, the information supporting this calculation (Table A-46 of Appendix A) was further evaluated, which resulted in the identification of the following sample locations (and corresponding polygons) for soil removal:

- FW-1;
- FW-16;
- FW-25;
- J9-23-12-B-16;
- J9-23-22-D-16;
- J9-23-22-F-16;
- J9-23-23-H-18/N1-BH000326-0-0010; and
- MO-1.

Removal of the soils corresponding to the above samples will result in a post-removal average PCB concentration of 24 ppm for the 0- to 3-foot depth increment at Parcel J9-23-22, as shown in Table A-47 of Appendix A.

The anticipated post-removal soil conditions for the 0- to 3-foot depth increment (more specifically the conditions corresponding to the 1- to 3-foot depth) were then incorporated into the evaluations related to the 1- to 6-foot depth increment. After incorporating these anticipated conditions, the spatial average PCB

concentration for the 1- to 6-foot depth increment is 536 ppm (as shown in Table A-48 of Appendix A), which exceeds the applicable Performance Standard (200 ppm). To determine the area(s) where soil removal is necessary to achieve that Performance Standard, the information presented in Table A-48 of Appendix A was further reviewed. From this review, it was determined that the removal of soils from the polygon associated with sample locations J9-23-23-H-18/N-1BH000326-0-0010 and J9-23-22-J-18/N1-BH000314-0-0030 and replacement of those soils with clean backfill (at an assumed PCB concentration of 0.0375 ppm) will result in a spatial average PCB concentration of 133 ppm for the 1- to 6-foot depth increment, as shown in Table A-49 of Appendix A.

The final component of the PCB evaluations for Parcel J9-23-22 involved the calculation of the spatial average PCB concentration for the 0- to 15-foot depth increment, after incorporating the anticipated performance of response actions described above for the uppermost 6 feet of soil within the parcel. When including these anticipated conditions, the spatial average PCB concentration for the 0- to 15-foot depth increment is 65 ppm, which is less than the applicable Performance Standard (100 ppm). As a result, no additional response actions beyond those already identified within the parcel are required.

Based on the evaluations presented in this section, it is estimated that at Parcel J9-23-22, to achieve the PCB Performance Standards, approximately 3,120 cubic yards of soil would be subject to removal from the areas and depths identified on Figure 3-1. However, review of the data indicates that much of the 6-foot removal identified on Figure 3-1 for the front portion of this parcel is driven by the PCB results for the 3- to 6-foot depth sample at location J9-23-22-J-18 (see Table 2-1) and the absence of any other PCB data from a comparable depth between that sample location and Newell Street. Accordingly, GE is proposing to collect additional soil samples from the 1- to 3-foot and 3- to 6-foot depth increments at existing sample location J9-23-22-K-18, as described in Section 5 of this Work Plan, in an effort to further refine the limits of soil removal in the front portion of Parcel J9-23-22. Thus, the soil removal limits shown on Figure 3-1 for this parcel and the above volume estimate are subject to modification based on the results of that additional sampling. Additionally, those preliminary removal limits and volume estimate are subject to modification based on future recalculations (if any) and other technical design activities, including an evaluation of the technical issues involved in implementing 6-foot soil removal immediately adjacent to the buildings at this property.

3.5.8 Parcel J9-23-23

Parcel J9-23-23 is a commercial/industrial property owned by GE. As a result, the applicable Performance Standards require the following for the top foot of soil: (a) for unpaved areas, removal/replacement of soils as necessary to achieve a spatial average PCB concentration of 25 ppm; and (b) for paved areas, either soil removal/replacement as necessary to achieve that same spatial average concentration or else enhancement of the pavement in portions that exceed that spatial average concentration. In addition, if the spatial average PCB concentration in the 1- to 6-foot depth increment exceeds 200 ppm, soil removal/replacement is required to achieve that average concentration. Further, if, after incorporating any response actions anticipated for the uppermost 6 feet), the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. Finally, since the size of this parcel is greater than 0.5 acre, the maximum PCB concentration in the top foot of unpaved soils cannot be greater than the 125 ppm NTE concentration for commercial/industrial properties.

GE is currently evaluating the possibility of demolishing the existing building on this parcel and potentially leaving the concrete slab in place for future commercial use (e.g., as a parking lot). To further assess this possibility, additional soil sampling will be conducted for soil beneath the building, as discussed in Section 5 of this Work Plan. Hence, the evaluation of this property presented below, which is based on currently existing data, is subject to modification after the results of that additional sampling are available.

Based on currently available PCB soils data for this parcel, the spatial average PCB concentration for the top foot of soils in paved areas was determined to be 2 ppm, as shown in Table A-51 of Appendix A. As a result, no response actions are necessary for the top foot of paved areas within Parcel J9-22-23. However, for soils present in the top foot in unpaved areas, the existing spatial average PCB concentration was determined to be 261 ppm, as shown in Table A-52 of Appendix A. Hence, soil removal is needed in those areas. The areas subject to soil removal were determined using the same general procedures previously outlined for Parcels J9-23-13 and J9-23-22 --- i.e., soil removal to address the applicable NTE criterion (in this case, 125 ppm), followed by the identification and removal of targeted soil polygons to effect a reduction in the spatial average PCB concentration. For Parcel J9-23-23, these procedures resulted in the identification of the following PCB soil sample locations in the top foot for removal:

- FW-16;
- J9-23-23-C-17/N1- BH-000341;

- MO-P1; and
- MO-P2.

Removal of the soils corresponding to the above samples will result in a post-removal average PCB concentration of approximately 23 ppm for the top foot of soils within the unpaved sections of Parcel J9-23-23, as shown in Table A-53 of Appendix A. It will also ensure that there are no exceedances of the 125 ppm NTE criterion in the top foot of soils in unpaved areas.

With respect to the 1- to 6-foot depth increment, the existing spatial average PCB concentration was determined to be 505 ppm, as shown in Table A-54 of Appendix A. Since this concentration exceeds the applicable Performance Standard (200 ppm), soil removal from this depth increment is required. For this depth increment, the following sample locations (and their corresponding polygons) were identified for removal:

- FW-25;
- J9-23-22-J-18/N1-BH-000314-0-0030; and
- J9-23-24-H-20.

The removal of these soils will result in a post-removal spatial average PCB concentration for the 1- to 6-foot depth increment of 149 ppm, as shown in Table A-55 of Appendix A.

The incorporation of the existing conditions for the 0- to 1-foot (paved), as well as the anticipated post-removal conditions for the 0- to 1-foot (unpaved) and 1- to 6-foot depth increments, results in a spatial average PCB concentration of 42 ppm for the 0- to 15-foot depth increment (refer to Table A-56 of Appendix A for additional information). Since this concentration does not exceed the applicable Performance Standard (100 ppm), no additional response actions are necessary to address PCBs in the 0- to 15-foot depth increment at Parcel J9-23-23.

Based on the evaluations presented in this section, it is estimated that at Parcel J9-23-23, to achieve the PCB Performance Standards, approximately 1,700 cubic yards of soil would be subject to removal from the areas and depths identified on Figure 3-1. However, the soil removal limits shown on Figure 3-1 and the foregoing volume estimate are subject to modification based on several future activities. First, these estimates are subject to modification based on the additional sampling of soil beneath the building on this property. Second, as at Parcel J9-23-22, much of the soil removal identified on Figure 3-1 for the front of this property is driven by the

PCB results for the 3- to 6-foot sample from location J9-23-22-J-18 and the absence of any PCB data for a similar depth between that location and Newell Street. As noted above and described in Section 5, GE is proposing additional soil sampling for the 1- to 3-foot and 3- to 6-foot depth increments at sample location J9-23-22-K-18 on Parcel J9-23-22. The results of this sampling will be used to further refine the soil removal limits in the front portion of Parcel J9-23-23 and thus may affect the soil removal limits shown on Figure 3-1 for that portion of this property. Third, the preliminary soil removal limits shown on Figure 3-1, as well as the volume estimate, are subject to modification based on future recalculations (if any) and other technical design activities, which may vary depending on whether the existing building is demolished.

3.5.9 Parcel J9-23-24

Parcel J9-23-24 is a commercial/industrial property that is not owned by GE and for which the property owner has agreed to an ERE. As a result, the applicable Performance Standards require the following for the top foot of soil: (a) for unpaved areas, removal/replacement of soils as necessary to achieve a spatial average PCB concentration of 25 ppm; and (b) for paved areas, either soil removal/replacement as necessary to achieve that same spatial average concentration or else enhancement of the pavement in portions that exceed that spatial average concentration. In addition, if the spatial average PCB concentration in the 1- to 6-foot depth increment exceeds 200 ppm, soil removal/replacement is required to achieve that average concentration. Further, if, after incorporating any response actions anticipated to occur within the uppermost 6 feet, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. (Since this parcel is less than 0.5 acre, the NTE criterion does not apply.)

Using the available PCB soils data, the spatial average PCB concentrations for the top foot of soils were determined to be 24 ppm in unpaved areas, as shown in Table A-57 of Appendix A, and 77 ppm in paved areas, as shown in Table A-58 of Appendix A. As a result, response actions are necessary for the top foot in paved areas. For this property, GE has elected to conduct soil removal/replacement to achieve the 25 ppm Performance Standard for the top foot in paved areas. To determine the area(s) where soil removal would achieve that Performance Standard, the information presented in Table A-59 of Appendix A was further reviewed to identify PCB data (and corresponding polygons) whose removal from the spreadsheet and replacement with an equal volume of clean backfill (at an assumed PCB concentration of 0.0375 ppm) would result in a spatial average PCB concentration below the applicable PCB Performance Standard (25 ppm). From this review, it was determined that removal of soil from the polygon represented by sample J9-23-24-I-21 will

yield a post-removal spatial average PCB concentration of less than 1 ppm for the top foot in paved areas, as shown in Table A-60 of Appendix A.

With respect to the 1- to 6-foot depth increment, the existing spatial average PCB concentration was determined to be 1,398 ppm, as shown in Table A-61 of Appendix A. Since that concentration exceeds the applicable Performance Standard (200 ppm), soil removal from that depth increment is required. To determine the area(s) where soil removal is necessary to achieve the applicable Performance Standard for this depth increment (200 ppm), the information presented in Table A-61 of Appendix A was further reviewed. From this review, it was determined that 6-foot removal of soil from the polygon represented by sample J9-23-24-H-20 will yield a post-removal spatial average PCB concentration of 26 ppm for the 1- to 6-foot depth increment, as shown in Table A-62 of Appendix A.

After incorporating the anticipated post-removal soil conditions associated with the 0- to 1-foot and 1- to 6-foot depth increments, the spatial average PCB concentration for the 0- to 15-foot depth increment was determined to be 51 ppm (refer to Table A-63 of Appendix A for additional information). Since that concentration is below the Performance Standard for the 0- to 15-foot depth increment (100 ppm), no additional response actions beyond those described above are necessary.

Based on the evaluations presented in this section, it is estimated that at Parcel J9-23-24, to achieve the PCB Performance Standards, approximately 1,590 cubic yards of soil will be subject to removal from the areas and depths identified on Figure 3-1. The soil removal limits shown on Figure 3-1 and the foregoing volume estimate are subject to modification as part of future recalculations (if any) and other technical design activities, including an evaluation of the technical issues associated with 6-foot removal immediately adjacent to the existing building.

3.5.10 Parcel J9-23-25

As previously described, Parcel J9-23-25 is a commercial/industrial property that is not owned by GE and for which the property owner has declined to agree to an ERE. As a result, in accordance with the CD and SOW, GE must implement a Conditional Solution. The applicable Performance Standards for a Conditional Solution require the removal/replacement of soils as necessary to achieve spatial average PCB concentrations of 25 ppm in both the 0- to 1- and 0- to 3-foot depth increments and 200 ppm in the 1- to 6-foot depth increment. (These evaluations are performed sequentially, with any anticipated response actions related to shallower depth

increments incorporated into the evaluations for the deeper depth increments.) Further, if, after incorporating any response actions that are anticipated to occur within the uppermost 6 feet, the spatial average PCB concentration in the 0- to 15-foot depth increment exceeds 100 ppm, an engineered barrier must be installed. Finally, since this parcel exceeds 0.5 acre, the maximum PCB concentration in the top foot of unpaved soils must be less than the 125 ppm NTE concentration for commercial/industrial properties.

Using the available PCB soils data and the spatial averaging procedures previously summarized in this Work Plan, the existing spatial average PCB concentrations for soils at Parcel J9-23-25 are 2 ppm for the 0- to 1-foot depth increment, 4 ppm for the 0- to 3-foot depth increment, 10 ppm for the 1- to 6-foot depth increment, and 21 ppm for the 0- to 15-foot depth increment. These concentrations are all below the applicable Performance Standards. Tables A-64 through A-67 of Appendix A provide additional information related to the calculation of these average concentrations. In addition, no discrete PCB sample result within the top foot of unpaved soil at this parcel exceeds the 125 ppm NTE criterion. As a result, no response actions are necessary at this parcel at the present time to address PCBs in soils. (However, the other conditions for a Conditional Solution, as set forth in Paragraphs 34-38 of the CD, will still apply. These include GE's obligation to conduct an annual inspection of the property, as specified in Paragraph 38 of the CD, and its agreement to conduct further response actions in the future in the event that the property owner meets the conditions set forth in the CD regarding legally permissible future uses, as specified in Paragraph 34.d of the CD.)

3.5.11 Parcel J9-23-26

As previously described, Parcel J9-23-26 is a recreational property (Lakewood Playground) owned by the City of Pittsfield. Only a portion of this overall property is within the CD Site. As also noted above, the City has agreed in the CD to execute an ERE on this property. Thus, the applicable Performance Standards for this portion of the property require the removal/replacement of soils as necessary to achieve spatial average PCB concentrations of 10 ppm in the top foot and 15 ppm in the 1- to 3-foot depth increment. Further, if, after incorporating any response actions anticipated to occur within the uppermost 3 feet, the spatial average PCB concentration in the 0- to 15-foot depth exceeds 100 ppm, the installation of an engineered barrier is required. In addition, since the specific portion of Parcel J9-23-26 that is subject to these PCB Performance Standards exceeds 0.5 acre in size, the maximum PCB concentration in the top foot of unpaved soils must be less than the 50 ppm NTE concentration for recreational properties.

Using the available PCB soils data and spatial averaging procedures previously summarized in this Work Plan, the existing spatial average PCB concentrations for soils at the portion of Parcel J9-23-26 within the CD Site are 1 ppm for the 0- to 1-foot depth increment, 4 ppm for the 1- to 3-foot depth increment, and 7 ppm for the 0- to 15-foot depth increment. These concentrations are all well below the applicable Performance Standards. Tables A-68 through A-70 of Appendix A provide additional information related to the calculation of these average concentrations. In addition, no discrete PCB sample result within the top foot of unpaved soil exceeds the 50 ppm NTE criterion for recreational properties. For these reasons, no response actions are necessary at this parcel to address PCBs in soils.

3.6 Summary of PCB Evaluations for Utility Corridors

As noted above, under the CD and SOW, where utilities potentially subject to emergency repair requirements are present and the spatial average PCB concentration for the soils in the utility corridor exceeds 200 ppm. GE is required to evaluate the need for additional response actions. As shown on Figures 2-1 and 3-1, there are several such utility corridors located within Newell Street Area I. As shown on those figures, all of the developed parcels at this RAA (i.e., all parcels except J9-23-12, J9-23-21, and J9-23-26) have dedicated subsurface utility connections running from the main utility lines along Newell Street to the structures on those parcels. These utilities generally consist of water, sanitary sewer, and/or natural gas lines. In addition, two large utility corridors impact multiple properties: (1) a sanitary sewer easement located along/near the property boundary between Parcel J9-23-12 and Parcels J9-23-16 through -26; and (2) a stormwater drainage easement which runs along/near the entire property boundary between Parcels J9-23-18 and J9-23-19. These two utility corridors are shown in greater detail on Figures B-1 and B-2.

