Data Summary Report
Floodplain Data Collection Activities
Upper Hudson River

General Electric Company
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1. Introduction

This *Data Summary Report, Floodplain Data Collection Activities, Upper Hudson River* (Data Summary Report) documents the results of the floodplain data collection activities conducted by the General Electric Company (GE) from June to November, 2005 along the Upper Hudson River (the length of the river from Hudson Falls, New York to the Federal Dam in Troy, New York). The floodplain data collection activities included field reconnaissance, floodplain soil sampling and laboratory analysis, and topographic mapping. The work was conducted in accordance with the United States Environmental protection Agency (EPA)-approved *Floodplain Data Collection Work Plan, Upper Hudson River* (FDC Work Plan) (Blasland, Bouck & Lee, Inc., 2005).

1.1 Background and Project Setting

The Hudson River is located in eastern New York and flows approximately 300 miles in a generally southerly direction from its source, Lake Tear-of-the-Clouds in the Adirondack Mountains, to the Battery, located in New York City at the tip of Manhattan Island. The EPA issued a Superfund Record of Decision (ROD) on February 1, 2002 calling for, among other things, the removal and disposal of approximately 2.65 million cubic yards of sediments containing polychlorinated biphenyls (PCBs) from the Upper Hudson River (EPA, 2002). The EPA divided the Upper Hudson River between Fort Edward and Troy into three sections (River Section 1, River Section 2, and River Section 3) for the sediment remediation activities outlined in the EPA's 2002 ROD. The approximate locations of each river section are illustrated on Figure 1-1.

In addition to the requirements for dredging of PCB-containing sediments from the Upper Hudson River, the 2002 ROD requires that "concerns related to the possible exposure of residents and ecological receptors to PCBs in the Hudson River floodplain would be further evaluated concurrent with the design phase of the Hudson River dredging project". The floodplain data collection activities performed by GE in 2005, and summarized herein, represent the next step in addressing this ROD requirement.

1.2 Summary of Previous Floodplain Investigations

The sections below provide a description of the previous floodplain investigations along the Upper Hudson River.

1990 – 1998 Rogers Island Investigation

In 1990, the New York State Department of Environmental Conservation (NYSDEC) collected and analyzed soil samples from the perimeter of Rogers Island in Fort Edward, New York for PCBs and metals and found PCBs, cadmium, and chromium in several low-lying shoreline areas. In 1992, the New York State Department of Health (NYSDOH) sampled soils on Rogers Island and found some areas of soils containing PCBs at varying levels. EPA, coordinating with the NYSDEC and NYSDOH, began a preliminary assessment and the NYSDEC sampled soils in July 1998. In October 1998 the EPA initiated a soil investigation on Rogers Island. The EPA collected soil samples from residential, non-residential, and recreational areas. In total, over 2,000 soil samples were collected across the island. The results of the EPA sampling indicated the presence of PCBs and lead in soil at a limited number of residences on the northern portion of the island, and along the shoreline of the island's southern portion. The EPA developed a human health risk assessment to characterize the potential risk to human health posed by the presence of the PCBs and other constituents in soil and presented those findings in a Human Health Risk Assessment in July 1999. In December 1999, the EPA excavated and removed approximately 3,530 tons of PCB-impacted soil and 910 tons of lead-impacted soil from Rogers Island properties. The affected properties were restored during 2000 and 2001, including construction of a retaining wall, backfilling, seeding, and planting of trees.

2000 Floodplain Soil Sampling

Floodplain soil samples were collected by SEA Consultants, Inc. (SEAC) under contract to NOAA and in association with the NYSDEC in September and October 2000. A total of 179 floodplain soil samples (includes duplicates) were collected from 81 locations on 11 transects along the Upper Hudson River from Fort Edward to Stillwater, New York (i.e., within River Sections 1, 2, and 3). At each location along the transects a surface soil sample was collected using a stainless steel trowel from the interval between ground surface and 15 centimeters (cm) below ground surface (bgs). At two locations along each transect (locations were selected in the field by SEAC personnel), the interval between 15 cm and 55 cm bgs was sampled at 10-cm intervals using a coring device. The 2000 NOAA floodplain soil sampling locations are presented on Figures 1-2 through 1-9. NOAA sampling sites focused on wooded and wetland areas of low topographic relief. Soil samples were analyzed for PCBs, total organic carbon (TOC), and grain size. The PCB data for the NOAA sampling are summarized in Table 1-1.

