REPORT

Volume I of II

Conceptual Removal Design/Removal Action Work Plan for the 20s, 30s, and 40s Complexes

Volume II of II

General Electric Company
Pittsfield, Massachusetts

December 2001

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BLASLAND, BOUCK & LEE, INC.
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CONCEPTUAL RD/RA WORK PLAN FOR 20s, 30s, AND 40s COMPLEXES

PEDA AND SELECT PRE-DESIGN SOIL SAMPLING DATA VALIDATION REPORT

1.0 General

This attachment summarizes the Tier I and Tier II data review performed for certain soil samples collected during pre-design investigation activities at 20s, 30s, 40s Complexes located in Pittsfield, Massachusetts. These samples consist of samples collected at the request of the Pittsfield Economic Development Authority (PEDA), as well as two other samples (95-11 and 95-23). The samples were analyzed for polychlorinated biphenyls (PCBs) and/or other constituents listed in Appendix IX of 40 CFR Part 264 plus three additional constituents -- benzidine, 2-chloroethyl vinyl ether, and 1,2-diphenylhydrazine (hereafter referred to as Appendix IX+3), excluding pesticides and herbicides, by CT&E Environmental Services Inc. of Charleston, West Virginia and Paradigm Analytical Laboratories Inc., of Wilmington, North Carolina. Data validation was performed for 49 PCB samples, 22 volatile organic compound (VOC) samples, 19 semi-volatile organic compound (SVOC) samples, 18 polychlorinated dibenzo-p-dioxin (PCDD)/polychlorinated dibenzofuran (PCDF) samples, 19 metals samples, and 19 cyanide/sulfide samples that were collected.

2.0 Data Evaluation Procedures

This memorandum outlines the applicable quality control criteria utilized during the data review process and any deviations from those criteria. The data review was conducted in accordance with the following documents:

- *Field Sampling Plan/Quality Assurance Project Plan, General Electric Company, Pittsfield, Massachusetts*, Blasland, Bouck & Lee, Inc. (approved October 17, 2000);
- *Region I Tiered Organic and Inorganic Data Validation Guidelines*, USEPA Region I (July 1, 1993);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses,* USEPA Region I (June 13, 1988) (Modified February 1989);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (February 1, 1988) (Modified November 1, 1988);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (Draft, December 1996); and,
- *National Functional Guidelines for Dioxin/Furan Data Validation, USEPA (Draft, January 1996).*

A tabulated summary of the Tier I and Tier II data evaluation is presented in Table 1. Each sample subjected to evaluation is listed in Table 1 to document that data review was performed and to present the highest level of data validation (Tier I or Tier II) that was applied. Samples that required data qualification are listed separately for each parameter (compound or analyte) that required qualification.

The following data qualifiers have been used in this data evaluation.

J The compound or analyte was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL).

U The compound or analyte was analyzed for, but was not detected. The sample quantitation limit is presented and adjusted for dilution and (for solid samples only) percent moisture. Non-detected sample results are presented as ND(PQL) within this report and in Table 1 for consistency with previous documents prepared for this investigation.

UJ The compound or analyte was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual level of quantitation. Non-detected sample results that required qualification are presented as ND(PQL) J within this report and in Table 1 for consistency with previous documents prepared for this investigation.

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

3.0 Data Validation Procedures

The FSP/QAPP provides (in Section 7.5) that all analytical data will be validated to a Tier I level following the procedures presented in the *Region I Tiered Organic and Inorganic Data Validation Guidelines* (USEPA guidelines). Accordingly, 100 percent of the analytical data for these investigations were subjected to Tier I review. The Tier I review consisted of a completeness evidence audit as outlined in the *USEPA Region I CSF Completeness Evidence Audit Program* (USEPA Region I, 7/31/91) to ensure that all laboratory data and documentation were present. A tabulated summary of the samples subjected to Tier I and Tier II data evaluation is presented below.

Summary of Samples Subjected to Tier I and Tier II Data Validation

	Tier I Only			Tier I &Tier II			
Parameter	**Samples**	**Duplicates**	**Blanks**	**Samples**	**Duplicates**	**Blanks**	**Total**
PCBs	20	0	2	21	5	1	49
VOCs	0	0	0	14	2	6	22
SVOCs	0	0	0	14	3	2	19
PCDDs/PCDFs	0	0	0	14	2	2	18
Metals	0	0	0	14	3	2	19
Cyanide/Sulfide	0	0	0	14	3	2	19
Total	20	0	2	91	18	15	146

In the event that data packages were determined to be incomplete, the missing information was requested from the laboratory. Upon completion of the Tier I review, the data packages complied with the USEPA Region I Tier I data completeness requirements.

As specified in the FSP/QAPP, approximately 25 percent of the laboratory sample delivery group packages were randomly chosen to be subjected to a Tier II review. A Tier II review was also performed to resolve data usability limitations that were identified from laboratory qualification of the data during the Tier I data review. The Tier II data review consisted of a review of all data package summary forms for identification of quality assurance / quality control (QA/QC) deviations and qualification of the data according to the Region I Data Validation Functional Guidelines. Due to the variable sizes of the data packages and the number of data qualification issues identified during the Tier I review, approximately 82 percent of the data were subjected to a Tier II review. The Tier II review resulted in the qualification of data for several samples due to minor QA/QC deficiencies. Additionally, all field duplicates were examined for relative percent difference (RPD) compliance with the criteria specified in the FSP/QAPP.

When qualification of the sample data was required, the sample results associated with a QA/QC parameter deviation were qualified in accordance with the procedures outlined in the USEPA Region I data validation guidance documents. When the data validation process identified several quality control deficiencies, the cumulative effect of the various deficiencies was employed in assigning the final data qualifier. A summary of the QA/QC parameter deviations that resulted in data qualification is presented below for each analytical method.

4.0 Data Review

Initial calibration criterion for organic analyses requires that the average relative response factor (RRF) have a value greater than 0.05. Sample results were qualified as an estimate (J) when this criterion was exceeded. The compounds that exceeded initial calibration criterion and the number of samples qualified are presented below.

Analysis Qualified Due to Initial Calibration Deviations

Analysis	Compound	Number of Affected Samples	Qualification
VOCs	1,4-Dioxane	22	J
	Acetonitrile	15	J
	Acrolein	22	J
	Isobutanol	22	J
	Propionitrile	22	J
SVOCs	4-Phenylenediamine	15	J
	Aramite	6	J
	Benzidine	6	J
	Hexachlorophene	6	J
	Methapyrilene	17	J
	Thionazin	2	J

Continuing calibration criterion for organic analyses requires that the continuing calibration RRF have a value greater than 0.05. Sample results were qualified as an estimate (J) when this criterion was exceeded. The compounds that exceeded continuing calibration criterion and the number of samples qualified are presented below.

Analysis Qualified Due to Continuing Calibration Deviations (RRF)

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	4-Phenylenediamine	4	J
	Aramite	13	J
	Hexachlorophene	8	J
	Pentachlorobenzene	4	J
	Thionazin	4	J

Several of the organic compounds (including the compounds presented in the two tables above detailing RRF deviations) exhibit instrument response factors (RFs) that are below the USEPA Region I minimum value of 0.05, but meet the analytical method criterion, which does not specify minimum response factors for these compounds. These compounds were analyzed by the laboratory at a higher concentration than the compounds that normally exhibit RFs greater than the USEPA Region I minimum value of 0.05 in an effort to demonstrate acceptable response. USEPA Region I guideline state that non-detected compound results associated with a RF less than the minimum value of 0.05 are to be rejected. In the case of these select organic compounds, the RF is an inherent problem with the current analytical methodology; therefore the non-detected samples results were qualified as an estimate (J).

Initial calibration criterion for SVOCs requires that the percent relative standard deviation (%RSD) must be less than or equal to 30 percent. Sample data for detected and non-detected compounds with %RSD values greater than 30 percent were qualified as approximated (J). The compounds that exceeded initial calibration criterion and the number of samples qualified due those exceeded are identified below.

Compounds Qualified Due to Initial Calibration %RSD Deviations

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	2,4-Dinitrophenol	11	J

The continuing calibration criterion requires that the %D between the initial calibration RRF and the continuing calibration RRF for VOCs and SVOCs be less than 25 percent. Sample data for detected and non-detected compounds with %D values that exceeded the continuing calibration criterion were qualified as approximated (J). A summary of the compounds that exceeded continuing calibration criterion and the number of samples qualified due to those deviations are identified below.

Compounds Qualified Due to Continuing Calibration of %D Values

Analysis	Compound	Number of Affected Samples	Qualification
VOCs	1,4-Dioxane	2	J
	2-Hexanone	8	J
	4-Methyl-2-pentanone	7	J
	Acetone	1	J
	Dichlorodifluoromethane	4	J
	Iodomethane	1	J
SVOCs	2,4-Dinitrophenol	4	J
	2-Methylphenol	2	J
	3,3'-Dichlorobenzidine	5	J
	3,3'-Dimethylbenzidine	13	J

Compounds Qualified Due to Continuing Calibration of %D Values

Analysis	Compound	Number of Affected Samples	Qualification
SVOCs	3-Methylcholanthrene	13	J
	4,6-Dinitro-2-methylphenol	4	J
	4-Aminobiphenyl	5	J
	4-Nitroquinoline-1-oxide	4	J
	4-Phenylenediamine	17	J
	a,a'-Dimethylphenethylamine	1	J
	Aramite	6	J
	Benzidine	17	J
	Diallate	4	J
	Diphenylamine	4	J
	Hexachlorophene	5	J
	Methapyrilene	13	J
	N-Nitroso-di-n-butylamine	4	J
	N-Nitrosodiethylamine	8	J
	N-Nitrosopyrrolidine	4	J
	p-Dimethylaminoazobenzene	8	J
	Pentachloronitrobenzene	8	J
	Phenacetin	13	J
	Pronamide	4	J
	Thionazin	4	J

Field, laboratory, and method blanks were analyzed to evaluate whether field sampling equipment or laboratory background contamination may have contributed to the reported sample results. When detected compounds were identified in a blank sample, blank action levels were calculated at ten times the blank concentrations for the common laboratory contaminant compounds (carbon disulfide, OCDD, and OCDF.) and five times the blank concentration for all other detected compounds. Detected sample results that were below the blank action level were qualified with a "U". The organic compounds detected in the method blanks and which resulted in qualification of sample data are presented below.

Compounds Qualified Due to Blank Deviations

Analysis	Compound	Number of Affected Samples	Qualification
VOCs	Carbon Disulfide	1	U
PCDDs/PCDFs	1,2,3,4,6,7,8-HpCDD	8	U
	1,2,3,4,7,8-HxCDF	4	U
	1,2,3,6,7,8-HxCDF	5	U
	1,2,3,7,8,9-HxCDF	4	U
	1,2,3,7,8-PeCDF	4	U
	2,3,4,6,7,8-HxCDF	1	U
	2,3,4,7,8-PeCDF	2	U
	2,3,7,8-TCDF	2	U
	HpCDDs (total)	5	U
	HxCDFs (total)	4	U
PCDDs/PCDFs	OCDD	11	U

Compounds Qualified Due to Blank Deviations

Analysis	Compound	Number of Affected Samples	Qualification
	PeCDFs (total)	2	U

Matrix spike (MS) sample analysis recovery criteria for inorganics require that spike recoveries be between 75 and 125 percent and for organics the MS recoveries must be within the laboratory generated QC acceptance limits specified on the MS reporting form. Inorganic sample results that exceeded these limits but, had MS recoveries greater than 30 percent were qualified as approximated (J). Organic sample results that exceeded laboratory generated QC acceptance limits and have MS recoveries greater than 10 percent were qualified as approximated (J). Analytes that did not meet MS recovery criteria and the samples qualified due to those deviations are presented below.

Analytes/Compounds Qualified Due to Matrix Spike Recovery Deviations

Analysis	Analyte/Compounds	Number of Affected Samples	Qualification
Inorganics	Selenium	4	J
SVOCs	2,4,5-Trichlorophenol	1	J
	2,4,6-Trichlorophenol	1	J
	2,4-Dinitrotoluene	1	R
	2-Methylphenol	1	J
	3&4-Methylphenol	1	J
	Hexachlorobenzene	1	J
	Hexachlorobutadiene	1	J
	Nitrobenzene	1	J
	Pyridine	1	J

MS sample analysis recovery criteria for organics require that the RPD between the MS and matrix spike duplicate (MSD) be less than the laboratory generated QC acceptance limits specified on the MS reporting form. The compounds that exceeded RPD limits and the number of samples qualified due to those exceedences are identified below.

Compounds Qualified Due to Matrix Spike RPD Deviations

Analysis	Compounds	Number of Affected Samples	Qualification
SVOCs	2,4,5-Trichlorophenol	1	J
	2,4,6-Trichlorophenol	1	J
	3&4-Methylphenol	1	J
	Nitrobenzene	1	J
	Pentachlorophenol	1	J
PCBs	Aroclor-1254	1	J
	Total PCBs	1	J

Laboratory duplicate samples were analyzed to evaluate the overall precision of laboratory and field procedures for inorganic analysis. The RPD between duplicate samples is required to be less than 35 percent for soil samples with analyte concentrations greater than five times the PQL. Detected sample results for analytes that exceeded these limits were qualified as approximated (J). The inorganic analytes that did not

meet laboratory duplicate RPD criteria and the samples qualified due to those deviations are presented below.

Analytes Qualified Due to Laboratory Duplicate Deviations

Analysis	Analytes	Number of Affected Samples	Qualification
Inorganics	Chromium	4	J

Field duplicate samples were analyzed to evaluate the overall precision of laboratory and field procedures. The RPD between duplicate samples is required to be less than 50 percent for soil sample values greater than five times the PQL. Sample results for analytes that exceeded these limits were qualified as approximated (J). The compounds that did not meet field duplicate RPD requirements and the number of samples qualified due to those deviations are presented below.