Each of these utility corridors was evaluated to determine the need for additional response actions beyond those described earlier in this section. For the purposes of the evaluations presented herein, each utility corridor was assumed to be 10 feet in width. The evaluation of the need for response actions to address PCB-containing soils in these utility corridors was based on a comparison of the average PCB concentration for each utility corridor to the Performance Standard of 200 ppm for the 1- to 6-foot depth increment in utility corridors.

This evaluation was made first for the dedicated subsurface utility connections running from the main utility lines along Newell Street to the buildings at the specific developed properties. This evaluation revealed the following:

- At eight parcels (Parcels J9-23-13, J9-23-16, J9-23-17, J9-23-18, J9-23-19, J9-23-20, J9-23-24, and J9-23-25), the 1- to 6-foot depth increment contains no discrete PCB concentrations greater than 200 ppm impacting the dedicated utility corridors. Thus, there can be no average concentration greater than 200 ppm for any of these utility corridors.

- At the other two developed parcels (Parcels J9-23-22 and J9-23-23), each of which has two utility corridors, the 6-foot soil removals identified for those parcels to address PCB-containing soils associated with the 3- to 6-foot sample at location J9-23-22-J-18, as discussed in Sections 3.5.7 and 3.5.8 and shown on Figure 3-1, together with the replacement of the excavated soil with clean soils, will ensure (based on current data) that the post-removal average PCB concentration in each utility corridor is less than 200 ppm. However, this conclusion is subject to re-evaluation based on the results of the additional sampling proposed for location J9-23-22-K-18.

The utility corridors impacting multiple parcels (Figures B-1 and B-2) were then evaluated by calculating average PCB concentrations for the 1- to 6-foot depth increment at each such corridor. Table B-1 shows the calculation of the existing average PCB concentration for the 1- to 6-foot depth increment within the sanitary sewer utility corridor located along/near the property line between Parcel J9-23-12 and Parcels J9-23-16 through -26. As indicated in that table, the existing average PCB concentration in this utility corridor is approximately 118 ppm. Table B-2 presents the calculation of the existing average PCB concentration for 1- to 6-foot depth increment within the storm sewer utility corridor located along/near the property between Parcels J9-23-18 and J9-23-19. As indicated in that table, the existing average PCB concentration for this utility corridor is approximately 83 ppm. Therefore, no response actions are required to address the soils within these storm sewer or sanitary sewer utility corridors beyond those to address PCB-containing soils at the specific properties.

3.7 Overall Summary

Based on the foregoing evaluations, a preliminary delineation of the soil removal limits that will necessary to meet the PCB Performance Standards at Newell Street Area I is shown on Figure 3-1, and a preliminary estimate of the associated total soil removal volume is approximately 10,525 cubic yards. As discussed in the previous sections, however, these preliminary soil removal limits and this preliminary volume estimate are subject to modification based on the results of the additional PCB sampling described in Section 5, any recalculations of the spatial average concentrations for shallower depths after considering removals to address deeper soils, and other future technical design activities as discussed in Section 6. In addition, an engineered

barrier will need to be installed at a portion of Parcel J9-23-17, as discussed in Section 3.5.4. Additional information regarding this barrier is provided in Section 6.

4. Non-PCB Soil Evaluations

4.1 General

The Performance Standards established in the CD and SOW for non-PCB Appendix IX+3 constituents in soil set forth a prescribed process that includes and considers (as needed) several evaluation components. Similar to the PCB soil evaluations, the assessment of non-PCB constituents relies on the data set resulting from the pre-design (and earlier) soil investigations. It also incorporates the anticipated performance of response actions (if any) that have been identified for PCBs. Beyond these initial evaluation components, the activities involved in the assessment of non-PCB constituents vary depending on the specific analytes under consideration, the possible elimination of certain constituents from further evaluation based on numerical screening and/or comparison to background conditions, and the specific risk-based evaluation method.

This section of the Work Plan summarizes the Performance Standards and evaluation process established in the CD and SOW concerning non-PCB constituents in soil, and provides an evaluation of such constituents for each parcel within Newell Street Area I. This section is supported by numerous property-specific data tables, which summarize the available non-PCB Appendix IX+3 data for each parcel (adjusted to incorporate the anticipated PCB-related response actions) and present the results of the various evaluation steps conducted for each parcel.

4.2 Overview of Applicable Performance Standards

As indicated above, the Performance Standards for non-PCB Appendix IX+3 constituents in soil consist of several prescribed evaluation steps, as well as numerical standards that are to be applied at various points within the evaluation process. In general, the Appendix IX+3 Performance Standards apply to the same areas that were subject to the PCB Performance Standards and related evaluations. Therefore, each property within Newell Street Area I was subject to a separate Appendix IX+3 evaluation, as described in Section 4.4 of this Work Plan.

The applicable Performance Standards for Appendix IX+3 constituents in soil at Newell Street Area I are set forth in Section 2.3.2 and Attachment F of the SOW, and are summarized as follows:

1. A review of the data qualifiers for the Appendix IX+3 soil data shall be conducted to determine if the analytical data are representative of site conditions. Specifically, analytical results that indicate constituent

occurrence as a result of laboratory interference or contamination (as indicated by the laboratory blank data) shall be excluded from the subsequent evaluations.

2. The remaining Appendix IX+3 data set subject to evaluation for each parcel shall be adjusted to reflect the response actions necessary to achieve the PCB-related Performance Standards specified in the CD and SOW. Specifically, sample results from soil that will be removed to address PCBs will be eliminated from consideration, and it will be assumed that such soil will be replaced with an equal volume of clean soil containing concentrations of organic constituents at one-half the detection limit and concentrations of inorganic constituents consistent with those detected in representative samples of the backfill material. Similar concentrations for organic and inorganic constituents will be assumed to be present in any soil cover used. For areas where an engineered barrier or pavement enhancement will be installed to address PCBs, the Appendix IX+3 sample results from soil underlying such barrier or enhanced pavement will be eliminated from consideration, and the averages will be recalculated, and the evaluations performed, for the portion(s) of the parcels not subject to such barrier or pavement enhancement (subject to potential modification, if necessary, based on the nature and concentration of volatile constituents for which such barriers/pavement may not provide effective containment).

3. The remaining, adjusted Appendix IX+3 data shall then be screened further by making the following comparisons for the sample results that were not eliminated in the prior steps:

   a. For constituents other than dioxins/furans, the maximum concentration of each detected constituent shall be compared to the EPA Region 9 Preliminary Remediation Goals (PRGs) (set forth in Exhibit F-1 to Attachment F of the SOW) using the industrial PRGs for commercial/industrial properties (Parcels J9-23-13, J9-23-16, J9-23-18, J9-23-19, J9-23-20, J9-23-21, J9-23-22, J9-23-23, J9-23-24, and J9-23-25), and residential PRGs for recreational properties (J9-23-12, J9-23-17, and J9-23-26). For polycyclic aromatic hydrocarbons (PAHs) for which EPA Region 9 PRGs do not exist, the EPA Region 9 PRG for benzo(a)pyrene shall be used for carcinogenic PAHs and the Region 9 PRG for naphthalene shall be used for non-carcinogenic PAHs. For other constituents for which EPA Region 9 PRGs do not exist, GE may propose screening concentrations based on either the EPA Region 9 PRGs for chemicals with similar characteristics or on other appropriate risk-based calculations, and upon EPA approval, may use such screening concentrations in this step. (The EPA Region 9 PRGs, together with the PRGs specified above for carcinogenic and non-carcinogenic PAHs for which there are no EPA Region 9 PRGs and any additional screening concentrations proposed by GE and approved by EPA, are hereinafter referred to

jointly as "Screening PRGs.") Any constituent whose maximum detected concentration is at or below the applicable Screening PRGs will be eliminated from further consideration. Any constituents remaining after this step will be subject to further evaluation.

b. For each dioxin/furan sample, a total TEQ concentration shall be calculated using the TEFs published by the World Health Organization (WHO) (Van den Berg et al., *Environ. Health Perspectives*, Vol. 106, No. 12, Dec. 1998). Then, for the relevant averaging area and depth increment, either the maximum TEQ concentration or the 95% upper confidence limit on the mean (95% UCL) of TEQ concentrations, whichever is lower, shall be compared to the applicable PRG established by EPA for dioxin TEQs. For commercial/industrial areas, these PRGs are 5 ppb in the top foot and 20 ppb in subsurface soil. For recreational areas, these PRGs are 1 ppb in the top foot and 1.5 ppb in the 1- to 3-foot depth increment. If the maximum detected concentration or 95% UCL TEQ concentration is less than the applicable PRG, no further response actions will be necessary to address dioxins/furans. If the maximum detected concentration or 95% UCL TEQ concentration (whichever is used) exceeds the applicable PRG, GE shall develop response actions (as described below) for EPA review and approval to achieve the dioxin PRG(s).

4. For each constituent (other than dioxins/furans) with a maximum concentration that exceeds its Screening PRGs, the data set for that constituent within the particular parcel (after taking into account any PCB-related response actions) shall be compared with the background data set for that constituent, using either an appropriate statistical method or summary statistics (as described in the MDEP's *Guidance for Disposal Site Risk Characterization*, 1995). For such comparisons, site-specific background data sets approved by EPA shall be used, which may include, at a minimum, soil data from the Housatonic River floodplain collected upstream of releases from the GE Plant Area and soil data from GE's off-site residential property program (excluding samples with detectable PCB concentrations and samples containing visible evidence of non-native fill). Any constituent for which the property-wide data set is consistent with the background data set will be eliminated from further consideration. Conversely, any constituent for which the data set is not consistent with the background data set will be subject to further evaluation. (Note: This step may be omitted if all constituents remaining after the PRG screening described in Step 3.a above can be eliminated through Step 5 below.)

5. For each constituent (other than dioxins/furans) that is not eliminated in the prior steps, an average concentration for the soils within each property (taking into account any PCB-related response actions) shall

be calculated and compared to the applicable MCP Method 1 soil standard (S-1, S-2, or S-3). If there is no existing Method 1 soil standard for such a constituent, a Method 2 standard may be derived using the MCP procedures for doing so, and compared to the average concentration. In making these comparisons, separate average concentrations for surface soil and subsurface soil (using depth increments consistent with those evaluated for PCBs) shall be calculated and compared to applicable Method 1 (or 2) standards. Further, the determination of the applicable set of Method 1 (or 2) standards (i.e., S-1, S-2, or S-3) shall follow the MCP criteria for categorizing soil, and may take into account the ERE or Conditional Solution that will be implemented at the property the area in question. If all constituents evaluated in this step have average concentrations at or below the applicable Method 1 (or 2) standards, no further response actions will be necessary to address such constituents. If any such constituent(s) have average concentrations exceeding the applicable Method 1 (or 2) standards, then GE shall either:

a. Develop response actions sufficient to reduce the average concentrations of such constituent(s) to the Method 1 (or 2) standards (or to achieve the Screening PRGs or background levels); or

b. Conduct an area-specific risk evaluation, as described below.

6. If an area-specific risk evaluation will be conducted, that evaluation shall be performed for all constituents that were retained for evaluation prior to Step 5. In such an evaluation, the cumulative Excess Lifetime Cancer Risk (ELCR) and non-cancer risk for such constituents (excluding PCBs and dioxins/furans) shall be calculated based on the average concentrations of such constituents and the same uses for the area and depth increment in question (e.g., commercial/industrial worker, utility worker, recreational user) that were assumed in developing the applicable PCB Performance Standards for such area and depth increment. In such an evaluation, the same exposure assumptions used in Attachment A to EPA's Action Memorandum for Removal Actions Outside the River (Appendix D to the CD) to support the PCB Performance Standards for such area and depth increment shall be used, unless GE proposes and provides an adequate area-specific justification for alternate exposure assumptions for certain specified parameters and EPA approves such alternate assumptions. The toxicity values to be used for cancer and non-cancer risks in such an evaluation shall be derived from standard EPA sources, and other dose-response information, such as toxicity weighting factors and absorption factors for non-PCB constituents, shall be obtained from EPA and MDEP policies and guidance, except that GE may propose alternate dermal and oral absorption factors and use them if approved by EPA

If the resulting cumulative ELCR for the area (excluding PCBs and dioxins/furans) does not exceed 1×10^{-5} and the non-cancer Hazard Index (excluding PCBs and dioxins/furans) does not exceed 1, no further response actions will be necessary to address these residual Appendix IX+3 constituents. Otherwise, further response actions will be necessary.

7. If the evaluations described above indicate the need for further response actions to address non-PCB constituents, GE shall develop, for EPA review and approval, specific Performance Standards for such response actions. Such Performance Standards shall be based on achieving the following, after taking into account the PCB-related response actions:

   a. For dioxin/furan TEQs, either maximum or 95% UCL TEQ concentrations that do not exceed the EPA dioxin PRGs; and

   b. For other constituents, any combination of the following: (i) maximum concentrations of individual constituents that do not exceed the applicable Screening PRGs; (ii) concentrations of individual constituents that are consistent with background levels (using an appropriate statistical technique or summary statistics); or (iii) for the remaining constituents (if any), either (A) average concentrations that do not exceed the applicable MCP Method 1 (or 2) soil standards, or (B) cumulative risk levels that do not exceed (after rounding) an ELCR of 1×10^{-5} and a non-cancer Hazard Index of 1.

   GE shall propose for EPA approval the implementation of further response actions as necessary to achieve those Performance Standards. The specific response actions to be taken to achieve those Performance Standards will be the same as the response actions established by the Performance Standards for PCBs at the area in question, subject to potential modification if necessary based on the nature and concentration of any volatile constituents detected.

4.3 Common Evaluation Components

As noted above, the above Performance Standards for non-PCB Appendix IX+3 constituents in soil must be applied to each separate parcel within Newell Street Area I. However, given the number of parcels at this RAA, certain components of the evaluation process that are consistent for all or many of the parcels are addressed in a combined manner in this section, so that this information does not need to be repeated in the evaluation of each

parcel and so that the property-specific evaluations (presented in Section 4.4) can focus on the critical elements relating to the specific parcels in question.

It should also be noted, as a general matter, that the evaluations of Appendix IX+3 data presented in this Work Plan do not include pesticides and herbicides. As part of the pre-design investigations, 21 samples from a target area (selected in consultation with EPA) were analyzed for pesticides and herbicides, and the results indicated detected constituents in only one sample, with only two constituents detected in that sample at levels well below the MCP Reportable Concentrations. Accordingly, GE does not believe that pesticides and herbicides are constituents of potential concern at this RAA.

4.3.1 Review of Data Qualifiers

The initial step in the evaluation of Appendix IX+3 constituents involves an assessment of the available analytical data, and specifically a review of any data qualifiers which would eliminate data due to laboratory interference or contamination (as indicated by the laboratory blank data). As previously mentioned in Section 2 of this Work Plan, all of the soil data available to support the technical RD/RA evaluations for the Newell Street Area I RAA have been subject to data validation or a data quality assessment. The results of this validation/assessment for the pre-design investigation data and the prior (historical) data were provided to EPA in the Supplemental Data Validation/Assessment Report (July 28, 2001). That report qualified (and, in a few cases, rejected) several of the analytical results based on the findings of the quality assurance/quality control procedures. In addition, the data collected by EPA have been subject to a data validation process by EPA, which likewise qualified (and, in a few cases, rejected) certain analytical results. For the affected sample results, these qualifiers have been added to the Appendix IX+3 data summary tables (Tables 2-2, 2-4, and 2-6, as well as the adjusted data summary tables included in this Section 4) and are further described in the notes provided with those tables. Sampling results that have been rejected have not been included in the RD/RA evaluations presented in this Work Plan. However, no samples were rejected based on laboratory interference or laboratory contamination.

