Quality Control Summary Report for the Year 2002 Expanded Site Investigation at the Former Griffiss Air Force Base

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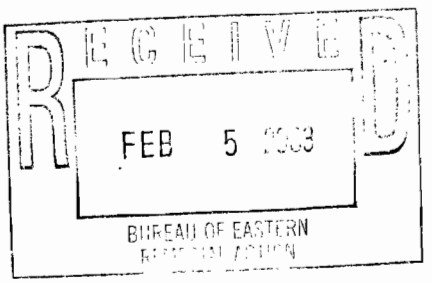

FIELD DUPLICATE RESULTS

Field duplicates were analyzed as required in the QAPP. The samples are noted on Table 1 of this memo were field duplicates. The results will be summarized on a table in the QCSR. The field duplicate QC criteria are two times the laboratory duplicate QC criteria of 20% for water samples and 35% for soil samples (i.e., 40% for water samples and 70% for solid samples). The RPD ratings are listed as "Good" if the RPD is less than field duplicate QC criteria and as "Poor" if the RPD exceeded the field duplicate QC criteria.

Field duplicate results are summarized on Table 7 below. One set of duplicate wipe samples was collected and overall the precision was generally poor. The results indicate a high variability in the wipe sample collection. Field duplicate results with "Poor" are flagged "J" as estimated and the potential variability in the results needs to be evaluated if the results are compared to any regulatory criteria. Since the wipes results will probably be incorporated into an overall risk evaluation that would take into account the inherent variability of the results.

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List of Acronyms

AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Environmental Excellence
AOI	Area of Interest
ASC	Analytical Services Center
BGS	below ground surface
CLP	Contract Laboratory Program
COC	chain-of-custody
/D	duplicate
E & E	Ecology and Environment, Inc.
ERDC	United States Army Engineer Research and Development Center
ERPMIS	Environmental Resource Program Information Management System
ESI	Expanded Site Investigation
FSP	Field Sampling Plan
GAFB	Griffiss Air Force Base
IDW	investigation-derived waste
J	estimated result
Law	Law Environmental, Inc.
LCS	laboratory control sample
LIMS	Laboratory Information Management System
mg/L	milligrams per liter
MS/MSD	matrix spike/matrix spike duplicate
NFA	no further action
NFS	no further study
NS	near surface soil sample
NYSDEC	New York State Department of Environmental Conservation

List of Acronyms (Cont.)

OTH	Other Miscellaneous Environmental Factors (site)
OVA	organic vapor analyzer
PCB	polychlorinated biphenyl
PCI	Panamerican Consultants, Inc. (site)
ppb	parts per billion
PQL	practical quantitation limit
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
QCP	Quality Control Plan
QCSR	Quality Control Summary Report
RPD	relative percent difference
/S	split
SD	sludge sample
SOP	Standard Operating Procedure
SS	subsurface soil sample
SVOC	semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TICS	Tentatively Identified Compound
TRPH	total recoverable petroleum hydrocarbons
U	non-detect result
UJ	estimated non-detect result
USACE	Unite States Army Corps of Engineers
USEPA	Environmental Protection Agency
UR	Rejected non-detect result
VOC	volatile organic compound
WAD	Work Authorization Directive
WG	grab water sample
µg/L	micrograms per liter

Purpose of Document

The purpose of the 2002 additional Expanded Site Investigation (ESI) activities at four sites at the former Griffiss Air Force Base (GAFB) was (1) to further define whether environmental contaminants are present at certain areas of the former GAFB that may pose a threat to human health and/or the environment, (2) to continue the process of identifying where remedial actions may be needed, and (3) to conduct the necessary remedial actions to classify the sites as "No Further Action" (NFA). The four sites where this additional ESI was performed included: Other Miscellaneous Environmental Factors (OTH) site 305, Panamerican Consultants, Inc. (PCI) Site 20, the Building 211 – Pipe Vault (OTH-211, DRY-211), and Area of Interest (AOI) 473 - Building 112 Room 10. These additional investigations were completed in response to a request by the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA) to continue the process of identifying where remedial actions may be needed and to conduct the necessary remedial actions to classify the sites as (NFA). The results of this additional work will be used to determine whether any of these sites should be added to the current list of sites that require no further study (NFS) or NFA, or determine the need for additional sampling, and if significant contamination is found, the need to develop appropriate remedial plans.

This quality control summary report (QCSR) presents the results of the analytical program and provides an opportunity to review the completeness and quality of the data collected. The purpose of this QCSR is to:

- Summarize sample collection, handling, and analytical procedures for the sampling investigation conducted at each site;
- Identify any deviations from the proposed sampling and analysis procedures;

- Present the analytical results for the field samples collected; and

- Discuss the results of the data quality evaluation associated with the sampling events.

Evaluation of any contaminants detected will be provided in a separate ESI report.

1 Introduction

Ecology and Environment, Inc. (E & E), under contract to the United States Army Corps of Engineers (USACE), Kansas City District, Contract DACW41-99-D-9005, Task Order 0001, Work Authorization Directive (WAD) 09, conducted additional Expanded Site Investigation (ESI) activities at four sites at the former Griffiss Air Force Base (GAFB) in Rome, New York. This QCSR summarizes sampling results for the following eight sites:

- Building 305 – Paint Spray Booth (Other Miscellaneous Environmental Factors site [OTH]-305);
- Panamerican Consultants, Inc. Site 20 (PCI Site 20);
- Building 211-Pipe Vault (OTH-211, DRY-211); and
- Building 211 Room 10 (Area of Interest [AOI] 473).

2 Data Collection, Data Management, and Quality Control Procedures

2.1 Sample Collection Procedures

The Year 2002 ESI activities consisted of the collection of environmental in accordance with the June 2002 *Final Field Sampling Plan (FSP), Health and Safety Plan, and Quality Assurance Project Plan (QAPP) for the 2002 Expanded Site Investigation, Former Griffiss Air Force Base, Rome, New York* (E & E 2002) (see Appendix A). Any minor variances in field methodologies that occurred during the investigation are noted on the Daily Activity Summary reports. E & E prepared the reports in the field each day and submitted them to USACE and Air Force Base Conversion Agency (AFBCA) (see Appendix B). All field activities were carried out in accordance with the approved Quality Control Plan (QCP). An E & E QC inspector visited the site once during the field activities. Field inspection forms are included in Appendix F under system audits.

Methodologies used for field notebooks; sample labeling, packaging, and custody; equipment decontamination; disposal of investigation-derived waste (IDW); and site survey were performed in accordance with the FSP and documents referenced therein.

2.2 Field QA/QC Sample Requirements

Quality assurance/quality control (QA/QC) samples were collected on a site-wide basis according to the criteria established in Section 10 of the Law Environmental, Inc. (Law) Quality Assurance Project Plan (QAPP) (Law 1993), except as modified in E & E's QAPP addendum (E & E 2002).

In summary, these field QA/QC sample requirements are as follows:

- Field QC duplicates collected at a frequency of 10% of the number of field samples collected;

- Field QA split samples collected from the same sample points as the QC duplicate samples, at a frequency of 10% of the number of field samples collected;
- Rinsates collected at a frequency of 10% of the number of field samples collected with non-dedicated equipment;
- Matrix spike/matrix spike duplicates (MS/MSDs) for laboratory QC collected at a frequency of 20% of the samples collected;
- No ambient condition blanks would be collected; and
- One trip blank was submitted for each shipment containing water samples requiring volatile organic analysis.

2.3 Contracted Analytical Laboratories

All laboratory analyses were provided by E & E's Analytical Services Center (ASC) in Lancaster, New York. QA split samples were sent to the United States Army Engineer Research and Development Center (ERDC) Quality Assurance Laboratory in Omaha, Nebraska, for analysis.

2.4 Sample Handling and Custody Procedures

Field samples were collected, preserved, and transported to the appropriate laboratory according to the procedures described in FSP. Deviations from these sample handling and custody procedures are reported under the appropriate sampling area in Section 3 of this document.

All chain-of-custody (COC) documentation associated with the collection of samples for the 2002 ESI is included in Appendix C.

2.5 Equipment Calibration and Maintenance

Calibration procedures for the field and laboratory instruments are presented in Sections 8.1 and 8.2 of Law's QAPP (Law 1993), except as modified by E & E's FSP and QAPP. Deviations from these calibration and maintenance procedures are reported under the appropriate sampling area in Section 3 of this document.

2.6 Quality Assurance Objectives

Data uses and QA objectives were determined by E & E and are included in E & E's FSP (E & E 2002).

2.7 Procedures for Data Quality Evaluation

Data quality evaluations focus on deviations from expected QC activities, problems encountered, and the acceptability of the methodologies used. Sample integrity is based on information provided on the cooler receipt form, the COC documents, statements in the laboratory case narratives, and field notebooks. The evaluation of the analytical data with respect to project- and method-specific quality objectives was performed using the results of laboratory method blank analyses, laboratory control samples (LCS), MS/MSD analyses, and surrogate recoveries, where applicable. Field duplicate data were used to evaluate the accuracy and precision of the analytical results and field sample collection methods.

The ASC prepares one data package per laboratory work order. Data validation memoranda are generated for all laboratory work orders and describe the data qualifications in detail. These memoranda contain all the details of the data quality review. Copies of all data validation memoranda are provided in Appendix D. The key factors in the data quality review and validation procedures are highlighted for each sampling area in Section 3.

The sections that follow present the evaluation procedures used for laboratory and field QC samples.

2.7.1 Laboratory Data Quality Evaluation

The procedures used by E & E to evaluate and validate analytical data are described in Section 9.2.1 of Law's QAPP (Law 1993), except as modified by E & E's QAPP in the FSP. Data evaluation acceptance limits associated with this project are presented in Appendices L, K and M of Law's QAPP (Law 1993) as modified by E & E's QAPP addendum (E & E 2002). A senior chemist performed all data quality evaluation and qualification of the data summary tables. The data was qualified using the following documents as the basis:

- USEPA Contract Laboratory Program *National Functional Guidelines for Organic Data Review* (USEPA 1999); and

- USEPA Contract Laboratory Program *National Functional Guidelines for Inorganic Data Review* (USEPA 1994).

Data associated with laboratory and field QC samples that meet all acceptance limits were not qualified and are considered usable as reported. Data associated with laboratory and field QC samples that exceeded some of the acceptance limits or had other analytical problems are qualified as described in Section 3.

2.7.2 Field Data Quality Evaluation

QA and QC samples were collected to assess the quality of the field sampling activities. These QA/QC field samples include duplicates, splits, and rinsate blanks. The evaluation of these samples was based on completeness of data, results of rinsate blank analysis, and relative percent differences (RPDs) of field duplicate results. The evaluation criteria (RPD categories) used for field duplicates can be found in Section 4.3.1 of Law's QAPP (Law 1993).

To facilitate the comparison of the original field, QC duplicate, and QA split sample data, all samples from a common sample point were assigned the same client ID number. The QC duplicate samples were assigned a suffix of "/D," and QA split samples were assigned a suffix of "/S."

2.8 Data Management

ASC laboratory data collection, data reduction, and data handling procedures are presented in the ASC's standard operating procedures (SOPs) and Laboratory QA Manual (E & E 2002a).

Analytical results are stored by the ASC laboratory in both electronic and hard copy formats. Hard copy data packs for each laboratory work order are validated, and qualifiers are recorded on the data pack. Validation memoranda documenting the analytical procedures and results of the data evaluation are created for each laboratory work order. Validation memoranda and data packages associated with this investigation were sent to the USACE chemist after each data package was completed.

All analytical results are managed electronically using E & E's Laboratory Information Management System (LIMS). Analytical results are read directly off of the instruments. The data are transmitted electronically and checked as part of the data validation process. Validation qualifiers are added to the appropriate samples in the database. Analytical results are electronically transferred to a final database used to generate data summary reports.

Analytical data associated with the investigation will be provided electronically to the Air Force Center for Environmental Excellence (AFCEE) in the required format for inclusion in the Environmental Resources Program Information Management System (ERPIMS). ASC will provide data to E & E in compliance with the latest version of ERPTools/Lab and E & E will subsequently provide data to AFCEE in compliance with the latest version of the ERPIMS Data Loading Handbook. ERPTools/Lab and /PC incor-

porate a number of automatic error checking routines to identify duplicate record sets; incorrect date/time/number formats; invalid codes; failure to complete key required data fields essential for file integrity; and field, record, and submission level validation.

2.9 Location of Data

A complete set of the analytical results are contained in summary tables presented in Section 3 of this report. The QCSR (two copies) was forwarded to Mr. Mr. Phil Rosewicz of the USACE Kansas City District. The original data packages were forwarded to Ms. Daksha Dalal of the USACE, Kansas City District. Duplicate data packages are kept in the ASC. An electronic copy of the data is kept in the ERPIMS database at Brooks AFB, Texas and in a project-specific database maintained by E & E.

3 Site-Specific Sampling, Analysis, and Quality Control Results

This section describes the proposed sampling at each area, any deviations from the work plan or the QAPP, and includes a description of the data quality review on a sampling area-specific basis. Tabulations of the quality controlled analytical results are also included in this section. The appendices report supportive information, such as maps and tables describing the proposed work and background information (Appendix A), daily activity reports forms (Appendix B), COC documentation (Appendix C), validation memoranda (Appendix D), lab case narratives (Appendix E), and Systems Audit documentation (Appendix F). The data in the appendices are sorted in chronological order of the sampling events.

3.1 Building 305 – Paint Spray Booth (OTH-305)

3.1.1 Proposed Sample Collection and Analytical Requirements

The objective of this work was to remove contaminated water and sediment detected in the paint spray booth floor drain during the Year 2000 ESI program, sample the soil beneath the floor drain to see if it has been impacted by the contamination within the floor drain, and seal the floor drain and associated discharge pipe with concrete. According to the FSP, sampling at the Building 305 – Paint Spray Booth (OTH-305) was to include:

- A waste water and a sediment sample were to be collected for disposal purposes and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs) by Method SW1311/8260B; TCLP semivolatile organic compounds (SVOCs) by Method SW1311/8720C; TCLP pesticides by Method SW1311/8081A; TCLP herbicides by Method 1311/8151A; TCLP metals/mercury by Method SW1311/6010B/7470A for the water SW1311/6010B/7471A for the sediment, Target Compound List (TCL) polychlorinated biphenyls (PCBs) by Method 8082, ignitability by Method SW1010 for the water SW1030 for the sediment, reactive cyanide by Method 7.3.3.2, reactive sulfide by Method 7.3.4.2, pH by Method 9045, and percent solids by Method ASTM_D2216.

- Three subsurface soil samples were to be collected from beneath the floor drain sump after the sump was cleaned out and a hole was been drilled through the bottom (at 0 to 0.5 feet, 0.5 to 1.0 foot, and 1.0 foot to 2.0 feet below the bottom of the drain). The subsurface soil samples were to be analyzed for TCL VOCs by Method SW8260B, TCL SVOCs by Method SW8270C, TCL pesticides/PCBs by Method SW8081A/8082, Target Analyte List (TAL) metals/mercury by Method SW6010B/7471A, and percent solids by Method ASTM_D2216.