Compounds Qualified Due to Field Duplicate Deviations

Analysis	Analytes	Number of Affected Samples	Qualification
Inorganics	Zinc	4	J
PCBs	Aroclor-1260	2	J
	Total PCBs	2	J

5.0 Overall Data Usability

This section summarizes the analytical data in terms of its completeness and usability for site characterization purposes. Data completeness is defined as the percentage of sample results that have been determined to be usable during the data validation process. Data completeness with respect to usability was calculated separately for inorganic and each of the organic analyses. The percent usability calculation included analyses evaluated under both the Tier I and Tier II data validation reviews. The percent usability calculation also includes quality control samples collected to aid in the evaluation of data usability. The number of field/equipment blank, trip blank, and field duplicate data determined to be unusable as a result of the validation process are represented in the percent usability value tabulated below.

Data Usability

Parameter	Percent Usability	Rejected Data
Inorganics	100	None
Cyanide and Sulfide	100	None
Volatile Organics	100	None
Semivolatile Organics	99.9	A total of 1 sample results was rejected due to matrix spike recovery deviations.
PCBs	100	None
PCDDs/PCDFs	100	None

The data package completeness as determined from the Tier I data review was used in combination with the data quality deviations identified during the Tier II data review to determine overall data quality. As specified in the FSP/QAPP, the overall precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters determined from the Tier I and Tier II data reviews were used as indicators of overall data quality. These parameters were assessed through an evaluation of the results of the field and laboratory QA/QC sample analyses to provide a measure of compliance of the analytical data with the data quality objectives (DQOs) specified in the FSP/QAPP. Therefore, the following sections

present summaries of the PARCC parameters assessment with regard to the DQOs specified in the FSP/QAPP.

5.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. For this investigation, precision was defined as the RPD between duplicate sample results. The duplicate samples used to evaluate precision included laboratory duplicates, field duplicates, MS/MSD samples, and ICP serial dilution samples. For this analytical program, 0.09 percent of the data required qualification for laboratory duplicate deviations, 0.13 percent of the data required qualification for field duplicate deviations, 0.15 percent of the data required qualification for MS/MSD RPD deviations. None of the data required qualification ICP serial dilution deviations.

5.2 Accuracy

Accuracy measures the bias in an analytical system, or the degree of agreement of a measurement with a known reference value. For this investigation, accuracy was defined as the percent recovery of QA/QC samples that were spiked with a known concentration of an analyte or compound of interest. The QA/QC samples used to evaluate analytical accuracy included instrument calibration, internal standards, laboratory control samples, MS/MSD samples, contract required detection limit (CRDL) standards, and surrogate compound recoveries. For this analytical program, 8.6 percent of the data required qualification for calibration deviations and 0.42 percent of the data required qualification for matrix spike/matrix spike duplicate recoveries. None of the data required qualification internal standards recovery, laboratory control sample recovery, contract required detection limit (CRDL) standard recovery, or surrogate compound recovery deviations.

5.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of the sampling program. The representativeness criterion is best satisfied by making certain that sampling locations are selected properly and a sufficient number of samples are collected. This parameter has been addressed by collecting samples at locations specified in Agency approved work plans, and by following the procedures for sample collection/analyses that were described in the FSP/QAPP. Additionally, the analytical program used procedures that were consistent with USEPA approved analytical methodology. A QA/QC parameter that is an indicator of the representativeness of a sample is holding time. Holding time criteria are established to maintain the samples in a state that is representative of the in-situ field conditions before analysis. For this analytical program, none of the data required qualification for exceeding holding time requirements.

5.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. This goal was achieved through the use of the standardized techniques for sample collection and analysis presented in the FSP/QAPP. The USEPA SW-846[1] analytical methods presented in the

[1] Test Methods for evaluating Solid Waste, SW-846, USEPA, Final Update III, December 1996

FSP/QAPP are updated on occasion by the USEPA to benefit from recent technological advancements in analytical chemistry and instrumentation. In most cases, the method upgrades include the incorporation of new technology that improves the sensitivity and stability of the instrumentation or allows the laboratory to increase throughput without hindering accuracy and precision. Overall, the analytical methods for this investigation have remained consistent in their general approach through continued use of the basic analytical techniques (i.e., sample extraction/preparation, instrument calibration, QA/QC procedures, etc.). Through this use of consistent base analytical procedures and by requiring that updated procedures meet the QA/QC criteria specified in the FSP/QAPP, the analytical data from past, present, and future sampling events will be comparable to allow for qualitative and quantitative assessment of site conditions.

5.5 Completeness

Completeness is defined as the percentage of measurements that are judged to be valid or usable to meet the prescribed DQOs. The completeness criterion is essentially the same for all data uses -- the generation of a sufficient amount of valid data. The actual completeness of this analytical data set ranged from 99.9 percent to 100 percent for individual analytical parameters and had an overall usability of 99.9 percent, which is greater than the minimum required usability of 90 percent as specified in the FSP/QAPP.

The rejected sample data for these investigations include the sample analyses result for 1 SVOC for sample location PEDA-25-SB-1 (1-6) due to low MS recovery. The LCS extracted with the MS exhibited acceptable recoveries. Due to the acceptable LCS recovery re-sampling for this compound at this sampling location is not recommended since the laboratory has demonstrated a matrix interference that would present the same analytical performance limitations to any re-sampling of this location for the analysis of the 1 rejected SVOC.