4.3.2 Comparison to Screening PRGs

In accordance with the SOW, the evaluation of non-PCB Appendix IX+3 constituents (excluding dioxins/furans) includes a screening step in which the maximum detected concentration of each detected

constituent at each parcel (after taking into account the anticipated response actions to address PCBs) is compared to its corresponding EPA Region 9 PRG for residential or industrial soils, depending on the specific property. However, for certain constituents, EPA Region 9 PRGs are not available. For some such constituents, the SOW identifies surrogate constituents that may be used for screening purposes. Specifically, for PAHs for which EPA Region 9 PRGs do not exist, the EPA Region 9 PRG for benzo(a)pyrene is to be used for carcinogenic PAHs and the Region 9 PRG for naphthalene is to be used for non-carcinogenic PAHs. Also for other constituents for which EPA Region 9 PRGs do not exist, GE may propose screening concentrations. All these screening concentrations are jointly referred to as "Screening PRGs."

Based on a review of the Appendix IX+3 data set for Newell Street Area I soils, there are a few detected constituents for which neither an EPA Region 9 PRG nor a suitable risk-based surrogate RPG is available. These constituents and GE's proposed screening concentration or screening method for them are presented below:

- Total Cyanide - Since an EPA Region 9 PRG does not exist for total cyanide, the most stringent PRG among the cyanide compounds (hydrogen cyanide) was used as the Screening PRG (11 ppm for residential soils; 35 ppm for industrial soils).

- Total Xylenes - Similar to the above, since there is no EPA Region 9 PRG for total xylenes, the PRG for the most stringent xylene compound (m-xylene; 210 ppm) was used as the Screening PRG.

- Sulfide - There is no EPA Region 9 PRG for sulfide. Nor is there an MCP Method 1 standard for this constituent. As a result, GE proposes to evaluate the presence of sulfide relative to background conditions. Section 4.3.3 presents additional information related to this background comparison.

In accordance with the protocols in the SOW, comparisons of the Appendix IX+3 soil data (excluding PCBs and dioxins/furans) to the applicable Screening PRGs were made using the maximum detected concentration of each detected constituent. From this procedure, the constituents subject to further evaluation within each parcel were identified. However, for several volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), there are a number of sample results within each parcel in which the constituents were not detected but which had elevated detection limits such that one-half the detection limit exceeded the Screening PRG. In the property-specific evaluations described in Section 4.4, the specific constituents for which this situation

occurs are identified. Based on review of this group of constituents, the following general comments are provided:

- With very few exceptions, these constituents were not detected in any of the samples within the given parcel.

- Based on discussions with the analytical laboratory (CT&E Environmental Services, Inc.), it is believed that interferences within the soil matrix are the likely cause of the elevated detection limits, and that thus lower detection limits may not be attainable even if re-sampling and analysis were performed

- For several of the constituents in question, the Screening PRG is well below (more than two times lower than) its PQL as specified in Table 3 of the FSP/QAPP. As a result, for these constituents, even if the laboratory achieved the PQLs, the results would still not be low enough for comparison to the PRGs, and it may therefore be necessary to eliminate these constituents on the ground that they were not detected at the EPA-approved PQLs, or alternatively to adjust the Screening PRGs to correspond to the PQLs.

Given these factors, GE considers it unlikely that the non-detected VOC and SVOC constituents discussed above will dictate the need for response actions for soils within Newell Street Area I. As part of GE's RD/RA evaluations of non-PCB constituents in soils at the 20s, 30s, and 40s Complexes and the Future City Recreational Area, there was a similar occurrence of several non-detect VOCs and SVOCs where one-half the detection limits exceeded the applicable Screening PRGs. These instances are described in *GE's Conceptual Removal Design/Removal Action Work Plan for the 20s, 30s, and 40s Complexes* and its *Removal Design/Removal Action Work Plan for the Future City Recreational Area*, both of which were submitted to EPA in December 2001. As discussed in those work plans, GE will perform supplemental soil investigations at those areas to determine if and to what extent lower analytical reporting limits can be achieved, as well as the need for any further evaluations based on the supplemental sampling results. Specifically, within those areas, GE will collect additional samples at several previously sampled locations where the prior results generally exhibited elevated detection limits for the constituents in question. These samples will be submitted to the analytical laboratory for analysis of the specific VOCs and/or SVOCs that were affected by this issue, with instructions to achieve, to the extent possible, the PQLs specified in Table 3 of the FSP/QAPP. The results of the supplemental programs will then be reviewed to determine if and to what extent lower analytical reporting limits can be achieved, as well as the need for any further evaluations based on the supplemental sampling results. The results of the evaluations for those two areas will be provided to EPA by March 1, 2002.

In light of the above, GE proposes to defer any further evaluation of this analytical issue as it related to Newell Street Area I until the supplemental sampling and analysis (and related evaluations) identified for 20s, 30s, 40s Complexes and Future City Recreational Area are completed (by March 1, 2002). Some of the information expected to be obtained from those efforts will be applicable to Newell Street Area I, and can therefore be used to assess the need for and scope of any specific follow-up activities related to Newell Street Area I. Therefore, as discussed in Section 5 of this Work Plan, GE proposes to submit to EPA an evaluation related to this topic and, if warranted, a proposal for additional evaluations. Such an evaluation will be provided to EPA on the schedule presented in Section 7 of this Work Plan.

4.3.3 Sulfide Background Evaluation

The evaluation process established in the SOW and summarized in Section 4.2 of this Work Plan includes a comparison of Appendix IX+3 constituents (other than PCBs and dioxins/furans) to background conditions. If it can be demonstrated (through appropriate statistical means) that the concentration of a given constituent is consistent with background levels for the same constituent, that constituent can be eliminated from further evaluation. Attachment F to the SOW required that GE develop a background data assessment for soils, and it identified several sources of information (i.e., existing sampling data) to be used in preparing this assessment. GE submitted a *Background Soil Data Assessment for the GE-Pittsfield/Housatonic River Site* (Background Data Assessment) to EPA on December 15, 2000. Following submittal of the Background Data Assessment, and based on subsequent discussions with EPA, GE has elected to defer finalization of that document.

However, for purposes of the Appendix IX+3 assessments for Newell Street Area I, GE proposes to utilize background data to evaluate one specific constituent: sulfide. As previously mentioned, there is no EPA Region 9 PRG or MCP Method 1 soil standard for sulfide. In this situation, and based on the premise that sulfide is naturally occurring constituent, GE has developed a background data set for this one constituent for comparison to the sulfide soil data from Newell Street Area I.

Initially, to establish a background data set for sulfide, the sulfide data presented in the Background Data Assessment were considered. However, based on discussions with EPA subsequent to submittal of that document, the background data set for sulfide was modified. Specifically, background sampling data from floodplain areas upstream of the GE Plant that are in a predominantly downwind area of the City's former municipal trash incinerator have been excluded from the background data set. When incorporating this modification, the background data set available for sulfide consists of 80 sample results. This background data

set for sulfide is similar to the sulfide background data set presented in the recent RD/RA work plans for the 203, 30s, and 40s Complexes and the Future City Recreational Area (referenced above), except that since a portion of Newell Street Area I is located within the 10-year floodplain of the Housatonic River, the sulfide background data set utilized herein includes data from within the 10-year floodplain (excluding data downwind of the City's former incinerator).

At Newell Street Area I, sulfide was detected in soil samples collected from six parcels: J9-23-12, J9-23-13, J9-23-17, J9-23-19, J9-23-20, and J9-23-23. For each of these parcels, the maximum and median sulfide concentrations have been compared to the maximum and median concentrations from the background data set using the MDEP's summary statistics approach. This evaluation is summarized in Table 4-1. As shown in that table, neither the maximum nor median sulfide concentration in the soil data set for any of the parcels at which sulfide was detected exceeds the maximum or median concentration in the background data set. As a result, GE proposes to eliminate sulfide from further evaluation based on considerations related to background conditions.

4.3.4 Dioxin/Furan Data Assessment

To assess the need for response actions to address dioxin/furan compounds in soils at each parcel within Newell Street Area I, total TEQ concentrations were calculated for each dioxin/furan soil sample using the TEFs published by the WHO. In making these calculations, in accordance with the approach specified in an EPA letter to GE dated October 31, 2001, the concentrations of the individual dioxin/furan compounds that were not detected in a given sample were represented as one-half the analytical detection limit for such compounds. The maximum total TEQ concentrations for surface and subsurface soil were then compared to the applicable dioxin/furan PRGs specified in the SOW. For commercial/industrial properties, the maximum total TEQ concentrations for the 0- to 1-foot and 1- to 15-foot depths were compared to the industrial PRGs of 5 ppb for surface soil and 20 ppb for subsurface soil. For recreational properties, the maximum total TEQ concentrations for the 0- to 1-foot and 1- to 3-foot depth increments were compared to the recreational-area PRGs of 1 ppb for the top foot of soil and 1.5 ppb for the 1- to 3-foot depth increment. Where the maximum TEQ concentration exceeded the applicable PRG, the 95% UCL of the TEQ concentrations was calculated and compared to the PRG, as provided in the SOW.

4.3.5 Comparison to MCP Method 1 Soil Standards

For each constituent (other than dioxins/furans) that was not eliminated based on the prior evaluation steps, an average soil concentration (taking into account any PCB-related response actions) was calculated for comparison to the applicable MCP Method 1 soil standard for the parcel and depth increment in question. In calculating these average concentrations, non-detect sample results were represented as one-half the analytical detection limit.

To determine which set of Method 1 soil standards (i.e., S-1, S-2, or S-3) to use in these comparisons, an assessment was made based on the relevant MCP criteria. In general, these criteria require consideration of the property type, the accessibility of the soils (relative to their depth and presence of pavement and buildings), potential uses of the area(s) by adults and children, and the relative frequency and intensity of such use (see 310 CMR 40.0933). Newell Street Area I includes both commercial/industrial and recreational properties. A summary of the Method 1 soil standards selected for each property type is presented below.

For commercial/industrial properties, it was assumed that: (1) children are generally not present at the properties; (2) adult workers in the commercial operations would have a high frequency of use (based on the potential for such individuals to be present for 8 hours or more per day on a continuing basis), but would have low intensity of use, since such individuals would typically not be engaged in activities that would disturb the soil; and (3) if groundskeepers are present, they could have a high intensity of use, but would have a low frequency, since they would not be expected to engage in groundskeeping activities for full days on a continuing basis. Based on these considerations, the Method 1 S-2 soil standards were selected to apply to surface soils within the upper 3 feet of the parcel (i.e., the 0- to 1-foot depth increment and, for parcels subject to Conditional Solutions, the 0- to 3-foot depth increment). Category S-3 was then determined to apply to subsurface soils, including the 1- to 6-foot and 0- to 15-foot depth increments.

For recreational properties, it was conservatively assumed that both child and adult use of the parcels could occur, and that the potential frequency and intensity of such use could be "high" for soils in the top 3 feet. As a result, the Method 1 S-1 soil standards were selected to apply to soils located within the upper 3 feet of each such parcel (i.e., the 0- to 1-foot and 1- to 3-foot depth increments). For deeper soils, it was assumed that children would not have both a high frequency and high intensity of use; hence, the Method 1 S-2 standards were determined to apply to the 0- to 15-foot depth increment.

It should also be noted that the numerical values of the Method 1 soil standards can vary depending on the applicable MCP groundwater classification. For Newell Street Area I, two MCP groundwater classifications apply, depending on the specific location within the RAA: GW-2 groundwater is groundwater located within 15 feet of the ground surface and within 30 feet of occupied structures, while GW-3 groundwater applies to all areas within the RAA. For nearly all the constituents that are subject to this phase of the Appendix IX+3 evaluations at Newell Street Area I, the Method 1 soil standards for a given soil category are the same regardless of whether the groundwater is classified as GW-2 or GW-3. However, where there are differences, the more stringent soil standards were used.

4.3.6 Area-Specific Risk Evaluations

For a number of parcels at which the MCP Method 1 soil standards were exceeded for one or more Appendix IX+3 constituents, area-specific risk evaluations have been performed for the parcels. In this Work Plan, such area-specific risk evaluations have been performed for several commercial/industrial properties and one recreational property. In accordance with the procedures specified in the SOW for area-specific risk evaluations, these evaluations (where conducted) were performed for all constituents that were retained for evaluation prior to the comparison to MCP Method 1 soil standards, and were based on the same average concentrations of those constituents that were used in the comparisons to Method 1 standards. These evaluations were based on the same uses and exposure scenarios that were assumed in developing the applicable PCB Performance Standards, as set forth in EPA's PCB risk evaluation in Attachment A to Appendix D to the CD. For commercial/industrial parcels, these are the commercial/industrial groundskeeper scenario for the 0- to 1-foot depth increment (and, for parcels subject to Conditional Solutions, the 0- to 3-foot depth increment) and the utility worker scenario for the 1- to 6-foot depth increment. For the recreational property, the scenario evaluated is the child recreational user scenario for the 0- to 1-foot depth increment; and since EPA did not evaluate any specific exposure scenario for the 1- to 3-foot depth increment, the same child recreational user scenario was also applied to that increment to be conservative. In addition, these risk evaluations used the same exposure assumptions and parameter values that were used by EPA in Attachment A to Appendix D to the CD for developing the PCB Performance Standards for the applicable scenarios, except that for chemical-specific parameters (i.e., oral and dermal absorption factors), the evaluations used default values recommended by EPA or MDEP. The evaluations also used standard EPA cancer and non-cancer toxicity values -- i.e., Cancer Slope Factors (CSFs) and non-cancer Reference Doses (RfDs) -- as set forth on EPA's Integrated Risk Information System (IRIS), together with EPA's recommended TEFs for the carcinogenic PAHs. These EPA-accepted

exposure assumptions and toxicity values were used in these evaluations as a conservative measure and to avoid controversy, even though GE does not necessarily agree with those values.

Based on these inputs, the risk evaluations calculated a cumulative Excess Lifetime Cancer Risk (ELCR) for the retained carcinogenic constituents and a Hazard Index (HI) for the retained constituents with non-cancer RfDs. The resulting ECLR and HI were then compared with the benchmarks set forth in the SOW of 1×10^{-5} for cancer risks and a HI of 1.0 for non-cancer impacts.

For properties where lead was retained (which include only certain commercial/industrial parcels), a different procedure had to be used since there are no EPA-prescribed toxicity values for lead. In accordance with EPA guidance, lead was evaluated through the use of a conservative model developed by EPA, which assumes that a pregnant woman is exposed to lead in soil at the site and predicts the blood lead level in her fetus. For Newell Street Area I, this model was applied to back-calculate a soil lead concentration that would be associated with a fetal blood lead level of 10 µg/dl, which is EPA's maximum allowable blood lead level for a child (including a fetus). This approach is very conservative for these properties since the EPA model assumes a default exposure frequency of 219 days/year, which is much greater than the exposure frequencies assumed by EPA in evaluating the commercial/industrial groundskeeper and utility worker scenarios for the CD Site. Using this model, a risk-based concentration (RBC) of 1,750 ppm for lead in soil at commercial/industrial properties was derived. That RBC was then compared to the average lead concentration in each soil depth increment at each parcel where lead was retained. If the average lead concentration is below that RBC, it was concluded that it would not present a hazard to workers at the parcel.

These area-specific risk evaluations are described and the results presented in Appendix C to this Work Plan, which was prepared at GE's request by GE's risk assessment consultants at AMEC Earth & Environmental. The results are summarized, where applicable, in the property-specific evaluations presented in Section 4.4 below.

Finally, it should be noted that EPA's PCB risk evaluation in Attachment A to Appendix D to the CD does not contain any exposure scenario or calculations for the 0- to 15-foot depth increment. Accordingly, there is no applicable risk evaluation scenario for that depth increment. Instead, since the applicable PCB Performance Standard for that depth increment (100 ppm) is the MCP Upper Concentration Limit (UCL) for PCBs in soil, the average concentration of each of retained non-PCB constituents for the 0- to 15-foot depth increment at each parcel subject to an area-specific risk evaluation has been compared to the UCL for that constituent.