3.1.2 Sampling and Analysis Performed

Three subsurface soil samples were collected from beneath the floor drain sump after the sump as per the FSP. No extra volume was required for MS/MSD analysis and no duplicate and split samples were required. Two wastewater samples were collected for disposal purposes and one trip blank was prepared to accompany the wastewater samples.

Table 3.1-1 lists the samples collected, as well as the sampling dates, sample depths, and analyses associated with the samples.

(This table is a post-sampling update of the FSP table presented in Appendix A.)

There were no changes to the proposed sample analyses required for the samples except for the wastewater sample of the drummed water generated during the sump clean-out and the associated trip blank that were added as noted on Table 3.1-1.

3.1.3 Deviations From Sample Handling and Custody Procedures

No deviations occurred to the proposed sample handling and sample custody procedures.

3.1.4 Data Quality Evaluation

The data quality was evaluated based on sample integrity, holding times, method blank results, LCS results, MS/MSD recoveries, surrogate recoveries, and duplicate precision as outlined in Section 2.7 of this document. The correlation between original samples collected at the site and the associated field and laboratory QA/QC samples used to confirm and qualify the original samples are reported in Table 3.1-2.

All of the data collected from the site are reported in E & E's ASC laboratory work orders as follows:

Work Order
0205079

Detailed descriptions of the data quality review are reported by lab work order in the Data Validation Memorandum provided in Appendix D.

Based on QC criteria, all data collected and analyzed from the site are usable. Data qualification for the samples from the site is discussed by method in the following sections.

3.1.4.1 Soil Samples OTH 305 Method SW8260B - TCL VOCs

Sample OTH305-SS01 had low surrogate recoveries. The sample was re-analyzed with similar results indicating a matrix effect. The only positive result in the samples was acetone and the value was flagged "J" as estimated.

Method 8081A- TCL Pesticides

The recovery for methoxy chlor in one LCS was low due to a spiking error that was corrected immediately. All the other recoveries were acceptable and there is no impact on data usability. No data qualification was required for the samples.

Method 6010B/7471A

No problems were encountered with sample analyses for these methods except slightly low antimony recovery and manganese in the method blank. Antimony was flagged "J" as estimated based on the MS/MSD outside QC limits for the sample batch. No other data qualification was required for the samples.

Other Methods

No problems were encountered with sample analyses for the other methods and no data qualification was required.

3.1.4.2 Water Samples OTH 305

Method 6010B/7470A

No problems were encountered with sample analyses for these methods except for mercury present in the method blank. The sample results were less than level of 5 times the method blank for mercury and results are flagged "U" as non-detect. No other data qualification was required for the samples.

Method 7.3.3.2 and 7.3.4.2

The Reactive cyanide and sulfide LCS recoveries were less than 1%, which was below the QC limits. The analysis was not repeated for cyanide because the holding time had expired. The analysis for sulfide was repeated with acceptable LCS recoveries even though the holding time had expired. The reactive cyanide was non-detect and the results are flagged "UR" as rejected. The sulfide results are non-detect and flagged "UJ" as estimated. The tests are highly variable and difficult to achieve good response. The results are for disposal purposes and there is no indication of cyanide or other hazardous materials in the samples. Therefore, there is no overall impact on the usability of the samples.

Other Methods

No problems were encountered with sample analyses for the other methods and no data qualification was required.

3.1.5 Analytical Results Tables

Tables 3.1-3 and 3.1-4 summarize the complete analytical results for the soil samples collected at the site. Table 3.1-5 summarizes

the complete analytical results for the grab water samples collected at the site and Table 3.1-6 summarize the trip blank results. Table 3.1-7 summarizes the positive results for soil samples and Table 3.1-8 summarizes the positive results for grab water samples. Positive results for the method blanks and the associated data qualifiers for both the method and field blanks are reported on Table 2 of the data validation memorandum in Appendix D. Table 4 in the data validation memorandum in Appendix D reports the results for the project-specific MS/MSD samples that were outside control limits.

3.1.6 Data Completeness and Representativeness

3.1.6.1 Analytical Method Problems

No problems were noted with the analytical methods used for the samples collected at the site. Immediate corrective action on the spiking levels for methoxy chlor in the LCS.

3.1.6.2 Needed QA/QC Change

No QA/QC changes were noted for the analytical methods used for samples collected at the site.

3.1.7 Summary and Conclusions

Two data points were rejected for the grab water samples collected at the site. A completeness goal of 99.99% was achieved for analytical level III data. The analytical data meet specified QC criteria, with no any exceptions or qualifications except as noted in this report. Table 3.1-9 presents a list of samples qualified for this project. Any samples with "J" flags not listed on Table 3.1-9 were quantified below the PQL. The data points that were qualified as estimated should be considered useable for the purposes of this project. A total of 755 data points are associated with the site.

Table 3.1-1 Sample Listing, OTH 305 Additional Sampling, Former Griffiss Air Force Base, Rome, NY

									ANALYSES															
Location	Date	Sample Number	Lab	Matrix	Depth	WP	Stat	Type	TCLP VOCs - SW1311/8260B	TCLP SVOCs - SW1311/8270C	TCLP Pesticides - SW1311/8081A	TCLP Herbicides - SW1311/9151A	TCLP Metals & Extraction - SW1311/6010B	TCLP Mercury - SW1311/7470A	Total PCBs - SW8082	Ignitability - SW1030	pH - SW9045	Reactivity - Cyanide SW7.3.3.2	Reactivity - Sulfide SW7.3.4.2	% Solids - ASTM_D2216	TCL VOCs - SW8260B	TCL SVOCs - SW8270C	TCL Pesticides - SW8081A	TCL PCBs - SW8082	TAL Metals/Mercury - SW6010B/7471A
OTH-305	05/09/02	OTH305-WG02	ASC	Water Grab	-	Y	T	N1	X	X	X	X	X	X	X	X	X	X	X						
	05/09/02	OTH305-WG03	ASC	Water Grab	-	N	T	N1	X	X	X	X	X	X	X	X	X	X	X						
	05/09/02	OTH305-TB1	ASC	DI Water	-	N	T	TB1													X				
	05/09/02	OTH305-SS01	ASC	Subsurface soil	0.0' - 0.5'	Y	T	N1												X	X	X	X	X	X
	05/09/02	OTH305-SS02	ASC	Subsurface soil	0.5' - 1.0'	Y	T	N1												X	X	X	X	X	X
	05/09/02	OTH305-SS03	ASC	Subsurface soil	1.0' - 2.0'	Y	T	N1												X	X	X	X	X	X

Key:

ASC = E & E's Analytical Services Center.
ASTM = American Society for Testing and Materials.
Depth = Depth interval at which sample will be collected.
DI = Deionized.
ESI = Expanded Site Investigation.
N = Original sample.
OTH = Other Miscellaneous Environmental Factor site.
PCB = Polychlorinated biphenyl.
SS = Subsurface soil sample.
Stat = Status (O= Open, T= Taken, S= Skipped).
SVOC = Semivolatile organic compound.
TAL = Target analyte list.
TB = Trip blank sample.
TCL = Target Compound List.
TCLP = Toxicity Characteristic Leaching Procedure.
VOC = Volatile organic compound.
WG = Grab water sample.
WP = Sample in work plan (Y= yes, N= no).

Table 3.1-2
Association Between Field and QA/QC Samples for OTH 305 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Sample Date	Sample ID	ID Corrections	Field Blanks	MS/MSD	Field Duplicates	Field Splits
5/9/02	OTH305-WG02	None	OTH305-TB1			
5/9/02	OTH305-WG03	None	OTH305-TB1	MS/MSD		
5/9/02	OTH305-SS01	None				
5/9/02	OTH305-SS02	None		MS/MSD		
5/9/02	OTH305-SS03	None		MS/MSD		

Key:

ESI = Expanded Site Investigation.
MS/MSD = Matrix spike/matrix spike duplicate.
OTH = Other Miscellaneous Environmental Factor site.
QA = Quality assurance.
QC = Quality control.
SS - Soil sample.
TB = Trip blank sample.
WG - Grab water sample.

Table 3.1-3
Complete Analytical Data Summary for Soil Samples, OTH 305 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	OTH305-SS01 05/09/02	OTH305-SS02 05/09/02	OTH305-SS03 05/09/02
Semivolatile Organics by Method 8270C (µg/Kg)					
SW8270C	1,2,4-Trichlorobenzene	µg/Kg	370 U	362 U	360 U
SW8270C	1,2-Dichlorobenzene	µg/Kg	370 U	362 U	360 U
SW8270C	1,3-Dichlorobenzene	µg/Kg	370 U	362 U	360 U
SW8270C	1,4-Dichlorobenzene	µg/Kg	370 U	362 U	360 U
SW8270C	2,4,5-Trichlorophenol	µg/Kg	931 U	911 U	905 U
SW8270C	2,4,6-Trichlorophenol	µg/Kg	370 U	362 U	360 U
SW8270C	2,4-Dichlorophenol	µg/Kg	370 U	362 U	360 U
SW8270C	2,4-Dimethylphenol	µg/Kg	370 U	362 U	360 U
SW8270C	2,4-Dinitrophenol	µg/Kg	370 U	362 U	360 U
SW8270C	2,4-Dinitrotoluene	µg/Kg	370 U	362 U	360 U
SW8270C	2,6-Dinitrotoluene	µg/Kg	370 U	362 U	360 U
SW8270C	2-Chloronaphthalene	µg/Kg	370 U	362 U	360 U
SW8270C	2-Chlorophenol	µg/Kg	370 U	362 U	360 U
SW8270C	2-Methylnaphthalene	µg/Kg	370 U	362 U	360 U
SW8270C	2-Methylphenol	µg/Kg	370 U	362 U	360 U
SW8270C	2-Nitroaniline	µg/Kg	931 U	911 U	905 U
SW8270C	2-Nitrophenol	µg/Kg	370 U	362 U	360 U
SW8270C	3,3´-Dichlorobenzidine	µg/Kg	740 U	725 U	719 U
SW8270C	3-Nitroaniline	µg/Kg	931 U	911 U	905 U
SW8270C	4,6-Dinitro-2-methylphenol	µg/Kg	931 U	911 U	905 U
SW8270C	4-Bromophenyl phenyl ether	µg/Kg	370 U	362 U	360 U
SW8270C	4-Chloro-3-methylphenol	µg/Kg	370 U	362 U	360 U
SW8270C	4-Chloroaniline	µg/Kg	370 U	362 U	360 U
SW8270C	4-Chlorophenyl phenyl ether	µg/Kg	370 U	362 U	360 U
SW8270C	4-Methylphenol	µg/Kg	370 U	362 U	360 U
SW8270C	4-Nitroaniline	µg/Kg	931 U	911 U	905 U
SW8270C	4-Nitrophenol	µg/Kg	931 U	911 U	905 U
SW8270C	Acenaphthene	µg/Kg	370 U	362 U	360 U
SW8270C	Acenaphthylene	µg/Kg	370 U	362 U	360 U
SW8270C	Anthracene	µg/Kg	69.0 J	362 U	360 U
SW8270C	Benz(a)anthracene	µg/Kg	146 J	362 U	360 U
SW8270C	Benzo(a)pyrene	µg/Kg	104 J	362 U	360 U
SW8270C	Benzo(b)fluoranthene	µg/Kg	86.2 J	362 U	360 U
SW8270C	Benzo(g,h,i)perylene	µg/Kg	51.1 J	362 U	360 U
SW8270C	Benzo(k)fluoranthene	µg/Kg	122 J	362 U	360 U
SW8270C	Benzoic acid	µg/Kg	931 U	911 U	905 U
SW8270C	Benzyl alcohol	µg/Kg	370 U	362 U	360 U
SW8270C	Bis(2-chloroethoxy)methane	µg/Kg	370 U	362 U	360 U
SW8270C	Bis(2-chloroethyl)ether	µg/Kg	370 U	362 U	360 U
SW8270C	Bis(2-chloroisopropyl)ether	µg/Kg	370 U	362 U	360 U
SW8270C	Bis(2-ethylhexyl)phthalate	µg/Kg	77.9 J	362 U	78.9 J
SW8270C	Butyl benzyl phthalate	µg/Kg	370 U	362 U	360 U
SW8270C	Carbazole	µg/Kg	370 U	362 U	360 U
SW8270C	Chrysene	µg/Kg	148 J	362 U	360 U
SW8270C	Dibenz(a,h)anthracene	µg/Kg	370 U	362 U	360 U
SW8270C	Dibenzofuran	µg/Kg	370 U	362 U	360 U
SW8270C	Diethyl phthalate	µg/Kg	370 U	362 U	360 U
SW8270C	Dimethyl phthalate	µg/Kg	370 U	362 U	360 U
SW8270C	Di-n-butyl phthalate	µg/Kg	370 U	362 U	360 U

Table 3.1-3
Complete Analytical Data Summary for Soil Samples, OTH 305 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	OTH305-SS01 05/09/02	OTH305-SS02 05/09/02	OTH305-SS03 05/09/02
SW8270C	Di-n-octyl phthalate	µg/Kg	370 U	362 U	360 U
SW8270C	Fluoranthene	µg/Kg	379	362 U	360 U
SW8270C	Fluorene	µg/Kg	370 U	362 U	360 U
SW8270C	Hexachlorobenzene	µg/Kg	370 U	362 U	360 U
SW8270C	Hexachlorobutadiene	µg/Kg	370 U	362 U	360 U
SW8270C	Hexachlorocyclopentadiene	µg/Kg	931 U	911 U	905 U
SW8270C	Hexachloroethane	µg/Kg	370 U	362 U	360 U
SW8270C	Indeno(1,2,3-cd)pyrene	µg/Kg	50.5 J	362 U	360 U
SW8270C	Isophorone	µg/Kg	370 U	362 U	360 U
SW8270C	Naphthalene	µg/Kg	370 U	362 U	360 U
SW8270C	Nitrobenzene	µg/Kg	370 U	362 U	360 U
SW8270C	N-Nitrosodimethylamine	µg/Kg	370 U	362 U	360 U
SW8270C	N-Nitrosodi-n-propylamine	µg/Kg	370 U	362 U	360 U
SW8270C	N-Nitrosodiphenylamine	µg/Kg	370 U	362 U	360 U
SW8270C	Pentachlorophenol	µg/Kg	931 U	911 U	905 U
SW8270C	Phenanthrene	µg/Kg	302 J	362 U	360 U
SW8270C	Phenol	µg/Kg	370 U	362 U	360 U
SW8270C	Pyrene	µg/Kg	290 J	362 U	360 U
Metals/Mercury by Method 6010B/7471A (mg/Kg)					
SW6010B	Aluminum	mg/Kg	16500	16700	17100
SW6010B	Antimony	mg/Kg	2.11 J	5.56 J	5.55 J
SW6010B	Arsenic	mg/Kg	4.78	6.72	6.73
SW6010B	Barium	mg/Kg	129	49.8	92.2
SW6010B	Beryllium	mg/Kg	0.809 U	0.370 J	0.400 J
SW6010B	Cadmium	mg/Kg	0.457 J	0.460 J	0.518 J
SW6010B	Calcium	mg/Kg	67900	3370	5500
SW6010B	Chromium	mg/Kg	15.5	15.3	18.1
SW6010B	Cobalt	mg/Kg	6.58	8.60	8.93
SW6010B	Copper	mg/Kg	18.8	40.8	37.4
SW6010B	Iron	mg/Kg	18200	31300	30400
SW6010B	Lead	mg/Kg	25.8	10.5	18.1
SW6010B	Magnesium	mg/Kg	6040	5280	5440
SW6010B	Manganese	mg/Kg	532	1550	1230
SW7471A	Mercury	mg/Kg	0.0163 J	0.0375 J	0.0560 U
SW6010B	Nickel	mg/Kg	18.9	24.8	24.6
SW6010B	Potassium	mg/Kg	1110	1080	1140
SW6010B	Selenium	mg/Kg	2.14	2.12 U	2.07 U
SW6010B	Silver	mg/Kg	0.809 U	1.06 U	1.04 U
SW6010B	Sodium	mg/Kg	647	189 J	193 J
SW6010B	Thallium	mg/Kg	1.62 U	2.12 U	2.07 U
SW6010B	Vanadium	mg/Kg	19.7	22.7	21.7
SW6010B	Zinc	mg/Kg	51.6	72.3	89.0
PCBs by Method 8082 (µg/Kg)					
SW8082	Aroclor 1016	µg/Kg	20.6 U	20.7 U	21.9 U
SW8082	Aroclor 1221	µg/Kg	41.3 U	41.3 U	43.7 U
SW8082	Aroclor 1232	µg/Kg	20.6 U	20.7 U	21.9 U
SW8082	Aroclor 1242	µg/Kg	20.6 U	20.7 U	21.9 U
SW8082	Aroclor 1248	µg/Kg	20.6 U	20.7 U	21.9 U
SW8082	Aroclor 1254	µg/Kg	33.9	20.7 U	21.3 J
SW8082	Aroclor 1260	µg/Kg	20.6 U	20.7 U	21.9 U