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
PCBs											
1COP394	95-11 (0 -1)	3/13/01	Soil	Tier II	Yes	Aroclor-1260	Field Duplicate RPD (Soil)	79.1%	<50%	12 J	
						Total PCBs	Field Duplicate RPD (Soil)	79.1%	<50%	12 J	
1COP394	95-23 (0 -1)	3/13/01	Soil	Tier II	Yes	Aroclor-1254	MS/MSD RPD	47.0%	<40%	0.12 J	
						Total PCBs	MS/MSD RPD	47.0%	<40%	0.34 J	
1COP394	95-DUP-1 (0 -1)	3/13/01	Soil	Tier II	Yes	Aroclor-1260	Field Duplicate RPD (Soil)	79.1%	<50%	5.2 J	Duplicate of 95-11 (0 -1)
						Total PCBs	Field Duplicate RPD (Soil)	0.791	<50%	5.2 J	
1B0P526	PEDA-42-SB2 (0 - 1)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-42-SB2 (1 - 6)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-42-SB2 (6 - 15)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-42-SB3 (0 - 1)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-42-SB3 (1 - 6)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-42-SB3 (6 - 10)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-44-SB2 (0 - 1)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-44-SB2 (1 - 4)	2/19/01	Soil	Tier I	No						
1B0P526	PEDA-FIELD BLANK-1	2/19/01	Water	Tier I	No						
1B0P561	PEDA-25-SB-1 (0 - 1)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-25-SB-1 (1 - 6)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-25-SB-1 (6 - 15)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-42-SB-1 (0 - 1)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-42-SB-1 (1 - 6)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-42-SB-1 (6 - 15)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-44-SB-1 (0 - 1)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-44-SB-1 (1 - 4)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-44-SB-DUP-2 (1 - 4)	2/20/01	Soil	Tier II	No						Duplicate of PEDA-44-SB-1
1B0P589	PEDA-33-SB-1 (0 - 1)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-33-SB-1 (1 - 6)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-33-SB-1 (6 - 15)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-33-SB-2 (0 - 1)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-33-SB-2 (1 - 6)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-33-SB-2 (6 - 15)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-43-SB-1 (0 - 1)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-43-SB-1 (1 - 6)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-43-SB-1 (6 - 15)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-43-SB-2 (0 - 1)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-43-SB-2 (1 - 6)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-43-SB-2 (6 - 15)	2/21/01	Soil	Tier I	No						
1B0P589	PEDA-FIELD BLANK-2	2/21/01	Water	Tier I	No						
1B0P622	PEDA-29-B-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-29-B-SB-1 (1 - 6)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-29-B-SB-1 (6 - 15)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-A-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-A-SB-1 (1 - 6)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-A-SB-1 (6 - 15)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-X-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-X-SB-1 (1 - 6)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-X-SB-1 (6 - 15)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-34-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-34-SB-1 (1 - 3)	2/22/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (0 - 1)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (6 - 15)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-FIELD BLANK-3	2/28/01	Water	Tier II	No						
Metals											
1B0P526	PEDA-42-SB2 (6 - 15)	2/19/01	Soil	Tier II	No						
1B0P526	PEDA-42-SB3 (1 - 6)	2/19/01	Soil	Tier II	No						
1B0P526	PEDA-44-SB2 (0 - 1)	2/19/01	Soil	Tier II	No						
1B0P526	PEDA-FIELD BLANK-1	2/19/01	Water	Tier II	No						
1B0P561	PEDA-25-SB-1 (1 - 6)	2/20/01	Soil	Tier II	Yes	Chromium	Laboratory Duplicate RPD (Soil)	81.5%	<35%	6.00 J	
						Zinc	Field Duplicate RPD (Soil)	60.0%	<50%	39.0 J	
						Selenium	MS %R	73.6%	75% to 125%	ND(1.00) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
Metals (continued)											
1B0P561	PEDA-42-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	Chromium	Laboratory Duplicate RPD (Soil)	81.5%	<35%	7.70 J	
						Zinc	Field Duplicate RPD (Soil)	60.0%	<50%	88.0 J	
						Selenium	MS %R	73.6%	75% to 125%	ND(0.950) J	
1B0P561	PEDA-44-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	Chromium	Laboratory Duplicate RPD (Soil)	81.5%	<35%	16.0 J	
						Selenium	MS %R	73.6%	75% to 125%	ND(0.910) J	
						Zinc	Field Duplicate RPD (Soil)	60.0%	<50%	78.0 J	
1B0P561	PEDA-44-SB-DUP-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	Chromium	Laboratory Duplicate RPD (Soil)	81.5%	<35%	5.80 J	Duplicate of PEDA-44-SB-1
						Selenium	MS %R	73.6%	75% to 125%	ND(0.940) J	
						Zinc	Field Duplicate RPD (Soil)	60.0%	<50%	42.0 J	
1B0P589	PEDA-33-SB-1 (0 - 1)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-33-SB-2 (6 - 15)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-33-SB-2 (6 - 15)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-43-SB-1 (6 - 15)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-43-SB-2 (1 - 6)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-FIELD BLANK-2	2/21/01	Water	Tier II	No						
1B0P622	PEDA-29-B-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-A-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-X-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-34-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-FIELD BLANK-3	2/28/01	Water	Tier II	No						
VOCs											
1B0P526	PEDA-42-SB2 (9 - 10)	2/19/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.014	>0.05	ND(0.20) J	
						2-Hexanone	CCAL %D	27.2%	<25%	ND(0.011) J	
						4-Methyl-2-pentanone	CCAL %D	27.6%	<25%	ND(0.011) J	
						Acrolein	ICAL RRF	0.025	>0.05	ND(0.11) J	
						Isobutanol	ICAL RRF	0.010	>0.05	ND(0.23) J	
						Propionitrile	ICAL RRF	0.016	>0.05	ND(0.057) J	
1B0P526	PEDA-42-SB3 (2 - 4)	2/19/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.014	>0.05	ND(0.20) J	
						2-Hexanone	CCAL %D	27.2%	<25%	ND(0.014) J	
						4-Methyl-2-pentanone	CCAL %D	27.6%	<25%	ND(0.014) J	
						Acrolein	ICAL RRF	0.025	>0.05	ND(0.14) J	
						Isobutanol	ICAL RRF	0.010	>0.05	ND(0.29) J	
						Propionitrile	ICAL RRF	0.016	>0.05	ND(0.073) J	
1B0P526	PEDA-44-SB2 (0 - 1)	2/19/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.014	>0.05	ND(0.20) J	
						2-Hexanone	CCAL %D	27.2%	<25%	ND(0.012) J	
						4-Methyl-2-pentanone	CCAL %D	27.6%	<25%	ND(0.012) J	
						Acrolein	ICAL RRF	0.025	>0.05	ND(0.12) J	
						Isobutanol	ICAL RRF	0.010	>0.05	ND(0.25) J	
						Propionitrile	ICAL RRF	0.016	>0.05	ND(0.062) J	
1B0P526	PEDA-FIELD BLANK-1	2/19/01	Water	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.003	>0.05	ND(0.20) J	
						1,4-Dioxane	CCAL %D	52.4%	<25%	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.044	>0.05	ND(0.010) J	
						Acrolein	ICAL RRF	0.030	>0.05	ND(0.010) J	
						Dichlorodifluoromethane	CCAL %D	36.8%	<25%	ND(0.10) J	
						Isobutanol	ICAL RRF	0.014	>0.05	ND(0.20) J	
						Propionitrile	ICAL RRF	0.011	>0.05	ND(0.050) J	
1B0P526	Trip Blank	2/19/01	Water	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.003	>0.05	ND(0.20) J	
						1,4-Dioxane	CCAL %D	52.4%	<25%	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.044	>0.05	ND(0.010) J	
						Acrolein	ICAL RRF	0.030	>0.05	ND(0.010) J	
						Dichlorodifluoromethane	CCAL %D	36.8%	<25%	ND(0.10) J	
						Isobutanol	ICAL RRF	0.014	>0.05	ND(0.20) J	
						Propionitrile	ICAL RRF	0.011	>0.05	ND(0.050) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
VOCs (continued)											
1B0P561	PEDA-42-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.014	>0.05	ND(0.20) J	
						2-Hexanone	CCAL %D	27.2%	<25%	ND(0.013) J	
						4-Methyl-2-pentanone	CCAL %D	27.6%	<25%	ND(0.013) J	
						Acrolein	ICAL RRF	0.025	>0.05	ND(0.13) J	
						Isobutanol	ICAL RRF	0.010	>0.05	ND(0.25) J	
						Propionitrile	ICAL RRF	0.016	>0.05	ND(0.063) J	
1B0P561	PEDA-25-SB-1 (4 - 6)	2/20/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.014	>0.05	ND(0.20) J	
						2-Hexanone	CCAL %D	27.2%	<25%	ND(0.017) J	
						4-Methyl-2-pentanone	CCAL %D	27.6%	<25%	ND(0.017) J	
						Acrolein	ICAL RRF	0.025	>0.05	ND(0.17) J	
						Isobutanol	ICAL RRF	0.010	>0.05	ND(0.34) J	
						Propionitrile	ICAL RRF	0.016	>0.05	ND(0.084) J	
1B0P561	PEDA-25-SB-DUP-3 (4 - 6)	2/20/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	Duplicate of PEDA-25-SB-1
						2-Hexanone	CCAL %D	27.2%	<25%	ND(0.016) J	
						4-Methyl-2-pentanone	CCAL %D	27.6%	<25%	ND(0.016) J	
						Acrolein	ICAL RRF	0.025	>0.05	ND(0.16) J	
						Isobutanol	ICAL RRF	0.010	>0.05	ND(0.32) J	
						Propionitrile	ICAL RRF	0.016	>0.05	ND(0.080) J	
1B0P561	PEDA-44-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						2-Hexanone	CCAL %D	27.2%	<25%	ND(0.012) J	
						4-Methyl-2-pentanone	CCAL %D	27.6%	<25%	ND(0.012) J	
						Acrolein	ICAL RRF	0.025	>0.05	ND(0.12) J	
						Isobutanol	ICAL RRF	0.010	>0.05	ND(0.24) J	
						Propionitrile	ICAL RRF	0.016	>0.05	ND(0.061) J	
1B0P589	PEDA-33-SB-1 (0 - 1)	2/21/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.032	>0.05	ND(0.13) J	
						Acrolein	ICAL RRF	0.036	>0.05	ND(0.13) J	
						Isobutanol	ICAL RRF	0.006	>0.05	ND(0.26) J	
						Propionitrile	ICAL RRF	0.048	>0.05	ND(0.065) J	
1B0P589	PEDA-33-SB-2 (6 - 8)	2/21/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(19) J	
						Acetonitrile	ICAL RRF	0.044	>0.05	ND(9.6) J	
						Acrolein	ICAL RRF	0.030	>0.05	ND(9.6) J	
						Isobutanol	ICAL RRF	0.014	>0.05	ND(19) J	
						Propionitrile	ICAL RRF	0.011	>0.05	ND(4.8) J	
						Dichlorodifluoromethane	CCAL %D	28.8%	<25%	ND(0.96) J	
						Carbon Disulfide	Trip Blank	0.36	<3.6	ND(1.5)	
1B0P589	PEDA-43-SB-1 (12 - 15)	2/21/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.032	>0.05	ND(0.12) J	
						Acrolein	ICAL RRF	0.036	>0.05	ND(0.12) J	
						Isobutanol	ICAL RRF	0.006	>0.05	ND(0.24) J	
						Propionitrile	ICAL RRF	0.048	>0.05	ND(0.059) J	
1B0P589	PEDA-43-SB-2 (1 - 3)	2/21/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.032	>0.05	ND(0.14) J	
						Acrolein	ICAL RRF	0.036	>0.05	ND(0.14) J	
						Isobutanol	ICAL RRF	0.006	>0.05	ND(0.29) J	
						Propionitrile	ICAL RRF	0.048	>0.05	ND(0.072) J	
1B0P589	PEDA-FIELD BLANK-2	2/21/01	Water	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.044	>0.05	ND(0.10) J	
						Acrolein	ICAL RRF	0.030	>0.05	ND(0.10) J	
						Dichlorodifluoromethane	CCAL %D	26.0%	<25%	ND(0.010) J	
						2-Hexanone	CCAL %D	26.8%	<25%	ND(0.010) J	
						Acetone	CCAL %D	30.0%	<25%	ND(0.10) J	
						Isobutanol	ICAL RRF	0.014	>0.05	ND(0.20) J	
						Propionitrile	ICAL RRF	0.011	>0.05	ND(0.050) J	
1B0P589	Trip Blank	2/21/01	Water	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.044	>0.05	ND(0.10) J	
						Acrolein	ICAL RRF	0.030	>0.05	ND(0.10) J	
						Isobutanol	ICAL RRF	0.014	>0.05	ND(0.20) J	
						Propionitrile	ICAL RRF	0.011	>0.05	ND(0.050) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
VOCs (continued)											
1B0P622	PEDA-29-B-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.032	>0.05	ND(0.12) J	
						Acrolein	ICAL RRF	0.036	>0.05	ND(0.12) J	
						Isobutanol	ICAL RRF	0.006	>0.05	ND(0.24) J	
						Propionitrile	ICAL RRF	0.048	>0.05	ND(0.059) J	
1B0P622	PEDA-33-A-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.032	>0.05	ND(0.14) J	
						Acrolein	ICAL RRF	0.036	>0.05	ND(0.14) J	
						Isobutanol	ICAL RRF	0.006	>0.05	ND(0.28) J	
						Propionitrile	ICAL RRF	0.048	>0.05	ND(0.070) J	
1B0P622	PEDA-33-X-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.032	>0.05	ND(0.13) J	
						Acrolein	ICAL RRF	0.036	>0.05	ND(0.13) J	
						Isobutanol	ICAL RRF	0.006	>0.05	ND(0.26) J	
						Propionitrile	ICAL RRF	0.048	>0.05	ND(0.066) J	
1B0P622	PEDA-34-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.010	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.032	>0.05	ND(0.12) J	
						Acrolein	ICAL RRF	0.036	>0.05	ND(0.12) J	
						Isobutanol	ICAL RRF	0.006	>0.05	ND(0.24) J	
						Propionitrile	ICAL RRF	0.048	>0.05	ND(0.059) J	
1C0P012	PEDA-33-SB-3 (4 - 6)	2/28/01	Soil	Tier II	Yes	Iodomethane	CCAL %D	27.6%	<25%	ND(0.0060) J	
						1,4-Dioxane	ICAL RRF	0.011	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.046	>0.05	ND(0.12) J	
						Acrolein	ICAL RRF	0.035	>0.05	ND(0.12) J	
						Isobutanol	ICAL RRF	0.021	>0.05	ND(0.24) J	
						Propionitrile	ICAL RRF	0.046	>0.05	ND(0.060) J	
1C0P012	PEDA-FIELD BLANK-3	2/28/01	Water	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.003	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.044	>0.05	ND(0.10) J	
						Acrolein	ICAL RRF	0.030	>0.05	ND(0.10) J	
						Isobutanol	ICAL RRF	0.013	>0.05	ND(0.20) J	
						Propionitrile	ICAL RRF	0.01	>0.05	ND(0.050) J	
1C0P012	Trip Blank	2/28/01	Water	Tier II	Yes	1,4-Dioxane	ICAL RRF	0.003	>0.05	ND(0.20) J	
						Acetonitrile	ICAL RRF	0.044	>0.05	ND(0.10) J	
						Acrolein	ICAL RRF	0.030	>0.05	ND(0.10) J	
						Isobutanol	ICAL RRF	0.013	>0.05	ND(0.20) J	
						Propionitrile	ICAL RRF	0.01	>0.05	ND(0.050) J	
SVOCs											
1B0P526	PEDA-42-SB2 (6 - 15)	2/19/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.0) J	
						3,3'-Dichlorobenzidine	CCAL %D	65.1%	<25%	ND(2.0) J	
						3,3'-Dimethylbenzidine	CCAL %D	77.6%	<25%	ND(2.0) J	
						3-Methylcholanthrene	CCAL %D	39.8%	<25%	ND(0.79) J	
						4-Aminobiphenyl	CCAL %D	45.1%	<25%	ND(0.79) J	
						4-Phenylenediamine	CCAL %D	39.2%	<25%	ND(2.0) J	
						4-Phenylenediamine	CCAL RRF	0.034	>0.05	ND(2.0) J	
						Aramite	CCAL RRF	0.019	>0.05	ND(0.79) J	
						Benzidine	CCAL %D	50.4%	<25%	ND(0.79) J	
						Hexachlorophene	CCAL %D	46.1%	<25%	ND(0.79) J	
						Methapyrilene	CCAL %D	58.8%	<25%	ND(2.0) J	
						Methapyrilene	ICAL RRF	0.019	>0.05	ND(2.0) J	
						Phenacetin	CCAL %D	55.3%	<25%	ND(2.0) J	
						Thionazin	CCAL RRF	0.027	>0.05	ND(0.39) J	
1B0P526	PEDA-42-SB3 (1 - 6)	2/19/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.1) J	
						3,3'-Dichlorobenzidine	CCAL %D	65.1%	<25%	ND(2.1) J	
						3,3'-Dimethylbenzidine	CCAL %D	77.6%	<25%	ND(2.1) J	
						3-Methylcholanthrene	CCAL %D	39.8%	<25%	ND(0.84) J	
						4-Aminobiphenyl	CCAL %D	45.1%	<25%	ND(0.84) J	
						4-Phenylenediamine	CCAL %D	39.2%	<25%	ND(2.1) J	
						4-Phenylenediamine	CCAL RRF	0.034	>0.05	ND(2.1) J	
						Aramite	CCAL RRF	0.019	>0.05	ND(0.84) J	
						Benzidine	CCAL %D	50.4%	<25%	ND(0.84) J	
						Hexachlorophene	CCAL %D	0.461	<25%	ND(0.84) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs (continued)											
						Methapyrilene	CCAL %D	58.8%	<25%	ND(2.1) J	
						Methapyrilene	ICAL RRF	0.019	>0.05	ND(2.1) J	
						Phenacetin	CCAL %D	55.3%	<25%	ND(2.1) J	
						Thionazin	CCAL RRF	0.027	>0.05	ND(0.41) J	
1B0P526	PEDA-44-SB2 (0 - 1)	2/19/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.1) J	
						3,3'-Dichlorobenzidine	CCAL %D	65.1%	<25%	ND(2.1) J	
						3,3'-Dimethylbenzidine	CCAL %D	77.6%	<25%	ND(2.1) J	
						3-Methylcholanthrene	CCAL %D	39.8%	<25%	ND(0.82) J	
						4-Aminobiphenyl	CCAL %D	45.1%	<25%	ND(0.82) J	
						4-Phenylenediamine	CCAL %D	39.2%	<25%	ND(2.1) J	
						4-Phenylenediamine	CCAL RRF	0.034	>0.05	ND(2.1) J	
						Aramite	CCAL RRF	0.019	>0.05	ND(0.82) J	
						Benzidine	CCAL %D	50.4%	<25%	ND(0.82) J	
						Hexachlorophene	CCAL %D	46.1%	<25%	ND(0.82) J	
						Methapyrilene	CCAL %D	58.8%	<25%	ND(2.1) J	
						Methapyrilene	ICAL RRF	0.019	>0.05	ND(2.1) J	
						Phenacetin	CCAL %D	55.3%	<25%	ND(2.1) J	
						Thionazin	CCAL RRF	0.027	>0.05	ND(0.41) J	
1B0P526	PEDA-FIELD BLANK-1	2/19/01	Water	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(0.050) J	
						3,3'-Dichlorobenzidine	CCAL %D	65.1%	<25%	ND(0.050) J	
						3,3'-Dimethylbenzidine	CCAL %D	77.6%	<25%	ND(0.050) J	
						3-Methylcholanthrene	CCAL %D	39.8%	<25%	ND(0.020) J	
						4-Aminobiphenyl	CCAL %D	45.1%	<25%	ND(0.020) J	
						4-Phenylenediamine	CCAL %D	39.2%	<25%	ND(0.050) J	
						4-Phenylenediamine	CCAL RRF	0.034	>0.05	ND(0.050) J	
						Aramite	CCAL RRF	0.019	>0.05	ND(0.020) J	
						Benzidine	CCAL %D	50.4%	<25%	ND(0.020) J	
						Hexachlorophene	CCAL %D	46.1%	<25%	ND(0.020) J	
						Methapyrilene	CCAL %D	58.8%	<25%	ND(0.050) J	
						Methapyrilene	ICAL RRF	0.019	>0.05	ND(0.050) J	
						Phenacetin	CCAL %D	55.3%	<25%	ND(0.050) J	
						Thionazin	CCAL RRF	0.027	>0.05	ND(0.010) J	