4.3.7 Backfill/Soil Cover Characteristics

In accordance with the CD and SOW, for response actions that involve soil removal (to address either PCBs or other Appendix IX+3 constituents), the various soil samples affected by the response actions are considered to be removed from the site and replaced with an equal volume of backfill material. To represent the effect of this activity, the backfill materials are assumed to contain concentrations of organic constituents at one-half the detection limit and concentrations of inorganic constituents consistent with those detected in representative samples of the backfill material. For the response actions identified herein, the actual source of backfill materials, and the corresponding analytical characterization data, have not yet been determined. Therefore, for the purposes of the evaluations presented in this Work Plan, sampling data consistent with backfill sources previously used by GE for other remedial projects has been used. In instances where data was not available for a particular constituent, a concentration equal to ½ the typical detection limits associated with the pre-design sampling data was assumed.

Future RD/RA activities related to Newell Street Area I will include the identification and characterization of potential sources of backfill and soil cover material. Such activities will be conducted in accordance with the *Soil Cover/Backfill Characterization Plan*, which was submitted to EPA in January 2001 as part of the Project Operations Plan (an addendum to the POP was subsequently provided to EPA on October 19, 2001 and was approved by EPA on January 2, 2002). Once a source(s) of such material(s) has been selected, GE will review the sampling data for such material(s) to confirm that those data are generally consistent with the concentrations of Appendix IX+3 constituents assumed in this Work Plan to be present in the soil cover/backfill material.

4.4 Summary of Appendix IX+3 Evaluations

This section applies the Performance Standards and related evaluations for Appendix IX+3 constituents to the soils present within each parcel at Newell Street Area I. As previously indicated, this evaluation process builds upon the results of evaluations related to the presence of PCBs within each parcel. Specifically, as summarized in Section 3, it is anticipated that response actions will be necessary to address PCBs in soils at the following parcels:

- J9-23-12
- J9-23-13
- J9-23-16
- J9-23-17
- J9-23-21
- J9-23-22
- J9-23-23
- J9-23-24
- J9-23-25

Based on the anticipated PCB response actions for these parcels, the Appendix IX+3 data set has been adjusted as necessary and is presented in tables in this section. At Parcels J9-23-18, J9-23-19, J9-23-20, and J9-23-26, the PCB evaluations to date indicate that there is no need for response actions to address PCB-containing soils, so the entire Appendix IX+3 data set for these properties was subject to the evaluations presented herein.

In some cases, the Appendix IX+3 evaluations of specific parcels have identified the need for additional data. These data needs are noted in the individual evaluation sections below. Proposed investigations to address these data needs are described in Section 5.

4.4.1 Parcel J9-23-12

Parcel J9-23-12 is a GE-owned recreational property that is located immediately adjacent to and south of the Housatonic River. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill have been identified for the non-riverbank portion of the parcel to achieve the applicable PCB Performance Standards for this parcel. Based on the anticipated PCB response actions, the Appendix IX+3 data set has been adjusted accordingly, as summarized in Table 4-2. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2 above. A summary follows.

4.4.1.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for soils in residential areas, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The adjusted Appendix IX+3 data for Parcel J9-23-12 (Table 4-2) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-3 identifies the detected constituents and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs, and were therefore subject to further evaluation:

- Benzo(a)anthracene;
- Benzo(a)pyrene;
- Benzo(b)fluoranthene; and
- Arsenic.

As specified in the SOW, comparisons to the Screening PRGs were made using the maximum concentration of each constituent detected in soil. However, within Parcel J9-23-12, there were several VOC and SVOC results in which the constituents were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents (excluding the retained constituents identified above) are listed in Table 4-4. As previously discussed in Section 4.3.2 of this Work Plan, the constituents identified in that table will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.1.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-12, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 3-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for recreational areas (i.e., 1 ppb for the top foot of soil and 1.5 ppb for the 1- to 3-foot depth increment). This comparison is presented in Table 4-5. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-12.

4.4.1.3 Comparison to MCP Method 1 Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-12 are the S-1 standards for the 0- to 1-foot and 1- to 3-foot depth increments and the S-2 standards for the 0- to 15-foot depth increment.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 1- to 3-foot, and 0- to 15-foot depth increments. For the 0- to 1-foot and 0- to 15-foot depth increments, the available Appendix IX+3 data were used to calculate an arithmetic average concentration for each of the retained constituents. For the 1- to 3-foot depth increment, there were no Appendix IX+3 data remaining after the anticipated performance of the response actions to address PCBs, and hence the average concentrations of the retained constituents in that depth increment are assumed to be equal to the concentrations in the clean backfill material. For the remaining depth increments, the average concentrations of the retained constituents have been compared to the applicable Method 1 soil standards, as shown in Tables 4-6 and 4-7. For both depth increments, the average concentrations of all retained constituents are below the applicable Method 1 soil standards.

Based on the evaluations summarized above (and subject to the re-evaluation for non-detected VOC/SVOC constituents with elevated detection limits), no response actions other than those identified for PCBs are required for the soils within Parcel J9-23-12.

4.4.2 Parcel J9-23-13

Parcel J9-23-13 is a commercial/industrial property for which the property owner has declined to agree to an ERE. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill have been identified to achieve the applicable PCB Performance Standards for this parcel. As a result, the Appendix IX+3 data set for this parcel has been adjusted accordingly, as summarized in Table 4-8. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2 above. A summary follows.

4.4.2.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for soils in industrial areas, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The adjusted Appendix IX+3 data for Parcel J9-23-13 (Table 4-8) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-9 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs, and are therefore retained for further evaluation:

- Benzo(a)pyrene;
- Dibenzo(a,h)anthracene; and
- Arsenic.

In addition, at Parcel J9-23-13, there were several VOCs and SVOCs that were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-10. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.2.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-13, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial properties (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-11. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-13.

4.4.2.3 Comparison to MCP Method 1 Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP

Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-13 are the S-2 standards for the 0- to 1-foot and 0- to 3-foot depth increments and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. For each of these depth increments, arithmetic average concentrations were calculated for the retained constituents and compared to the applicable Method 1 soil standards. The results of these comparisons for the relevant depth increments are summarized in Tables 4-12, 4-13, 4-14, and 4-15. As shown in these tables, the arithmetic averages for all constituents retained for evaluation are below the applicable Method 1 soil standards for each of the depth increments.

Based on the Appendix IX+3 evaluations summarized above (and subject to the re-evaluation for non-detected constituents with elevated detection limits), no response actions other than those identified for PCBs are required for the soils within Parcel J9-23-13.

4.4.3 Parcel J9-23-16

Parcel J9-23-16 is a commercial/industrial property owned by GE. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill have been identified to achieve the applicable PCB Performance Standards for this parcel, subject to potential modification based on the proposed sampling of soil beneath the existing building (see also Section 5). Based on these anticipated PCB response actions, the Appendix IX+3 data set has been adjusted accordingly, as summarized in Table 4-16. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2 above. A summary follows.

4.4.3.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to the Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The adjusted Appendix IX+3 data for Parcel J9-23-16 (Table 4-16) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-17 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs, and were therefore retained for additional evaluation:

- Benzo(a)pyrene;
- Dibenzo(a,h)anthracene;
- Arsenic; and
- Lead.

Separate from the constituents identified above, there were several VOCs and SVOCs that were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-18. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.3.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-16, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial properties (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-19. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-16.

4.4.3.3 Comparison to MCP Method 1 Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3

evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-16 are the S-2 standards for the 0- to 1-foot depth increment and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 1- to 6-foot, and 0- to 15-foot depth increments. For each of these depth increments, the available Appendix IX+3 data were used to calculate an arithmetic average concentration for each of the retained constituents, and those average concentrations were then compared with the applicable Method 1 soil standards. These comparisons are summarized in Tables 4-20, 4-21, and 4-22, respectively. As shown in Table 4-20, for the 0- to 1-foot depth increment, none of the retained constituents had average concentrations exceeding the applicable Method 1 soil standards. However, as shown in Tables 4-21 and 4-22, for the 1- to 6-foot and 0- to 15-foot depth increments, lead had average concentrations exceeding the applicable Method 1 soil standard.

Given these exceedances of the Method 1 soil standard for lead in the subsurface soil, GE has elected to have an area-specific risk evaluation conducted for this parcel. That evaluation is discussed in the next section.

4.4.3.4 Area-Specific Risk Evaluation

In accordance with the protocols specified in the SOW, an area-specific risk evaluation has been performed for Parcel J9-23-16, based on the average concentrations of all constituents that were retained for evaluation prior to the comparison to the MCP Method 1 soil standards. The procedures used in this evaluation were described in Section 4.3.6 above, and the results are presented in Appendix C to this Work Plan (prepared by AMEC).

For the 0- to 1-foot depth increment, based on the same groundskeeper scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 5.4×10^{-7}, and the Hazard Index for the only retained constituent with a non-cancer RfD (arsenic) is 0.0015. For the 1- to 6-foot depth increment, based on the same utility worker scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 2.7×10^{-7}, and the HI for arsenic is 0.0005. All of these values are well below the SOW benchmarks of an ELCR of 1×10^{-5} and an HI of 1.0. Further, as shown in Appendix C, the average lead concentrations in both depth increments are below the model-derived RBC of 1,750 ppm for lead in soil at commercial/industrial properties.

In addition, for the 0- to 15-foot depth increment, for which EPA's PCB risk evaluation does not contain any exposure scenario, the average concentrations of all retained constituents are well below the applicable MCP UCLs, as shown in Table 4-23.

Thus, based on the area-specific risk evaluation, no additional response actions appear to be necessary at Parcel J9-23-16 beyond the response actions to address PCBs. However, this conclusion is subject to modification based on the re-evaluation regarding certain non-detected VOC/SVOC constituents that had elevated detection limits.

4.4.4 Parcel J9-23-17

Parcel J9-23-17 is a recreational property for which the property owner has agreed to execute an ERE. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill, as well as the installation of an engineered barrier, have been identified to achieve the applicable PCB Performance Standards for this parcel. Based on these anticipated response actions, the Appendix IX+3 data set has been adjusted accordingly, as summarized in Table 4-24. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2 above. A summary follows.

4.4.4.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for residential soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The adjusted Appendix IX+3 data for Parcel J9-23-17 (Table 4-24) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-25 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in Table 4-25, the following constituents have maximum detected concentrations that exceed the Screening PRGs and were therefore retained for further evaluation:

- Benzo(a)anthracene;
- Benzo(a)pyrene;
- Benzo(b)fluoranthene;
- Indeno(1,2,3-cd)pyrene; and
- Arsenic.

In addition, at Parcel J9-23-17, there were several VOCs and SVOCs that were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-26. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.4.2 Dioxin/Furan Data Assessment

At Parcel J9-23-17, there are no usable dioxin/furan data, since the analytical results for all samples collected for dioxin/furan analysis during the pre-design investigation were rejected due to a statement by the laboratory that these data should be used for screening purposes at best (as discussed in GE's Supplemental Data Validation/Assessment Report for Newell Street Area I, submitted in July 2001). Based on the dioxin/furan results for all other parcels at Newell Street Area I, which show no exceedances of the applicable dioxin/furan PRGs, it seems unlikely that there would be any exceedances at Parcel J9-23-17. Nevertheless, eight additional soil samples will be collected at this parcel -- from the 0- to 1-foot and 1- to 3-foot depth increments at four locations that are not subject to PCB-related response actions -- and will be submitted for dioxin/furan analysis. This sampling and analysis effort is described further in Section 5. Total TEQ concentrations will then be calculated for each sample, and the maximum TEQ concentration (or 95% UCL) for each depth increment will be compared to the applicable PRGs to determine if any response actions to address dioxins/furans are necessary at Parcel J9-23-17.

4.4.4.3 Comparison to MCP Method 1 Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP

Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-17 are the S-1 standards for the 0- to 1-foot and 1- to 3-foot depth increments and the S-2 standards for the 0- to 15-foot depth increment.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 1- to 3-foot, and 0- to 15-foot depth increments. For each of these depth increments, arithmetic average concentrations were calculated for the retained constituents (after incorporating the anticipated performance of the PCB-related response actions), and those average concentrations were compared to the applicable Method 1 soil standards. Tables 4-27 through 4-29 present the average concentrations for the retained Appendix IX+3 constituents for these depth increments, and a comparison of these averages to the corresponding Method 1 soil standards.

As shown in Table 4-27, for the 0- to 1-foot depth increment, none of the retained constituents has an average concentration exceeding the applicable Method 1 soil standards. As shown in Table 4-28, for the 1- to 3-foot depth increment, four PAH constituents have average concentrations exceeding the applicable Method 1 soil standards (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene). As shown in Table 4-29, for the 0- to 15-foot depth increment, none of the retained constituents has an average concentration exceeding the applicable Method 1 soil standards.

Given the exceedances of the Method 1 soil standards for several PAHs in the 1- to 3-foot depth increment, GE has elected to have an area-specific risk evaluation conducted for this parcel. That evaluation is discussed in the next section.

4.4.4.4 Area-Specific Risk Evaluation

In accordance with the protocols specified in the SOW, an area-specific risk evaluation has been performed for Parcel J9-23-17, based on the average concentrations of all constituents that were retained for evaluation prior to the comparison to the MCP Method 1 soil standards. The procedures used in this evaluation were described in Section 4.3.6 above, and the results are presented in Appendix C to this Work Plan (prepared by AMEC).

Since this is a recreational property, the child recreational user scenario developed by EPA to support the PCB Performance Standards for recreational properties was applied to the 0- to 1-foot depth increment and also, as a conservative measure, to the 1- to 3-foot depth increment (for which EPA did not present any specific risk

calculations). For the 0- to 1-foot depth increment, the cumulative ELCR for the retained carcinogenic constituents is 1.6×10^{-6}, and the Hazard Index for the only retained constituent with a non-cancer RfD (arsenic) is 0.018. For the 1- to 3-foot depth increment, the cumulative ELCR for the retained carcinogenic constituents is 4.8×10^{-6}, and the HI for arsenic is 0.024. All of these values are below the SOW benchmarks of an ELCR of 1×10^{-5} and an HI of 1.0.

In addition, for the 0- to 15-foot depth increment, for which EPA's PCB risk evaluation does not contain any exposure scenario, the average concentrations of all retained constituents are far below the applicable MCP UCLs, as shown in Table 4-30.

Thus, based on the area-specific risk evaluation, no additional response actions appear to be necessary at Parcel J9-23-17 beyond the response actions to address PCBs. However, this conclusion is subject to modification based both on the evaluation regarding certain non-detected VOC/SVOC constituents that had elevated detection limits and on the results of the additional sampling for dioxins/furans.

4.4.5 Parcel J9-23-18

Parcel J9-23-18 is a commercial/industrial property for which the property owner has declined to agree to an ERE. As discussed in Section 3 of this Work Plan, no response actions are necessary at this parcel to achieve the applicable PCB Performance Standards. As a result, the evaluation of Appendix IX+3 constituents in soil at Parcel J9-23-18 has been performed using all available Appendix IX+3 data from this parcel, which are summarized in Table 4-31. A summary of this evaluation follows.

4.4.5.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The available Appendix IX+3 data for Parcel J9-23-18 (Table 4-31) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-32 identifies each detected constituent and

provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs and were therefore retained for further evaluation:

- Benzo(a)anthracene;
- Benzo(a)pyrene;
- Benzo(b)fluoranthene;
- Dibenzo(a,h)anthracene;
- Arsenic; and
- Lead.

In addition, at Parcel J9-23-18, there were several VOC/SVOC results in which the constituents were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents (excluding the retained constituents identified above) are listed in Table 4-33. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.5.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-18, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-34. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-18.