Table 3.1-3
Complete Analytical Data Summary for Soil Samples, OTH 305 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	OTH305-SS01 05/09/02	OTH305-SS02 05/09/02	OTH305-SS03 05/09/02
Pesticides by Method 8081A (µg/Kg)					
SW8081A	4,4´-DDD	µg/Kg	1.61 J	3.10 U	3.28 U
SW8081A	4,4´-DDE	µg/Kg	1.11 J	3.10 U	0.503 J
SW8081A	4,4´-DDT	µg/Kg	1.86 J	4.13 U	4.37 U
SW8081A	Aldrin	µg/Kg	4.13 U	4.13 U	4.37 U
SW8081A	alpha-BHC	µg/Kg	3.10 U	3.10 U	3.28 U
SW8081A	alpha-Chlordane	µg/Kg	1.03 U	1.03 U	1.09 U
SW8081A	beta-BHC	µg/Kg	5.60	0.543 J	4.37 U
SW8081A	delta-BHC	µg/Kg	0.748 J	2.07 U	2.19 U
SW8081A	Dieldrin	µg/Kg	5.16 U	5.16 U	5.46 U
SW8081A	Endosulfan I	µg/Kg	5.16 U	5.16 U	5.46 U
SW8081A	Endosulfan II	µg/Kg	0.432 J	3.10 U	3.28 U
SW8081A	Endosulfan sulfate	µg/Kg	6.19 U	6.20 U	6.56 U
SW8081A	Endrin	µg/Kg	4.13 U	4.13 U	4.37 U
SW8081A	Endrin aldehyde	µg/Kg	10.3 U	10.3 U	10.9 U
SW8081A	Endrin ketone	µg/Kg	3.10 U	3.10 U	3.28 U
SW8081A	gamma-BHC	µg/Kg	2.06 U	2.07 U	2.19 U
SW8081A	gamma-Chlordane	µg/Kg	2.06 U	2.07 U	2.19 U
SW8081A	Heptachlor	µg/Kg	6.00	3.10 U	3.28 U
SW8081A	Heptachlor epoxide	µg/Kg	5.16 U	5.16 U	5.46 U
SW8081A	Methoxychlor	µg/Kg	7.12 J	41.3 U	43.7 U
SW8081A	Toxaphene	µg/Kg	103 U	103 U	109 U
Volatile Organics by Method 8260B (µg/Kg)					
SW8260B	1,1,1-Trichloroethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,1,2,2-Tetrachloroethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,1,2-Trichloroethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,1-Dichloroethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,1-Dichloroethene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,2-Dichlorobenzene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,2-Dichloroethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,2-Dichloroethene, Total	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,2-Dichloropropane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,3-Dichlorobenzene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	1,4-Dichlorobenzene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	2-Butanone	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	2-Chloroethyl vinyl ether	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	2-Hexanone	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	4-Methyl-2-pentanone	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	Acetone	µg/Kg	20.1 J	10.8 U	4.18 J
SW8260B	Benzene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Bromodichloromethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Bromoform	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Bromomethane	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	Carbon disulfide	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Carbon tetrachloride	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Chlorobenzene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Chloroethane	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	Chloroform	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Chloromethane	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	cis-1,2-Dichloroethene	µg/Kg	5.55 U	5.41 U	5.52 U

Table 3.1-3
Complete Analytical Data Summary for Soil Samples, OTH 305 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	OTH305-SS01 05/09/02	OTH305-SS02 05/09/02	OTH305-SS03 05/09/02
SW8260B	cis-1,3-Dichloropropene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Dibromochloromethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Ethylbenzene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	m,p-Xylene	µg/Kg	0.845 J	5.41 U	5.52 U
SW8260B	Methylene chloride	µg/Kg	2.10 J	0.446 J	5.52 U
SW8260B	o-Xylene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Styrene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Tetrachloroethene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Toluene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	trans-1,2-Dichloroethene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	trans-1,3-Dichloropropene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Trichloroethene	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Trichlorofluoromethane	µg/Kg	5.55 U	5.41 U	5.52 U
SW8260B	Vinyl acetate	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	Vinyl chloride	µg/Kg	11.1 U	10.8 U	11.0 U
SW8260B	Xylenes, Total	µg/Kg	0.838 J	5.41 U	5.52 U
Percent Moisture (wt%)					
ASTM_D2216	Percent Moisture	wt%	11.7	9.27	10.7

Note: Units of %REC indicate that the compound is a surrogate spike.

Key:

ESI = Expanded Site Investigation.
J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.
µg/Kg = Micrograms per kilogram.
mg/Kg = Milligrams per kilogram.
OTH = Other Miscellaneous Environmental Factor Sites.
PCBs = Polychlorinated Biphenyls.
SS = Soil sample.
U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to

Table 3.1-4
Summary of Tentatively Identified Compound Results for Soil Samples, OTH 305 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Analyte	Sample ID: Date:	OTH305-SS01 05/09/02	OTH305-SS02 05/09/02	OTH305-SS03 05/09/02
Semivolatile Organics by Method 8270C (µg/Kg)				
Spermatheridine		NF	NF	107 NJ
Pyrene, 2-methyl-		282 NJ	NF	NF
Propane, 1-(1-methylethoxy)-		3270 NJ	1330 NJ	1590 NJ
Phenol, 2,2´-(1,2-ethanediylbis(nitrilom -		263 NJ	NF	NF
Octadecane, 2-methyl-		515 NJ	NF	NF
Octadecane		1100 NJ	125 NJ	91.4 NJ
Nonadecane		NF	NF	101 NJ
N,N,N´,N´-Tetramethyl(3_3)paracyclophan-		NF	183 NJ	NF
METHYL ELAIDATE O-ISOPROPYLIDENE		NF	NF	228 NJ
Heptadecane		1817 NJ	NF	NF
exo-3-Carboxyl-endo-5-hydroxybicyclo(2_2		NF	NF	140 NJ
Eicosane		156 NJ	NF	NF
E-8-Hexadecen-1-ol acetate		NF	NF	116 NJ
Docosane, 7-hexyl-		534 NJ	NF	NF
Cyclopentane, (4-octyldodecyl)-		208 NJ	NF	NF
Cyclohexane, (2-decyldodecyl)-		NF	92.3 NJ	NF
Cyclohexadecane, 1,2-diethyl-		NF	NF	349 NJ
Benzo(j)fluoranthene		NF	NF	103 NJ
Benzo(e)pyrene		NF	127 NJ	NF
Benzo		452 NJ	NF	NF
Acetic acid, octadecyl ester		NF	181 NJ	NF
7H-Benz(de)anthracen-7-one		330 NJ	NF	NF
6-0-Ethylhexitol 1,2,3,4,5-pentaacetate		651 NJ	NF	NF
4-HYDROXY-5-METHOXY-3-NITROPHENYL ESTER		NF	116 NJ	NF
3,4-Dihydroisoquinolin, 1-benzyl-6,7-dih		NF	NF	229 NJ
2-Undecanone, 6,10-dimethyl-		NF	NF	93.7 NJ
2-Pentanone, 4-hydroxy-4-methyl-		266000 NJ	27300 UNJ	30600 UNJ
2-Nonadecanone		NF	NF	84 NJ
2,6,10,14-Hexadecatetraenoic acid, 3,7,1		NF	NF	140 NJ
2,5a-Methano-5ah-pyrido(1,2-b)(1,2)oxaze		NF	110 NJ	NF
1-Phenanthrenecarboxylic acid, 1,2,3,4,4		148 NJ	NF	NF
1-Octadecene		NF	136 NJ	NF
1H-Indole, 3-Phenyl-2-(3´-methyl-1H-indo		791 NJ	NF	127 NJ
1-Hexadecene		NF	NF	165 NJ
1-Eicosanol		NF	NF	137 NJ
1-Docosene		700 NJ	NF	456 NJ
13-Tertadecen-1-ol acetate		NF	89.5 NJ	NF
11H-Benzo(b)fluorene		194 NJ	NF	NF
1,21-Docosadiene		NF	NF	116 NJ

Note: Results are reported as total for similar tentatively identified compounds.

Key:

ESI = Expanded Site Investigation.
NF = Not found.
NJ = Identification not confirmed, estimated value.
µg/Kg = Micrograms per kilogram.
OTH = Other Miscellaneous Environmental Factor Sites.
SS = Soil sample.
UNJ = Identification not confirmed, U flagged due to blank contamination.

Key at the end of Table.

Table 3.1-5
Complete Analytical Data Summary for Grab Water Samples, OTH 305 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	OTH305-WG02 05/09/02	OTH305-WG03 05/09/02
Ignitability (Flashpoint), Liquids by Method 1010 (°F)				
SW1010	Ignitability	°F	138	> 140
pH by Method 9040B (S.U.)				
SW9040B	pH	S.U.	7.3	10
Reactive Cyanide by Method 9012A-7.3.3 (mg/Kg)				
SW7.3.3.2	Reactive Cyanide	mg/Kg	0.0500 UR	0.0500 UR
Reactive Sulfide by Method 9034-7.3.4 (mg/Kg)				
SW7.3.4.2	Reactive Sulfide	mg/Kg	170 UJ	170 UJ
TCLP Metals/Mercury by Method 6010B/7470A (mg/L)				
SW1311_6010	Arsenic	mg/L	0.300 U	0.0196 J
SW1311_6010	Barium	mg/L	0.346	0.0732
SW1311_6010	Cadmium	mg/L	0.0150 U	0.0150 U
SW1311_6010	Chromium	mg/L	0.0300 U	0.0242 J
SW1311_6010	Lead	mg/L	0.00423 J	0.0727 J
SW1311_7470	Mercury	mg/L	0.0200 U	0.0200 U
SW1311_6010	Selenium	mg/L	0.300 U	0.300 U
SW1311_6010	Silver	mg/L	0.0300 U	0.0300 U
PCBs by Method 8082 (µg/L)				
SW8082	Aroclor 1016	µg/L	5.00 U	5.00 U
SW8082	Aroclor 1221	µg/L	10.0 U	10.0 U
SW8082	Aroclor 1232	µg/L	5.00 U	5.00 U
SW8082	Aroclor 1242	µg/L	5.00 U	5.00 U
SW8082	Aroclor 1248	µg/L	5.00 U	5.00 U
SW8082	Aroclor 1254	µg/L	37.3	29.2
SW8082	Aroclor 1260	µg/L	5.00 U	5.00 U
TCLP Pesticides by Method 8081A (mg/L)				
SW8081A	Chlordane	mg/L	0.0200 U	0.0200 U
SW8081A	Endrin	mg/L	0.005 U	0.005 U
SW8081A	gamma-BHC	mg/L	0.0025 U	0.0025 U
SW8081A	Heptachlor	mg/L	0.0025 U	0.0025 U
SW8081A	Heptachlor epoxide	mg/L	0.005 U	0.005 U
SW8081A	Methoxychlor	mg/L	0.0200 U	0.0200 U
SW8081A	Toxaphene	mg/L	0.100 U	0.100 U
TCLP Herbicides by Method 8151A (mg/L)				
SW8151A	2,4,5-TP (Silvex)	mg/L	0.0250 U	0.0250 U
SW8151A	2,4-D	mg/L	0.250 U	0.250 U
TCLP Semivolatile Organics by Method 8270C (mg/L)				
SW8270C	1,4-Dichlorobenzene	mg/L	0.100 U	0.100 U
SW8270C	2,4,5-Trichlorophenol	mg/L	0.500 U	0.500 U
SW8270C	2,4,6-Trichlorophenol	mg/L	0.100 U	0.100 U
SW8270C	2,4-Dinitrotoluene	mg/L	0.100 U	0.100 U
SW8270C	2-Methylphenol	mg/L	0.100 U	0.100 U
SW8270C	4-Methylphenol/3-Methylphenol	mg/L	0.300 U	0.300 U
SW8270C	Hexachlorobenzene	mg/L	0.100 U	0.100 U
SW8270C	Hexachlorobutadiene	mg/L	0.100 U	0.100 U
SW8270C	Hexachloroethane	mg/L	0.100 U	0.100 U
SW8270C	Nitrobenzene	mg/L	0.100 U	0.100 U
SW8270C	Pentachlorophenol	mg/L	0.500 U	0.500 U
SW8270C	Pyridine	mg/L	0.100 U	0.100 U

Table 3.1-5
Complete Analytical Data Summary for Grab Water Samples, OTH 305 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte		Sample ID: / Date:	OTH305-WG02 05/09/02	OTH305-WG03 05/09/02
TCLP VOCs by Method 8260B (mg/L)					
SW8260B	1,1-Dichloroethene		mg/L	0.0500 U	0.0500 U
SW8260B	1,2-Dichloroethane		mg/L	0.0500 U	0.0500 U
SW8260B	2-Butanone		mg/L	0.100 U	0.100 U
SW8260B	Benzene		mg/L	0.0500 U	0.0500 U
SW8260B	Carbon tetrachloride		mg/L	0.0500 U	0.0500 U
SW8260B	Chlorobenzene		mg/L	0.0500 U	0.0500 U
SW8260B	Chloroform		mg/L	0.0500 U	0.0500 U
SW8260B	Tetrachloroethene		mg/L	0.0500 U	0.0500 U
SW8260B	Trichloroethene		mg/L	0.0500 U	0.0500 U
SW8260B	Vinyl chloride		mg/L	0.100 U	0.100 U

Note: Units of %REC indicate that the compound is a surrogate spike.