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Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs (continued)											
1B0P561	PEDA-25-SB-1 (1 - 6)	2/20/01	Soil	Tier II	Yes	3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.4) J	
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.93) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.4) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.4) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.93) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.93) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.93) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.4) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.4) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.46) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.4) J	
						Pentachloronitrobenzene	CCAL %D	27.6%	<25%	ND(2.4) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.4) J	
						2,4,5-Trichlorophenol	MS %R	25.0%	50% to 130%	ND(0.46) J	
						2,4,6-Trichlorophenol	MS %R	25.0%	50% to 130%	ND(0.46) J	
						2,4-Dinitrotoluene	MS %R	0.0%	50% to 130%	R	
						2-Methylphenol	MS %R	38.0%	30% to 100%	ND(0.46) J	
						3&4-Methylphenol	MS %R	38.0%	50% to 130%	ND(0.93) J	
						Hexachlorobenzene	MS %R	25.0%	50% to 130%	ND(0.46) J	
						Hexachlorobutadiene	MS %R	30.0%	50% to 130%	ND(0.93) J	
						Nitrobenzene	MS %R	39.0%	50% to 130%	ND(0.46) J	
						Pyridine	MS %R	18.0%	50% to 130%	ND(0.46) J	
						2,4,5-Trichlorophenol	MS/MSD RPD	65.0%	<40%	ND(0.46) J	
						2,4,6-Trichlorophenol	MS/MSD RPD	70.0%	<40%	ND(0.46) J	
						3&4-Methylphenol	MS/MSD RPD	46.0%	<40%	ND(0.93) J	
						Nitrobenzene	MS/MSD RPD	42.0%	<40%	ND(0.46) J	
						Pentachlorophenol	MS/MSD RPD	80.0%	<40%	ND(2.4) J	
						2,4,5-Trichlorophenol	MSD %R	49.0%	50% to 130%	ND(0.46) J	
						Hexachlorobenzene	MSD %R	35.0%	50% to 130%	ND(0.46) J	
						Hexachlorobenzene	MSD %R	46.0%	50% to 130%	ND(0.46) J	
						Hexachlorobutadiene	MSD %R	44.0%	50% to 130%	ND(0.93) J	
						Pyridine	MSD %R	27.0%	50% to 130%	ND(0.46) J	
1B0P561	PEDA-44-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.1) J	
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.81) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.1) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.1) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.81) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.81) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.81) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.1) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.1) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.40) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.1) J	
						Pentachloronitrobenzene	CCAL %D	27.6%	<25%	ND(2.1) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.1) J	
1B0P561	PEDA-42-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.2) J	
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.85) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.2) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.2) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.85) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.85) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.85) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.2) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.2) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.42) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.2) J	
						Pentachloronitrobenzene	CCAL %D	27.6%	<25%	ND(2.2) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.2) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs (continued)											
1B0P561	PEDA-44-SB-DUP-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.1) J	Duplicate of PEDA-44-SB-1
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.84) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.1) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.1) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.84) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.84) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.84) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.1) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.1) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.42) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.1) J	
						Pentachloronitrobenzene	CCAL %D	27.6%	<25%	ND(2.1) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.1) J	
1B0P589	PEDA-33-SB-1 (0 - 1)	2/21/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.2) J	
						3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.2) J	
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.88) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.2) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.2) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.88) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.88) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.88) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.2) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.2) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.44) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.2) J	
						Pentachloronitrobenzene	CCAL %D	27.8%	<25%	ND(2.2) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.2) J	
1B0P589	PEDA-33-SB-2 (6 - 15)	2/21/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.2) J	
						3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.2) J	
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.86) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.2) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.2) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.86) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.86) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.86) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.2) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.2) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.42) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.2) J	
						Pentachloronitrobenzene	CCAL %D	27.8%	<25%	ND(2.2) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.2) J	
1B0P589	PEDA-43-SB-1 (6 - 15)	2/21/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.0) J	
						3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.0) J	
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.81) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.0) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.0) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.81) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.81) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.81) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.0) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.0) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.40) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.0) J	
						Pentachloronitrobenzene	CCAL %D	27.8%	<25%	ND(2.0) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.0) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs (continued)											
1B0P589	PEDA-43-SB-2 (1 - 6)	2/21/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.2) J	
						3,3'-Dimethylbenzidine	CCAL %D	49.1%	<25%	ND(2.2) J	
						3-Methylcholanthrene	CCAL %D	47.1%	<25%	ND(0.85) J	
						4-Phenylenediamine	CCAL %D	31.3%	<25%	ND(2.2) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.2) J	
						Aramite	CCAL RRF	0.023	>0.05	ND(0.85) J	
						Benzidine	CCAL %D	45.6%	<25%	ND(0.85) J	
						Hexachlorophene	CCAL RRF	0.039	>0.05	ND(0.85) J	
						Methapyrilene	CCAL %D	61.5%	<25%	ND(2.2) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.2) J	
						N-Nitrosodiethylamine	CCAL %D	30.9%	<25%	ND(0.42) J	
						p-Dimethylaminoazobenzene	CCAL %D	25.6%	<25%	ND(2.2) J	
						Pentachloronitrobenzene	CCAL %D	27.8%	<25%	ND(2.2) J	
						Phenacetin	CCAL %D	39.6%	<25%	ND(2.2) J	
1B0P589	PEDA-FIELD BLANK-2	2/21/01	Water	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(0.050) J	
						3,3'-Dichlorobenzidine	CCAL %D	65.2%	<25%	ND(0.050) J	
						3,3'-Dimethylbenzidine	CCAL %D	77.6%	<25%	ND(0.050) J	
						3-Methylcholanthrene	CCAL %D	45.3%	<25%	ND(0.020) J	
						4-Aminobiphenyl	CCAL %D	45.1%	<25%	ND(0.020) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(0.050) J	
						4-Phenylenediamine	CCAL %D	39.2%	<25%	ND(0.050) J	
						a,a'-Dimethylphenethylamine	CCAL %D	39.8%	<25%	ND(0.050) J	
						Aramite	CCAL RRF	0.330	>0.05	ND(0.020) J	
						Benzidine	CCAL %D	50.4%	<25%	ND(0.020) J	
						Hexachlorophene	CCAL %D	46.1%	<25%	ND(0.020) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(0.050) J	
						Methapyrilene	CCAL %D	58.8%	<25%	ND(0.050) J	
						Phenacetin	CCAL %D	55.3%	<25%	ND(0.050) J	
1B0P622	PEDA-29-B-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	2,4-Dinitrophenol	CCAL %D	29.7%	<25%	ND(2.0) J	
						4,6-Dinitro-2-methylphenol	CCAL %D	28.0%	<25%	ND(0.39) J	
						4-Nitroquinoline-1-oxide	CCAL %D	30.4%	<25%	ND(2.0) J	
						4-Phenylenediamine	CCAL %D	40.1%	<25%	ND(2.0) J	
						Aramite	CCAL %D	60.1%	<25%	ND(0.79) J	
						Benzidine	CCAL %D	31.2%	<25%	ND(0.79) J	
						Diallate	CCAL %D	35.4%	<25%	ND(0.79) J	
						Diphenylamine	CCAL %D	31.6%	<25%	ND(0.39) J	
						N-Nitroso-di-n-butylamine	CCAL %D	35.0%	<25%	ND(0.79) J	
						N-Nitrosopyrrolidine	CCAL %D	26.4%	<25%	ND(0.79) J	
						Pronamide	CCAL %D	27.9%	<25%	ND(0.39) J	
						Thionazin	CCAL %D	53.9%	<25%	ND(0.39) J	
						Pentachlorobenzene	CCAL RRF	0.048	>0.05	ND(0.39) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.0) J	
						Aramite	ICAL RRF	0.010	>0.05	ND(0.79) J	
						Benzidine	ICAL RRF	0.022	>0.05	ND(0.79) J	
						Hexachlorophene	ICAL RRF	0.029	>0.05	ND(0.79) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.0) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs (continued)											
1B0P622	PEDA-33-A-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	2,4-Dinitrophenol	CCAL %D	29.7%	<25%	ND(3.3) J	
						4,6-Dinitro-2-methylphenol	CCAL %D	28.0%	<25%	ND(0.66) J	
						4-Nitroquinoline-1-oxide	CCAL %D	30.4%	<25%	ND(3.3) J	
						4-Phenylenediamine	CCAL %D	40.1%	<25%	ND(3.3) J	
						Aramite	CCAL %D	60.1%	<25%	ND(1.3) J	
						Benzidine	CCAL %D	31.2%	<25%	ND(1.3) J	
						Diallate	CCAL %D	35.4%	<25%	ND(1.3) J	
						Diphenylamine	CCAL %D	31.6%	<25%	ND(0.66) J	
						N-Nitroso-di-n-butylamine	CCAL %D	35.0%	<25%	ND(1.3) J	
						N-Nitrosopyrrolidine	CCAL %D	26.4%	<25%	ND(1.3) J	
						Pronamide	CCAL %D	27.9%	<25%	ND(0.66) J	
						Thionazin	CCAL %D	53.9%	<25%	ND(0.66) J	
						Pentachlorobenzene	CCAL RRF	0.048	>0.05	ND(0.66) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(3.3) J	
						Aramite	ICAL RRF	0.010	>0.05	ND(1.3) J	
						Benzidine	ICAL RRF	0.022	>0.05	ND(1.3) J	
						Hexachlorophene	ICAL RRF	0.029	>0.05	ND(1.3) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(3.3) J	
1B0P622	PEDA-33-X-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	2,4-Dinitrophenol	CCAL %D	29.7%	<25%	ND(2.2) J	
						4,6-Dinitro-2-methylphenol	CCAL %D	28.0%	<25%	ND(0.44) J	
						4-Nitroquinoline-1-oxide	CCAL %D	30.4%	<25%	ND(2.2) J	
						4-Phenylenediamine	CCAL %D	40.1%	<25%	ND(2.2) J	
						Aramite	CCAL %D	60.1%	<25%	ND(0.89) J	
						Benzidine	CCAL %D	31.2%	<25%	ND(0.89) J	
						Diallate	CCAL %D	35.4%	<25%	ND(0.89) J	
						Diphenylamine	CCAL %D	31.6%	<25%	ND(0.44) J	
						N-Nitroso-di-n-butylamine	CCAL %D	35.0%	<25%	ND(0.89) J	
						N-Nitrosopyrrolidine	CCAL %D	26.4%	<25%	ND(0.89) J	
						Pronamide	CCAL %D	27.9%	<25%	ND(0.44) J	
						Thionazin	CCAL %D	53.9%	<25%	ND(0.44) J	
						Pentachlorobenzene	CCAL RRF	0.048	>0.05	ND(0.44) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.2) J	
						Aramite	ICAL RRF	0.010	>0.05	ND(0.89) J	
						Benzidine	ICAL RRF	0.022	>0.05	ND(0.89) J	
						Hexachlorophene	ICAL RRF	0.029	>0.05	ND(0.89) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.2) J	
1B0P622	PEDA-34-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	2,4-Dinitrophenol	CCAL %D	29.7%	<25%	ND(2.0) J	
						4,6-Dinitro-2-methylphenol	CCAL %D	28.0%	<25%	ND(0.39) J	
						4-Nitroquinoline-1-oxide	CCAL %D	30.4%	<25%	ND(2.0) J	
						4-Phenylenediamine	CCAL %D	40.1%	<25%	ND(2.0) J	
						Aramite	CCAL %D	60.1%	<25%	ND(0.79) J	
						Benzidine	CCAL %D	31.2%	<25%	ND(0.79) J	
						Diallate	CCAL %D	35.4%	<25%	ND(0.79) J	
						Diphenylamine	CCAL %D	31.6%	<25%	ND(0.39) J	
						N-Nitroso-di-n-butylamine	CCAL %D	35.0%	<25%	ND(0.79) J	
						N-Nitrosopyrrolidine	CCAL %D	26.4%	<25%	ND(0.79) J	
						Pronamide	CCAL %D	27.9%	<25%	ND(0.39) J	
						Thionazin	CCAL %D	53.9%	<25%	ND(0.39) J	
						Pentachlorobenzene	CCAL RRF	0.048	>0.05	ND(0.39) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.0) J	
						Aramite	ICAL RRF	0.010	>0.05	ND(0.79) J	
						Benzidine	ICAL RRF	0.022	>0.05	ND(0.79) J	
						Hexachlorophene	ICAL RRF	0.029	>0.05	ND(0.79) J	
						Methapyrilene	ICAL RRF	0.026	>0.05	ND(2.0) J	

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
SVOCs (continued)											
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(2.1) J	
						2-Methylphenol	CCAL %D	28.9%	<25%	ND(0.42) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(2.1) J	
						Aramite	ICAL RRF	0.010	>0.05	ND(0.85) J	
						Aramite	CCAL %D	54.2%	<25%	ND(0.85) J	
						Benzidine	ICAL RRF	0.019	>0.05	ND(0.85) J	
						Hexachlorophene	ICAL RRF	0.029	>0.05	ND(0.85) J	
						Thionazin	ICAL RRF	0.025	>0.05	ND(0.42) J	
1C0P012	PEDA-FIELD BLANK-3	2/28/01	Water	Tier II	Yes	2,4-Dinitrophenol	ICAL %RSD	39.0%	<30%	ND(0.050) J	
						2-Methylphenol	CCAL %D	28.9%	<25%	ND(0.011) J	
						4-Phenylenediamine	ICAL RRF	0.024	>0.05	ND(0.053) J	
						Aramite	ICAL RRF	0.010	>0.05	ND(0.021) J	
						Aramite	CCAL %D	54.2%	<25%	ND(0.021) J	
						Benzidine	ICAL RRF	0.019	>0.05	ND(0.020) J	
						Hexachlorophene	ICAL RRF	0.029	>0.05	ND(0.021) J	
						Thionazin	ICAL RRF	0.025	>0.05	ND(0.011) J	
PCDDs/PCDFs											
1B0P526	PEDA-42-SB2 (6 - 15)	2/19/01	Soil	Tier II	Yes	OCDD	Method Blank	0.00000053	<0.00000053	ND(0.0000016)	
						1,2,3,4,6,7,8-HpCDD	Method Blank	0.00000019	<0.00000095	ND(0.0000025)	
						HpCDDs (total)	Method Blank	0.00000019	<0.00000095	ND(0.0000050)	
1B0P526	PEDA-42-SB3 (1 - 6)	2/19/01	Soil	Tier II	Yes	OCDD	Method Blank	0.00000053	<0.00000053	ND(0.0000091)	
1B0P526	PEDA-44-SB2 (0 - 1)	2/19/01	Soil	Tier II	Yes	OCDD	Method Blank	0.00000053	<0.00000053	ND(0.0000092)	
1B0P561	PEDA-25-SB-1 (1 - 6)	2/20/01	Soil	Tier II	Yes	1,2,3,4,6,7,8-HpCDD	Method Blank	0.00000026	<0.0000013	ND(0.00000031)	
						1,2,3,4,7,8-HxCDF	Method Blank	0.000000076	<0.00000038	ND(0.000000080)	
						1,2,3,6,7,8-HxCDF	Method Blank	0.00000010	<0.00000052	ND(0.000000091)	
						HxCDFs (total)	Method Blank	0.00000026	<0.0000013	ND(0.00000028)	
						OCDD	Method Blank	0.00000073	<0.0000073	ND(0.0000013)	
1B0P561	PEDA-44-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	1,2,3,4,6,7,8-HpCDD	Method Blank	0.00000026	<0.0000013	ND(0.0000011)	
						1,2,3,6,7,8-HxCDF	Method Blank	0.00000010	<0.00000052	ND(0.00000034)	
						1,2,3,7,8,9-HxCDF	Method Blank	0.000000084	<0.00000042	ND(0.00000023)	
						1,2,3,7,8-PeCDF	Method Blank	0.00000013	<0.00000064	ND(0.00000022)	
						2,3,7,8-TCDF	Method Blank	0.000000082	<0.00000041	ND(0.00000037)	
						OCDD	Method Blank	0.00000073	<0.0000073	ND(0.0000050)	
1B0P561	PEDA-42-SB-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	1,2,3,7,8,9-HxCDF	Method Blank	0.000000084	<0.00000042	ND(0.00000028)	
						OCDD	Method Blank	0.00000073	<0.0000073	ND(0.0000034)	
1B0P561	PEDA-44-SB-DUP-1 (0 - 1)	2/20/01	Soil	Tier II	Yes	1,2,3,7,8-PeCDF	Method Blank	0.00000013	<0.00000064	ND(0.00000039)	Duplicate of PEDA-44-SB-1
						1,2,3,7,8,9-HxCDF	Method Blank	0.000000084	<0.00000042	ND(0.00000035)	
1B0P589	PEDA-33-SB-1 (0 - 1)	2/21/01	Soil	Tier II	Yes	1,2,3,7,8,9-HxCDF	Method Blank	0.000000084	<0.00000042	ND(0.00000038)	
1B0P589	PEDA-33-SB-2 (6 - 15)	2/21/01	Soil	Tier II	No						