2004 Floodplain Soil Sampling

The EPA conducted floodplain soil sampling in River Section 1, River Section 2, and the upper portion of River Section 3 in November 2004. The objectives and approach of the EPA sampling program were described in the October 2004 *Draft Field Sampling Plan for Floodplain Soil Sampling, Hudson River PCBs Site, New York* (Weston Solutions, Inc., 2004). The EPA investigation included the collection of approximately 700 floodplain soil samples from 95 transects located along the Hudson River from Fort Edward to Schuylerville (48 on the west side of the river and 47 on the east side of the river). An effort was made by the EPA to pair transects on the east and west sides of the river to the extent possible; however, in general, the transects on the east and west sides of the river were not paired (i.e., they did not form a single line perpendicular to the river axis). The EPA transect sampling locations within River Sections 1, 2, and 3 are presented on Figures 1-2, 1-3, 1-4, and 1-5, along with the 2000 NOAA and 2005 GE sampling locations. Fifty-eight of the 95 transects were located adjacent to sediment areas that have been historically referred to as NYSDEC sediment hot spots, and six were located on or near dredged material disposal sites. Samples were targeted for collection from the 0- to 6-inch interval below ground surface (bgs) at all locations, and from the 6- to 12-inch interval bgs at select locations (generally limited to the two transect positions nearest the river). Samples were collected using a disposable trowel. While samples were collected from a range of property types, the majority of the samples were collected from properties zoned Residential and Public Service. The PCB data and sample location information provided to GE by the EPA for the 2004 EPA sampling are summarized in Table 1-2.

An overview of the EPA and NOAA data obtained from the 0- to 6-inch sample depth interval for River Sections 1, 2, and 3 is included on Figures 1-2 through 1-5 (the figures also include the data obtained during the 2005 investigation). An overview of the EPA and NOAA data obtained from the 6- to 12-inch sample depth interval for River Sections 1, 2, and 3 is included on Figures 1-6 through 1-9 (the figures also include the data obtained during the 2005 investigation). The PCB data for those NOAA and EPA samples that were collected in close proximity to the areas that were further characterized by GE as part of the 2005 FDC activities are presented in more detail on Figures 1-10 through 1-17 (along with the data from the 2005 investigation).

1.3 FDC Activities

On June 15, 2005, GE provided a draft FDC Work Plan to EPA for review and comment. GE submitted a final FDC Work Plan to EPA on October 10, 2005 and EPA approved that work plan on October 13, 2005.

As stated in the FDC Work Plan, the objectives of the work described in the FDC Work Plan were to collect additional data that can be used in conjunction with the existing EPA and NOAA data to:

- Better understand the nature and extent of PCBs in select areas sampled by the EPA;
- Assess the current land use and the potential for human exposure pathways in a subset of the locations sampled by the EPA;
- Evaluate the mechanisms influencing the distribution of PCBs in areas sampled by the EPA;
- Provide supporting information to determine the need for, and focus the scope of, future investigation and/or response actions on the properties sampled; and
- Provide additional data to focus the scope of future floodplain investigation activities.

1.4 Report Organization

This Data Summary Report is organized as presented in Table 1-3, below.

Table 1-3 – Report Organization

Section	Description
1 – Introduction	Provides a discussion of the project background and setting, a summary of the previous Upper Hudson River floodplain investigation activities, objectives of the FDC activities, and the organization of the Data Summary Report.
2 – Floodplain Data Collection Activities and Results	Describes the floodplain data collection activities that were performed and provides the results of these activities.
3 – Data Validation	Describes the results of the data validation activities.
4 – References	Presents references that are cited in this Data Summary Report
Tables	Provides tables that are referenced in this Data Summary Report.
Figures	Provides figures that are referenced in this Data Summary Report.
Appendices	Provides appendices that are referenced in this Data Summary Report.

2. Floodplain Data Collection Activities and Results

This section describes the FDC activities that were conducted by GE in 2005, and presents the results of those activities. The FDC activities included floodplain topographic mapping, field reconnaissance, and soil sampling and analysis. The activities were performed in accordance with the procedures and protocols outlined in the FDC Work Plan (BBL, 2005) that was approved by the EPA on October 13, 2005.