Key:

ESI = Expanded Site Investigation.
J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.
µg/L = Micrograms per liter.
mg/L = Milligrams per liter.
OTH = Other Miscellaneous Environmental Factor Sites.
PCBs = Polychlorinated Biphenyls.
S.U. = Standard units.
TCLP = Toxicity Characteristic Leaching Procedure.
U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated
UR = The PQL for this analyte is not usable. The actual PQL should be higher, but that level cannot be determined.
VOCs = Volatile Organic Compounds.
WG = Grab water sample.
°F = Degree Fahrenheit.

Table 3.1-6
Complete Analytical Data Summary for the Trip Blank Sample, OTH 305 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	OTH305-TB1 / 05/09/02
Volatile Organics by GCMS Method 8260B (µg/L)			
SW8260B	1,1,1-Trichloroethane	µg/L	5.00 U
SW8260B	1,1,2,2-Tetrachloroethane	µg/L	5.00 U
SW8260B	1,1,2-Trichloroethane	µg/L	5.00 U
SW8260B	1,1-Dichloroethane	µg/L	5.00 U
SW8260B	1,1-Dichloroethene	µg/L	5.00 U
SW8260B	1,2-Dichlorobenzene	µg/L	5.00 U
SW8260B	1,2-Dichloroethane	µg/L	5.00 U
SW8260B	1,2-Dichloroethene, Total	µg/L	5.00 U
SW8260B	1,2-Dichloropropane	µg/L	5.00 U
SW8260B	1,3-Dichlorobenzene	µg/L	5.00 U
SW8260B	1,4-Dichlorobenzene	µg/L	5.00 U
SW8260B	2-Butanone	µg/L	10.0 U
SW8260B	2-Chloroethyl vinyl ether	µg/L	10.0 U
SW8260B	2-Hexanone	µg/L	10.0 U
SW8260B	4-Methyl-2-pentanone	µg/L	10.0 U
SW8260B	Acetone	µg/L	10.0 U
SW8260B	Benzene	µg/L	5.00 U
SW8260B	Bromodichloromethane	µg/L	5.00 U
SW8260B	Bromoform	µg/L	5.00 U
SW8260B	Bromomethane	µg/L	10.0 U
SW8260B	Carbon disulfide	µg/L	5.00 U
SW8260B	Carbon tetrachloride	µg/L	5.00 U
SW8260B	Chlorobenzene	µg/L	5.00 U
SW8260B	Chloroethane	µg/L	10.0 U
SW8260B	Chloroform	µg/L	5.00 U
SW8260B	Chloromethane	µg/L	10.0 U
SW8260B	cis-1,2-Dichloroethene	µg/L	5.00 U
SW8260B	cis-1,3-Dichloropropene	µg/L	5.00 U
SW8260B	Dibromochloromethane	µg/L	5.00 U
SW8260B	Ethylbenzene	µg/L	5.00 U
SW8260B	m,p-Xylene	µg/L	5.00 U
SW8260B	Methylene chloride	µg/L	5.00 U
SW8260B	o-Xylene	µg/L	5.00 U
SW8260B	Styrene	µg/L	5.00 U
SW8260B	Tetrachloroethene	µg/L	5.00 U
SW8260B	Toluene	µg/L	5.00 U
SW8260B	trans-1,2-Dichloroethene	µg/L	5.00 U
SW8260B	trans-1,3-Dichloropropene	µg/L	5.00 U
SW8260B	Trichloroethene	µg/L	5.00 U
SW8260B	Trichlorofluoromethane	µg/L	5.00 U
SW8260B	Vinyl acetate	µg/L	10.0 U
SW8260B	Vinyl chloride	µg/L	10.0 U
SW8260B	Xylenes, Total	µg/L	5.00 U

Note: Units of %REC indicate that the compound is a surrogate spike.
Key:
ESI = Expanded Site Investigation.
GCMS = Gas Chromatography/Mass Spectrometry.
µg/L = Micrograms per liter.
OTH = Other Miscellaneous Environmental Factor Sites.
TB = Trip blank sample.
U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to background.

Table 3.1-7
Summary of Positive Analytical Results for Soil Samples, OTH 305 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Analyte	NYSDEC TAGM 4046 [1]	EPA RBCs - Industrial [2]	Sample ID:	OTH305-SS01	OTH305-SS02	OTH305-SS03
			Depth (ft):	0.0 -0.5	0.5 - 1.0	1.0 - 2.0
			Date:	05/09/02	05/09/02	05/09/02
Semivolatile Organics by Method 8270C (µg/Kg)						
Anthracene	50,000	610,000,000		69.0 J	362 U	360 U
Benz(a)anthracene	224	7,800		146 J	362 U	360 U
Benzo(a)pyrene	61	780		[illegible]	362 U	360 U
Benzo(b)fluoranthene	1,100	7,800		86.2 J	362 U	360 U
Benzo(g,h,i)perylene	50,000	NA		51.1 J	362 U	360 U
Benzo(k)fluoranthene	1,100	78,000		122 J	362 U	360 U
Bis(2-ethylhexyl)phthalate	50,000	410,000		77.9 J	362 U	78.9 J
Chrysene	400	780,000		148 J	362 U	360 U
Fluoranthene	50,000	82,000,000		379	362 U	360 U
Indeno(1,2,3-cd)pyrene	3,200	7,800		50.5 J	362 U	360 U
Phenanthrene	50,000	NA		302 J	362 U	360 U
Pyrene	50,000	61,000,000		290 J	362 U	360 U
Volatile Organics by Method 8260B (µg/Kg)						
Acetone	200	200,000,000		20.1 J	10.8 U	4.18 J
Methylene chloride	100	760,000		2.10 J	0.446 J	5.52 U
Xylenes, Total	1,200	4,100,000,000		0.838 J	5.41 U	5.52 U
PCBs by Method 8082 (mg/Kg)						
Aroclor 1254	1 (surface) 10 (subsurface)	2.9		0.0339	0.0207 U	0.0213 J
Pesticides/PCBs by Method 8081A/8082 (µg/Kg)						
4,4'-DDD	2,900	24,000		1.61 J	3.10 U	3.28 U
4,4'-DDE	2,100	17,000		1.11 J	3.10 U	0.503 J
4,4'-DDT	2,100	17,000		1.86 J	4.13 U	4.37 U
beta-BHC	200	3,200		5.60	0.543 J	4.37 U
delta-BHC	300	NA		0.748 J	2.07 U	2.19 U
Endosulfan II	900	12,000,000		0.432 J	3.10 U	3.28 U
Heptachlor	100	1,300		6.00	3.10 U	3.28 U
Methoxychlor	NA	10,000,000		7.12 J	41.3 U	43.7 U
Metals/Mercury by Method 6010B/7471A (mg/Kg)						
Aluminum	18,306	2,000,000		16500	16700	17100
Antimony	3.4	820		2.11 J	[illegible]	[illegible]
Arsenic	4.9	3.8		[illegible]	[illegible]	[illegible]
Barium	71	140,000		[illegible]	49.8	[illegible]
Beryllium	0.16	4,100		0.809 U	[illegible]	[illegible]
Cadmium	1	1,000		0.457 J	0.460 J	0.518 J
Calcium	23,821	NA		[illegible]	3370	5500
Chromium	10	6,100		[illegible]	[illegible]	[illegible]
Cobalt	19	41,000		6.58	8.60	8.93
Copper	25	82,000		18.8	[illegible]	[illegible]
Iron	2,000	610,000		[illegible]	[illegible]	[illegible]
Lead	200	400		25.8	10.5	18.1
Magnesium	7,175	NA		6040	5280	5440
Manganese	2,106	41,000		532	1550	1230
Mercury	0.1	NA		0.0163 J	0.0375 J	0.0560 U
Nickel	13	41,000		[illegible]	[illegible]	[illegible]
Potassium	1,993	NA		1110	1080	1140
Selenium	0.34	10,000		[illegible]	2.12 U	2.07 U
Sodium	259	NA		[illegible]	189 J	193 J

Key at the end of Table.

Table 3.1-7
Summary of Positive Analytical Results for Soil Samples, OTH 305 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Analyte	NYSDEC TAGM 4046 [1]	EPA RBCs - Industrial [2]	Sample ID: Depth (ft): Date:	OTH305-SS01 0.0 -0.5 05/09/02	OTH305-SS02 0.5 - 1.0 05/09/02	OTH305-SS03 1.0 - 2.0 05/09/02
Vanadium	36	14,000		19.7	22.7	21.7
Zinc	20	610,000		[illegible]	[illegible]	[illegible]

[1] New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

[2] Environmental Protection Agency Region III Risk-based concentration for industrial soil, April 2002.

Note: For a complete list of the screening criteria see Section 2.

Key:

EPA = Environmental Protection Agency.
ESI = Expanded Site Investigation.
ft = Feet.
J = Estimated value.
mg/Kg = Milligrams per kilogram.
µg/Kg = Micrograms per kilogram
NA = No criteria available.
NYSDEC = New York State Department of Environmental Conservation.
OTH = Other Miscellaneous Environmental Factor Sites.
PCBs = Polychlorinated biphenyls.
RBC = Risk-based concentration.
SS = Soil sample.
TAGM = Technical and Administrative Guidance Memorandum
U = Not detected (practical quantitation limit listed).
Result above NYSDEC screening criteria (shaded and bolded).
Result above EPA RBCs (shaded and underlined).
Result above both NYSDEC screening criteria and EPA RBCs (shaded, bolded, and underlined).

Key at the end of Table.

Table 3.1-8
Summary of Positive Analytical Results for Grab Water Samples, OTH 305 Year 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Screening Criteria [1]	Sample ID: / Date:	OTH305-WG02 05/09/02	OTH305-WG03 05/09/02
Ignitability (Flashpoint), Liquids by Method 1010 (°F)				
Ignitability	<140		135	> 140
PCBs by Method 8082 (µg/L)				
Aroclor 1254	NA		37.3	29.2
pH by Method 9040B (S.U.)				
pH	<2 or >12.5		7.3	10
TCLP Metals by Method 6010B (mg/L)				
Arsenic	5		0.300 U	0.0196 J
Barium	100		0.346	0.0732
Chromium	5		0.0300 U	0.0242 J
Lead	5		0.00423 J	0.0727 J

[1] New York State Department of Environmental Conservation, Division of Solid And Hazardous Materials, Identification And Listing Of Hazardous Wastes (6 NYCRR 371).

Key:

ESI = Expanded Site Investigation.
J = Estimated value.
mg/L = Milligrams per liter.
µg/L = Micrograms per liter.
NA = No criteria available.
OTH = Other Miscellaneous Environmental Factor Sites.
PCBs = Polychlorinated biphenyls.
S.U. = Standard units.
TAGM = Technical and Administrative Guidance Memorandum
U = Not detected (practical quantitation limit listed).
WG = Grab water sample.
°F = Degree Fahrenheit.
135 = Result above NYSDEC screening criteria (shaded and bolded).

Table 3.1-9
List of Sample Results Qualified, OTH 305 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Lab Order	Method	Sample ID	Analyte	Result	Lab Qualifier	Validation Qualifier
0205079	SW1311_7470A	OTH305-WG02	Mercury	0.000612	J	U
0205079	SW6010B	OTH305-SS01	Antimony	2.11		J
0205079	SW6010B	OTH305-SS02	Antimony	5.56		J
0205079	SW6010B	OTH305-SS03	Antimony	5.55		J
0205079	SW7.3.3.2	OTH305-WG02	Reactive Cyanide	ND		UR
0205079	SW7.3.3.2	OTH305-WG03	Reactive Cyanide	ND		UR
0205079	SW7.3.4.2	OTH305-WG02	Reactive Sulfide	ND		UJ
0205079	SW7.3.4.2	OTH305-WG03	Reactive Sulfide	ND		UJ
0205079	SW8260B	OTH305-SS01	Acetone	20.1		J

Key:

ESI = Expanded Site Investigation.

J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.

OTH = Other Miscellaneous Environmental Factor site.

SS - Soil sample.

U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to

UR = The PQL for this analyte is not usable. The actual PQL should be higher, but that level cannot be determined.

WG - Grab water sample.

3.2 Panamerican Consultants, Inc. (PCI) Site 20

3.2.1 Proposed Sample Collection and Analytical Requirements

The objective of was to determine whether lead contamination detected in the near-surface soil at this site remained after the Year 2000 ESI removal of near-surface soil and surface debris. According to the FSP, sampling at the PCI 20 site was to include:

- Three additional near-surface soil samples (0 to 2 inches below ground surface [BGS]) were to be collected from Year 2000 ESI sample locations NS02, NS03, and NS04. The 2002 samples were to be analyzed for TAL lead by Method SW6010B and percent solids by Method ASTM_D2216.

3.2.2 Sampling and Analysis Performed

Three near-surface soil samples were sampled and analyzed as per the FSP. Duplicate and split samples were collected from one soil sample location and extra volume was obtained for MS/MSD analysis from one soil sample location. Field rinsates were not required.

Table 3.2-1 lists the samples collected, as well as the sampling dates, sample depths, and analyses associated with the samples. (This table is a post-sampling update of the FSP table presented in Appendix A.)

There were no changes to the proposed sample analyses required for the samples.

3.2.3 Deviations From Sample Handling and Custody Procedures

No deviations occurred to the proposed sample handling and sample custody procedures.

3.2.4 Data Quality Evaluation

The data quality was evaluated based on sample integrity, holding times, method blank results, LCS results, MS/MSD recoveries, surrogate recoveries, and duplicate precision as outlined in Section 2.7 of this document. The correlation between original samples collected at the site and the associated field and laboratory QA/QC samples used to confirm and qualify the original samples are reported in Table 3.2-2.

All of the data collected from the site are reported in E & E's ASC laboratory work orders as follows:

Work Order
0207099

Detailed descriptions of the data quality review are reported by lab work order in the Data Validation Memorandum provided in Appendix D.

Based on QC criteria, all data collected and analyzed from the site are usable. Data qualification for the samples from the site is discussed by method in the following sections.

3.2.4.1 Soil Samples PCI 20

No problems were encountered with sample analyses for these methods.

3.2.5 Analytical Results Tables

Table 3.2-3 summarizes the complete analytical results for the soil samples collected at the site. Table 3.2-4 summarizes the positive results for soil samples. There were no positive results for the method blanks. Table 4 in the data validation memorandum in Appendix D reports the results for the project-specific MS/MSD samples that were outside control limits. Table 7 in the data validation memorandum in Appendix D reports the positive results and RPDs for the field duplicates.

3.2.6 Data Completeness and Representativeness

3.2.6.1 Analytical Method Problems

No problems were noted with the analytical methods used for the samples collected at the site.

3.2.6.2 Needed QA/QC Change

No QA/QC changes were noted for the analytical methods used for samples collected at the site.