TABLE 1
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

20s, 30s, and 40s Complex PEDA Data

ANALYTICAL DATA VALIDATION SUMMARY
(Results are presented in parts per million, ppm)

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Validation Level	Qualification	Compound	QA/QC Parameter	Value	Control Limits	Qualified Result	Notes
PCDDs/PCDFs (continued)											
1B0P589	PEDA-43-SB-1 (6 - 15)	2/21/01	Soil	Tier II	Yes	1,2,3,4,6,7,8-HpCDD	Method Blank	0.00000026	<0.0000013	ND(0.00000040)	
						1,2,3,4,7,8-HxCDF	Method Blank	0.000000076	<0.00000038	ND(0.000000095)	
						1,2,3,6,7,8-HxCDF	Method Blank	0.000000104	<0.00000052	ND(0.00000011)	
						1,2,3,7,8-PeCDF	Method Blank	0.00000013	<0.00000065	ND(0.000000080)	
						2,3,4,6,7,8-HxCDF	Method Blank	0.000000080	<0.0000004	ND(0.000000098)	
						2,3,4,7,8-PeCDF	Method Blank	0.000000086	<0.00000043	ND(0.000000092)	
						2,3,7,8-TCDF	Method Blank	0.000000082	<0.00000041	ND(0.000000073)	
						HpCDDs (total)	Method Blank	0.00000026	<0.0000013	ND(0.00000061)	
						OCDD	Method Blank	0.00000073	<0.0000073	ND(0.0000016)	
						PeCDFs (total)	Method Blank	0.00000021	<0.00000105	ND(0.00000082)	
						HxCDFs (total)	Method Blank	0.00000026	<0.0000013	ND(0.00000048)	
1B0P589	PEDA-43-SB-2 (1 - 6)	2/21/01	Soil	Tier II	Yes	1,2,3,4,6,7,8-HpCDD	Method Blank	0.00000026	<0.0000013	ND(0.00000029)	
						1,2,3,4,7,8-HxCDF	Method Blank	0.000000076	<0.00000038	ND(0.000000055)	
						1,2,3,6,7,8-HxCDF	Method Blank	0.000000104	<0.00000052	ND(0.000000073)	
						1,2,3,7,8-PeCDF	Method Blank	0.00000013	<0.00000065	ND(0.000000063)	
						2,3,4,7,8-PeCDF	Method Blank	0.000000086	<0.00000043	ND(0.000000054)	
						HpCDDs (total)	Method Blank	0.00000026	<0.0000013	ND(0.00000029)	
						HxCDFs (total)	Method Blank	0.00000026	<0.0000013	ND(0.00000022)	
						OCDD	Method Blank	0.00000073	<0.0000073	ND(0.0000015)	
						PeCDFs (total)	Method Blank	0.00000021	<0.00000105	ND0.000000075)	
1B0P589	PEDA-FIELD BLANK-2	2/21/01	Water	Tier II	Yes						
1B0P622	PEDA-29-B-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	1,2,3,4,6,7,8-HpCDD	Method Blank	0.0000043	<0.0000022	ND(0.0000020)	
1B0P622	PEDA-33-A-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-X-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-34-SB-1 (0 - 1)	2/22/01	Soil	Tier II	Yes	1,2,3,4,6,7,8-HpCDD	Method Blank	0.00000043	<0.0000022	ND(0.0000016)	
						HpCDDs (total)	Method Blank	0.00000076	<0.0000038	ND(0.0000030)	
						OCDD	Method Blank	0.0000012	<0.000012	ND(0.000011)	
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	Yes	1,2,3,4,6,7,8-HpCDD	Method Blank	0.00000051	<0.0000026	ND(0.00000060)	
						1,2,3,4,7,8-HxCDF	Method Blank	0.00000016	<0.00000080	ND(0.000000042)	
						1,2,3,6,7,8-HxCDF	Method Blank	0.00000018	<0.00000090	ND(0.000000063)	
						HpCDDs (total)	Method Blank	0.00000026	<0.0000013	ND(0.0000012)	
						HxCDFs (total)	Method Blank	0.00000050	<0.0000025	ND(0.00000050)	
						OCDD	Method Blank	0.0000020	<0.000020	ND(0.000012)	
1C0P012	PEDA-FIELD BLANK-3	2/28/01	Water	Tier II	Yes	OCDD	Method Blank	0.00000000010	<0.000000000010	ND(0.000000000064)	
Sulfide and Cyanide											
1B0P526	PEDA-42-SB2 (6 - 15)	2/19/01	Soil	Tier II	No						
1B0P526	PEDA-42-SB3 (1 - 6)	2/19/01	Soil	Tier II	No						
1B0P526	PEDA-44-SB2 (0 - 1)	2/19/01	Soil	Tier II	No						
1B0P526	PEDA-FIELD BLANK-1	2/19/01	Water	Tier II	No						
1B0P561	PEDA-42-SB-1 (0 - 1)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-25-SB-1 (1 - 6)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-44-SB-1 (0 - 1)	2/20/01	Soil	Tier II	No						
1B0P561	PEDA-44-SB-DUP-1 (0 - 1)	2/20/01	Soil	Tier II	No						Duplicate of PEDA-44-SB-1
1B0P589	PEDA-33-SB-1 (0 - 1)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-33-SB-2 (6 - 15)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-43-SB-1 (6 - 15)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-43-SB-2 (1 - 6)	2/21/01	Soil	Tier II	No						
1B0P589	PEDA-FIELD BLANK-2	2/21/01	Water	Tier II	No						
1B0P622	PEDA-29-B-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-A-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-33-X-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1B0P622	PEDA-34-SB-1 (0 - 1)	2/22/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-33-SB-3 (1 - 6)	2/28/01	Soil	Tier II	No						
1C0P012	PEDA-FIELD BLANK-3	2/28/01	Soil	Tier II	No						

Appendix B

Data Quality Assessment for Historical Soil Sampling Data from 20s, 30s, and 40s Complexes

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APPENDIX B

DATA QUALITY ASSESSMENT FOR HISTORICAL SOIL SAMPLING DATA FROM 20s, 30s, AND 40s COMPLEXES

1.0 Introduction

This attachment presents the results of a data quality review and assessment for the analytical results from soil samples collected at the 20s, 30s, and 40s Complexes in Pittsfield, Massachusetts, during various soil investigations conducted between May 28, 1991 and May 28, 1998. The only sample results reviewed were those proposed for use in the evaluations in the *Conceptual Removal Design/Removal Action Work Plan for the 20s, 30s, and 40s Complexes.* These samples were analyzed for polychlorinated biphenyls (PCBs) and/or some or all of the constituents listed in Appendix IX of 40 CFR Part 264, plus three additional constituents (benzidine, 2-chloroethylvinyl ether, and 1,2-diphenylhydrazine) (Appendix IX+3) (generally excluding pesticides and herbicides). The analytical laboratories used to conduct these analyses included: IT Analytical Services of Knoxville, Tennessee and CompuChem Laboratories, Inc. of Research Triangle Park, North Carolina.

Since these samples were collected and analyzed prior to execution of the Consent Decree (CD) for the GE-Pittsfield/Housatonic River Site, the data are not subject to the specific data validation procedures set forth in GE's *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP) under the CD. Rather, these data have been subjected to a more general review and assessment for analytical data quality.

The procedures used in this data review/assessment and the results of this data review/assessment are summarized in this document for PCBs (Section 2.0) and other Appendix IX+3 constituents (Section 3.0). This document also includes proposals regarding the use of these prior sample results in the response action evaluations included in the Conceptual RD/RA Work Plan for 20s, 30s, and 40s Complexes.

2.0 Data Evaluation for PCB Data

Data assessment has been performed for a total of 103 PCB sample results from 20s, 30s, and 40s Complexes. These samples were collected between May 1991 and May 1998. Full data packages were obtained from the laboratory for 72 samples. For 31 additional samples, only limited laboratory documentation exists, consisting of the standard laboratory reporting form (i.e., Certificate of Analysis).

In these circumstances, data review and assessment activities were first performed for the 72 samples for which full laboratory data packages are available. These activities included review of the data packages for completeness, review of the analytical techniques used, and identification of any apparent method and analytical deviations found within the data packages.

This review and assessment found no deficiencies that would preclude use of these PCB data in the response action evaluations in the Conceptual RD/RA Work Plan. Further, based on the more detailed assessment of samples from locations and depths intended to satisfy the pre-design sampling grid requirements, no qualification was found to be necessary for any of those sample results. Thus, all PCB data in this category have been found to be of sufficient quality for use in the RD/RA evaluations for this area.

Next, the 31 PCB sample results for which only limited documentation exists (i.e., a standard laboratory reporting form) were reviewed. These PCB results are likewise considered usable for future RD/RA activities for the following reasons: (1) the reporting form confirms the date of sample analyses and thus the analytical methodologies being used at that time; (2) those analytical methodologies are consistent

with current procedures; (3) the reporting form is a laboratory-generated document and thus incorporates certain inherent QA checks performed by the laboratory concerning data quality; and (4) review of the PCB data for which full laboratory data packages are available indicates that those data are 100% usable, thus suggesting that the remaining PCB analyses are generally of sufficient quality for use in RD/RA evaluations. Accordingly, the 31 sample results in this category are considered suitable for use in the RD/RA evaluations for 20s, 30, and 40s Complexes.

The overall results of this review and assessment of the prior PCB data are presented on a sample-by-sample basis in Table 1.

3.0 Data Evaluation for Other Appendix IX+3 Data

Data review and assessment activities have likewise been performed for the analytical data for non-PCB constituents. These data were collected between February 1996 and September 1997. They consist of five volatile organic compound (VOC) samples, five semi-volatile organic compound (SVOC) samples, five polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) samples, two pesticide samples, five metals samples, and five cyanide samples. For these results, laboratory data packages were available for all data sets.

These data were reviewed for completeness of the data packages, analytical techniques used, and any apparent method and analytical deviations found within the data packages. This review and assessment found no deficiencies that would preclude use of the analytical data in this category in the response action evaluations in the Conceptual RD/RA Work Plan.

The overall results of this review and assessment of the prior non-PCB Appendix IX+3 data are included, on a sample-by-sample basis, in Table 1.

TABLE 1

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
CONCEPTUAL RD/RA WORK PLAN FOR 20s, 30s, 40s COMPLEXES

HISTORICAL ANALYTICAL DATA ASSESSMENT SUMMARY

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Available Documentation
PCBs				
0377	210B0002 (0-2)	3/7/96	Soil	Complete Laboratory Data Package
0377	210B0204 (2-4)	3/7/96	Soil	Complete Laboratory Data Package
0377	210B0406 (4-6)	3/7/96	Soil	Complete Laboratory Data Package
0377	210B0608 (6-8)	3/7/96	Soil	Complete Laboratory Data Package
0377	210B0810 (8-10)	3/7/96	Soil	Complete Laboratory Data Package
0377	210B1012 (10-12)	3/7/96	Soil	Complete Laboratory Data Package
0377	210B1214 (12-14)	3/7/96	Soil	Complete Laboratory Data Package
0377	210B1416 (14-16)	3/7/96	Soil	Complete Laboratory Data Package
00292	211B0002 (0-2)	3/6/96	Soil	Complete Laboratory Data Package
00292	211B0204 (2-4)	3/6/96	Soil	Complete Laboratory Data Package
00292	211B0406 (4-6)	3/6/96	Soil	Complete Laboratory Data Package
00292	211B0608 (6-8)	3/6/96	Soil	Complete Laboratory Data Package
00292	211B0810 (8-10)	3/6/96	Soil	Complete Laboratory Data Package
00292	211B1012 (10-12)	3/6/96	Soil	Complete Laboratory Data Package
00292	211B1214 (12-14)	3/6/96	Soil	Complete Laboratory Data Package
00292	211B1416 (14-16)	3/6/96	Soil	Complete Laboratory Data Package
0028P	212S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
0028P	213S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
00092	215B0002 (0-2)	2/21/96	Soil	Complete Laboratory Data Package
00092	215B0204 (2-4)	2/21/96	Soil	Complete Laboratory Data Package
00092	215B0406 (4-6)	2/21/96	Soil	Complete Laboratory Data Package
00048	216B0002 (0-2)	2/20/96	Soil	Complete Laboratory Data Package
00048	216B0204 (2-4)	2/20/96	Soil	Complete Laboratory Data Package
00048	216B0406 (4-6)	2/20/96	Soil	Complete Laboratory Data Package
00048	216B0608 (6-8)	2/20/96	Soil	Complete Laboratory Data Package
00048	216B0810 (8-10)	2/20/96	Soil	Complete Laboratory Data Package
00048	216B1012 (10-12)	2/20/96	Soil	Complete Laboratory Data Package
00048	216B1214 (12-14)	2/20/96	Soil	Complete Laboratory Data Package
00048	216B1416 (14-16)	2/20/96	Soil	Complete Laboratory Data Package
00092	217B0002 (0-2)	2/22/96	Soil	Complete Laboratory Data Package
00092	217B0204 (2-4)	2/22/96	Soil	Complete Laboratory Data Package
00092	217B0406 (4-6)	2/22/96	Soil	Complete Laboratory Data Package
00092	217B0608 (6-8)	2/22/96	Soil	Complete Laboratory Data Package
00092	217B0810 (8-10)	2/22/96	Soil	Complete Laboratory Data Package
00092	217B1012 (10-12)	2/22/96	Soil	Complete Laboratory Data Package
00092	217B1214 (12-14)	2/22/96	Soil	Complete Laboratory Data Package
00092	217B1416 (14-16)	2/22/96	Soil	Complete Laboratory Data Package
0377	223B0002 (0-2)	3/7/96	Soil	Complete Laboratory Data Package
0377	223B0204 (2-4)	3/7/96	Soil	Complete Laboratory Data Package
0377	223B0406 (4-6)	3/7/96	Soil	Complete Laboratory Data Package
0377	223B0608 (6-8)	3/7/96	Soil	Complete Laboratory Data Package
0377	223B0810 (8-10)	3/7/96	Soil	Complete Laboratory Data Package
0377	223B0810D (8-10)	3/7/96	Soil	Complete Laboratory Data Package
0377	223B1012 (10-12)	3/7/96	Soil	Complete Laboratory Data Package
0377	223B1214 (12-14)	3/7/96	Soil	Complete Laboratory Data Package
980529	31-North-DUP-1 (0-2)	5/28/98	Soil	Complete Laboratory Data Package