2.1 Floodplain Topographic Mapping

Existing topographic mapping available for the Upper Hudson River floodplains provided elevation contour intervals of 5 feet. Higher resolution topographic mapping with an elevation contour of 1 foot was prepared for a select portion of the Upper Hudson River floodplains, including the islands within the river, from approximately Fort Edward to Schuylerville, New York. This refined topographic mapping activity provided additional data necessary to support further evaluation of the distribution of PCBs in the floodplain soils. The topographic mapping was prepared using aerial photographs taken in the spring of 2002. The mapping was completed at a scale of 1 inch equals 30 feet.. The work was conducted by a New York State-Licensed Land Surveyor (Chas H. Sells, Inc.) and conforms to the National Map Accuracy Standards. The new topographic mapping was overlaid on top of aerial photographic images of the project area, as presented on Figures 1-10 through 1-17. The topographic data is also provided in Appendix A (on the compact disk (CD) that accompanies this report).

2.2 Field Reconnaissance

Based upon review of the floodplain PCB data collected by the EPA and NOAA, and discussions between GE, EPA, and NYSDEC on June 2, 2005, a subset of the areas that were sampled by the EPA in 2004 were targeted for field reconnaissance, as presented in Table 2-1 below (note that several transects were combined into general transect areas based on their proximity to one another). These field reconnaissance areas are shown on Figures 1-2 through 1-9.

Table 2-1 – Summary of Locations Targeted by GE and EPA for Field Reconnaissance

EPA Transects/Transect Areas
T8E
T9E – T14E, including Three Sister's Islands
T12W – T14W
T20W – T23W
T27W - T29W
T31W
T33W
T34E – T36E
T37E
T38W
T40W
T42W – T43W
T46W

The objectives of the field reconnaissance activities were to:

- Assess current land use in each area and determine whether, based on the land use assessment and EPA sampling results, there was a potential for human exposure that warranted further sampling during the 2005 investigation activities;

- Collect information regarding site physical characteristics that may have influenced the observed distribution of PCBs in the floodplain soils (e.g., local topography, land use, vegetative cover); and

- Select the number of samples and specific sampling locations in the areas where additional sampling was deemed appropriate.

The field reconnaissance activities performed as part of the 2005 FDC activities are further discussed below.

2.2.1 Assessment of Site Physical Characteristics and Land Use

Field reconnaissance activities for the assessment of current land use and site physical characteristics were initiated by representatives of GE, EPA, NYSDEC, NYSDOH, and the New York State Canal Corporation (NYSCC) on June 28 and 29, 2005. The following areas that were targeted for reconnaissance could not be visited and evaluated on June 28 and 29, 2005 because property access was not granted by the respective

property owners prior to the site visit: EPA transects T12W through T14W, T20W through T23W, T34E, and the northern and middle islands of the Three Sister's Islands. Additionally, transects T31W and T33W, located in the landlocked section between the Thompson Island Dam and the Fort Miller Dam, could not be accessed by the boat available during the reconnaissance.

Field reconnaissance personnel accessed the targeted areas either from landside, via automobile, or from the water, by boat. However, three of the targeted areas were viewed by boat from off-shore (T38W, T40W, and T46W). During the field reconnaissance activities, field personnel noted the presence of features indicative of specific land use, including, where applicable: buildings, docks and other man-made structures; cleared/maintained areas; evidence of construction, trails/paths, recreational camps, and evidence of agricultural use. Field personnel also noted the presence of features and site characteristics that indicated a lack of use or would limit human access to the areas. Such features included steep and/or rocky banks, dense vegetation, low-lying marshy areas, evidence of frequent flood inundation, and river/shoreline characteristics that would limit access. To the extent possible, the field representatives also made a qualitative assessment of the apparent frequency of property use (e.g., seasonal). Field Reconnaissance Logs (used by field personnel as a guide to document appropriate information) are presented in Appendix B of this Summary Report. Representative photographs taken during the field reconnaissance activities are presented in Appendix C.

Throughout the reconnaissance activities, the observations regarding land use and site physical characteristics were discussed in the field among representatives from GE, the EPA, NYSDEC, NYSDOH, and NYSCC. For each area a consensus decision was made as to the need for additional sampling during the 2005 phase of floodplain investigation. During the field reconnaissance activities the EPA representatives requested, and GE agreed, to collect samples on the island located off-shore from EPA Transect 37E.