3.2.7 Summary and Conclusions

No data points were rejected or qualified for the soil and groundwater samples collected at the site; therefore, a completeness goal of 100% was achieved for analytical level III data. The analytical data meet specified QC criteria, with no any exceptions or qualifications. A total of 8 data points are associated with the site.

Table 3.2-1 Sample Listing, PCI 20 Year 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Location	Date	Sample Number	Lab	Matrix	Depth	WP	Stat	Type	ANALYSES: TAL Lead Only SW6010B	ANALYSES: % Solids ASTM_D2216
PCI 20	07/15/02	PCI20-NS06	ASC	Near-surface Soil	0.00' - 0.17'	Y	T	N1	X	X
	07/15/02	PCI20-NS06/D	ASC	Near-surface Soil	0.00' - 0.17'	Y	T	FD1	X	X
	07/15/02	PCI20-NS06/S	ERDC	Near-surface Soil	0.00' - 0.17'	Y	T	FR1	X	X
	07/15/02	PCI20-NS07	ASC	Near-surface Soil	0.00' - 0.17'	Y	T	N1	X	X
	07/15/02	PCI20-NS08	ASC	Near-surface Soil	0.00' - 0.17'	Y	T	N1	X	X
	07/15/02	PCI20-NS08 (extra volume)	ASC	Near-surface Soil (MS/MSD)	0.00' - 0.17'	Y	T	MS1	X	X

Key:

ASC = E & E's Analytical Services Center.
ASTM = American Society for Testing and Materials.
/D = Duplicate sample.
Depth = Depth interval at which sample will be collected.
ERDC = U.S. Army Engineer Research and Development Center Quality Assurance Laboratory.
ESI = Expanded Site Investigation.
FD = Field duplicate.
FR = Field split/replicate.
MS/MSD = Matrix spike/matrix spike duplicate.
N = Original sample.
NS = Near-surface soil sample.
PCI = Pannamerican Consultants, Inc. (site).
/S = Split sample.
Stat = Status (O= Open, T= Taken, S= Skipped).
TAL = Target analyte list.

Table 3.2-2
Association Between Field and QA/QC Samples, PCI 20 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Sample Date	Sample ID	ID Corrections	Field Blanks	MS/MSD	Field Duplicates	Field Splits
7/15/02	PCI20-NS06	None			PCI20-NS06/D	PCI20-NS06/S
7/15/02	PCI20-NS07	None				
7/15/02	PCI20-NS08	None		MS/MSD		

Key:

ESI = Expanded Site Investigation.
/D = Duplicate.
MS/MSD = Matrix spike/matrix spike duplicate.
NS - Near surface soil sample.
PCI = Panamerican Consultants, Inc. (site).
QA = Quality assurance.
QC = Quality control.
/S = Split.

Source: Ecology and Environment, Inc. 2002

Table 3.2-3
Complete Analytical Data Summary for Near Surface Soil Samples, PCI 20 Year 2002 ESI, Year 2002 PCI 20 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: Date:	PCI20-NS06 07/15/02	PCI20-NS06/D 07/15/02	PCI20-NS07 07/15/02	PCI20-NS08 07/15/02
Metals by ICP Method 6010B (mg/Kg)						
SW6010B	Lead	mg/Kg	183	202	262	521
ASTM_D2216	Percent Moisture	wt%	18.3	20.0	15.9	9.89

Note:

% REC = Units of %REC indicate that the compound is a surrogate spike.

Key:

ESI = Expanded Site Investigation.

J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.

JB = Estimated value that may be bias high due to laboratory or field background contamination.

mg/Kg = Milligrams per kilogram.

NA = Not analyzed or reported.

U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to background.

UR = The PQL for this analyte is not usable. The actual PQL should be higher, but that level cannot be determined.

Table 3.2-4
Summary of Positive Analytical Results for Near Surface Soil Samples, PCI 20 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Analyte	NYSDEC TAGM 4046 [1]	EPA RBCs - Industrial [2]	Sample ID: Depth (ft): Date:	PCI20-NS06 0.0 - 0.17 07/15/02	PCI20-NS06/D 0.0 - 0.17 07/15/02	PCI20-NS07 0.0 - 0.17 07/15/02	PCI20-NS08 0.0 - 0.17 07/15/02
Metals by Method 6010B (mg/Kg)							
Lead	200	400		183	202	233	691

[1] New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

[2] Environmental Protection Agency Region III Risk-based concentration for industrial soil, April 2002.

Note: For a complete list of the screening criteria see Section 2.

Key:

/D = Duplicate sample.
EPA = Environmental Protection Agency.
ESI = Expanded Site Investigation.
ft = Feet.
J = Estimated value.
mg/Kg = Milligrams per kilogram.
NS = Near surface soil sample.
NYSDEC = New York State Department of Environmental Conservation.
PCI = Panamerican Consultants, Inc. (site).
RBC = Risk-based concentration.
TAGM = Technical and Administrative Guidance Memorandum
U = Not detected (practical quantitation limit listed).
202 Result above NYSDEC screening criteria (shaded and bolded).
531 Result above both NYSDEC screening criteria and EPA RBCs (shaded, bolded, and underlined).

Key at the end of Table.

3.3 Building 211-Pipe Vault (OTH-211, DRY-211)

3.3.1 Proposed Sample Collection and Analytical Requirements

The objective of this 2002 ESI Addendum work was to encapsulate residual mercury contamination present on the floor of the pipe vault beneath Building 211 (OTH-211, DRY-211). According to the FSP, sampling at the Building 211 was to include:

- Prior to removal, the water within the vault was to be sampled and analyzed for TAL metals by Method SW6010B/7470A, for disposal purposes. The results of the analyses would determine the disposal of the pumped water. Upon removal of the water, a layer of concrete between 3 and 6 inches thick was to be pumped into the bottom of the vault to prevent contact with the residual mercury contamination present on the existing concrete floor.

3.3.2 Sampling and Analysis Performed

A water sample was collected and analyzed as per the FSP. Field rinsates were not required.

Table 3.3-1 lists the samples collected, as well as the sampling dates, sample depths, and analyses associated with the samples. (This table is a post-sampling update of the FSP table presented in Appendix A.)

There were no changes to the proposed sample analyses required for the samples.

3.3.3 Deviations From Sample Handling and Custody Procedures

No deviations occurred to the proposed sample handling and sample custody procedures.

3.3.4 Data Quality Evaluation

The data quality was evaluated based on sample integrity, holding times, method blank results, LCS results, MS/MSD recoveries, surrogate recoveries, and duplicate precision as outlined in Section 2.7 of this document. The correlation between original samples collected at the site and the associated field and laboratory QA/QC samples used to confirm and qualify the original samples are reported in Table 3.3-2.

All of the data collected from the site are reported in E & E's ASC laboratory work orders as follows:

Work Order
0202063

A detailed data quality review was not performed for this lab work order because the sample was only for disposal purposes. The laboratory data was reviewed based on information provided in the case narrative in Appendix E.

Based on QC criteria, all data collected and analyzed from the site are usable. Data qualification for the samples from the site is discussed by method in the following sections.

3.3.4.1 Water Samples Building 211-Pipe Vault Method 6010B/7470A

No problems were encountered with sample analyses for these methods except those noted in the case narrative. The QC samples have no impact on data usability for disposal purposes.

3.3.5 Analytical Results Tables

Tables 3.3-3 and 3.3-4 summarize the complete analytical results and positive analytical results for the grab water sample collected at the site. No project-specific MS/MSD samples were collected.

3.3.6 Data Completeness and Representativeness

3.3.6.1 Analytical Method Problems

No problems were noted with the analytical methods used for the samples collected at the site.

3.3.6.2 Needed QA/QC Change

No QA/QC changes were noted for the analytical methods used for samples collected at the site.

3.3.7 Summary and Conclusions

No data points were rejected or qualified for the soil and groundwater samples collected at the site; therefore, a completeness goal of 100% was achieved for analytical level III data. The analytical data meet specified QC criteria, with no any exceptions or qualifications. A total of 23 data points are associated with the site.

Table 3.3-1 Sample Listing, Building 211 Pipe Vault Floor Year 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Location	Date	Sample Number	Lab	Matrix	WP	Stat	Type	ANALYSES: TAL Metals SW6010B/7470/71A
Bldg 211	02/06/02	Bldg211-WG01	ASC	Water Grab	Y	T	N1	X

Key:

ASC = B & E's Analytical Services Center.
Bldg. = Building.
Depth = Depth interval at which sample will be collected.
ESI = Expanded Site Investigation.
N = Original sample.
Stat = Status (O= Open, T= Taken, S= Skipped).
TAL = Target analyte list.
WG = Grab water sample.
WP = Sample in work plan (Y= yes, N= no).

Table 3.3-2
Association Between Field and QA/QC Samples, Building 211 Pipe Vault Floor Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Sample Date	Sample ID	ID Corrections	Field Blanks	MS/MSD	Field Duplicates	Field Splits
2/6/02	BLDG211-WG01	None				

Key:

ESI = Expanded Site Investigation.
QA = Quality assurance.
QC = Quality control.
WG - Grab water sample.

Table 3.3-3
Complete Analytical Data Summary for Grab Water Samples,
Building 211 Pipe Vault Floor Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Analyte	Sample ID: / Date:	Bldg211-WG01 02/06/02
Metals/Mercury by Method 6010B/7470A (µg/L)		
Aluminum		51.6
Antimony		12.6
Arsenic		7.6 U
Barium		28.4
Beryllium		0.30 U
Cadmium		0.20 U
Calcium		39300
Chromium		1.3
Cobalt		8.1
Copper		63.3
Iron		1320
Lead		1.7 U
Magnesium		3700
Manganese		106
Mercury		0.72
Nickel		27.8
Potassium		4520
Selenium		4.2 U
Silver		2.9 U
Sodium		21300
Thallium		8.8 U
Vanadium		0.72
Zinc		254

Key:

ESI = Expanded Site Investigation.
J = Estimated value.
µg/L = Micrograms per liter.
WG = Grab water sample.

Key at the end of Table.

Table 3.3-4
Summary of Positive Analytical Results for Grab Water Samples,
Building 211 Pipe Vault Floor Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Analyte	Sample ID: / Date:	Bldg211-WG01 / 02/06/02
Metals/Mercury by Method 6010B/7470A (µg/L)		
Aluminum		61.6
Antimony		12.6
Barium		28.4
Calcium		39300
Chromium		1.3
Cobalt		8.1
Copper		63.3
Iron		1320
Magnesium		3700
Manganese		106
Mercury		0.72
Nickel		27.8
Potassium		4520
Sodium		21300
Vanadium		0.72
Zinc		254

Key:

ESI = Expanded Site Investigation.
J = Estimated value.
µg/L = Micrograms per liter.
WG = Grab water sample.

Key at the end of Table.

3.4 Building 112 Room 10 (AOI 473)

3.4.1 Proposed Sample Collection and Analytical Requirements

The objective of this work was to determine whether petroleum hydrocarbons, potentially containing PCBs, have been spilled in AOI 473-Building 112 Room 10. According to the FSP, sampling at Building 112 (AOI 473) was to include:

- A sludge sample, if present, was to be collected from the sump. The sludge sample was to be analyzed for TCL SVOCs by Method 8070C, TCL PCBs by Method 8082, total recoverable petroleum hydrocarbons (TRPH) by Method 418.1M, TAL metals/mercury by Method SW6010B/7471A, and percent solids by Method ASTM_D2216.

- One swipe sample was to be collected from the sump and nine swipe samples were to be collected from the floor of Room 10. The floor swipe samples were to be evenly spaced in a grid pattern. The 10 swipe samples were to be analyzed for TCL SVOCs by Method 8070C, TCL PCBs by Method 8082, TRPH by Method 418.1M, and TAL metals/mercury by Method SW6010B/7471A.

- One field blank was to be submitted for TCL SVOCs by Method 8070C, TCL PCBs by Method 8280, TRPH by Method 418.1M, and TAL metals/mercury by Method SW6010B/7471A.

- If, upon closer inspection of Room 10, either the sump had an open bottom or cracks were observed in the floor, then four provisional subsurface soil samples were to be collected from beneath the sump and/or cracks in the floor with a hand auger. All subsurface soil samples were to be analyzed for TCL SVOCs by Method 8070C, TCL PCBs by Method 8082, TRPH by Method 418.1M, and TAL metals/mercury by Method SW6010B/7471A. One rinsate blank was to be prepared and submitted for TCL SVOCs by Method 8070C, TCL PCBs by Method 8082, TRPH by Method 418.1M, and TAL metals/mercury by Method SW6010B/7471A.

3.4.2 Sampling and Analysis Performed

One sludge and ten swipe samples were collected and analyzed as per the FSP. Duplicate and split samples were collected and extra volume for MS/MSD analysis was obtained from one swipe sample location. The sludge duplicate and split samples planned were

not collected due to insufficient sludge volume in the sump. One field blank sample was also collected for analysis.

The provisional subsurface soil samples were not sampled because the sump had a closed bottom and there were no cracks observed in the floor. Consequently, the associated field rinsate was not required/collected.

Table 3.4-1 lists the samples collected, as well as the sampling dates, sample depths, and analyses associated with the samples. (This table is a post-sampling update of the FSP table presented in Appendix A.)

There were no changes to the proposed sample analyses required for the samples except for the skipped duplicate/spilt sample at the sludge location.

3.4.3 Deviations From Sample Handling and Custody Procedures

No deviations occurred to the proposed sample handling and sample custody procedures except for an additional field duplicate and split sample that were collected when samples were added during fieldwork.

3.4.4 Data Quality Evaluation

The data quality was evaluated based on sample integrity, holding times, method blank results, LCS results, MS/MSD recoveries, surrogate recoveries, and duplicate precision as outlined in Section 2.7 of this document. The correlation between original samples collected at the site and the associated field and laboratory QA/QC samples used to confirm and qualify the original samples are reported in Table 3.4-2.

All of the data collected from the site are reported in E & E's ASC laboratory work orders as follows:

Work Order
0207128

Detailed descriptions of the data quality review are reported by lab work order in the Data Validation Memorandum provided in Appendix D.

Based on QC criteria, all data collected and analyzed from the site are usable. Data qualification for the samples from the site is discussed by method in the following sections.

3.4.4.1 Sludge Sample AOI 473

Method 8270C

Sample analysis for G473-RM10-SD01 showed low internal standard responses. The sample chromatograms showed classic hydrocarbon patterns indicating severe matrix effects. Several PAH compounds in the sludge sample were found. All associated positive results present above the reporting limit are flagged "J" as estimated based on the matrix effects. The PQL values are not qualified because the surrogate recoveries were acceptable and no low bias was indicated. The above qualifications will not impact data usability.

Method 8082- TCL PCBs

Surrogate recoveries were high. The LCS recoveries also were slightly high side indicating an overall high bias likely due to slight over concentration. The recoveries were all within the method limits of 70 to 130% except for the recoveries in the sediment sample. The sludge sample had clear matrix effects and the positive results are flagged "J" as estimated.

Method 6010B/7471A

Trace levels of potassium and selenium were found in the soil method blank. The associated samples with positive results were much higher than the blank levels.