4.4.5.3 Comparison to MCP Method 1 Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-18 are the S-2 standards for the 0- to 1- and 0- to 3-foot depth increments and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation are the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. However, for this parcel, there are no available Appendix IX+3 data for the 1- to 6-foot depth. Hence, an average concentration could not be calculated for that depth increment. As discussed in Section 5, this data gap will be addressed by the collection of soil samples from the 1- to 3-foot and 3- to 6-foot depth increments at 2 locations on this parcel (4 total samples) for analysis for Appendix IX+3 constituents. In the meantime, a preliminary evaluation has been made of the remaining depth increments.

For the 0- to 1-foot depth increment, arithmetic averages were calculated for the retained constituents and compared to the applicable Method 1 soil standards. This comparison is presented in Table 4-35. As shown in that table, this comparison indicates exceedances of the applicable Method 1 soil standards for benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene. For the 0- to 3-foot depth increment, given the absence of Appendix IX+3 data from the 1- to 3-foot depth, the average concentrations are the same as those shown in Table 4-35 for the 0- to 1-foot depth increment. However, these average concentrations will be recalculated based on the results of the additional sampling from the 1- to 3-foot depth.

For the 0- to 15-foot depth increment, arithmetic averages were calculated for the retained constituents, based on existing data, and compared to the applicable Method 1 soil standards. This comparison is presented in Table 4-36 and shows an exceedance of the Method 1 soil standard for benzo(a)pyrene. However, these averages will be recalculated based on the results of the additional sampling for the 1- to 3-foot and 3- to 6-foot depth increments.

Given the exceedances of the Method 1 soil standards in the depth increments evaluated, GE has elected to have an area-specific risk evaluation conducted for Parcel J9-23-18. That evaluation is discussed in the next section.

4.4.5.4 Area-Specific Risk Evaluation

Given the absence of Appendix IX+3 data from the 1- to 6-foot depth increment at Parcel J9-23-18, an area-specific risk evaluation was performed only for the 0- to 1-foot depth increment, based on the average concentrations of all constituents that were retained for evaluation for that depth increment prior to the comparison to the MCP Method 1 soil standards. The procedures used in this evaluation were as described in Section 4.3.6 above, except that this evaluation was limited to the groundskeeper scenario. The results of this evaluation are presented in Appendix C to this Work Plan (prepared by AMEC).

For the 0- to 1-foot depth increment, based on the same groundskeeper scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 2.2×10^{-6}, and the Hazard Index for the only retained constituent with a non-cancer RfD (arsenic) is 0.002. Both of these values are below the SOW benchmarks of an ELCR of 1×10^{-5} and an HI of 1.0. Further, as shown in Appendix C, the average lead concentration for the 0- to 1-foot depth increment is well below the model-derived RBC for lead in soil.

Thus, based on this area-specific risk evaluation, no response actions appear to be necessary for the 0- to 1-foot depth increment at Parcel J9-23-18 to address non-PCB constituents.

Following receipt of the supplemental sampling data for the 1- to 6-foot depths at this parcel, it will be possible to complete an area-specific risk evaluation for the 0- to 3-foot depth increment (based on the groundskeeper scenario) and the 1- to 6-foot depth increment (based on the utility worker scenario). In addition, for the 0- to 15-foot depth increment, for which EPA's PCB risk evaluation does not contain any exposure scenario, the average concentrations of all retained constituents will be compared to the applicable MCP UCLs.

4.4.6 Parcel J9-23-19

Parcel J9-23-19 is one of three adjacent commercial/industrial parcels which are owned by the same owner and for which the owner has declined to agree to an ERE. In accordance with the SOW, these three parcels are considered separate averaging areas and hence have been evaluated individually. For Parcel J9-23-19, as discussed in Section 3 of this Work Plan, no response actions are necessary to achieve the applicable PCB Performance Standards. As a result, the evaluation of Appendix IX+3 constituents in soil at this parcel has been performed using all available Appendix IX+3 data from the parcel, which are summarized in Table 4-37. A summary of this evaluation follows.

4.4.6.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The available Appendix IX+3 data for Parcel J9-23-19 (Table 4-37) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-38 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs and were therefore retained for further evaluation:

- Benzo(a)anthracene;
- Benzo(a)pyrene;
- Benzo(b)fluoranthene;
- Benzo(k)fluoranthene;
- Dibenzo(a,h)anthracene;
- Indeno(1,2,3-cd)pyrene;
- Phenanthrene;
- Arsenic; and
- Lead.

In addition, at Parcel J9-23-19, there were several VOCs and SVOCs that were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-39. As previously discussed in this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.6.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-19, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-40. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-19.

4.4.6.3 Comparison to MCP Method 1 Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-19 are the S-2 standards for the 0- to 1- and 0- to 3-foot depth increments and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. For this parcel, these evaluations were conducted sequentially, as appropriate, taking into account the outcome of any anticipated response actions to address Appendix IX+3 constituents in shallower depth increments.

For the 0- to 1-foot depth increment, arithmetic average concentrations were calculated for the retained constituents, and those average concentrations were compared to the applicable Method 1 soil standards. The results of this comparison are presented in Table 4-41. As shown in that table, the average concentrations for the retained PAHs (except phenanthrene) are quite high and substantially exceed the applicable Method 1 standards. As a next step, the highest sample results for these PAHs were identified. The two samples from the 0- to 1-foot depth increment with the highest concentrations of these PAHs are samples J9-23-19-H-13 and J9-23-19-I-13. Removal of the soil associated with those two samples would substantially reduce the average concentrations of the PAHs. Based on the removal of the data from those samples from the spreadsheet

calculations and their replacement with data representative of clean backfill material, average concentrations of the retained constituents were recalculated. Those recalculated averages are presented in Table 4-42. As shown in that table, the recalculated average concentrations of three PAHs - benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene – still exceed the applicable Method 1 standards, but only by a small amount. Accordingly, GE has elected to have an area-specific risk evaluation conducted for this parcel based on the assumed removal of the soil associated with the two samples identified above and thus based on the recalculated average concentrations shown in Table 4-42. This risk evaluation is discussed in Section 4.4.6.4.

For the 0- to 3-foot depth increment, arithmetic average concentrations of the retained constituents were calculated after incorporating the assumed removal of the top foot of soil associated with the two above-mentioned 0- to 1-foot samples. Those average concentrations are shown in Table 4-43 in comparison to the applicable Method 1 soil standards. As shown in that table, several constituents have average concentrations in the 0- to 3-foot depth increment that exceed their Method 1 soil standards: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and lead. As a next step, the sample from the 1- to 3-foot depth increment with the highest concentrations of these constituents was identified. That sample is J9-23-19-H-12. Removal of the soil associated with this sample would substantially reduce the average concentrations of the retained constituents for the 0- to 3-foot depth increment. Based on the removal of the data from that sample (as well as the two surface soil samples discussed in the prior paragraph) from the spreadsheet calculations and their replacement with data representative of clean backfill material, average concentrations of the retained constituents were recalculated. Those recalculated averages are presented in Table 4-44. As shown in that table, the recalculated average concentrations of three PAHs – benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene – still exceed the applicable Method 1 standards, but not by much. The recalculated average concentrations of the retained constituents for the 0- to 3-foot depth increment (based on the assumed removal of the soil associated with the three samples mentioned above) were included in the area-specific risk evaluation.

For the 1- to 6-foot depth increment, arithmetic averages were calculated for the retained constituents after taking into account the assumed removal of the soil (1- to 3-foot depth) associated with sample J9-23-19-H-12, and those average concentrations were compared to the applicable Method 1 soil standards. The results of this comparison are presented in Table 4-45. This comparison indicates an exceedance of the Method 1 standard for benzo(a)pyrene only. The retained constituents for this depth increment were also included in the area-specific risk evaluation, based on the average concentrations shown in Table 4-45.

For the 0- to 15-foot depth increment, arithmetic average concentrations were calculated after incorporating the assumed removal of the top foot of soil associated with samples J9-23-19-H-13 and J9-23-19-I-13 and the assumed removal of the top 3 feet of soil associated with sample J9-23-19-H-12. These average concentrations are shown in Table 4-46 in comparison to the applicable Method 1 standards. As shown in that table, the only exceedance of the Method 1 standards for this depth increment is for benzo(a)pyrene. The retained constituents for this depth increment have been evaluated in the area-specific risk evaluation through comparison to the MCP UCLs.

4.4.6.4 Area-Specific Risk Evaluation

For Parcel J9-23-19, an area-specific risk evaluation has been performed based on the assumption that the top foot of soils associated with samples J9-23-19-H-13 and J9-23-19-I-13, as well as the top 3 feet of soil associated with sample J9-23-19-H-12, will be removed. This risk evaluation considered all constituents that were retained for evaluation prior to the comparison to the MCP Method 1 soil standards and was based on the recalculated average concentrations of those constituents for each depth increment after incorporating the anticipated removal of the soils associated with the three above-mentioned samples. The procedures used in this evaluation were described in Section 4.3.6 above, and the results are presented in Appendix C to this Work Plan (prepared by AMEC).

For the 0- to 1-foot depth increment, based on the groundskeeper scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 1.9×10^{-6}, and the Hazard Index for the retained constituents with non-cancer RfDs is 0.002. For the 0- to 3-foot depth increment, again based on that same groundskeeper scenario, the cumulative ELCR for the retained carcinogenic constituents is 2.4×10^{-6}, and the Hazard Index for the non-carcinogenic constituents is 0.002. For the 1- to 6-foot depth increment, based on the utility worker scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 9.5×10^{-7}, and the HI for the non-carcinogenic constituents is 0.0006. All of these values are well below the SOW benchmarks of an ELCR of 1×10^{-5} and an HI of 1.0. Further, as shown in Appendix C, the average post-removal lead concentrations for all three depth increments are far below the model-derived RBC for lead in soil.

In addition, for the 0- to 15-foot depth increment, for which EPA's PCB risk evaluation does not contain any exposure scenario, the recalculated average concentrations of all retained constituents are far below the applicable MCP UCLs, as shown in Table 4-47.

In summary, it appears that, for Parcel J9-23-19, soil removal and replacement will be necessary for the top foot of soils associated with samples J9-23-19-H-13 and J9-23-19-I-13 and for the top 3 feet of soils associated with sample J9-23-19-H-12. To assist in defining the limits of such soil removal/replacement, GE is proposing to conduct additional soil sampling around those sample locations. The scope of this proposed sampling effort is discussed in Section 5. Beyond those response actions, it appears, based on the area-specific risk evaluation described above, that no other response actions are necessary at Parcel J9-23-19 to address non-PCB Appendix IX+3 constituents. However, this conclusion is subject to modification based on the re-evaluation regarding certain non-detected VOC/SVOC constituents that had elevated detection limits.

4.4.7 Parcel J9-23-20

Parcel J9-23-20 is another of the three adjacent commercial/industrial parcels that are commonly owned and for which the property owner has declined to agree to an ERE. As discussed in Section 3 of this Work Plan, no response actions are necessary to achieve the applicable PCB Performance Standards for this parcel. As a result, the evaluation of Appendix IX+3 constituents in soil for this parcel has been performed using all available Appendix IX+3 data from this parcel, which are summarized in Table 4-48. A summary of this evaluation follows.

4.4.7.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The available Appendix IX+3 data for Parcel J9-23-20 (Table 4-48) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-49 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs and were therefore retained for further evaluation:

- Vinyl chloride;

- 1,4-Dichlorobenzene;
- Benzo(a)anthracene;
- Benzo(a)pyrene;
- Benzo(b)fluoranthene;
- Dibenzo(a,h)anthracene;
- Indeno(1,2,3-cd)pyrene;
- Arsenic; and
- Lead.

In addition, at Parcel J9-23-20, there were several VOC and SVOC sample results in which the constituents were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents (excluding the retained constituents identified above) are listed in Table 4-50. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.7.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-20, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-51. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-20.

4.4.7.3 Comparison to MCP Method 1 Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP

Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-20 are the S-2 standards for the 0- to 1- and 0- to 3-foot depth increments and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. For each of these depth increments, arithmetic average concentrations were calculated for the retained constituents based on the available Appendix IX+3 data from this parcel, and the average concentrations were compared to the applicable Method 1 soil standards. The results of these comparisons are presented in Tables 4-52, 4-53, 4-54, and 4-55 for the four above-listed depth increments, respectively. As shown in those tables, there were no exceedances of the Method 1 soil standards in either the 0- to 1-foot or 0- to 3-foot depth increments. However, in the 1- to 6-foot and 0- to 15-foot depth increments, the average concentrations of one constituent -- benzo(a)pyrene -- exceeded the applicable Method 1 standard. Accordingly, GE has elected to have an area-specific risk evaluation conducted for this parcel, as described in the next section.

4.4.7.4 Area-Specific Risk Evaluation

In accordance with the protocols specified in the SOW, an area-specific risk evaluation has been performed for Parcel J9-23-20, based on the average concentrations of all constituents that were retained for evaluation prior to the comparison to the MCP Method 1 soil standards. The procedures used in this evaluation were described in Section 4.3.6 above, and the results are presented in Appendix C to this Work Plan (prepared by AMEC).

For the 0- to 1-foot depth increment, based on the groundskeeper scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 5.3×10^{-7}, and the Hazard Index for the retained constituents with non-cancer RfDs is 0.001. For the 0- to 3-foot depth increment, again based on that same groundskeeper scenario, the cumulative ELCR for the retained carcinogenic constituents is 5.8×10^{-7}, and the HI for the retained constituents with non-cancer RfDs is 0.002. For the 1- to 6-foot depth increment, based on the utility worker scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 8.9×10^{-7}, and the HI for the non-carcinogenic constituents is 0.0005. All of these values are below the SOW benchmarks of an ELCR of 1×10^{-5} and an HI of 1.0. Further, as shown in Appendix C, the average lead concentrations for all three depth increments are well below the model-derived RBC for lead in soil.

In addition, for the 0- to 15-foot depth increment, for which EPA's PCB risk evaluation does not contain any exposure scenario, the average concentrations of all retained constituents are far below the applicable MCP UCLs, as shown in Table 4-56.

In summary, based on the above evaluations (and subject to the re-evaluation of the non-detected VOCs and SVOCs that had elevated detection limits), it appears that no response actions will be necessary at Parcel J9-23-20 to address non-PCB Appendix IX+3 constituents.

4.4.8 Parcel J9-23-21

Parcel J9-23-21 is the third of the three adjacent commercial/industrial parcels that are commonly owned and for which the property owner has declined to agree to an ERE. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill have been identified to achieve the applicable PCB Performance Standards for this parcel. Based on these anticipated response actions, the Appendix IX+3 data set has been adjusted accordingly and is summarized in Table 4-57. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2 above. A summary follows.

4.4.8.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRGs. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The adjusted Appendix IX+3 data for Parcel J9-23-21 (Table 4-57) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-58 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs and were therefore retained for further evaluation:

- Benzo(a)pyrene;

- Dibenzo(a,h)anthracene; and
- Arsenic.

In addition, at Parcel J9-23-21, there were a few SVOCs that were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-59. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.8.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-21, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-60. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-21.

4.4.8.3 Comparison to MCP Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-21 are the S-2 standards for the 0- to 1-foot and 0- to 3-foot depth increments and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation are the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. However, for this parcel, as at Parcel J9-23-18, there are no available Appendix IX+3 data for the 1- to 6-foot depth. Hence, an

average concentration could not be calculated for that depth increment. As discussed in Section 5, this data gap will be addressed by the collection of soil samples from the 1- to 3-foot and 3- to 6-foot depth increments at 2 locations on this parcel (4 total samples) for analysis for Appendix IX+3 constituents. In the meantime, a preliminary evaluation has been made of the remaining depth increments.