2.2.2 Selection of Sample Locations

As noted above, the determination as to whether additional sampling was appropriate in each reconnaissance area was made in consultation with the EPA, NYSDEC, NYSDOH, and NYSCC based upon the results of the November 2004 EPA sampling and the site physical characteristics/land use assessment performed on June 28 and 29, 2005. In the areas where additional sampling was deemed appropriate, additional field reconnaissance was performed by representatives of GE and EPA on July 6 and 7, 2005 for the purpose of selecting the number of samples and the specific sampling locations at each area (representatives from the NYSDEC, NYSDOH, and NYSCC were invited, but did not attend the field reconnaissance on July 6 and 7, 2005). The number of

samples and specific sampling locations were selected on an area-by-area basis in consideration of local topography, observed land use, and the stated project objectives. Soil sampling locations were identified using pin flags and the coordinates and elevations were recorded using survey-grade GPS equipment (Leica 500 Series). Conventional survey techniques were also used in addition to the GPS equipment in the areas where tree cover limited the effectiveness of the GPS equipment. Following the field reconnaissance activities, the soil sampling locations were plotted on a series of drawings (based on the sample location coordinates collected in the field), and the drawings were provided to the EPA on August 16, 2005 for review and approval.

On September 14, 2005, a meeting was held at NYSDEC's office in Albany, New York with representatives of GE, EPA, NYSDEC, NYSDOH, and the New York State Attorney General's Office (NYAG) to discuss the proposed sampling locations. At the meeting, the EPA indicated that property access had been obtained for the middle and northern islands of the Three Sister's Islands. In addition, the EPA requested that GE collect samples at three additional properties that were not initially targeted for field reconnaissance or sampling: a property located adjacent to the Fort Edward Yacht Basin; a property located immediately south of EPA Transect 37E; and a property located north of EPA Transect 38E. Sampling locations in those five areas were selected in the field, in consultation with EPA representatives, between October 31, 2005 and November 3, 2005.

Table 2-2 below presents a listing of the areas where it was agreed that sampling was appropriate during the 2005 floodplain investigation activities, and presents the number of sample locations selected at each area. The coordinates and elevation data for the 2005 sampling locations are presented on Table 2-3, and the soil sampling locations are presented on Figures 1-2 through 1-17 (along with the 2000 NOAA and 2004 EPA sampling locations).

Table 2-2 – Summary of 2005 Sample Collection Areas and Number of Sample Locations

Sample Area	Number of Sample Locations
Property Near Fort Edward Yacht Basin	5
EPA Transects 9E -13E	19
Three Sister's Islands (Northern Island)	8
Three Sister's Islands (Middle Island)	17
Three Sister's Islands (Southern Island)	13
EPA Transects 26W-27W	8
EPA Transects 35E-36E	6
EPA Transect 37E	12
Island Off-Shore from 37E	4
Property South of Transect 37E	13
Property North of Transect 38E	4
Total Number of Sample Locations	**109**

2.3 Field Sampling and Laboratory Analyses

This section contains a summary of the 2005 field sampling activities performed by Blasland, Bouck & Lee, Inc. (BBL) on behalf of GE, including: soil sample collection methods; soil sample analytical protocols; laboratory analytical results; and quality assurance/quality control (QA/QC) procedures.

2.3.1 Soil Sample Collection

Soil sampling was performed from October 24, 2005 to November 8, 2005. EPA and/or NYSDEC personnel provided oversight during sampling activities. BBL personnel manually collected soil samples using a Macro-Core® device advanced with a slide hammer. The Macro-Core device consists of an outer steel barrel with an inner acetate liner. The pre-determined sampling locations were identified using GPS equipment and conventional survey techniques where necessary. Photographs of the sampling and survey equipment are presented in Appendix C. Table 2-4 presents a summary of mean river flow conditions collected by the United States Geological Survey (USGS) at their gauging station in Fort Edward, New York for the period of time several days before sampling and during sample collection (October 19, 2005 through November 8, 2005).

At each sampling location, borings were advanced to a depth of 3 feet bgs. BBL sampling personnel maintained possession of the soil cores following collection and transported them to a dedicated core processing facility located within a secure area at the GE facility in Ford Edward, New York. At the core processing facility, BBL personnel logged and classified each core according to the Unified Soil Classification System (USCS). Other visual observations, including grain size characteristics, sedimentary structures, organic matter, and relative moisture content, were documented. For each sampling location, attempts were made to obtain soil samples from the following depth intervals:

- 0 to 2 inches;
- 2 to 6 inches;
- 6 to 12 inches;
- 12 to 18 inches;
- 18 to 24 inches; and
- 24 to 36 inches.