Other Methods

No problems were encountered with sample analyses for the other methods and no data qualification was required.

3.4.4.2 Swipe Samples AOI 473

One set of duplicate wipe samples was collected and overall the precision was generally poor. The results indicate a high variability in the wipe sample collection. Field duplicate results with "Poor" are flagged "J" as estimated and the potential variability in the results needs to be evaluated if the results are compared to any regulatory criteria. The compounds found are primarily metals and total petroleum hydrocarbons. Since the wipes results will probably be incorporated into an overall risk evaluation that would take into account the inherent variability of the results.

Method 8270C

Sample analysis for wipes G473-RM10-SP01, 02, 03, 04, 07 and 10 showed low internal standard responses. The sample chromatograms showed classic hydrocarbon patterns indicating severe matrix effects. There were no positive target compounds in the wipes

except for benzyl alcohol and bis(2-ethylhexyl)phthalate. All associated positive results present above the reporting limit are flagged "J" as estimated based on the matrix effects. The PQL values are not qualified because the surrogate recoveries were acceptable and no low bias was indicated. The above qualifications will not impact data usability.

The MS/MSD recoveries were below 10% for several reactive compounds including Hexachlorocyclopentadiene, 4-Nitroaniline, 4-Chloroaniline, 3-Nitroaniline, 3,3´-Dichlorobenzidine, and 2,4-Dinitrophenol. The LCS recoveries were acceptable indicating no analytical concerns. One problem is that the spike amount was below the reporting limit, which precluded acceptable recovery. Matrix effects also may be important. The other recoveries show a generally high bias indicating sufficient recovery. None of the associated compounds were detected in any of the sample and therefore, no data qualification is required because the problem is link to spiking levels. The compounds are not compounds of concern at the site and therefore the overall usability of the data are not affected. The spiking levels are being adjusted under a laboratory corrective action plan.

Method 6010B/7471A

Trace levels of aluminum and manganese were found in the wipe method blank below the PQL as shown on Table 2. Several metals also were detected in the field blank at levels above the PQL. The trace levels appear to be associated with field background. The sample results less than 5 times the blank levels are qualified "U" as non-detect. The metals results for antimony, sodium, and thallium could not be distinguished from background. The other metals are at much higher concentration then the blank samples. The non-detect metals results will not impact data usability because the levels are generally low and there are no screening values for these compounds.

Other Methods

No problems were encountered with sample analyses for the other methods and no data qualification was required.

3.4.5 Analytical Results Tables

Tables 3.4-3 and 3.4-4 summarize the complete analytical results for the sludge samples collected at the site. Tables 3.4-5 and 3.4-6 summarize the complete analytical results for the swipe samples. Tables 3.4-7 and 3.4-8 summarize the results for the field blank. The positive results for these samples are presented in Table 3.4-9 for sludge samples and Table 3.4-10 for swipe samples. Positive

results for the method blanks and the associated data qualifiers for both the method and field blanks are reported on Table 2 of the data validation memorandum in Appendix D. Table 4 in the data validation memorandum in Appendix D reports the results for the project-specific MS/MSD samples that were outside control limits. Table 7 in the data validation memorandum in Appendix D reports the positive results and RPDs for the field duplicates.

3.4.6 Data Completeness and Representativeness

3.4.6.1 Analytical Method Problems

No problems were noted with the analytical methods used for the samples collected at the site except for the levels of spiking for some reactive compounds. The laboratory is currently increasing spiking levels and calibration ranges for these compounds under a laboratory corrective action program.

3.4.6.2 Needed QA/QC Change

No QA/QC changes were noted for the analytical methods used for samples collected at the site.

3.4.7 Summary and Conclusions

There were no data points rejected for the samples collected at the site. A completeness goal of 100% was achieved for analytical level III data. The analytical data meet specified QC criteria, with no any exceptions or qualifications noted in this report. Table 3.4-11 presents a list of samples qualified for this project. Any samples with "J" flags not listed on Table 3.4-11 were quantified below the PQL. The data points that were qualified as estimated should be considered useable for the purposes of this project. A total of 1617 data points are associated with the site.

Table 3.4-1 Sample Listing, Building 112 AOI 473-Room 10 Year 2002 ESI, Former Griffiss Air Force Base, Rome, NY

								ANALYSES				
Location	Date	Sample Number	Lab	Matrix	WP	Stat	Type	TCL PCBs 8082	% Solids ASTM_D2216	TCL SVOC SW8270C	TRPH 418.1M	TAL Metals SW6010B/7471A
AOI 473-Room 10	07/17/02	G473-Rm10-SD01	ASC	Sediment	Y	T	NI	X	X	X	X	X
		G473-Rm10-SD01/D	ASC	Sediment	Y	S	FDI	X	X	X	X	X
		G473-Rm10-SD01/S	ERDC	Sediment	Y	S	FRI	X	X	X	X	X
		G473-Rm10-SD01 (extra volume)	ASC	Sediment (MS/MSD)	Y	S	MSI	X	X	X	X	X
	07/17/02	G473-Rm10-SP01	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP01/D	ASC	Swipe	Y	T	FDI	X		X	X	X
	07/17/02	G473-Rm10-SP01/S	ERDC	Swipe	Y	T	FRI	X		X	X	X
	07/17/02	G473-Rm10-SP02	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP02 (extra volume)	ASC	Swipe (MS/MSD)	Y	T	MSI	X		X	X	X
	07/17/02	G473-Rm10-SP03	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP04	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP05	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP06	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP07	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP08	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	G473-Rm10-SP09	ASC	Swipe	Y	T	MSI	X		X	X	X
	07/17/02	G473-Rm10-SP10	ASC	Swipe	Y	T	NI	X		X	X	X
	07/17/02	FIELDQC-FB473-Rm10-SP1	ASC	Swipe	Y	T	FBI	X		X	X	X
		G473-Rm10-SS01	ASC	Subsurface soil	Y	S	**NI	X	X	X	X	X
		G473-Rm10-SS01/D	ASC	Subsurface soil	Y	S	**FDI	X	X	X	X	X
		G473-Rm10-SS01/S	ASC	Subsurface soil	Y	S	**FRI	X	X	X	X	X
		G473-Rm10-SS01 (extra volume)	ASC	Subsurface soil	Y	S	**MSI	X	X	X	X	X
		G473-Rm10-SS02	ASC	Subsurface soil	Y	S	**NI	X	X	X	X	X
		G473-Rm10-SS03	ASC	Subsurface soil	Y	S	**NI	X	X	X	X	X
		G473-Rm10-SS04	ASC	Subsurface soil	Y	S	**NI	X	X	X	X	X
		FIELDQC-RB473-Rm10-SS1	ASC	Eqpt. Washwater	Y	S	**RBI	X		X	X	X

Key:

AOI = Area of Interest.
ASC = B & B's Analytical Services Center.
ASTM = American Society for Testing and Materials.
/D = Duplicate sample.
Depth = Depth interval at which sample will be collected.
ERDC = U.S. Army Engineer Research and Development Center Quality Assurar
ESI = Expanded Site Investigation.
Eqpt.= Equipment Washwater.
FB= Field blank sample.
FD = Field duplicate.
FR = Field split/replicate.
MS/MSD = Matrix spike/matrix spike duplicate.
N = Original sample.
QC = Quality control.
PCB = Polychlorinated biphenyl.
RB = Rinsate blank sample.
/S = Split sample.
SD = Sludge.
SP = Swipe sample.
SS = Subsurface soil sample.
Stat = Status (O= Open, T= Taken, S= Skipped).
SVOC = Semivolatile organic compound.
TAL = Target analyte list.
TCL = Target Compound List.
TCLP = Toxicity Characteristic Leaching Procedure
TRPH = Total recoverable petroleum hydrocarbons.
VOC = Volatile organic compound.
WP = Sample in work plan (Y= yes, N= no).
** = Provisional samples collected only if cracks were observed in floor.

Table 3.4-2
Association Between Field and QA/QC Samples for AOI 473,
Former Griffiss Air Force Base, Rome, New York

Sample Date	Sample ID	ID Corrections	Field Blanks	MS/MSD	Field Duplicates	Field Splits
7/17/02	G473-RM10-SD01	None				
7/17/02	G473-RM10-SP01	None	FIELDQC-FB473-RM10-SP1		G473-RM10-SP01/D	G473-RM10-SP01/S
7/17/02	G473-RM10-SP02	None	FIELDQC-FB473-RM10-SP1	MS/MSD		
7/17/02	G473-RM10-SP03	None	FIELDQC-FB473-RM10-SP1			
7/17/02	G473-RM10-SP04	None	FIELDQC-FB473-RM10-SP1			
7/17/02	G473-RM10-SP05	None	FIELDQC-FB473-RM10-SP1			
7/17/02	G473-RM10-SP06	None	FIELDQC-FB473-RM10-SP1			
7/17/02	G473-RM10-SP07	None	FIELDQC-FB473-RM10-SP1			
7/17/02	G473-RM10-SP08	None	FIELDQC-FB473-RM10-SP1			
7/17/02	G473-RM10-SP09	None	FIELDQC-FB473-RM10-SP1			
7/17/02	G473-RM10-SP10	None	FIELDQC-FB473-RM10-SP1			

Key:

AOI = Area of Interest.
/D = Duplicate.
ESI = Expanded Site Investigation.
FB= Field blank sample.
MS/MSD = Matrix spike/matrix spike duplicate.
QA = Quality assurance.
QC = Quality control.
/S = Split.
SD - Sludge sample.
SP = Swipe sample.

Table 3.4-3
Complete Analytical Data Summary for the Sludge Sample, AOI 473 Year 2002 ESI Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	G473-RM10-SD01 / 07/17/02
Semivolatile Organics by Method 8270C (µg/Kg)			
SW8270C	1,2,4-Trichlorobenzene	µg/Kg	516 U
SW8270C	1,2-Dichlorobenzene	µg/Kg	516 U
SW8270C	1,3-Dichlorobenzene	µg/Kg	516 U
SW8270C	1,4-Dichlorobenzene	µg/Kg	516 U
SW8270C	2,4,5-Trichlorophenol	µg/Kg	1300 U
SW8270C	2,4,6-Trichlorophenol	µg/Kg	516 U
SW8270C	2,4-Dichlorophenol	µg/Kg	516 U
SW8270C	2,4-Dimethylphenol	µg/Kg	516 U
SW8270C	2,4-Dinitrophenol	µg/Kg	516 U
SW8270C	2,4-Dinitrotoluene	µg/Kg	516 U
SW8270C	2,6-Dinitrotoluene	µg/Kg	516 U
SW8270C	2-Chloronaphthalene	µg/Kg	516 U
SW8270C	2-Chlorophenol	µg/Kg	516 U
SW8270C	2-Methylnaphthalene	µg/Kg	516 U
SW8270C	2-Methylphenol	µg/Kg	516 U
SW8270C	2-Nitroaniline	µg/Kg	1300 U
SW8270C	2-Nitrophenol	µg/Kg	516 U
SW8270C	3,3'-Dichlorobenzidine	µg/Kg	1030 U
SW8270C	3-Nitroaniline	µg/Kg	1300 U
SW8270C	4,6-Dinitro-2-methylphenol	µg/Kg	1300 U
SW8270C	4-Bromophenyl phenyl ether	µg/Kg	516 U
SW8270C	4-Chloro-3-methylphenol	µg/Kg	516 U
SW8270C	4-Chloroaniline	µg/Kg	516 U
SW8270C	4-Chlorophenyl phenyl ether	µg/Kg	516 U
SW8270C	4-Methylphenol	µg/Kg	516 U
SW8270C	4-Nitroaniline	µg/Kg	1300 U
SW8270C	4-Nitrophenol	µg/Kg	1300 U
SW8270C	Acenaphthene	µg/Kg	181 J
SW8270C	Acenaphthylene	µg/Kg	516 U
SW8270C	Anthracene	µg/Kg	660 J
SW8270C	Benz(a)anthracene	µg/Kg	1140 J
SW8270C	Benzo(a)pyrene	µg/Kg	810 J
SW8270C	Benzo(b)fluoranthene	µg/Kg	897 J
SW8270C	Benzo(g,h,i)perylene	µg/Kg	392 J
SW8270C	Benzo(k)fluoranthene	µg/Kg	1160 J
SW8270C	Benzoic acid	µg/Kg	1300 U
SW8270C	Benzyl alcohol	µg/Kg	516 U
SW8270C	Bis(2-chloroethoxy)methane	µg/Kg	516 U
SW8270C	Bis(2-chloroethyl)ether	µg/Kg	516 U
SW8270C	Bis(2-chloroisopropyl)ether	µg/Kg	516 U
SW8270C	Bis(2-ethylhexyl)phthalate	µg/Kg	1100 U
SW8270C	Butyl benzyl phthalate	µg/Kg	516 U
SW8270C	Carbazole	µg/Kg	516 U
SW8270C	Chrysene	µg/Kg	1130 J
SW8270C	Dibenz(a,h)anthracene	µg/Kg	516 U
SW8270C	Dibenzofuran	µg/Kg	68.0 J
SW8270C	Diethyl phthalate	µg/Kg	516 U
SW8270C	Dimethyl phthalate	µg/Kg	516 U

Table 3.4-3
Complete Analytical Data Summary for the Sludge Sample, AOI 473 Year 2002 ESI Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: Date:	G473-RM10-SD01 07/17/02
SW8270C	Di-n-butyl phthalate	µg/Kg	516 U
SW8270C	Di-n-octyl phthalate	µg/Kg	516 U
SW8270C	Fluoranthene	µg/Kg	1690 J
SW8270C	Fluorene	µg/Kg	190 J
SW8270C	Hexachlorobenzene	µg/Kg	516 U
SW8270C	Hexachlorobutadiene	µg/Kg	516 U
SW8270C	Hexachlorocyclopentadiene	µg/Kg	1300 U
SW8270C	Hexachloroethane	µg/Kg	516 U
SW8270C	Indeno(1,2,3-cd)pyrene	µg/Kg	227 J
SW8270C	Isophorone	µg/Kg	516 U
SW8270C	Naphthalene	µg/Kg	101 J
SW8270C	Nitrobenzene	µg/Kg	516 U
SW8270C	N-Nitrosodimethylamine	µg/Kg	516 U
SW8270C	N-Nitrosodi-n-propylamine	µg/Kg	516 U
SW8270C	N-Nitrosodiphenylamine	µg/Kg	516 U
SW8270C	Pentachlorophenol	µg/Kg	1300 U
SW8270C	Phenanthrene	µg/Kg	2210 J
SW8270C	Phenol	µg/Kg	516 U
SW8270C	Pyrene	µg/Kg	1440 J
Metals/Mercury by Method 6010B/7471A (mg/Kg)			
SW6010B	Aluminum	mg/Kg	5530
SW6010B	Antimony	mg/Kg	28.2
SW6010B	Arsendic	mg/Kg	19.1 J
SW6010B	Barium	mg/Kg	190
SW6010B	Beryllium	mg/Kg	12.1 U
SW6010B	Cadmium	mg/Kg	15.9 J
SW6010B	Calcium	mg/Kg	148000
SW6010B	Chromium	mg/Kg	42.5 J
SW6010B	Cobalt	mg/Kg	8.36 J
SW6010B	Copper	mg/Kg	1370
SW6010B	Iron	mg/Kg	114000
SW6010B	Lead	mg/Kg	12200
SW6010B	Magnesium	mg/Kg	4070
SW6010B	Manganese	mg/Kg	801
SW7471A	Mercury	mg/Kg	3.60
SW6010B	Nickel	mg/Kg	58.4
SW6010B	Potassium	mg/Kg	3680
SW6010B	Selenium	mg/Kg	121 U
SW6010B	Silver	mg/Kg	18.6 J
SW6010B	Sodium	mg/Kg	716 J
SW6010B	Thallium	mg/Kg	27.9 J
SW6010B	Thallium	mg/Kg	27.9 J
SW6010B	Vanadium	mg/Kg	12.0 J
SW6010B	Zinc	mg/Kg	2340

Table 3.4-3
Complete Analytical Data Summary for the Sludge Sample, AOI 473 Year 2002 ESI Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	G473-RM10-SD01 / 07/17/02
PCBs by Method 8082 (µg/Kg)			
SW8082	Aroclor 1016	µg/Kg	33.2 U
SW8082	Aroclor 1221	µg/Kg	66.4 U
SW8082	Aroclor 1232	µg/Kg	33.2 U
SW8082	Aroclor 1242	µg/Kg	33.2 U
SW8082	Aroclor 1248	µg/Kg	33.2 U
SW8082	Aroclor 1254	µg/Kg	33.2 U
SW8082	Aroclor 1260	µg/Kg	473 J
TRPH by Method 418.1M (mg/Kg)			
EPA418.1	Petroleum Hydrocarbons	mg/Kg	8710
Percent Moisture (wt%)			
ASTM_D2216	Percent Moisture	wt%	44.1

Note: Units of %REC indicate that the compound is a surrogate spike.