For the 0- to 1-foot depth increment, arithmetic averages were calculated for the retained constituents and compared to the applicable Method 1 soil standards. This comparison is presented in Table 4-61. As shown in that table, this comparison indicates a slight exceedance of the applicable Method 1 soil standard for benzo(a)pyrene. For the 0- to 3-foot depth increment, given the absence of Appendix IX+3 data from the 1- to 3-foot depth, the average concentrations are the same as those shown in Table 4-61 for the 0- to 1-foot depth increment. However, these average concentrations will be recalculated based on the results of the additional sampling from the 1- to 3-foot depth.

For the 0- to 15-foot depth increment, arithmetic averages were calculated for the retained constituents, based on existing data, and compared to the applicable Method 1 soil standards. This comparison is presented in Table 4-62 and shows no exceedances of the Method 1 soil standards. However, these averages will be recalculated based on the results of the additional sampling for the 1- to 3-foot and 3- to 6-foot depth increments.

Given the exceedance of the Method 1 soil standard for benzo(a)pyrene in the 0- to 1-foot depth increment evaluated, GE has elected to have an area-specific risk evaluation conducted for Parcel J9-23-21. That evaluation is discussed in the next section.

4.4.8.4 Area-Specific Risk Evaluation

Given the absence of Appendix IX+3 data from the 1- to 6-foot depth increment at Parcel J9-23-21, an area-specific risk evaluation was performed only for the 0- to 1-foot depth increment, based on the average concentrations of all constituents that were retained for evaluation for that depth increment prior to the comparison to the MCP Method 1 soil standards. The procedures used in this evaluation were as described in Section 4.3.6 above, except that this evaluation was limited to the groundskeeper scenario. The results of this evaluation are presented in Appendix C to this Work Plan (prepared by AMEC). For the 0- to 1-foot depth increment, based on the same groundskeeper scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 1.3×10^{-6}, and the Hazard Index for the only retained

constituent with a non-cancer RfD (arsenic) is 0.003. Both of these values are below the SOW benchmarks of an ELCR of 1 x 10^{-5} and an HI of 1.0.

Thus, based on this area-specific risk evaluation, no response actions appear to be necessary for the 0- to 1-foot depth increment at Parcel J9-23-21 beyond the response actions to address PCBs.

Following receipt of the supplemental sampling data for the 1- to 6-foot depths at this parcel, it will be possible to complete an area-specific risk evaluation for the 0- to 3-foot depth increment (based on the groundskeeper scenario) and the 1- to 6-foot depth increment (based on the utility worker scenario). In addition, for the 0- to 15-foot depth increment, for which EPA's PCB risk evaluation does not contain any exposure scenario, the average concentrations of all retained constituents will be compared to the applicable MCP UCLs.

4.4.9 Parcel J9-23-22

Parcel J9-23-22 is a commercial/industrial property for which the property owner has declined to agree to an ERE. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill have been identified to achieve the applicable PCB Performance Standards for this parcel. Based on these anticipated response actions, the Appendix IX+3 data set has been adjusted accordingly, and is summarized in Table 4-63. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2. A summary follows.

4.4.9.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2

The adjusted Appendix IX+3 data for Parcel J9-23-22 (Table 4-63) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-64 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in

that table, only one constituent (arsenic) has a maximum detected concentration that exceeds the Screening PRG. Hence, that constituent was retained for further evaluation.

However, at Parcel J9-23-22, there were a few SVOCs that were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-65. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.9.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-22, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-66. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-22.

4.4.9.3 Comparison to MCP Soil Standards

For the Appendix IX+3 constituent retained for further evaluation (arsenic), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for that constituent to its MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-22 are the S-2 standards for the 0- to 1-foot and 0- to 3-foot depth increments and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. For this parcel, there are no available Appendix IX+3 data for depths greater than 6 feet. As discussed in Section 5, this data gap will be addressed by the collection of additional samples from the 6- to 15-foot depth increment at

two locations on this parcel for Appendix IX+3 analysis. In the meantime, a preliminary evaluation has been made of the 0- to 15-foot depth increment based on all currently available data from the parcel.

For the 0- to 1-foot, 0- to 3-foot, and 1- to 6-foot depth increments, the available arsenic data were used to calculate arithmetic average concentrations, and those average concentrations were compared to the applicable Method 1 soil standards for each depth increment. The results are presented in Tables 4-67 through 4-69. As shown in those tables, the average concentrations of arsenic do not exceed the Method 1 soil standard for any of these depth increments. Similarly, based on existing data, an arithmetic average concentration of arsenic was calculated for the 0- to 15-foot depth increment and compared to the applicable Method 1 soil standard. As shown in Table 4-70, that average does not exceed the Method 1 standard. However, this comparison will be revised following the receipt of the data to be collected for the 6- to 15-foot depth increment.

Based on the above evaluations, no response actions beyond those identified for PCBs are required for the soils at Parcel J9-23-22. However, this conclusion is subject to modification following the evaluation of non-detected SVOCs with elevated detection limits and following receipt of the Appendix IX+3 data from the 6- to 15-foot depth.

4.4.10 Parcel J9-23-23

Parcel J9-23-23 is a GE-owned commercial/industrial property. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill have been identified to achieve the applicable PCB Performance Standards for this parcel, subject to further modification based on sampling beneath the existing building. Based on these anticipated response actions, the Appendix IX+3 data set has been adjusted accordingly and is summarized in Table 4-71. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2 above. A summary follows.

4.4.10.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this

comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The adjusted Appendix IX+3 data for Parcel J9-23-23 (Table 4-71) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-72 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, two constituents (benzo(a)pyrene and arsenic) have maximum detected concentrations that exceed the Screening PRGs and were therefore retained for further evaluation.

In addition, at Parcel J9-23-23, there were several VOC and SVOC results in which the constituents were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents (excluding the retained constituents identified above) are listed in Table 4-73. As previously discussed in Section 4.3.5 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.10.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-23, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-74. As shown in that table, the maximum TEQ concentration for each relevant depth increment does not exceed the applicable PRG. However, for the 1- to 15-foot depth increment, the maximum TEQ concentration is equal to the PRG for subsurface soils (20 ppb). Therefore, the 95% Upper Confidence Limit on the mean (95% UCL) of TEQ concentrations was calculated. (In accordance with the Performance Standards in the SOW, the lower of the maximum concentration or 95% UCL may be compared to the applicable PRG.) As shown in Table 4-77, the 95% UCL is less than the PRG. Thus, no response actions to address dioxins/furans are necessary at Parcel J9-23-23.

4.4.10.3 Comparison to MCP Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., benzo(a)pyrene and arsenic), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-23 are the S-2 standards for soils the 0- to 1-foot depth increment and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 1- to 6-foot, and 0- to 15-foot depth increments. For each of these increments, the available benzo(a)pyrene and arsenic data were used to calculate arithmetic average concentrations, and those average concentrations were compared to the applicable Method 1 soil standards. The results are presented in Tables 4-75 through 4-77. As shown in those tables, none of the average concentrations of the retained constituents exceeds their Method 1 soil standards.

Based on the above evaluations, no additional response actions appear to be necessary at Parcel J9-23-23 beyond the response actions to address PCBs. However, this conclusion is subject to modification based on the re-evaluation regarding certain non-detected VOC/SVOC constituents that had elevated detection limits.

4.4.11 Parcel J9-23-24

Parcel J9-23-24 is a commercial/industrial property for which the property owner has agreed to execute and ERE. As presented in Section 3 of this Work Plan, response actions involving soil removal and replacement with clean backfill have been identified to achieve the applicable PCB Performance Standards for this parcel. Based on these anticipated response actions, the Appendix IX+3 data set has been adjusted accordingly, and is summarized in Table 4-78. Using this revised data set, the Appendix IX+3 constituents have been evaluated in accordance with the process outlined in Section 4.2 above. A summary follows.

4.4.11.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this

comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The adjusted Appendix IX+3 data for Parcel J9-23-24 (Table 4-78) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-79 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, the following constituents have maximum detected concentrations that exceed the Screening PRGs and were therefore retained for further evaluation:

- Benzo(a)anthracene;
- Benzo(a)pyrene;
- Dibenzo(a,h)anthracene; and
- Arsenic.

In addition, at Parcel J9-23-24, there were several VOCs and SVOCs that were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-80. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.11.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-24, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-81. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-24.

4.4.11.3 Comparison to MCP Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., those constituents with a maximum detected concentration that exceeds the applicable Screening PRG), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-24 are the S-2 standards for the 0- to 1-foot depth increment and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 1- to 6-foot and 0- to 15-foot depth increments. For each of these depth increments, the available (adjusted) Appendix IX+3 data were used to calculate an arithmetic average concentration for each of the retained constituents, and those average concentrations were then compared with the applicable Method 1 soil standards. These comparisons are summarized in Tables 4-82, 4-83, and 4-84 for the three pertinent depth increments, respectively. As shown in Table 4-85, for the 0- to 1-foot depth increment, two constituents -- benzo(a)anthracene and benzo(a)pyrene -- have average concentrations exceeding the applicable Method 1 soil standards. As shown in Table 4-87, for the 1- to 6-foot depth increment, none of the retained constituents has an average concentration exceeding the applicable Method 1 soil standards. As shown in Table 4-88, for the 0- to 15-foot depth increment, one constituent -- benzo(a)pyrene -- shows an exceedance of the Method 1 standards.

Given the exceedances of the Method 1 soil standards, GE has elected to have an area-specific risk evaluation conducted for this parcel. That evaluation is discussed in the next section.

4.4.11.4 Area-Specific Risk Evaluation

In accordance with the protocols specified in the SOW, an area-specific risk evaluation has been performed for Parcel J9-23-24, based on the average concentrations of all constituents that were retained for evaluation prior to the comparison to the MCP Method 1 soil standards. The procedures used in this evaluation were described in Section 4.3.6 above, and the results are presented in Appendix C to this Work Plan (prepared by AMEC).

For the 0- to 1-foot depth increment, based on the same groundskeeper scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 1.9×10^{-6}, and the Hazard Index

for the only retained constituent with a non-cancer RfD (arsenic) is 0.002. For the 1- to 6-foot depth increment, based on the same utility worker scenario used by EPA in its PCB risk evaluation, the cumulative ELCR for the retained carcinogenic constituents is 1.7×10^{-7}, and the HI for arsenic is 0.0005. All of these values are well below the SOW benchmarks of an ELCR of 1×10^{-5} and an HI of 1.0.

In addition, for the 0- to 15-foot depth increment, for which EPA's PCB risk evaluation does not contain any exposure scenario, the average concentrations of all retained constituents are far below the applicable MCP UCLs, as shown in Table 4-85.

Thus, based on the above evaluations (and subject to modification based on the evaluation of the non-detected VOCs and SVOCs with elevated detection limits), no additional response actions will be necessary at Parcel J9-23-24 beyond the response actions to address PCBs.

4.4.12 Parcel J9-23-25

Parcel J9-23-25 is a commercial/industrial property for which the property owner has declined to agree to an ERE. As discussed in Section 3 of this Work Plan, no response actions are necessary at this parcel to achieve the applicable PCB Performance Standards. As a result, the evaluation of Appendix IX+3 constituents in soil at this parcel has been performed using all available Appendix IX+3 data from this parcel, which are summarized in Table 4-86. A summary of this evaluation follows.

4.4.12.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRG. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for industrial soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The available Appendix IX+3 data for Parcel J9-23-25 were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-87 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table,

only two constituents (benzo(a)pyrene and arsenic) have maximum detected concentrations that exceed the Screening PRGs. These constituents were therefore retained for further evaluation.

In addition, at Parcel J9-23-25, there were a few VOCs and SVOCs which were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-88. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.12.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-25, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 15-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for commercial/industrial areas (i.e., 5 ppb for the top foot of soil and 20 ppb for the subsurface soil). This comparison is presented in Table 4-89. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-25.

4.4.12.3 Comparison to MCP Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., benzo(a)pyrene and arsenic), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-25 are the S-2 standards for the 0- to 1- and 0- to 3-foot depth increments and the S-3 standards for the 1- to 6-foot and 0- to 15-foot depth increments.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. For this parcel, as at Parcel J9-23-22, there are no available Appendix IX+3 data for depths greater than 6 feet. As discussed in Section 5, this data gap will be addressed by the collection of additional samples from the 6- to 15-

foot depth increment at two locations on this parcel for Appendix IX+3 analysis. In the meantime, a preliminary evaluation has been made of the 0- to 15-foot depth increment based on all currently available data for this parcel.

For the 0- to 1-foot, 0- to 3-foot, and 1- to 6-foot depth increments, the available benzo(a)pyrene and arsenic data were used to calculate arithmetic average concentrations, and those average concentrations were compared to the applicable Method 1 soil standards. The results are presented in Tables 4-90 through 4-92. As shown in those tables, none of the average concentrations of the retained constituents exceeds their Method 1 soil standards. Similarly, based on existing data, arithmetic average concentrations of these constituents were calculated for the 0- to 15-foot depth increment and compared to the applicable Method 1 soil standards. As shown in Table 4-93, those averages do not exceed the Method 1 standards. However, this comparison will be revised following receipt of the data to be collected for the 6- to 15-foot depth increment.

Based on the above evaluations, no response actions are necessary at Parcel J9-23-25 to address non-PCB Appendix IX+3 constituents. However, this conclusion is subject to modification following the evaluation of non-detected VOC/SVOC constituents with elevated detection limits and following receipt of the Appendix IX+3 data from the 6- to 15-foot depth.

4.4.13 Parcel J9-23-26

Parcel J9-23-26 is a City-owned recreational property (Lakewood Playground), only a portion of which lies within the CD Site and for which the City has agreed in the CD to execute an ERE. As discussed in Section 3 of this Work Plan, no response actions are necessary at this parcel to achieve the applicable PCB Performance Standards. As a result, the evaluation of Appendix IX+3 constituents in soil at this portion of Parcel J9-23-26 has been performed using all available Appendix IX+3 data from the portion of the parcel within the CD Site. These data are summarized in Table 4-94. A summary of this evaluation is presented below. In addition, supplemental soil sampling for arsenic was performed at this parcel in areas located outside the portion within the CD Site. All available arsenic data for Parcel J9-23-26 were presented in a letter from GE to EPA dated August 1, 2001. (The arsenic data for the portion of this property outside the CD Site are also presented in Table 2-7.) These data are separately evaluated in Section 4.4.13.4 below.

4.4.13.1 Comparison to Screening PRGs

Consistent with the protocols established in the SOW, the maximum detected concentration of each detected Appendix IX+3 constituent (other than PCBs and dioxins/furans) was compared to its Screening PRGs. For this comparison, the Screening PRGs consisted of the EPA Region 9 PRGs for residential soils, as well as those surrogate PRGs previously discussed in Section 4.3.2.

The available Appendix IX+3 data for the portion of Parcel J9-23-25 within the CD Site (Table 4-94) were reviewed to identify the maximum detected concentration of each detected constituent. Table 4-95 identifies each detected constituent and provides a comparison of its maximum detected concentration to the applicable Screening PRG. As shown in that table, only two constituents (benzo(a)pyrene and arsenic) have maximum detected concentrations that exceed the Screening PRGs. These constituents were therefore retained for further evaluation.

In addition, at Parcel J9-23-26, there were several VOCs and SVOCs which were not detected but which had elevated detection limits such that one-half the detection limit exceeded the applicable PRG. These constituents are listed in Table 4-96. As previously discussed in Section 4.3.2 of this Work Plan, these constituents will be subject to further evaluation subsequent to submittal of this Work Plan. Additional information regarding the anticipated scope of these evaluations is presented in Section 5.

4.4.13.2 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils Parcel J9-23-26, the maximum total TEQ concentration was determined for the 0- to 1-foot depth increment and the 1- to 3-foot depth increment, and each was compared to the applicable dioxin/furan PRG established in the SOW for recreational areas (i.e., 1 ppb for the top foot of soil and 1.5 ppb for the 1- to 3-foot depth increment). This comparison is presented in Table 4-97. As shown in that table, the maximum TEQ concentration for each relevant depth increment is below the applicable PRG. As a result, there was no need to calculate the 95% UCLs for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at Parcel J9-23-26.