The objective of the discrete sampling depth intervals was to characterize the vertical extent of PCBs in the floodplain soils. Due to varying conditions at the sampling sites, including moisture content, lithology, and the presence or absence of obstructions (cobbles, roots, etc.), sample recovery was variable. In accordance with the FDC Work Plan, a maximum of three attempts were made to advance the sampler to the target depth and obtain the desired recovery at the sampling location. In the event of limited recovery (less than 24 inches) at an individual location, borings were advanced up to three additional times in at least three additional locations in the general vicinity (i.e., within one foot of the original sample location) to attempt to recover as much sample as possible for the 24 to 36 inch interval. Despite these efforts, the 24- to 36-inch interval was not always obtained and in a few instances, recovery was less than 24 inches. Soil borings were backfilled with topsoil and seeded. Soil sampling activities were documented in dedicated field logbooks. Table 2-5 identifies the sample depth intervals that were obtained at each soil sampling location. Soil boring logs for each sample location are presented in Appendix D.

Samples were identified with an alpha-numeric designation system to assign each sample a unique sample identifier and facilitate sample tracking. Each FDC transect was assigned a unique alpha-numeric label to differentiate it from other FDC transects as well as NOAA and EPA transects. FDC transects began with the prefix "GET" (representing "General Electric Transect"). An alpha-numeric label followed the prefix to uniquely identify the transect. The unique label was assigned based upon the EPA transect(s) that are located closest to the FDC transects. If the FDC transect was located in-line with the EPA transect, it was assigned the same number as the EPA transect followed by an "A." If the FDC transect was located between two EPA transects, the EPA transects that bound it to the north and south were indicated in the identifier. The transect labels also indicated the side of the river (e.g., "E" for east or "W" for west) or if the transect was located on an island ("I"). In instances where multiple FDC transects were located between EPA transects, a sequential letter was assigned following the letter indicating the side of the river. For example, an FDC transect located on the east side of the river between EPA transects 9 and 10, was labeled GET-9-10-E. In the event multiple FDC transects exist between EPA transects 9 and 10, they were labeled in sequential order (from south to north) GET-9-10-EA, GET-9-10-EB, and so on.

Individual borings along an FDC transect were labeled with an alpha numeric identification starting with "B" and ending with a sequential numbering system, generally beginning closest to the river and increasing further away. Depth intervals were indicated for individual soil samples at each boring location. For instance, a soil sample collected from 0 to 2 inches from the boring located closest to the river along transect GET-9-EA was labeled GET-9-EA-B1(0-2).

2.3.2 Soil Sample Analytical Protocols and Results

Following sample core processing, soil samples were placed in laboratory-supplied sample containers. Soil sample nomenclature was applied in accordance with the FDC Work Plan as described above. The labeled soil sample containers for each depth interval were packaged and shipped on ice, under chain of custody, by overnight courier to NYSDOH Environmental Laboratory Accreditation Program (ELAP) certified laboratories for the required analyses.

All samples collected from the sample depth intervals less than 24 inches bgs were analyzed for PCBs and TOC using Contract Laboratory Program Statement of Work (CLP SOW) OLM04.3 (modified) and the Lloyd Kahn Method, respectively. As agreed upon with the EPA and described in the FDC Work Plan, the PCB analytical method was modified to be consistent with the method utilized by the EPA for the 2004 investigation. Ten percent of the samples collected were also analyzed for grain size by ASTM Method D422. Soil materials for TOC and grain size analyses were collected from the same sampling points and intervals as those targeted for PCB analysis. PCB analyses were performed by CompuChem, Inc. (CompuChem), and TOC analyses were performed by Northeast Analytical, Inc. (NEA). Grain size analyses were performed by ACCURA Engineering and Consulting Services, Inc. under subcontract to CompuChem.

In accordance with the FDC Work Plan, samples that were collected from the 24- to 36-inch bgs interval were sent to CompuChem and NEA where they were extracted and archived pending potential future PCB and TOC analyses. The PCB data received from the contract laboratory were reviewed to determine if the archived samples should analyzed. If PCB concentrations were greater than 1 ppm in the sample interval directly above the archived sample, then the sample was analyzed for PCBs and TOC.

The PCB and TOC analytical data for the 2005 GE sampling activities are provided in Table 2-5. The grain size data are summarized in Table 2-6. Figures 1-2 through 1-5 present aerial photographs with the NOAA, EPA, and GE PCB results for the 0- to 6-inch sample depth interval in River Sections 1, 2, and 3. Figures 1-6 through 1-9 present aerial photographs with the NOAA, EPA, and GE PCB results from sample depths greater than 6 inches bgs in River Sections 1, 2, and 3. A more detailed presentation of the 2005 PCB data for both surface and subsurface soil samples is included on Figures 1-10 through 1-17. Figures 1-10 through 1-17 also include a detailed presentation of the surface and subsurface data for NOAA and EPA sampling locations in the vicinity of the 2005 sampling locations. The Laboratory Data Sheets (Form 1 sheets) for the PCB and TOC analyses are included in the *Data Usability Summary Reports* (DUSRs) that have been prepared for each sample delivery

group (SDG). The DUSRs are presented as Appendix E (on the CD that accompanies this Data Summary Report), and are discussed in more detail below. The grain size laboratory data reports provided by ACCURA are presented in Appendix F.