Key:

AOI = Area of Interest.
ESI = Expanded Site Investigation.
J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.
µg/Kg = Micrograms per kilogram.
mg/L = Milligrams per kilogram.
PCBs = Polychlorinated Biphenyls.
SD = Sludge sample.
TRPH = Total recoverable petroleum hydrocarbons.
U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to background.

Table 3.4-4
Summary of Tentatively Identified Compound Results for the Sludge Sample, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: Date:	G473-RM10-SD01 07/17/02
Semivolatile Organics by Method 8270C (µg/Kg)			
Unknown	0		130 NJ
Stigmastan-3,5-dien	91		10600 NJ
Heptadecane, 2,6,10,15-tetramethyl-	80		184 NJ
Decahydro-9-ethyl-4,4,8,10-tetramethylna	91		3990 NJ
Decahydro-4,4,8,9,10-pentamethylnaphthal (15.657)	93		835 NJ
Decahydro-4,4,8,9,10-pentamethylnaphthal (15.248)	62		194 NJ
BENZENE, 1,3-BIS(DIMETHYLAMINO)-	43		161 NJ
Acridine, 9-methyl-	50		4830 NJ
4,4´-Difluorobiphenyl	60		111 NJ
3-Hydroxy-3-methyl-2-butanone	53		319 NJ
3,8-Nonadien-2-one, (E)-	22		827 NJ
3,5-Octadiene, 4,5-diethyl-3,6-dimethyl-	70		267 NJ
2-UNDECENE, 4,5-DIMETHYL-, CIS-, THREO-	45		7960 NJ
2-Pentanone, 4-hydroxy-4-methyl-	50		64400 NJ
2-Hexanone, 4-hydroxy-5-methyl-	72		976 NJ
2-Heptanone	25		6030 NJ
2,5,5,6,1a-Pentamethyl-cis-1a,4a,5,6,7,8	58		252 NJ
1,4-Hexadiene, 2,3,4,5-tetramethyl-	53		136 NJ
(E)-4,8-Dimethyl-3,8-nonadien-2-one	52		1120000 NJ

Note: Results are reported as total for similar tentatively identified compounds.

Key:

AOI = Area of Interest.
ESI = Expanded Site Investigation.
µg/Kg = Micrograms per kilogram.
NJ = Identification not confirmed, estimated value.
SD = Sludge sample.

Table 3.4-5
Complete Analytical Data Summary for Wipe Samples, AOI 473 Year 2002 ESII,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	G473-RM10-SP01 7/17/02	G473-RM10-SP01/D 7/17/02	G473-RM10-SP02 7/17/02	G473-RM10-SP03 7/17/02	G473-RM10-SP04 7/17/02	G473-RM10-SP05 7/17/02	G473-RM10-SP06 7/17/02	G473-RM10-SP07 7/17/02	G473-RM10-SP08 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02
Semivolatile Organics by Method 8270C (µg/wipe)													
SW8270C	1,2,4-Trichlorobenzene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	1,2-Dichlorobenzene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	1,3-Dichlorobenzene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	1,4-Dichlorobenzene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2,4,5-Trichlorophenol	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	2,4,6-Trichlorophenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2,4-Dichlorophenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2,4-Dimethylphenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2,4-Dinitrophenol	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	2,4-Dinitrotoluene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2,6-Dinitrotoluene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2-Chloronaphthalene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2-Chlorophenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2-Methylnaphthalene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2-Methylphenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	2-Nitroaniline	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	2-Nitrophenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	3,3'-Dichlorobenzidine	µg/wipe	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
SW8270C	3-Nitroaniline	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	4,6-Dinitro-2-methylphenol	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	4-Bromophenyl phenyl ether	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	4-Chloro-3-methylphenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	4-Chloroaniline	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	4-Chlorophenyl phenyl ether	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	4-Methylphenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	4-Nitroaniline	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	4-Nitrophenol	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	Acenaphthene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Acenaphthylene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Anthracene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Benz(a)anthracene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Benzo(a)pyrene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table 3.4-5
Complete Analytical Data Summary for Wipe Samples, AOI 473 Year 2002 ESII,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	G473-RM10-SP01 7/17/02	G473-RM10-SP01/D 7/17/02	G473-RM10-SP02 7/17/02	G473-RM10-SP03 7/17/02	G473-RM10-SP04 7/17/02	G473-RM10-SP05 7/17/02	G473-RM10-SP06 7/17/02	G473-RM10-SP07 7/17/02	G473-RM10-SP08 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02
SW8270C	Benzo(b)fluoranthene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Benzo(g,h,i)perylene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Benzo(k)fluoranthene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Benzoic acid	µg/wipe	150 U	150 U	150 U	150 U	150 U	150 U	150 U	150 U	150 U	150 U	150 U
SW8270C	Benzyl alcohol	µg/wipe	5.45 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	4.37 J
SW8270C	Bis(2-chloroethoxy)methane	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Bis(2-chloroethyl)ether	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Bis(2-chloroisopropyl)ether	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Bis(2-ethylhexyl)phthalate	µg/wipe	14.3 J	17.8 J	10.4 J	6.64 J	168 J	10.0 U	10.0 U	189 J	2.88 J	10.0 U	5.32 J
SW8270C	Butyl benzyl phthalate	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Carbazole	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Chrysene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Dibenz(a,h)anthracene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Dibenzofuran	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Diethyl phthalate	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Dimethyl phthalate	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Di-n-butyl phthalate	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Di-n-octyl phthalate	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Fluoranthene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Fluorene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Hexachlorobenzene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Hexachlorobutadiene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Hexachlorocyclopentadiene	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	Hexachloroethane	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Indeno(1,2,3-cd)pyrene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Isophorone	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Naphthalene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Nitrobenzene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	N-Nitrosodimethylamine	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	N-Nitrosodi-n-propylamine	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	N-Nitrosodiphenylamine	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Pentachlorophenol	µg/wipe	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
SW8270C	Phenanthrene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table 3.4-5
Complete Analytical Data Summary for Wipe Samples, AOI 473 Year 2002 ESII,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	G473-RM10-SP01 7/17/02	G473-RM10-SP01/D 7/17/02	G473-RM10-SP02 7/17/02	G473-RM10-SP03 7/17/02	G473-RM10-SP04 7/17/02	G473-RM10-SP05 7/17/02	G473-RM10-SP06 7/17/02	G473-RM10-SP07 7/17/02	G473-RM10-SP08 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02
SW8270C	Phenol	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
SW8270C	Pyrene	µg/wipe	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Metals/Mercury by 6010B/7471A (µg/wipe)													
SW6010B	Aluminum	µg/wipe	9170 J	4190 J	3320	2850	9180	1650	1980	2600	2420	2500	5170
SW6010B	Antimony	µg/wipe	5.38 U	7.15 U	50.0 U	10.0 U	10.0 U	10.0 U	5.00 U	6.75 U	2.70 U	5.00 U	11.6 J
SW6010B	Arsenic	µg/wipe	5.54	5.00 U	50.0 U	10.0 U	8.99 J	10.0 U	5.00 U	2.48 J	0.671 J	5.00 U	25.0 U
SW6010B	Barium	µg/wipe	134 J	73.4 J	57.6 J	101	155	53.1	100	95.9	180	87.3	130
SW6010B	Beryllium	µg/wipe	0.654 J	2.50 U	25.0 U	5.00 U	5.00 U	5.00 U	2.50 U	2.50 U	1.00 U	2.50 U	12.5 U
SW6010B	Cadmium	µg/wipe	26.6 J	15.8 J	11.2 J	18.3	21.0	101	9.73	12.1	14.6	19.2	17.8
SW6010B	Calcium	µg/wipe	79200 J	38000 J	25300	29100	102000	15700	20400	21300	18300	13600	55800
SW6010B	Chromium	µg/wipe	93.9 J	28.4 J	75.6	26.7	57.1	17.1	14.1	19.5	15.7	22.9	37.3
SW6010B	Cobalt	µg/wipe	13.4	5.60 J	9.75 J	5.44 J	10.4 J	3.99 J	1.99 J	3.56 J	3.13 J	18.3	50.0 U
SW6010B	Copper	µg/wipe	283 J	123 J	335	100	86.1	94.9	1720	45.1	80.6	192	41500
SW6010B	Iron	µg/wipe	81100 J	34600 J	314000	87000	45900	128000	35800	7790	12900	9510	19500
SW6010B	Lead	µg/wipe	2780 J	1170 J	539	571	461	327	405	208	258	188	1910
SW6010B	Magnesium	µg/wipe	3980 J	1840 J	1420 J	1860	5150	1030	1340	1650	1250	1160	4490
SW6010B	Manganese	µg/wipe	5030 J	1640 J	1020	259	410	315	127	95.3	77.7	81.5	197
SW7471A	Mercury	µg/wipe	20.1	21.9	124	67.4	45.5	35.3	29.0	14.9	25.9	14.2	0.576
SW6010B	Nickel	µg/wipe	83.9 J	31.6 J	139	22.0	30.0	158	13.1	8.93 J	9.38	20.7	23.3 J
SW6010B	Potassium	µg/wipe	4980 J	2280 J	23100	29000	56700	7070	18200	37000	11100	3670	32500
SW6010B	Selenium	µg/wipe	5.00 U	5.00 U	50.0 U	10.0 U	10.0 U	10.0 U	5.00 U	5.00 U	2.00 U	5.00 U	25.0 U
SW6010B	Silver	µg/wipe	32.5 J	5.87 J	50.0 U	3.42 J	5.94 J	2.23 J	1.39 J	3.93 J	15.5	1.81 J	5.74 J
SW6010B	Sodium	µg/wipe	1160 U	679 U	7840	14400	28600	2650 U	7310 U	17200	4350 U	1220 U	11600
SW6010B	Sodium	µg/wipe	1160 U	679 U	7840	14400	28600	2650 U	7310 U	17200	4350 U	1220 U	11600
SW6010B	Thallium	µg/wipe	14.8 J	7.97 J	21.7 J	6.16 J	12.1	6.38 J	4.76 J	5.00 U	2.45 U	5.00 U	11.4 J
SW6010B	Vanadium	µg/wipe	26.0 J	12.7 J	65.0 J	26.4	31.3	13.8 J	9.69 J	8.79 J	6.27	4.20 J	15.5 J
SW6010B	Zinc	µg/wipe	1680 J	713 J	1010	639	1320	428	394	372	448	346	1560

Table 3.4-5
Complete Analytical Data Summary for Wipe Samples, AOI 473 Year 2002 ESII,
Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	G473-RM10-SP01 7/17/02	G473-RM10-SP01/D 7/17/02	G473-RM10-SP02 7/17/02	G473-RM10-SP03 7/17/02	G473-RM10-SP04 7/17/02	G473-RM10-SP05 7/17/02	G473-RM10-SP06 7/17/02	G473-RM10-SP07 7/17/02	G473-RM10-SP08 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02
PCBs by Method 8082 (µg/wipe)													
SW8082	Aroclor 1016	µg/wipe	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	4.50 U	1.50 U	1.50 U	1.50 U
SW8082	Aroclor 1221	µg/wipe	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	9.00 U	3.00 U	3.00 U	3.00 U
SW8082	Aroclor 1232	µg/wipe	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	4.50 U	1.50 U	1.50 U	1.50 U
SW8082	Aroclor 1242	µg/wipe	1.50 U	1.50 U	2.09	2.01	1.50 U	1.50 U	0.402 J	4.50 U	1.50 U	1.50 U	1.50 U
SW8082	Aroclor 1248	µg/wipe	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	4.50 U	1.50 U	1.50 U	1.50 U
SW8082	Aroclor 1254	µg/wipe	1.73	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	4.50 U	1.50 U	1.50 U	1.50 U
SW8082	Aroclor 1260	µg/wipe	1.50 U	1.50 U	1.58	1.62	1.50 U	1.50 U	1.50 U	4.50 U	1.50 U	1.50 U	1.50 U
TRPH by Method 418.1M (mg/wipe)													
EPA418.1	Petroleum Hydrocarbons	mg/wipe	1650 J	879 J	3020	5580	4850	3970	7260	7190	1960	4820	3020

Note: Units of %REC indicate that the compound is a surrogate spike.

Key:

AOI = Area of Interest.
ESI = Expanded Site Investigation.
J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.
µg/wipe = Micrograms per wipe.
mg/wipe = Milligrams per wipe.
NA = Not analyzed or reported.
PCBs = Polychlorinated Biphenyls.
SP = Wipe sample.
TRPH = Total recoverable petroleum hydrocarbons.
U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to background.