4.4.13.3 Comparison to MCP Soil Standards

For the Appendix IX+3 constituents retained for further evaluation (i.e., benzo(a)pyrene and arsenic), the next component of the Appendix IX+3 evaluation involved a comparison of the average concentration for each constituent to the applicable MCP Method 1 soil standards. As discussed in Section 4.3.5, the selected Method 1 soil standards for Parcel J9-23-26 are the S-1 standards for the 0- to 1- and 1- to 3-foot depth increments and the S-2 standards for the 0- to 15-foot depth increment.

Consistent with the PCB evaluations summarized in Section 3 of this Work Plan, the depth increments subject to evaluation at this parcel are the 0- to 1-foot, 1- to 3-foot, and 0- to 15-foot depth increments. For each of these increments, the available benzo(a)pyrene and arsenic data from the portion of the property within the CD Site were used to calculate arithmetic average concentrations, and those average concentrations were compared to the applicable Method 1 soil standards. The results are presented in Tables 4-98 through 4-100. As shown in those tables, none of the average concentrations of the retained constituents exceeds their Method 1 soil standards.

4.4.13.4 Additional Evaluation of Arsenic in Soil

As noted above, additional sampling was conducted for arsenic in the soil at Parcel J9-23-26, including in areas located outside the portion of the property within the CD Site. All available arsenic data for this property were presented to EPA in a letter dated August 1, 2001. Based on all these data, arithmetic average concentrations of arsenic have been calculated for the 0- to 1-foot, 1- to 3-foot, and 0- to 15-foot depth increments at the overall property, and these average concentrations have been separately compared to the applicable Method 1 soil standards. The results of these separate comparisons are presented in Tables 4-101 through 4-103. As shown in those tables, the average concentrations of arsenic for each of these depth increments, based on use of all available arsenic data from this property, are likewise below the applicable Method 1 soil standards.

Based on the above evaluations (and subject to modification after the evaluation of non-detected VOC/SVOC constituents with elevated detection limits), no response actions are necessary at Parcel J9-23-26 to address non-PCB Appendix IX+3 constituents.

4.4.14 Overall Summary

Based on the foregoing evaluations, the only property at Newell Street Area I where response actions to address non-PCB constituents have been identified to date is Parcel J9-23-19, where removal/replacement of soil associated with two surface soil samples and one 1- to 3-foot sample will be necessary. As discussed in Section 5, additional soil sampling is proposed around those sample locations to assist in defining the limits of such soil removal. Moreover, the above conclusions are subject to modification and revision, if necessary, based on: (1) the further evaluation of the VOC and SVOC constituents that were not detected but had elevated detection limits such that one-half the detection limit exceeded the applicable PRG; (2) the sampling for dioxins/furans at Parcel J9-23-17; (3) the additional sampling of the 1- to 6-foot depth increments at two properties (J9-23-18 and J9-23-21) where there are no Appendix IX+3 data from that depth; and (4) the additional sampling of the 6- to 15-foot depth at two properties (J9-23-22 and J9-23-25) where there are no Appendix IX+3 data from that depth.. These activities are also described further in Section 5.

5. Supplemental Soil Sampling

5.1 General

As described in Sections 3 and 4, several additional soil sampling activities and related evaluations have been identified during the performance of the technical RD/RA evaluations. For the most part, these activities are necessary to complete the PCB and Appendix IX+3 evaluations presented herein and thus satisfy the requirements in the CD and SOW for a Conceptual RD/RA Work Plan. This section describes the remaining activities and identifies, where appropriate, the scope of supplemental sampling proposed by GE.

5.2 PCB Soil Sampling Beneath Existing Structures at Parcels J9-23-16 and J9-23-23

As previously described in Section 3, two of the parcels within Newell Street Area I are currently owned by GE and contain existing, unoccupied structures --- Parcel J9-23-16 and Parcel J9-23-23. For these parcels, GE is currently evaluating the possibility of demolishing the existing structures and leaving portions of the existing foundations (i.e., the grade-level floor slabs and subsurface foundations) in place to support future commercial use (e.g., as potential parking areas). At the time that pre-design soil investigations were performed at Newell Street Area I, GE had not considered the possibility that these structures may be demolished and, as such, performed grid-based soil investigations consistent with the requirements of the CD and SOW (i.e., soil samples were not collected from within the footprint of existing buildings, with the exception of the structure at Parcel J9-23-20, which has a dirt floor). However, to support GE's further evaluations related to these structures, additional soil sampling for PCBs from within the building footprint and beneath the building floor slabs at these parcels is proposed.

To determine the scope of such additional soil sampling, the grid utilized to select the sample locations for the pre-design investigations at these properties was reviewed. Based on that grid pattern, the grid nodes that fall within the footprint of these buildings were selected for PCB sampling, as shown on Figure 5-1 and discussed below:

Parcel J9-23-16 - Continuation of the grid layout presented in the Pre-Design Investigation Work Plan results in the identification of two grid nodes within the footprint of the building on this property -- i.e., grid nodes H-6 and I-6, as shown on Figure 5-1. GE proposes to collect soil samples at those locations. Specifically, based on

the sampling protocol for this grid network, samples will be collected at the H-6 grid node from the 0- to 1-foot, 1- to 3-foot, 3- to 6-foot, 6- to 10-foot, and 10- to 15-foot depth increments, and a sample will be collected at grid node I-6 from the 0- to 1-foot depth increment. All these samples will be submitted for PCB analysis. (Note: Based on review of the Appendix IX-3 data for this parcel, there are ample non-PCB data from all relevant depth increments to support the evaluations, and hence additional analyses for Appendix IX+3 constituents are not proposed.)

Parcel J9-23-23 - Continuation of the grid layout presented in the Pre-Design Investigation Work Plan results in the identification of four grid nodes within the footprint of the building on this property -- i.e., grid nodes F-18B, G-18B, H-18B, and I-19 -- as shown on Figure 5-1. GE proposes to collect soil samples at those locations. Specifically, based on the sampling protocol for this grid network, samples will be collected at grid nodes F-18B and H-18B from the 0- to 1-foot, 1- to 3-foot, 3- to 6-foot, 6- to 10-foot, and 10- to 15-foot depth increments, and samples will be collected at grid nodes G-18B and I-19 from the 0- to 1-foot depth increment. All these samples will be submitted for PCB analysis. (Again, as at Parcel J9-23-16, there are ample non-PCB Appendix IX+3 data from all relevant depth increments at this parcel to support the evaluations, and hence additional Appendix IX+3 analyses are not proposed.)

The data from these supplemental soil investigations will be incorporated into the PCB evaluations presented in Section 3 of this Work Plan. Section 7 of this Work Plan summarizes GE's proposed schedule for this and other related RD/RA activities. As discussed in that section, GE anticipates that the soil sampling activities identified above will be conducted as part of other activities related to completion of the Conceptual RD/RA Work Plan.

5.3 Supplemental PCB Soil Investigations at Parcel J9-23-22

As discussed in Sections 3.5.7 and 3.5.8, much of the 6-foot soil removal preliminarily identified on Figure 3-1 for the front portions of Parcels J9-23-22 and J9-23-23 is driven by the PCB results for the 3- to 6-foot depth at sample location J9-23-22-J-18 and the absence of any other PCB data from a comparable depth between that sample location and Newell Street. In an effort to further refine the soil removal limits in the front portions of these parcels, GE proposes to collect soil samples for PCB analysis from the 1- to 3-foot and 3- to 6-foot depth increments at prior sample location J9-23-22-K-18, as shown on Figure 5-1. (Note that pre-design investigations were performed at that location, but only involved the collection of a soil sample for the 0- to 1-foot depth increment.)

5.4 Evaluation Regarding Analytical Reporting Limits for Select VOC / SVOC Constituents

For each parcel within Newell Street Area I, the Appendix IX+3 evaluations presented in Section 4 identify several VOCs and SVOCs that were not detected during the soil investigations but had elevated analytical detection limits such that one-half the detection limit exceeded the applicable Screening PRG. Section 4.3.2 of this Work Plan provides additional general discussion related to this analytical issue, while the parcel-specific evaluations (and related summary tables) presented in the subsequent portions of Section 4 provide more specific and detailed information.

As indicated in Section 4.3.2, similar analytical reporting issues were encountered by GE during its recent RD/RA evaluations related to soils at the 20s, 30s, and 40s Complexes and the Future City Recreational Area. For those areas, GE is in the process of performing supplemental soil investigations to determine if and to what extent lower analytical reporting limits can be achieved, as well as the need for any further evaluations based on the supplemental sampling results. The results of the evaluations for those two areas will be provided to EPA by March 1, 2002. Certain of the information expected to be gained from these activities should be applicable to the similar analytical issues related to the Newell Street Area I soils, at least with respect to the general capabilities/success of the laboratory in achieving lower analytical reporting limits.

Based on the above, and given the conceptual nature of this Work Plan, GE will consider the need for supplemental soil sampling for the VOC and SVOC constituents with elevated detection/reporting limits once the evaluations conducted for the 20s, 30s, and 40s Complexes and Future City Recreational Area are completed. Specifically, GE proposes to submit to EPA an evaluation related to this topic and, if warranted, a proposal for additional soil sampling and related evaluations. For example, if the supplemental soil investigations conducted at the 20s, 30s, and 40s Complexes and the Future City Recreational Area indicate that, for some of these constituents, it is possible to achieve lower reporting limits so as to allow comparison to the Screening PRGs, GE may propose to conduct additional sampling for those constituents at Newell Street Area I, using the lower reporting limits. Conversely, if the results indicate that, for some of these constituents, it is not possible to achieve significantly lower detection or reporting limits, GE may propose to eliminate those constituents from further consideration on the ground that the constituents were not detected using the lowest analytical detection limits that can feasibly be achieved. To the extent that it is determined that additional soil sampling for certain of these constituents is warranted at Newell Street Area I, the forthcoming evaluation/proposal will include the details for such proposed additional sampling, as well as a summary of the anticipated procedures for evaluating the results of such sampling.

Section 7 of this Work Plan summarizes GE's proposed schedule for this and other related RD/RA activities. As discussed in that section, GE anticipates that the evaluations proposed above, as well as any subsequent soil sampling activities, will be conducted as part of other activities related to completion of the Conceptual RD/RA Work Plan.

5.5 Remaining Appendix IX+3 Characterization Sampling

During the course of performing the Appendix IX+3 soil evaluations summarized in Section 4 of this Work Plan, several data needs related to overall soil characterization for such constituents were identified. For one parcel (J9-23-17), the data need is related to the rejection of the prior dioxin/furan sample results for that parcel. For four other parcels within Newell Street Area I, the Appendix IX+3 soil data needs are related to an incomplete data set for the parcels. Specifically, in conducting the parcel-specific evaluations described in Section 4, four parcels were identified at which there are no available Appendix IX+3 data for certain depth increments. These data gaps relate to the 1- to 6-foot depth increment at Parcels J9-23-18 and J9-23-21 (as discussed in Sections 4.4.5.3 and 4.4.8.3) and the 6- to 15-foot depth increment at Parcels J9-23-22 and J9-23-25 (as discussed in Sections 4.4.9.3 and 4.4.12.3 above).

To satisfy these data needs related to the existing and parcel-specific Appendix IX+3 data sets, GE proposes to conduct additional soil sampling at these parcels, as described below:

Parcel J9-23-17 - As previously discussed in Section 4.3.4.2, the previously collected dioxin/furan data from this parcel were rejected, and thus there are no usable dioxin/furan data for this parcel. In these circumstances, GE proposes to collect eight additional soil samples for dioxin/furan analysis from areas of this parcel that are not subject to PCB-related response actions. Specifically, GE proposes to collect additional soil samples from the 0- to 1-foot and 1- to 3-foot depth increments at prior sampling locations IA-43, IA-63, IA-72, and IA-82, as indicated on Figure 5-1. Once collected, these samples will be analyzed for dioxins and furans, and TEQs will then be calculated and compared to the applicable dioxin/furan PRGs to confirm that the concentrations of these compounds in the soils at this property do not exceed the PRGs.

Parcel J9-23-18 - Consistent with the PCB evaluations performed for this parcel, the Appendix IX+3 evaluations consider the 0- to 1-foot, 0- to 3-foot, 1- to 6-foot, and 0- to 15-foot depth increments. However, the current data set for this parcel does not contain Appendix IX+3 data for depths between 1 and 6 feet below grade, so that an evaluation for that increment could not be conducted. To address this data need, GE proposes to conduct

supplemental soil sampling at prior sample locations H-11 and RV-9, as shown on Figure 5-1. At each location, samples will be collected from the 1- to 3-foot and 3- to 6-foot depth increments (consistent with the increments associated with the pre-design investigations) and will be submitted for analysis of Appendix IX+3 constituents (excluding PCBs, pesticides, and herbicides).

Parcel J9-23-21 - Similar to the data needs for Parcel J9-23-18, there are no Appendix IX+3 data available to represent the 1- to 6-foot soil depths within this parcel. As a result, GE proposes to conduct supplemental soil sampling at prior sample locations D-15 and I-15, as shown on Figure 5-1. At each location, samples will be collected from the 1- to 3-foot and 3- to 6-foot depth increments and will be submitted for analysis of Appendix IX+3 constituents (excluding PCBs, pesticides, and herbicides).

Parcel J9-23-22 - For this parcel, the available Appendix IX+3 data set only includes sample results associated with the uppermost 6 feet of soil within the parcel. As a result, when evaluating the presence of Appendix IX+3 constituents associated with the 0- to 15-foot depth increment, there are no data available to represent the 6- to 15-foot depth. Therefore, to complete the evaluation related to the 0- to 15-foot depth increment, GE proposes to collect supplemental soil samples from two locations within this parcel -- locations D-16 and H-16, as shown on Figure 5-1. At each location, a composite sample will be collected from the 6- to 15-foot depth increment and will be submitted for analysis of SVOCs and inorganics. In addition, a 2-foot sample from within that depth increment will be selected for VOC analysis based on the protocols established in the FSP/QAPP (e.g., generally involving the selection of the 2-foot sample increment exhibiting the highest PID reading).

Parcel J9-23-25 - Similar to the data needs for Parcel J9-23-22, the available Appendix IX+3 data set does not include sample results from depths greater than 6 feet at this property. Therefore, to complete the evaluation of Appendix IX+3 constituents for the 0- to 15-foot depth increment at this property, GE proposes to collect supplemental soil samples from two prior sample locations at this parcel -- locations D-20 and H-22, as shown on Figure 5-1. At each location, a composite sample will be collected from the 6- to 15-foot depth increment and will be submitted for analysis of SVOCs and inorganics, and a 2-foot sample from within that depth increment will be selected for VOC analysis based on the same protocols specified for Parcel J9-23-22.

5.6 Supplemental Appendix IX+3 Soil Sampling at Parcel J9-23-19

As indicated in Section 4.4.6 of this Work Plan, soil removal activities have been identified to address Appendix IX+3 constituents in soils at Parcel J9-23-19. Specifically, soil removal has been identified for the soils associated with three existing sample locations: J9-23-19-H-12 (1- to 3-foot depth), J9-23-19-H-13 (0- to 1-foot depth), and J9-23-19-I-13 (0- to 1-foot depth). To assist in defining the extent of such soil removal within this parcel, GE proposes to collect several additional soil samples in the vicinity of the three existing sample locations noted above. As indicated on Figure 5-1, GE proposes to collect supplemental soil samples from the following locations and depths:

- SZ-31 (1- to 3-foot depth increment);
- SZ-32 (1- to 3-foot depth increment);
- SZ-33 (1- to 3-foot depth increment);
- SZ-34 (0- to 1-foot and 1- to 3-foot depth increment);
- SZ-35 (0- to 1-foot depth increment);
- SZ-36 (0- to 1-foot depth increment); and
- SZ-37 (0- to 1-foot depth increment).