TABLE 1

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
CONCEPTUAL RD/RA WORK PLAN FOR 20s, 30s, 40s COMPLEXES

HISTORICAL ANALYTICAL DATA ASSESSMENT SUMMARY

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Available Documentation
PCBs (continued)				
980529	31-North-SB-1 (10-12)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-1 (14-16)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-1 (0-2)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-1 (12-14)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-1 (8-10)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-1 (6-8)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-1 (2-4)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-1 (4-6)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (0-2)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (2-4)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (4-6)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (6-8)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (12-14)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (8-10)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (10-12)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-2 (14-16)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (6-8)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (4-6)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (8-10)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (10-12)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (12-14)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (14-16)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (0-2)	5/28/98	Soil	Complete Laboratory Data Package
980529	31-North-SB-3 (2-4)	5/28/98	Soil	Complete Laboratory Data Package
22255	DP-1 (10-12)	5/28/91	Soil	Complete Laboratory Data Package
RR84	PG02B0002 (0-2)	10/22/91	Soil	Certificate of Analysis
RR84	PG02B0204 (2-4)	10/22/91	Soil	Certificate of Analysis
RR84	PG02B0406 (4-6)	10/22/91	Soil	Certificate of Analysis
RR84	PG02B0608 (6-8)	10/22/91	Soil	Certificate of Analysis
RR84	PG02B0810 (8-10)	10/22/91	Soil	Certificate of Analysis
RR84	PG02B1012 (10-12)	10/22/91	Soil	Certificate of Analysis
RR84	PG02B1214 (12-14)	10/22/91	Soil	Certificate of Analysis
RR84	PG02B1416 (14-16)	10/22/91	Soil	Certificate of Analysis
49815	PG03B0002 (0-2)	10/24/91	Soil	Certificate of Analysis
49815	PG03B0204 (2-4)	10/24/91	Soil	Certificate of Analysis
49815	PG03B0406 (4-6)	10/24/91	Soil	Certificate of Analysis
49815	PG03B0608 (6-8)	10/24/91	Soil	Certificate of Analysis
49815	PG03B0810 (8-10)	10/24/91	Soil	Certificate of Analysis
49815	PG03B1012 (10-12)	10/24/91	Soil	Certificate of Analysis
49815	PG03B1416 (14-16)	10/24/91	Soil	Certificate of Analysis
48577	PG04B0002 (0-2)	5/28/91	Soil	Certificate of Analysis
48577	PG04B0204 (2-4)	5/28/91	Soil	Certificate of Analysis
48577	PG04B0406 (4-6)	5/28/91	Soil	Certificate of Analysis
48577	PG04B0608 (6-8)	5/28/91	Soil	Certificate of Analysis
48577	PG04B0810 (8-10)	5/28/91	Soil	Certificate of Analysis
22255	PG04B1012 (10-12)	5/28/91	Soil	Complete Laboratory Data Package

TABLE 1

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
CONCEPTUAL RD/RA WORK PLAN FOR 20s, 30s, 40s COMPLEXES

HISTORICAL ANALYTICAL DATA ASSESSMENT SUMMARY

Sample Delivery Group No.	Sample ID	Date Collected	Matrix	Available Documentation
PCBs (continued)				
48577	PG04B1012 (10-12)	5/28/91	Soil	Certificate of Analysis
48577	PG04B1214 (12-14)	5/28/91	Soil	Certificate of Analysis
48590	PG04B1416 (14-16)	5/29/91	Soil	Certificate of Analysis
RR84	PG16B0002 (0-2)	10/21/91	Soil	Certificate of Analysis
RR84	PG16B0204 (2-4)	10/21/91	Soil	Certificate of Analysis
RR84	PG16B0406 (4-6)	10/21/91	Soil	Certificate of Analysis
RR84	PG16B0608 (6-8)	10/21/91	Soil	Certificate of Analysis
RR84	PG16B0810 (8-10)	10/21/91	Soil	Certificate of Analysis
RR84	PG16B1012 (10-12)	10/21/91	Soil	Certificate of Analysis
RR84	PG16B1214 (12-14)	10/21/91	Soil	Certificate of Analysis
RR84	PG16B1416 (14-16)	10/21/91	Soil	Certificate of Analysis
VOCs				
0377	210B1416 (14-16)	3/7/96	Soil	Complete Laboratory Data Package
0028P	212S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
0028P	213S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
00022	215B0608 (6-8)	2/22/96	Soil	Complete Laboratory Data Package
00022	217B1012 (10-12)	2/22/96	Soil	Complete Laboratory Data Package
SVOCs				
00377	210B1416 (14-16)	3/7/96	Soil	Complete Laboratory Data Package
0028P	212S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
0028P	213S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
00022	215B0608 (6-8)	2/22/96	Soil	Complete Laboratory Data Package
00022	217B1012 (10-12)	2/22/96	Soil	Complete Laboratory Data Package
Pesticides				
22255	PG04B1012 (10-12)	5/28/91	Soil	Complete Laboratory Data Package
Metals				
00377	210B1416 (14-16)	3/7/96	Soil	Complete Laboratory Data Package
0028P	212S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
0028P	213S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
00022	215B0608 (6-8)	2/22/96	Soil	Complete Laboratory Data Package
00022	217B1012 (10-12)	2/22/96	Soil	Complete Laboratory Data Package
PCDDs/PCDFs				
00377	210B1416 (14-16)	3/7/96	Soil	Complete Laboratory Data Package
0028P	212S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
0028P	213S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
0028P	215B0608 (6-8)	2/22/96	Soil	Complete Laboratory Data Package
0028P	217B1012 (10-12)	2/22/96	Soil	Complete Laboratory Data Package
Cyanide				
00377	210B1416 (14-16)	3/7/96	Soil	Complete Laboratory Data Package
0028P	212S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
0028P	213S0-6 (0-0.5)	9/17/97	Soil	Complete Laboratory Data Package
00022	215B0608 (6-8)	2/22/96	Soil	Complete Laboratory Data Package
00022	217B1012 (10-12)	2/22/96	Soil	Complete Laboratory Data Package

Appendix C

Risk Evaluation of Appendix IX+3 Constituents Detected in Soils

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APPENDIX C

Risk Evaluation of Appendix IX+3 Constituents Detected in Soils of the 20s, 30s, and 40s Complexes of the General Electric Facility in Pittsfield, MA

Introduction

A number of non-PCB constituents were detected in the surface and subsurface soils of the 20s, 30s, and 40s Complexes of the General Electric (GE) facility in Pittsfield, MA. These constituents have been evaluated in accordance with the multi-step process established for non-PCB Appendix IX+3 constituents in the *Statement of Work for Removal Actions Outside the River* (SOW) (BBL, 1999). The steps in this process are described in the text of this Conceptual RD/RA Work Plan. These steps included screening by comparison of the maximum detected concentrations of the constituents to EPA's Prelminary Remediation Goals (PRGs) for soil in industrial/commercial areas (and, for one constituent, sulfide, comparison of site data with background levels). Following this screening, the average concentrations of the remaining constituents were compared to the applicable Method 1 standards set out in the Massachusetts Contingency Plan (MCP). As described in the text, a number of those constituents had average concentrations exceeding the Method 1 standards. Accordingly, GE requested AMEC Earth & Environmental to conduct area-specific risk evaluations of the constituents that remained prior to the comparison to MCP Method 1 standards, using the protocols for area-specific risk evaluations set forth in the SOW.

This Appendix describes and presents the results of these area-specific risk evaluations for the 20s, 30s, and 40s Complexes. In accordance with the SOW, these risk evaluations were based on the average constituent concentrations for each Complex, the same exposure scenarios, depth increments, and exposure assumptions used by EPA in developing the PCB Performance Standards for these areas (as described in EPA, 1999a), and standard EPA toxicity values. As discussed below, for the constituents evaluated, estimated cancer risks and non-cancer hazards fall well below the acceptable benchmarks prescribed in the SOW.

Constituents Evaluated

In accordance with the protocols set forth in the SOW, the risk evaluations presented herein have considered all chemicals of potential concern (COPCs) that were retained for evaluation after the initial screening steps but before the comparison to MCP Method 1 standards, and have used the average concentrations of those constituents in each of the Complexes in question. Given the SOW requirement to use the same exposure scenarios and depth increments that were assumed by EPA (1999a) in supporting the PCB Performance Standards, average concentrations have been calculated for the same depth increments evaluated by EPA (1999a) for commercial/industrial areas – i.e., the 0-1 foot depth and the 1-6 foot depth. The COPCs evaluated and their average concentrations are as follows:

		Ave. Concentration (mg/kg)	
Area	**Constituent**	**0-1 foot**	**1-6 foot**
20s Complex	Benzo(a)pyrene	0.847	0.616
	Arsenic	10.4	9.34
30s Complex	Benz(a)anthracene	0.966	0.690
	Benzo(a)pyrene	0.990	0.684
	Benzo(b)fluoranthene	0.915	0.695
	Dibenz(a,h)anthracene	1.43	1.13
	Indeno(1,2,3-cd)pyrene	1.54	1.17
	Arsenic	10.1	19.3
	Lead	118	163
40s Complex	Benz(a)anthracene	1.84	0.469
	Benzo(a)pyrene	1.92	0.471
	Benzo(b)fluoranthene	1.73	0.428
	Indeno(1,2,3-cd)pyrene	1.90	0.794
	Arsenic	11.6	8.79
	Lead	274	53.9

With the exception of lead, these COPCs have been included in risk calculations for each Complex to determine whether cancer risks and non-cancer hazards fall within acceptable limits. Since EPA has not developed standard toxicity values for lead, that constituent has been evaluated, as recommended by EPA, using EPA's *Adult Lead Methodology* (EPA, 1996, 1999b, 2001a).

Risk Evaluation Assumptions and Procedures (for All COPCs Except Lead)

In accordance with the SOW, the exposure scenarios that have been evaluated are the same exposure scenarios utilized by EPA (1999a) in supporting the PCB Performance Standards for commercial/industrial areas – namely, the Commercial Groundskeeper scenario for surface soil (0-1 foot depth) and the Utility Worker scenario for subsurface soil (1-6 foot depth).

The Commercial Groundskeeper scenario assumes that an adult is exposed to constituents in surficial soils 84 days per year for a period of 25 years. With the exception of chemical-specific absorption and toxicity criteria, all exposure assumptions used to evaluate this scenario were the same as those used by EPA (1999a). The dermal and oral absorption factors used were default values recommended by EPA or Massachusetts DEP. The carcinogenic COPCs were evaluated for potential carcinogenic risks, while the only COPC with a non-cancer Reference Dose (RfD), arsenic, was evaluated for potential non-cancer hazards. (In accordance with the SOW, PCBs and dioxins/furans were not included in these evaluations.) The toxicity values used in the evaluations were those set forth on EPA's Integrated Risk Information System (IRIS) for benzo(a)pyrene and arsenic, with use of Toxicity Equivalency Factors (TEFs) recommended by EPA (1993) to adjust the values for other carcinogenic polycyclic aromatic hydrocarbons (PAHs) based on their assumed potency relative to benzo(a)pyrene. The specific exposure assumptions and toxicity values used for the Commercial Groundskeeper scenario are listed in Table 1

The Utility Worker scenario assumes that an adult is in contact with subsurface soils in the affected area 5 days per year for 25 years. As with the Groundskeeper scenario, all exposure assumptions used in this scenario were the same as the assumptions used by

EPA (1999a) with the exception of chemical-specific absorption and toxicity criteria, for which the same values used for the Groundskeeper scenario were utilized. The specific exposure assumptions and toxicity values used for the Utility Worker scenario are listed in Table 2.

Based on these input values, predicted cancer risks and non-cancer hazards were calculated for the COPCs using standard risk assessment procedures, and were then compared to the benchmarks set forth in the SOW (for constituents other than PCBs and dioxins/furans) of 1×10^{-5} for cancer risks and a Hazard Index of 1.0 for non-cancer impacts.

Risk Estimates (for All COPCs Except Lead)

The predicted cancer risks and non-cancer hazards for the non-PCB COPCs at the 20s, 30s, and 40s Complexes are summarized in Table 3. Cancer risk and non-cancer hazard results for individual COPCs and for each exposure pathway and scenario evaluated in the three Complexes are provided in Tables 4a through 9b. As shown in Table 3, total estimated cancer risks do not exceed the identified risk benchmark of 1×10^{-5} for either the Commercial Groundskeeper or the Utility Worker scenario in any of the three facility Complexes evaluated. Similarly, non-cancer hazards resulting from exposures to surficial and subsurface soils do not exceed the target Hazard Index of 1.0 in any of the areas.