2.3.3 Quality Assurance/Quality Control

The Quality Assurance/Quality Control (QA/QC) criteria detailed in the FDC Work Plan were adhered to during the completion of the 2005 FDC activities. This included the collection of the appropriate number of QA/QC samples, including field duplicates and rinse blanks. As further discussed in Section 3 of this Data Summary Report, all PCB and TOC data have been formally validated to verify that the appropriate level of QA/QC was followed during laboratory sample analyses and to ascertain the overall data quality and usability.

3. Data Validation

Consistent with the FDC Work Plan, all of the PCB and TOC laboratory data associated with the floodplain sampling activities were validated to evaluate data quality and usability. The PCB and TOC data validation was conducted in accordance with the following guidance documents:

- *EPA's National Functional Guidelines for Data Validation,* (October 1999) (EPA, 1999); and

- *EPA Region II Guidelines for Organic Data Validation, Standard Operating Procedure (SOP) HW6* (Revision 12, March 1993) (EPA, 1993).

The results of the data validation process and overall data usability of the data are presented below. A CD containing the DUSRs for each PCB and TOC SDG is included as Appendix E. Data qualifiers have been added to the PCB and TOC data summary table (Table 2-5) as appropriate based on the results of the data validation and as described below.

3.1 Data Review

The QA/QC parameters that were reviewed during the PCB and TOC data validation process included:

- Holding times;
- Blank contamination;
- Instrument calibration;
- Surrogate recovery;
- Matrix spike/matrix spike duplicate (MS/MSD) and laboratory duplicate analysis;
- Laboratory control sample (LCS) analysis;
- Field duplicates analysis; and
- Compound identification.

When samples were analyzed outside of the required holding time (but within two times the required holding time documented in the FDC Work Plan), it resulted in the data being qualified as estimated (J).

When a compound was detected in a quality assurance blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) was calculated (equal to five times the detected concentration in the blank sample). All sample analytical results associated with that quality assurance blank were compared to the calculated BAL to determine if the data needed to be qualified. Samples were qualified as non-detect (U) if the detected concentration was less than the calculated BAL.

The PCB analyses for this project followed the instrument calibration criteria documented in Method CLP OLM04.3, modified per the FDC Work Plan. Sample results associated with surrogates, MS/MSDs and/or LCSs that exhibited recoveries outside of the specified control limits were also qualified as estimated (J). Sample results associated with percent differences of the retention times of the quantitated peaks between the primary and confirmation columns greater than the control limits were qualified as presumptive (JN), estimated (J), or non-detect (U), based on the severity of the percent difference.

A detailed explanation the data validation performed on each individual data set is provided in the DUSRs.

3.2 Overall Data Usability

The overall precision, accuracy, representativeness, comparability, and completeness parameters determined from the PCB and TOC data reviews were used as indicators of overall PCB and TOC data quality. Data completeness with respect to usability was calculated separately for the PCB and TOC analyses. The percent usability calculation also includes quality control samples (i.e., equipment blank and field duplicate data) collected to aid in the evaluation of data usability.

Table 3-1 – Data Usability Summary

Parameter	Percent Usability
PCBs	100%
TOC	100%

Completeness is defined as the percentage of measurements that are judged to be valid or usable to meet the prescribed data quality objectives (DQOs). The actual completeness of this analytical data set was 100% for both PCBs and TOC. While there is no formal data validation procedure for grain size data (e.g., no holding times, etc.), the grain size data provided by the analytical laboratory were reviewed and determined to be usable.

4. References

BBL. 2005. *Floodplain Data Collection Work Plan, Upper Hudson River* (FDC Work Plan). Prepared for General Electric Company, Albany, NY.

EPA. 2002. *Hudson River PCBs Site – Record of Decision and Responsiveness Summary* (ROD). New York, NY.

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Weston Solutions, Inc. 2004. *Draft Field Sampling Plan for Floodplain Soil Sampling, Hudson River PCBs Site, New York.* Prepared for EPA by the Region 2 Site Assessment Team under EPA Contract No. 68-W-00-121.