Upon collection, each sample will be submitted for analysis of SVOCs and inorganic constituents.

6. Preliminary Design Information and Future Design-Related Activities

6.1 General

Based on the preliminary PCB and Appendix IX+3 evaluations presented in Sections 3 and 4 of this Work Plan, the response actions identified for Newell Street Area I will include soil removal and replacement at several parcels to address PCBs in soil (as depicted on Figure 3-1), installation of an engineered barrier at Parcel J9-23-17 to address PCBs in the subsurface (also depicted on Figure 3-1), and soil removal and replacement at Parcel J9-23-19 to address non-PCB constituents in soil. However, the supplemental sampling activities identified in Section 5 of this Work Plan are necessary to complete the PCB and Appendix IX+3 evaluations and thus to complete GE's conceptual RD/RA activities for Newell Street Area I. This section discusses the remaining conceptual design activities, presents preliminary design information for the response actions that have been identified to date, identifies the Applicable or Relevant and Appropriate Requirements (ARARs) for those response actions, describes future design-related activities, and describes the anticipated contents of the Final RD/RA Work Plan.

6.2 Remaining Conceptual Design Activities

GE has evaluated the need for and scope of response actions for soils within Newell Street Area I based on the available PCB and Appendix IX+3 data. However, as noted above, for several parcels within Newell Street Area I, one or more soil data needs have been identified such that the results of these evaluations are considered preliminary. Such data needs will be addressed through the performance of the proposed supplemental sampling activities described in Section 5.

For each affected parcel, the results of the supplemental soil sampling will be incorporated into the available PCB and Appendix IX+3 data set for that parcel, and the preliminary evaluations presented in this Work Plan will be updated as appropriate. The results of the supplemental sampling and related follow-up evaluations will be presented in an Addendum to this Work Plan. With submittal of this Addendum, it is anticipated that all of the requirements established in the CD and SOW for a Conceptual RD/RA Work Plan will have been satisfied. However, there is the possibility that the results of the supplemental sampling described in Section 5 may not

fully address the identified data needs or may result in additional, new data needs. In that event, GE will communicate such data needs to EPA and propose a scope and timetable for addressing these needs.

6.3 Preliminary Design Information

As previously discussed, the evaluations to date indicate that the response actions at Newell Street Area I will involve soil removal and replacement at several parcels and installation of an engineered barrier at one parcel. Given the need for additional sampling and evaluations (as described in Section 6.2), it is premature to specify the particular design details for these response actions. In general, however, the construction activities will be implemented in accordance with GE's *Construction Quality Assurance Plan* (CQAP), which was submitted to EPA in January 2001 as part of GE's Project Operations Plan (POP). (The POP was supplemented with an addendum submitted to EPA on October 19, 2001, and was approved by EPA by letter of January 2, 2002.) The CQAP contains several technical specifications that were developed as part of other response actions conducted by GE at the CD Site --- notably, the construction of the On-Plant Consolidation Areas (OPCAs) at the GE Plant Area. These specifications will serve as the basis for the performance of the response actions at Newell Street Area I, with appropriate modifications and/or supplements as necessary.

With respect to soil removal and replacement, GE has conducted numerous such response actions in the past, particularly at residential properties outside the CD Site. In is anticipated that similar excavation/construction equipment and methods will be utilized for the soil removal/replacement activities at Newell Street Area I. To the extent relevant, the technical specifications contained in the CQAP relating to soil materials and to topsoil, seeding, and mulch will be followed in the performance of these response actions, with modifications and/or supplements as needed. Further, potential sources of backfill and soil cover material will be identified and characterized in accordance with GE's *Soil Cover/Backfill Characterization Plan*, which is also part of the POP.

With respect to the installation of an engineered barrier at Parcel J9-23-17, GE has not to date had occasion to install an engineered barrier *per se* as part of any response actions. However, the general requirements for engineered barriers are set forth in Attachment G to the SOW, and the barrier to be installed at Parcel J9-23-17 will comply with those requirements. Further, technical specifications for several components of an engineered barrier (e.g., impermeable geomembrane and geosynthetic drainage composite) are included in the CQAP. Specific additional design details that will be developed for the engineered barrier at this property are identified in Section 6.5.1 below.

Detailed design information for these response actions at Newell Street Area I will be developed in the course of preparing the Final DR/RA Work Plan, as discussed in Section 6.5.

6.4 Identification of Applicable or Relevant and Appropriate Requirements (ARARs)

The response actions to be conducted at Newell Street Area I will be subject to several ARARs. Attachment B to the SOW identifies the chemical-, action-, and location-specific ARARs for the Removal Actions Outside the River. As noted above, the response actions identified to date for the Newell Street Area I properties include soil removal/replacement (at several parcels) and installation of an engineered barrier (at one parcel). The vast majority of these activities will be performed within the 100-year floodplain of the Housatonic River. In these circumstances, the response actions at Newell Street Area I will be subject to the following ARARs identified in Attachment B to the SOW: the action-specific ARARs identified in Table 2, subsection B ("Soil Removal"), subsection C ("Surface Cover Activities"), and potentially subsection K ("Other"); and the location-specific ARARs identified in Table 3, subsection B ("Floodplains, Wetlands, and Banks"). If excavation activities involve the removal and on-site storage (at the GE Plant Area) of free product, intact drums, and/or other materials that cannot be consolidated at On-Plant Consolidation Areas (OPCAs), and thus will be subsequently disposed of off-site, the ARARs identified in Table 2, subsection H ("Temporary On-Site Storage of Free Product, Drums, and Equipment That Will Be Disposed of Off-Site") of Attachment B to the SOW will apply to such storage. In addition, the disposition of excavated materials at GE's OPCAs will be subject to the ARARs for consolidation at the OPCAs (set forth in Table 1 of the Detailed Work Plan for OPCAs).

These ARARs will be considered and incorporated in the final design of the response actions at Newell Street Area I.

6.5 Future Design-Related Activities

Following submittal of the Addendum to this Work Plan, it is expected that the soil areas and depths subject to response actions within Newell Street Area I will generally be identified. Based on this information, GE will proceed with detailed and final design activities to support the performance of the response actions. Specifically, as part of the final design activities, GE will develop final plans related to soil removal and engineered barrier installation, prepare technical drawings and specifications related to such activities, select a

remediation contractor, and develop ancillary information related to project implementation. These activities will be conducted in the course of preparing a Final RD/RA Work Plan and are discussed further below.

6.5.1 Final Removal Limits

As part of final design activities, GE will develop the final limits for the soil removals and engineered barrier installation at Newell Street Area I. Those final limits will take into account the results of the supplemental soil sampling presented in the Conceptual Work Plan Addendum. In addition, as discussed in Section 3.5, the spatial average PCB concentrations may be recalculated for the shallower depth increments after taking into account the response actions identified to address deeper increments; and if so, any resulting revisions to the soil removal limits and depths will be identified.

Further, revisions to the soil removal limits and depths will be modified as necessary to reflect excavation stability evaluations. As indicated by review of the preliminary removal limits, certain of the anticipated soil response actions will be performed at locations and/or depths that will require evaluations related to the structural stability of the excavation sidewall and any adjacent structures. In some cases, the results of these evaluations may indicate that the extent of soil removal as identified in this Work Plan (or subsequent Addendum) will not be possible based on concerns related to excavation stability. For example, for certain parcels (e.g., Parcels J9-23-22 and J9-23-23), soil removal to a depth of 6 feet is currently identified for areas immediately adjacent to Newell Street and existing structures located on these parcels. As discussed in Section 5 of this Work Plan, GE has identified supplemental sampling that may result in a reduction in the soil removal limits in this area. However, it is possible that the soil removal limits may need to be further adjusted to account for the presence of the roadway/structures. In the event that modifications to the soil removal limits are identified that result in an exceedance of the applicable soil-related Performance Standards, adjustments will be made to ensure that the Performance Standards are met (i.e., through additional soil removal from other locations within the parcel). The Final RD/RA Work Plan will include a summary of the evaluations conducted related to excavation stability concerns.

Lastly, the final soil removal depths will be converted to target elevations to facilitate the necessary excavation and construction activities

6.5.2 Technical Plans and Specifications

For several of the construction-related response actions (i.e., soil removal and engineered barrier installation), technical plans and specifications will be developed as a component of the Final RD/RA Work Plan. These plans and specifications will define the acceptable construction materials and equipment to be used in the response actions, as well as specific procedures to be used and expected performance of the remediation contractor. As discussed in Section 6.3, those plans and specifications will be based, to the extent relevant, on the technical specifications provided in the CQAP, with modifications and/or supplements as necessary or appropriate. With particular reference to the installation of an engineered barrier at Parcel J9-23-17, specific design-related details that will be developed are expected to include the following:

- appropriate methods to secure the barrier (e.g., anchor trenches);
- provisions for drainage of infiltration water;
- existing topographic conditions as they relate to flood storage compensation and surface drainage;
- scope of soil removal for soils beneath the barrier (to a depth of 6 feet maximum); and
- configuration of the final barrier surface (e.g., vegetation or asphalt).

These and other design components will be considered and incorporated into the Final RD/RA Work Plan.

6.5.3 Ancillary Design Activities

In addition to the proposed soil removal actions and engineered barrier installation, there are certain other design activities that may be addressed in the Final RD/RA Work Plan. These include the following:

Building Demolition Activities

In the event that GE elects to demolish the existing structures located within Parcels J9-23-16 and J9-23-23, GE will perform the necessary pre-demolition building characterization activities; identify and remove select equipment and materials required to be removed prior to demolition activities; identify the appropriate disposition for demolition debris; and prepare demolition design plans and specifications. In accordance with the CD and SOW, such activities are not subject to specific EPA approval. However, to the extent that GE elects to dispose of building demolition debris at one of its OPCAs (subject to the prohibitions established in the CD and SOW related to such disposition), EPA review and approval of such disposition is

required. In general, the building demolition activities described above will be conducted in accordance with a document entitled *Protocols for Building Demolition and Associated Characterization Activities* (December 22, 2000), as amended with an addendum submitted on December 18, 2001.

Even if GE elects to proceed with the building demolition activities referenced above, the timeframe for such activities is uncertain and may occur before, during, or following the performance of the soil-related response actions addressed within this Work Plan and Final RD/RA Work Plan. To the extent that such activities will be performed as part of the soil response actions, information related to these activities will be included within the Final RD/RA Work Plan. Otherwise, GE will communicate its intended actions separately to EPA.

Miscellaneous Earthwork Activities

In anticipation of the soil response actions, GE will include in its final design several measures to minimize (to the extent possible) potential disruptions to the existing property owners and their respective site uses. For example, as part of its implementation planning, GE will consider measures to optimize the process of soil removal, off-site transport, placement and compaction of backfill material, and final restoration activities. As part of these procedures, GE will consider existing features of each parcel (e.g., means of access/egress, above- and below-grade utilities, existing structures, etc.), and the need to provide access and protection during the performance of response actions.

6.5.4 Implementation Planning

The plans contained in GE's POP describe the minimum requirements, general activities, protocols, and methodologies that are applicable to the Removal Actions Outside the River. While the contents of the POP provide information and details sufficient to support various aspects of the response actions, there are several instances where the POP is general and requires more site-specific information. Several such items are listed below and will be incorporated in the final technical design or otherwise addressed in the Final RD/RA Work Plan as appropriate:

- Contractor Health and Safety Plan;

- Contractor Contingency and Emergency Procedures Plan;

- Identification of backfill material and soil cover sources, and incorporation of chemical and geotechnical data into technical design as appropriate;

- Locations and scope of ambient air monitoring activities;

- Evaluation of materials subject to disposition, in accordance with the *Waste Characterization Plan* (part of the POP); and

- Organizations, roles, and responsibilities involved in construction quality assurance.

Additional information to be included in the Final RD/RA Work Plan, as required in Section 3.4 of the SOW, is presented in Section 6.6 below.

6.6 Contents of Final RD/RA Work Plan

As discussed in Section 7, following EPA approval of the Addendum to this Work Plan, GE will submit a Final RD/RA Work Plan. The Final RD/RA Work Plan will include a detailed description regarding design and implementation of the proposed response action activities. In addition to presenting similar information to that presented herein (updated and modified as appropriate), that plan will include the following information:

- Final limits and depths for the soil removals and engineered barrier installation, as well as conversion of the removal depths to elevations;

- Detailed design of the response actions;

- Description of other implementation details concerning performance of the response actions;

- Description, as necessary, of the procedures to be implemented to ensure attainment of the ARARs (identified in Section 6.4 above) in the conduct of the response actions;

- Post-Removal Site Control Plan or summary of anticipated Post-Removal Site Control activities following completion of the Removal Action;

- Identification of Removal Action team, including key personnel, roles and responsibilities, lines of authority;

- Process for selection of Removal Action contractor, if not already selected;

- Proposed implementation schedule;

- Any necessary updates or supplements to the CQAP; and

- Project closeout requirements.

7. Proposed Schedule

Based on the results of the PCB and Appendix IX+3 evaluations presented in this Conceptual RD/RA Work Plan for Newell Street Area I, GE has identified several follow-up activities, in addition to those established in the CD and SOW (i.e., preparation of a Final RD/RA Work Plan). A summary of GE's anticipated activities related to this RAA and its proposed schedule and sequencing of these activities are provided below:

- **Evaluation/Proposal Related to Analytical Reporting Limits** - As previously described, there are several VOCs and SVOCs that were not detected during the soil investigations but had elevated analytical detection limits such that one-half the detection limit exceeded the applicable Screening PRG. This issue is similar to that encountered by GE during its recent RD/RA evaluations related to soils at the 20s, 30s, and 40s Complexes and the Future City Recreational Area, and GE is in the process of performing supplemental soil investigations in those areas to determine if and to what extent lower analytical reporting limits can be achieved for those areas. The results of the evaluations for those two areas will be provided to EPA by March 1, 2002. Shortly thereafter, GE will submit to EPA an evaluation related to this topic at Newell Street Area I and, if warranted, a proposal for additional soil sampling and related evaluations at this RAA. That evaluation/proposal will be submitted to EPA by approximately March 8, 2002.

- **Supplemental Soil Sampling Activities** - As described in Section 5 of this Work Plan, GE has identified several sampling activities that must be performed in order to finalize the conceptual evaluations summarized in this document. Following EPA review and approval of the proposed sampling activities, GE will perform the proposed soil investigations.

- **Work Plan Addendum** - Upon completion of the supplemental soil sampling referenced above, GE will prepare an Addendum to this Work Plan, providing an update to the PCB and Appendix IX+3 evaluations presented herein, evaluating the presence of any remaining data needs, and identifying remaining activities (if any) to address such data needs. GE will submit the Work Plan Addendum within 3 months following the later of: (a) EPA approval of the proposed supplemental soil sampling activities described in Section 5; or (b) EPA approval of any future sampling activities proposed by GE related to the analytical reporting limit issue. This schedule is subject to change in response to a number of factors, including weather-related delays, delays related to property access, unexpected results from the supplemental soil investigations, or any significant additional sampling required by EPA. If such activities occur that may delay GE's submittal

of the Addendum within the timeframe established above, GE will so advise EPA and propose a revised date for submission of the Addendum.

- **Final Executed EREs** - For the two parcels for which EREs must be submitted prior to the performance of the response actions -- Parcels J9-23-17 and J9-23-24 -- GE proposes to submit the fully executed EREs, together with supporting documentation (including subordination agreements, title work, etc.), within 30 days after EPA approval of the Conceptual RD/RA Work Plan Addendum.

- **Final RD/RA Work Plan** - Upon EPA approval of the Conceptual RD/RA Work Plan and Work Plan Addendum, GE will submit the Final RD/RA Work Plan for EPA review and approval. For general planning purposes, GE anticipates that the final document can be submitted within approximately 2 to 3 months following EPA approval of the Addendum. A more specific proposed schedule for submission of the Final RD/RA Work Plan will be included in the Addendum.