Evaluation of Lead Exposures and Risks

EPA has not developed toxicity criteria for lead (EPA, 2001b). Consequently, it is not possible to evaluate potential hazards associated with lead exposure in the same way that other COPCs are evaluated. Instead, EPA has established a "safe" fetal blood lead level of 10 µg/dL and has developed models to evaluate both adult and childhood exposures to lead, considering fetal or childhood blood levels as the critical endpoint. For the adult who may be exposed to lead in a non-residential setting, EPA has developed the Adult Lead Methodology (ALM) (EPA, 1996, 1999b, 2001a). This methodology predicts the blood levels of lead that would likely occur in a pregnant

woman and in her fetus after non-residential exposure to lead-contaminated soil and dust.

The biokinetic ALM incorporates background blood lead levels as a starting concentration and predicts blood levels that will likely result after additional exposure to lead-contaminated soil occurs. The range of default adult blood lead levels recommended by EPA (1996) is 1.7 to 2.2 µg/dL. The model also incorporates a geometric standard deviation (GSD) for background blood lead levels to account for variability within an exposed population. The recommended default values range from 1.8 for homogeneous populations to 2.1 for heterogeneous populations (EPA, 1996, Table 1). EPA (1996) defines homogeneous populations as exposed individuals who have similar socioeconomic and ethnic characteristics who live in a relatively small geographic area and are exposed to a single dominant source of lead. Heterogeneous populations are defined as individuals who have different socioeconomic backgrounds and ethnic characteristics and who live in a larger geographic area (e.g., the national population). The model then considers the ingestion of lead by adults in a non-residential setting, using a soil ingestion rate of 50 mg/day and an assumed exposure frequency of 219 days/year, based on occupational exposure. The oral absorption of lead after ingestion is assumed to be 12 percent. Using a starting soil concentration, the model is able to predict the 95th percentile blood lead concentration in the fetus of an exposed pregnant woman. If this concentration does not exceed the maximum allowable concentration of 10 µg/dL, it is concluded that exposures result in no risk of harm.

The model assumes that there is adequate exposure to result in a steady state blood lead concentration (EPA, 2001a) and assumes that exposure continues regularly and for an indefinite period of time. Thus, there is no exposure duration factor in the model. Instead, it assumes that exposure occurs 219 out of 365 days per year, for every year of exposure, and that steady state is reached. EPA states that certain short-term or intermittent exposures may not be well represented by the model (EPA, 2001a). Thus, if one were to put in the intermittent exposure frequency for the Utility Worker, the model might not predict a representative blood concentration.

It is important to note, however, that the only substantial differences between the model default assumptions and the Groundskeeper and Utility Worker scenarios developed by

EPA (1999a) are soil ingestion rate (for the Utility Worker) and exposure frequency (for both the Groundskeeper and Utility Worker scenarios). While the soil ingestion rate for the Utility Worker used by EPA (1999a) is higher than 50 mg/day, the exposure frequency assumed by EPA (1999a) is substantially lower. For the Groundskeeper, the soil ingestion rate used by EPA (1999a) is the same as the ALM default value but the exposure frequency is lower. Overall, the default ALM model assumes that adults ingest 50 mg/day for 219 days/year for a total annual soil ingestion of 10,960 mg. For the Groundskeeper scenario, which assumes 50 mg/day for 84 days/year (EPA, 1999a), the total yearly soil ingestion is 4,200 mg. For the Utility Worker scenario, which assumes 137 mg/day for 5 days/year, the total amount of soil ingested annually is 685 mg. Thus, the default ALM model certainly overestimates potential blood lead levels for both of these scenarios and hence is a highly conservative screening mechanism to evaluate potential hazards associated with lead in the soils of the GE facility.

To evaluate potential hazards associated with the presence of lead at 20s, 30s, and 40s Complexes, the highest average lead soil concentration, 274 mg/kg in surface soil (40s Complex), was input into the ALM model. If it is demonstrated that this highest lead concentration results in acceptable fetal blood concentrations, then there would be no need to evaluate areas or soil depth increments that have lower lead concentrations. The remaining parameters included as inputs to the ALM are presented in Table 10. To provide a range of predicted values, the range of values presented by EPA (1996) for certain parameters were incorporated. The Low Range estimate assumes the lower end of EPA's default ranges for both the background blood lead level (1.7 µg/dL) and the GSD (1.8). The High Range estimate assumes the upper end of these ranges, incorporating a background blood lead concentration of 2.2 µg/dL and a GSD of 2.1.

The results of the ALM analysis for lead, using the highest average concentration reported (274 mg/kg in surface soil in the 40s Complex) are provided in Table 10. The predicted Low Range 95th percentile fetal blood concentration is 5.0 µg/dL and the predicted High Range 95th percentile fetal blood concentration is 7.9 g/dl. These predicted values are both below EPA's level of concern for children (10 µg/dL), indicating that lead levels in soils at the 20s, 30s, and 40s Complexes do not present a hazard. It should be noted that it is more likely that the Low Range estimate is more appropriate for the GE facility due to the fact that the exposed population is likely to be more accurately

described by EPA's (1996) definition as a homogeneous population. These predicted blood levels are also overestimated for the site where, according to EPA's default parameters for Groundskeepers and Utility Workers (EPA, 1999a), exposure frequencies will be much lower than the default exposure frequency used in the model.

Summary

The above-described results of these area-specific risk evaluations indicate that the concentrations of the COPCs evaluated in surface and subsurface soils at the 20s, 30s, and 40s Complexes do not present an unacceptable cancer risk or non-cancer hazard.

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Table 1. Summary of Exposure Parameter and Toxicity Values for the Groundskeeper Scenario

Parameter	Value	Basis
Soil Ingestion Rate	50 mg/day	EPA, 1999a
Relative Oral Absorption Factor		
Benz(a)anthracene	100%	Conservative Default
Benzo(a)pyrene	100%	Conservative Default
Benzo(b)fluoranthene	100%	Conservative Default
Dibenz(a,h)anthracene	100%	Conservative Default
Indeno(1,2,3-cd)pyrene	100%	Conservative Default
Arsenic	39%	MDEP, 1995
Dermal Adherence Factor	0.1	EPA, 1999a
Skin Surface Area Exposed	3300 cm^2	EPA, 1999a
Relative Dermal Absorption Factor		
Benz(a)anthracene	0.13	EPA, 1999c
Benzo(a)pyrene	0.13	EPA, 1999c
Benzo(b)fluoranthene	0.13	EPA, 1999c
Dibenz(a,h)anthracene	0.13	EPA, 1999c
Indeno(1,2,3-cd)pyrene	0.13	EPA, 1999c
Arsenic	0.03	EPA, 1999c
Exposure Frequency	84 days/year	EPA, 1999a
Exposure Duration	25 years	EPA, 1999a
Body Weight	70 kg	EPA, 1999a
Carcinogenic Averaging Time	25,550 days	EPA, 1999a
Non-Carcinogenic Averaging Time	9125 days	EPA, 1999a
Cancer Slope Factor		
Benz(a)anthracene	0.73 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Benzo(a)pyrene	7.3 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b
Benzo(b)fluoranthene	0.73 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Dibenz(a,h)anthracene	7.3 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Indeno(1,2,3-cd)pyrene	0.73 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Arsenic	1.5 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b
Reference Dose		
Arsenic	0.0003 mg/kg-day	EPA, 2001b

[a] Adjusted for applicable Toxicity Equivalency Factors for PAHs as outlined in EPA, 1993.

Table 2. Summary of Exposure Parameter and Toxicity Values for the Utility Worker Scenario

Parameter	Value	Basis
Soil Ingestion Rate	137 mg/day	EPA, 1999a
Relative Oral Absorption Factor		
Benz(a)anthracene	100%	Conservative Default
Benzo(a)pyrene	100%	Conservative Default
Benzo(b)fluoranthene	100%	Conservative Default
Dibenz(a,h)anthracene	100%	Conservative Default
Indeno(1,2,3-cd)pyrene	100%	Conservative Default
Arsenic	39%	MDEP, 1995
Dermal Adherence Factor	0.1	EPA, 1999a
Skin Surface Area Exposed	3300 cm^2	EPA, 1999a
Relative Dermal Absorption Factor		
Benz(a)anthracene	0.13	EPA, 1999c
Benzo(a)pyrene	0.13	EPA, 1999c
Benzo(b)fluoranthene	0.13	EPA, 1999c
Dibenz(a,h)anthracene	0.13	EPA, 1999c
Indeno(1,2,3-cd)pyrene	0.13	EPA, 1999c
Arsenic	0.03	EPA, 1999c
Exposure Frequency	5 days/year	EPA, 1999a
Exposure Duration	25 years	EPA, 1999a
Body Weight	70 kg	EPA, 1999a
Carcinogenic Averaging Time	25,550 days	EPA, 1999a
Non-Carcinogenic Averaging Time	9125 days	EPA, 1999a
Cancer Slope Factor		
Benz(a)anthracene	0.73 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Benzo(a)pyrene	7.3 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b
Benzo(b)fluoranthene	0.73 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Dibenz(a,h)anthracene	7.3 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Indeno(1,2,3-cd)pyrene	0.73 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b[a]
Arsenic	1.5 $(mg/kg\text{-}day)^{-1}$	EPA, 2001b
Reference Dose		
Arsenic	0.0003 mg/kg-day	EPA, 2001b

[a] Adjusted for applicable Toxicity Equivalency Factors for PAHs as outlined in EPA, 1993.

Table 3. Summary of Risks and Hazards at the 20s, 30s, and 40s Complexes

	20s Complex		30s Complex		40s Complex	
	Commercial	**Utility**	**Commercial**	**Utility**	**Commercial**	**Utility**
Cancer Risk						
Soil Ingestion	7.2E-07	9.5E-08	1.5E-06	2.5E-07	1.5E-06	9.4E-08
Dermal Contact	4.9E-07	1.9E-07	1.2E-06	5.2E-07	1.1E-06	1.9E-07
Total	1.2E-06	2.8E-07	2.7E-06	7.8E-07	2.6E-06	2.8E-07
Noncancer Hazard						
Soil Ingestion	2.2E-03	3.3E-04	2.2E-03	6.7E-04	2.5E-03	3.1E-04
Dermal Contact	1.1E-03	4.8E-04	1.1E-03	1.0E-03	1.3E-03	4.5E-04
Total	3.4E-03	8.1E-04	3.3E-03	1.7E-03	3.7E-03	7.6E-04

Table 4a. Cancer and Non-Cancer Risks from Commercial Worker Ingestion Exposure to Surface Soil in the 20s Complex

Pathway: Incidental Ingestion of Surface Soils
Receptor: Commercial Worker - 20s Complex

CARCINOGENIC
CSF = CDI x CSF
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATc

	Cs	IgR	ROA	EF	ED	CF	BW	ATc	CDI	CSF	Risk
Chemical	Soil Concentration (mg/kg)	Ingestion Rate (mg/d)	Relative Oral Absorption (unitless)	Exposure Frequency (d/yr)	Exposure Duration (yrs)	Conversion Factor (kg/mg)	Body Weight (kg)	Averaging Time Carcinogenic (days)	Chronic Daily Intake (mg/kg-d)	Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$	
Benzo(a)pyrene	0.847	50	1.0	84	25	1E-06	70	25,550	5.0E-08	7.3	3.6E-07
Arsenic	10.4	50	0.39	84	25	1E-06	70	25,550	2.4E-07	1.5	3.6E-07
										Total	7.2E-07

NONCARCINOGENIC
HQ = CDI/RfD
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATnc

	Cs	IgR	ROA	EF	ED	CF	BW	ATnc	CDI	RfD	HQ
Chemical	Soil Concentration (mg/kg)	Ingestion Rate (mg/d)	Relative Oral Absorption (unitless)	Exposure Frequency (d/yr)	Exposure Duration (yrs)	Conversion Factor (kg/mg)	Body Weight (kg)	Averaging Time Noncarcinogenic (days)	Chronic Daily Intake (mg/kg-d)	Reference Dose (mg/kg-d)	Hazard Quotient
Arsenic	10.4	50	0.39	84	25	1E-06	70	9,125	6.7E-07	3.0E-04	2.2E-03
										Total	2.2E-03

Table 4b. Cancer and Non-Cancer Risks from Commercial Worker Dermal Exposure to Surface Soil in the 20s Complex

Pathway: Dermal Contact with Surface Soils
Receptor: Commercial Worker - 20s Complex

CARCINOGENIC
Risk = CDI x CSF
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg-d)^{-1}$	Risk
Benzo(a)pyrene	0.847	0.1	3,300	0.13	84	25	1E-06	70	25,550	4.3E-08	7.3	3.1E-07
Arsenic	10.4	0.1	3,300	0.03	84	25	1E-06	70	25,550	1.2E-07	1.5	1.8E-07
											Total	4.9E-07

NONCARCINOGENIC
HQ = CDI/RfD
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	10.4	0.1	3,300	0.03	84	25	1E-06	70	9,125	3.4E-07	3.0E-04	1.1E-03
											Total	1.1E-03

Table 5a. Cancer and Non-Cancer Risks from Utility Worker Ingestion Exposure to Subsurface Soil in the 20s Complex

Pathway: Incidental Ingestion of Subsurface Soils
Receptor: Utility Worker - 20s Complex

CARCINOGENIC
CSF = CDI x CSF
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATc

	Cs	IgR	ROA	EF	ED	CF	BW	ATc	CDI	CSF	Risk
Chemical	Soil Concentration (mg/kg)	Ingestion Rate (mg/d)	Relative Oral Absorption (unitless)	Exposure Frequency (d/yr)	Exposure Duration (yrs)	Conversion Factor (kg/mg)	Body Weight (kg)	Averaging Time Carcinogenic (days)	Chronic Daily Intake (mg/kg-d)	Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$	
Benzo(a)pyrene	0.616	137	1.0	5	25	1E-06	70	25,550	5.9E-09	7.3	4.3E-08
Arsenic	9.34	137	0.39	5	25	1E-06	70	25,550	3.5E-08	1.5	5.2E-08
										Total	9.5E-08

NONCARCINOGENIC
HQ = CDI/RfD
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATnc

	Cs	IgR	ROA	EF	ED	CF	BW	ATnc	CDI	RfD	HQ
Chemical	Soil Concentration (mg/kg)	Ingestion Rate (mg/d)	Relative Oral Absorption (unitless)	Exposure Frequency (d/yr)	Exposure Duration (yrs)	Conversion Factor (kg/mg)	Body Weight (kg)	Averaging Time Noncarcinogenic (days)	Chronic Daily Intake (mg/kg-d)	Reference Dose (mg/kg-d)	Hazard Quotient
Arsenic	9.34	137	0.39	5	25	1E-06	70	9,125	9.8E-08	3.0E-04	3.3E-04
										Total	3.3E-04

Table 5b. Cancer and Non-Cancer Risks from Utility Worker Dermal Exposure to Subsurface Soil in the 20s Complex

Pathway: Dermal Contact with Subsurface Soils
Receptor: Utility Worker - 20s Complex

CARCINOGENIC
Risk = CDI x CSF
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$	Risk
Benzo(a)pyrene	0.616	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.5E-08	7.3	1.1E-07
Arsenic	9.34	0.8	3,300	0.03	5	25	1E-06	70	25,550	5.2E-08	1.5	7.8E-08
											Total	1.9E-07

NONCARCINOGENIC
HQ = CDI/RfD
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	9.34	0.8	3,300	0.03	5	25	1E-06	70	9,125	1.4E-07	3.0E-04	4.8E-04
											Total	4.8E-04

Table 6a. Cancer and Non-Cancer Risks from Commercial Worker Ingestion Exposure to Surface Soil in the 30s Complex

Pathway: Incidental Ingestion of Surface Soils
Receptor: Commercial Worker - 30s Complex

CARCINOGENIC
CSF = CDI x CSF
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg-d)^{-1}$	Risk
Benz(a)anthracene	0.966	50	1.0	84	25	1E-06	70	25550	5.7E-08	0.73	4.1E-08
Benzo(a)pyrene	0.99	50	1.0	84	25	1E-06	70	25550	5.8E-08	7.3	4.2E-07
Benzo(b)fluoranthene	0.915	50	1.0	84	25	1E-06	70	25550	5.4E-08	0.73	3.9E-08
Dibenzo(a,h)anthracene	1.43	50	1.0	84	25	1E-06	70	25550	8.4E-08	7.3	6.1E-07
Indeno(1,2,3-cd)pyrene	1.54	50	1.0	84	25	1E-06	70	25550	9.0E-08	0.73	6.6E-08
Arsenic	10.1	50	0.39	84	25	1E-06	70	25550	2.3E-07	1.5	3.5E-07
										Total	1.5E-06

NONCARCINOGENIC
HQ = CDI/RfD
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	10.1	50	0.39	84	25	1E-06	70	9,125	6.5E-07	3.0E-04	2.2E-03
										Total	2.2E-03

Table 6b. Cancer and Non-Cancer Risks from Commercial Worker Dermal Exposure to Surface Soil in the 30s Complex

Pathway: Dermal Contact with Surface Soils
Receptor: Commercial Worker - 30s Complex

CARCINOGENIC
Risk = CDI x CSF
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor (mg/kg-d)$^{-1}$	Risk
Benzo(a)anthracene	0.966	0.1	3,300	0.13	84	25	1E-06	70	25,550	4.9E-08	0.73	3.6E-08
Benzo(a)pyrene	0.99	0.1	3,300	0.13	84	25	1E-06	70	25,550	5.0E-08	7.3	3.6E-07
Benzo(b)fluoranthene	0.915	0.1	3,300	0.13	84	25	1E-06	70	25,550	4.6E-08	0.73	3.4E-08
Dibenzo(a,h)anthracene	1.43	0.1	3,300	0.13	84	25	1E-06	70	25,550	7.2E-08	7.3	5.3E-07
Indeno(1,2,3-cd)pyrene	1.54	0.1	3,300	0.13	84	25	1E-06	70	25,550	7.8E-08	0.73	5.7E-08
Arsenic	10.1	0.1	3,300	0.03	84	25	1E-06	70	25,550	1.2E-07	1.5	1.8E-07
											Total	1.2E-06

NONCARCINOGENIC
HQ = CDI/RfD
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	10.1	0.1	3,300	0.03	84	25	1E-06	70	9,125	3.3E-07	3.0E-04	1.1E-03
											Total	1.1E-03

Table 7a. Cancer and Non-Cancer Risks from Utility Worker Ingestion Exposure to Subsurface Soil in the 30s Complex

Pathway: Incidental Ingestion of Subsurface Soils
Receptor: Utility Worker - 30s Complex

CARCINOGENIC
CSF = CDI x CSF
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$	Risk
Benz(a)anthracene	0.69	137	1	5	25	1E-06	70	25,550	6.6E-09	0.73	4.8E-09
Benzo(a)pyrene	0.684	137	1	5	25	1E-06	70	25,550	6.5E-09	7.3	4.8E-08
Benzo(b)fluoranthene	0.695	137	1	5	25	1E-06	70	25,550	6.7E-09	0.73	4.9E-09
Dibenzo(a,h)anthracene	1.13	137	1	5	25	1E-06	70	25,550	1.1E-08	7.3	7.9E-08
Indeno(1,2,3-cd)pyrene	1.17	137	1	5	25	1E-06	70	25,550	1.1E-08	0.73	8.2E-09
Arsenic	19.3	137	0.39	5	25	1E-06	70	25,550	7.2E-08	1.5	1.1E-07
										Total	2.5E-07

NONCARCINOGENIC
HQ = CDI/RfD
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	19.3	137	0.39	5	25	1E-06	70	9,125	2.0E-07	3.0E-04	6.7E-04
										Total	6.7E-04

Table 7b. Cancer and Non-Cancer Risks from Utility Worker Dermal Exposure to Subsurface Soil in the 30s Complex

Pathway: Dermal Contact with Suburface Soils
Receptor: Utility Worker - 30s Complex

CARCINOGENIC
Risk = CDI x CSF
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg-d)^{-1}$	Risk
Benz(a)anthracene	0.69	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.7E-08	0.73	1.2E-08
Benzo(a)pyrene	0.684	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.6E-08	7.3	1.2E-07
Benzo(b)fluoranthene	0.695	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.7E-08	0.73	1.2E-08
Dibenzo(a,h)anthracene	1.13	0.8	3,300	0.13	5	25	1E-06	70	25,550	2.7E-08	7.3	2.0E-07
Indeno(1,2,3-cd)pyrene	1.17	0.8	3,300	0.13	5	25	1E-06	70	25,550	2.8E-08	0.73	2.0E-08
Arsenic	19.3	0.8	3,300	0.03	5	25	1E-06	70	25,550	1.1E-07	1.5	1.6E-07
											Total	5.2E-07

NONCARCINOGENIC
HQ = CDI/RfD
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	19.3	0.8	3,300	0.03	5	25	1E-06	70	9,125	3.0E-07	3.0E-04	1.0E-03
											Total	1.0E-03

Table 8a. Cancer and Non-Cancer Risks from Commercial Worker Ingestion Exposure to Surface Soils in the 40s Complex

Pathway: Incidental Ingestion of Surface Soils
Receptor: Commercial Worker - 40s Complex

CARCINOGENIC
CSF = CDI x CSF
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$	Risk
Benz(a)anthracene	1.84	50	1	84	25	1E-06	70	25,550	1.1E-07	0.73	7.9E-08
Benzo(a)pyrene	1.92	50	1	84	25	1E-06	70	25,550	1.1E-07	7.3	8.2E-07
Benzo(b)fluoranthene	1.73	50	1	84	25	1E-06	70	25,550	1.0E-07	0.73	7.4E-08
Indeno(1,2,3-cd)pyrene	1.9	50	1	84	25	1E-06	70	25,550	1.1E-07	0.73	8.1E-08
Arsenic	11.6	50	0.39	84	25	1E-06	70	25,550	2.7E-07	1.5	4.0E-07
										Total	1.5E-06

NONCARCINOGENIC
HQ = CDI/RfD
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	11.6	50	0.39	84	25	1E-06	70	9,125	7.4E-07	3.0E-04	2.5E-03
										Total	2.5E-03

Table 8b. Cancer and Non-Cancer Risks from Commercial Worker Dermal Exposure to Surface Soils in the 40s Complex

Pathway: Dermal Contact with Surface Soils
Receptor: Commercial Worker - 40s Complex

CARCINOGENIC
Risk = CDI x CSF
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg-d)^{-1}$	Risk
Benz(a)anthracene	1.84	0.1	3,300	0.13	84	25	1E-06	70	25,550	9.3E-08	0.73	6.8E-08
Benzo(a)pyrene	1.92	0.1	3,300	0.13	84	25	1E-06	70	25,550	9.7E-08	7.3	7.1E-07
Benzo(b)fluoranthene	1.73	0.1	3,300	0.13	84	25	1E-06	70	25,550	8.7E-08	0.73	6.4E-08
Indeno(1,2,3-cd)pyrene	1.9	0.1	3,300	0.13	84	25	1E-06	70	25,550	9.6E-08	0.73	7.0E-08
Arsenic	11.6	0.1	3,300	0.03	84	25	1E-06	70	25,550	1.3E-07	1.5	2.0E-07
											Total	1.1E-06

NONCARCINOGENIC
HQ = CDI/RfD
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	11.6	0.1	3,300	0.03	84	25	1E-06	70	9,125	3.8E-07	3.0E-04	1.3E-03
											Total	1.3E-03

Table 9a. Cancer and Non-Cancer Risks from Utility Worker Ingestion Exposure to Subsurface Soils in the 40s Complex

Pathway: Incidental Ingestion of Subsurface Soils
Receptor: Utility Worker - 40s Complex

CARCINOGENIC
CSF = CDI x CSF
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$	Risk
Benz(a)anthracene	0.469	137	1	5	25	1E-06	70	25,550	4.5E-09	0.73	3.3E-09
Benzo(a)pyrene	0.471	137	1	5	25	1E-06	70	25,550	4.5E-09	7.3	3.3E-08
Benzo(b)fluoranthene	0.428	137	1	5	25	1E-06	70	25,550	4.1E-09	0.73	3.0E-09
Indeno(1,2,3-cd)pyrene	0.794	137	1	5	25	1E-06	70	25,550	7.6E-09	0.73	5.5E-09
Arsenic	8.79	137	0.39	5	25	1E-06	70	25,550	3.3E-08	1.5	4.9E-08
										Total	9.4E-08

NONCARCINOGENIC
HQ = CDI/RfD
CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	IgR Ingestion Rate (mg/d)	ROA Relative Oral Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	8.79	137	0.39	5	25	1E-06	70	9,125	9.2E-08	3.0E-04	3.1E-04
										Total	3.1E-04

Table 9b. Cancer and Non-Cancer Risks from Utility Worker Dermal Exposure to Subsurface Soils in the 40s Complex

Pathway: Dermal Contact with Subsurface Soils
Receptor: Utility Worker - 40s Complex

CARCINOGENIC
Risk = CDI x CSF
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATc Averaging Time Carcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	CSF Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$	Risk
Benz(a)anthracene	0.469	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.1E-08	0.73	8.2E-09
Benzo(a)pyrene	0.471	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.1E-08	7.3	8.2E-08
Benzo(b)fluoranthene	0.428	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.0E-08	0.73	7.5E-09
Indeno(1,2,3-cd)pyrene	0.794	0.8	3,300	0.13	5	25	1E-06	70	25,550	1.9E-08	0.73	1.4E-08
Arsenic	8.79	0.8	3,300	0.03	5	25	1E-06	70	25,550	4.9E-08	1.5	7.3E-08
											Total	1.9E-07

NONCARCINOGENIC
HQ = CDI/RfD
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATnc

Chemical	Cs Soil Concentration (mg/kg)	DAF Dermal Adherence Factor (mg/cm^2)	SA Surface Area Exposed (cm^2/day)	RDA Relative Dermal Absorption (unitless)	EF Exposure Frequency (d/yr)	ED Exposure Duration (yrs)	CF Conversion Factor (kg/mg)	BW Body Weight (kg)	ATnc Averaging Time Noncarcinogenic (days)	CDI Chronic Daily Intake (mg/kg-d)	RfD Reference Dose (mg/kg-d)	HQ Hazard Quotient
Arsenic	8.79	0.8	3,300	0.03	5	25	1E-06	70	9,125	1.4E-07	3.0E-04	4.5E-04
											Total	4.5E-04

Table 10. Input Parameters and Results for the ALM Model for Lead Exposure Using Site-specific Soil Concentrations and Default Parameters

			Values for Non-Residential Exposure Scenario	
Exposure Variable	**Description of Exposure Variable**	**Units**	**Low Range**	**High Range**
PbS	Soil lead concentration	µg/g or ppm	274	274
$R_{fetal/maternal}$	Fetal/maternal blood lead ratio	-	0.9	0.9
BKSF	Biokinetic slope factor	µg/dL per µg/day	0.4	0.4
GSD	Geometic standard deviation blood lead level	-	1.8	2.1
PbB_0	Baseline adult blood lead level	µg/dL	1.7	2.2
IR	Soil ingestion rate	g/day	0.05	0.05
AF	Absorption fraction	-	0.12	0.12
EF	Exposure frequency	days/year	219	219
At	Averaging time	days/year	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	2.1	2.6
$PbB_{fetal, 0.95}$	**95th percentile PbB among fetuses of adult workers**	**µg/dL**	**5.0**	**7.9**
PbB_t	Target PbB level of concern	µg/dL	10	10

Equations (EPA, 1996)

$$PbB_{adult} = (PbS * BKSF * IR * AF * EF / AT) + PbB_0$$

$$PbB_{fetal, 0.95} = PbB_{adult} * (GSD^{1.645} * R)$$

Attachments

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