Table 3.4-6
Summary of Tentatively Identified Compound Results for Wipe Samples, AOI 473 2002 ESI,
Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: / Date:	G473-RM10-SP01 7/17/02	G473-RM10-SP01/D 7/17/02	G473-RM10-SP02 7/17/02	G473-RM10-SP03 7/17/02	G473-RM10-SP04 7/17/02	G473-RM10-SP05 7/17/02	G473-RM10-SP06 7/17/02	G473-RM10-SP07 7/17/02
Semivolatile Organics by Method 8270C (µg/wipe)										
Tritetracontane	91		NF	NF	NF	NF	NF	193.2 NJ	NF	NF
Triethylene glycol	78		NF	NF	NF	NF	28.8 NJ	NF	NF	NF
Tricosane	93		NF	NF	NF	22.6 NJ	26.8 NJ	NF	NF	NF
Triallylsilane	52		NF	NF	NF	NF	NF	NF	141.2 NJ	NF
TRAPEZIFOLIXANTHONE DIMETHYL ETHER	35		NF	NF	NF	NF	NF	NF	NF	NF
Tetratriacontane	90		NF	NF	NF	NF	NF	41.2 NJ	NF	NF
Tetratetracontane	87		NF	NF	NF	NF	NF	NF	NF	NF
Tetradecane, 1-bromo-	70		NF	NF	NF	NF	NF	NF	NF	NF
Tetracosane	93		76 NJ	NF	NF	NF	43 NJ	NF	NF	NF
Squalene	86		NF	NF	NF	NF	NF	NF	50.4 NJ	NF
Propane, 1-(1-methylethoxy)-	38		NF	NF	NF	NF	NF	NF	NF	NF
Phthalic anhydride (13.985)	96		NF	NF	NF	NF	NF	NF	NF	NF
Phenol, 4,4'-butylidenebis(2-(1,1-dimeth	91		NF	124.4 NJ	NF	13.58 NJ	36.2 NJ	35.2 NJ	46.2 NJ	NF
Phenol, 4-(1-phenylethyl)-	83		NF	NF	NF	NF	NF	99 NJ	NF	NF
Phenol, 2,4-bis(1-phenylethyl)-	70		NF	NF	NF	NF	NF	104.8 NJ	NF	NF
Pentatriacontane	91		NF	NF	NF	NF	NF	NF	NF	NF
Pentadecane, 8-hexyl-	91		NF	NF	NF	NF	NF	NF	NF	11.9 NJ
PENTADECANE, 2,6,10-TRIMETHYL-	43		NF	NF	NF	NF	NF	NF	186 NJ	NF
Pentadecane, 2,6,10,14-tetramethyl-	94		NF	NF	NF	NF	NF	NF	2560 NJ	NF
Pentacosane	95		165.8 NJ	NF	NF	NF	NF	NF	NF	NF
Octanoic Acid	72		NF	NF	NF	NF	NF	NF	NF	NF
Octadecane, 1-bromo-	64		NF	NF	NF	NF	NF	1154 NJ	NF	NF
Octadecane	87		NF	NF	NF	NF	NF	NF	106 NJ	NF
Octacosane	96		NF	NF	98.6 NJ	NF	NF	NF	NF	NF
Nonadecane	96		NF	NF	NF	NF	NF	NF	110.6 NJ	NF
Nonacosane	96		NF	NF	78.2 NJ	NF	NF	NF	NF	NF
n-Decanoic acid	64		NF	NF	NF	NF	NF	NF	NF	NF
Naphthalene, 1,6-dimethyl-4-(1-methyleth	72		NF	NF	NF	NF	NF	NF	NF	NF
Hexatriacontane	90		NF	NF	125.4 NJ	NF	NF	322 NJ	11.58 NJ	NF
Hexanoic acid, 2-methyl-	43		NF	NF	NF	NF	NF	NF	NF	12.32 NJ
Hexadecane, 2-methyl-	93		NF	NF	NF	NF	NF	NF	NF	NF
Hexadecane, 2,6,11,15-tetramethyl-	90		NF	NF	NF	NF	NF	NF	15940 NJ	NF
Hexadecane, 2,6,10,14-tetramethyl-	90		NF	NF	NF	NF	NF	91.2 NJ	NF	NF

Table 3.4-6
Summary of Tentatively Identified Compound Results for Wipe Samples, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: / Date:	G473-RM10-SP01 7/17/02	G473-RM10-SP01/D 7/17/02	G473-RM10-SP02 7/17/02	G473-RM10-SP03 7/17/02	G473-RM10-SP04 7/17/02	G473-RM10-SP05 7/17/02	G473-RM10-SP06 7/17/02	G473-RM10-SP07 7/17/02
Hexadecane	93		NF	NF	NF	NF	NF	NF	NF	NF
Hexacosane	93		40.4 NJ	NF	29 NJ	36 NJ	76 NJ	92.2 NJ	30.6 NJ	NF
Heptanoic acid, methyl ester	25		NF	NF	NF	NF	191.8 NJ	NF	NF	NF
Heptane, 2,2,3,3,5,6,6-heptamethyl-	28		NF	7.18 NJ	NF	10.7 NJ	NF	NF	NF	NF
Heptadecane, 9-octyl-	93		NF	NF	NF	NF	NF	NF	31.4 NJ	NF
Heptadecane	83		89.8 NJ	NF	NF	NF	NF	NF	NF	NF
Heptacosane	91		14.08 NJ	NF	NF	96.8 NJ	NF	186.2 NJ	NF	13.58 NJ
Heneicosane	95		NF	NF	NF	17.86 NJ	161.2 NJ	NF	NF	NF
HAHNFETT	87		NF	NF	NF	NF	3480 NJ	NF	NF	NF
Furan, tetrahydro-3,4-dimethyl-, cis-	18		NF	NF	NF	8.9 NJ	NF	NF	NF	NF
Ether, heptyl hexyl	34		9.38 NJ	NF	9.98 NJ	NF	NF	NF	NF	NF
Ethanol, 2,2´-oxybis-	64		NF	NF	NF	NF	NF	NF	NF	8.38 NJ
Ethanol, 2,2´-(oxybis(2,1-ethanediyloxy)	78		NF	NF	5.9 NJ	NF	NF	NF	NF	NF
Ethanol, 2,2´-(1,2-ethanediylbis(oxy))bi	38		NF	NF	NF	NF	NF	NF	NF	NF
Eicosane, 10-methyl-	93		142.6 NJ	NF	NF	NF	NF	87 NJ	45.4 NJ	NF
Eicosane	89		NF	NF	NF	NF	NF	71.2 NJ	103.6 NJ	NF
E-8-Methyl-9-tetradecen-1-ol acetate	52		NF	NF	NF	NF	NF	NF	NF	1312 NJ
d-Ribonic acid, _gamma_-lactone, cyclic	59		NF	NF	NF	NF	NF	NF	NF	NF
Dotriacontane	91		NF	NF	NF	NF	NF	40.2 NJ	NF	NF
Docosane	93		108 NJ	NF	NF	11.88 NJ	NF	42.2 NJ	115.4 NJ	100.2 NJ
Cyclopentane, 1,2,3-trimethyl-, (1_alpha	43		NF	NF	NF	NF	NF	NF	NF	NF
CYCLOPENTANCARBONIC ACID, 3-METHYL-, M	25		NF	NF	NF	NF	12.6 NJ	NF	NF	NF
Cyclohexanemethanol, 2-methyl-	43		NF	NF	34.6 NJ	NF	NF	NF	NF	NF
Cyclohexane, decyl-	76		NF	NF	NF	NF	NF	NF	172.2 NJ	NF
Cyclohexane, 1-ethyl-4-methyl-, cis-	38		NF	NF	NF	NF	228 NJ	NF	NF	NF
CAPRONIC ACID, OCTYL ESTER	18		46.2 NJ	NF	NF	NF	NF	NF	NF	NF
Bicyclo(3_1_1)heptane, 2,6,6-trimethyl-,	60		NF	NF	NF	NF	NF	NF	NF	NF
Bicyclo(3_1_0)hexan-2-one, 4-methyl-1-(1	68		NF	NF	4260 NJ	1228 NJ	NF	NF	NF	NF
Benzothiazole	91		NF	6.64 NJ	NF	8.44 NJ	45.4 NJ	NF	NF	NF
Benzenethiol, 2-amino-	64		10.66 NJ	NF	NF	NF	NF	NF	NF	NF
8-Nonenoic acid	17		NF	NF	NF	NF	NF	NF	NF	NF
7-Octynoic acid, methyl ester	17		NF	7.42 NJ	NF	NF	NF	NF	NF	NF
6-METHYL-6-(5´METHYL-2´-FURYL)HEPTA-2,3-	43		NF	NF	NF	NF	NF	NF	22.8 NJ	NF
4-Cyanocyclohexene	99		78 NJ	17.16 NJ	33.8 NJ	39.6 NJ	39 NJ	NF	NF	23.6 NJ

Table 3.4-6
Summary of Tentatively Identified Compound Results for Wipe Samples, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: / Date:	G473-RM10-SP01 7/17/02	G473-RM10-SP01/D 7/17/02	G473-RM10-SP02 7/17/02	G473-RM10-SP03 7/17/02	G473-RM10-SP04 7/17/02	G473-RM10-SP05 7/17/02	G473-RM10-SP06 7/17/02	G473-RM10-SP07 7/17/02
4-Chloro-3-n-hexyltetrahydropyrane	60		3980 NJ	NF	NF	NF	NF	NF	NF	NF
4-Benzylamino-1,3-diphenyl-5,6,7,8-tetra	74		NF	NF	NF	NF	NF	NF	NF	10.06 NJ
4,5-DIDEUTERO ISOTHIAZOLE	27		NF	NF	NF	NF	NF	NF	NF	8.66 NJ
4(5)-METHYL-5(4)-NITROIMIDAZOLE	38		NF	NF	NF	NF	19.58 NJ	NF	NF	NF
3-Pentanol, 2-methyl-	53		10.84 NJ	NF	NF	NF	NF	NF	NF	NF
3-Methyl-2-butyl acetate	42		NF	21.6 NJ	NF	NF	NF	NF	NF	NF
3-Hydroxy-3-methyl-2-butanone	50		NF	10.04 NJ	NF	NF	NF	NF	NF	NF
3-HEXEN-2-ONE, 3-CYCLOHEXYL-4-ETHYL-	43		NF	NF	NF	NF	NF	194.4 NJ	NF	NF
2-Pentenoic acid, 4-methylphenyl ester	22		NF	6.38 NJ	NF	NF	NF	NF	NF	NF
2-Pentanone, 4-hydroxy-4-methyl-	23		2440 NJ	2283.8 NJ	2220 NJ	2040 NJ	2840 NJ	2100 NJ	147.2 NJ	2394.8 NJ
2-Octanone	47		NF	7.44 NJ	NF	NF	NF	NF	NF	NF
2-Hexanone, 4-hydroxy-5-methyl-	50		29.8 NJ	NF	NF	27 NJ	27.4 NJ	NF	NF	32.6 NJ
2-Heptanone	23		210 NJ	NF	175 NJ	171.8 NJ	206 NJ	186.4 NJ	NF	NF
2H-1,3-Benzoxazine, 6-chloro-3-cyclohexy	35		NF	NF	NF	NF	26.6 NJ	NF	NF	NF
2-Butanone, 3-hydroxy-3-methyl-	33		NF	NF	NF	NF	NF	NF	NF	8.78 NJ
2-Butanol, 3-methyl-, acetate	50		NF	NF	26 NJ	NF	NF	NF	NF	NF
2-Acetylthiazole	32		NF	NF	18.56 NJ	NF	NF	NF	NF	NF
2,6,10-Dodecatrien-1-ol, 3,7,11-trimethy	68		NF	160 NJ	NF	NF	NF	NF	NF	NF
2,4-Hexadiene	35		NF	NF	8.72 NJ	NF	NF	NF	NF	NF
2,4,6-Tris-(1-phenylethyl)-phenol	38		63.66 NJ	175.04 NJ	168.04 NJ	215.08 NJ	189.3 NJ	82 NJ	69.8 NJ	164.4 NJ
1-Tetradecanol	38		NF	NF	NF	10.68 NJ	NF	NF	NF	NF
1-Bromo-3-(2-bromoethyl)heptane	52		NF	6140 NJ	NF	NF	NF	NF	NF	NF
17-Pentatriacontene	43		NF	NF	NF	NF	NF	NF	NF	NF
10-Methylnonadecane	91		63.2 NJ	NF	NF	NF	NF	NF	NF	NF
1,4-Hexadiene, 2-methyl-	38		NF	NF	NF	NF	33.6 NJ	NF	NF	NF
1,4-Benzenediol, 2,5-bis(1,1-dimethylpro	83		NF	NF	NF	NF	NF	NF	NF	NF
1,3-Hexadiene, 3-ethyl-2-methyl-, (Z)-	25		NF	NF	NF	167 NJ	NF	NF	NF	NF
1,2-Ethanediamine, N-methyl-	35		NF	7.78 NJ	NF	NF	NF	NF	NF	NF
1,2,3,4-Tetrahydronaphthalene-d12	70		NF	NF	NF	7.24 NJ	NF	NF	NF	NF

Note: Results are reported as total for similar tenatively identified compounds.

Key:

AOI = Area of Interest.
ESI = Expanded Site Investigation.
µg/wipe = Micrograms per wipe.
NF = Not found.
NJ = Identification not confirmed, estimated value.
SP = Wipe sample.

Table 3.4-6
Summary of Tentatively Identified Compound Results for Wipe Samples, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: / Date:	G473-RM10-SP08 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02
Semivolatile Organics by Method 8270C (µg/wipe)							
Tritetracontane	91		NF	NF	NF	NF	NF
Triethylene glycol	78		NF	NF	NF	NF	NF
Tricosane	93		NF	335.2 NJ	NF	335.2 NJ	NF
Triallylsilane	52		NF	NF	NF	NF	NF
TRAPEZIFOLIXANTHONE DIMETHYL ETHER	35		NF	NF	254 NJ	NF	254 NJ
Tetratriacontane	90		NF	NF	NF	NF	NF
Tetratetracontane	87		NF	98.6 NJ	NF	98.6 NJ	NF
Tetradecane, 1-bromo-	70		208 NJ	NF	NF	NF	NF
Tetracosane	93		266 NJ	89.4 NJ	106.2 NJ	89.4 NJ	106.2 NJ
Squalene	86		NF	NF	NF	NF	NF
Propane, 1-(1-methylethoxy)-	38		NF	138.2 NJ	NF	138.2 NJ	NF
Phthalic anhydride (13.985)	96		NF	NF	13 NJ	NF	13 NJ
Phenol, 4,4′-butylidenebis(2-(1,1-dimeth	91		32.6 NJ	44.2 NJ	12.68 NJ	44.2 NJ	12.68 NJ
Phenol, 4-(1-phenylethyl)-	83		NF	NF	NF	NF	NF
Phenol, 2,4-bis(1-phenylethyl)-	70		58.8 NJ	77.8 NJ	NF	77.8 NJ	NF
Pentatriacontane	91		NF	NF	40.8 NJ	NF	40.8 NJ
Pentadecane, 8-hexyl-	91		NF	NF	NF	NF	NF
PENTADECANE, 2,6,10-TRIMETHYL-	43		NF	NF	NF	NF	NF
Pentadecane, 2,6,10,14-tetramethyl-	94		NF	109 NJ	NF	109 NJ	NF
Pentacosane	95		NF	NF	NF	NF	NF
Octanoic Acid	72		NF	NF	8.2 NJ	NF	8.2 NJ
Octadecane, 1-bromo-	64		NF	NF	NF	NF	NF
Octadecane	87		NF	NF	NF	NF	NF
Octacosane	96		40.8 NJ	51.2 NJ	NF	51.2 NJ	NF
Nonadecane	96		NF	NF	NF	NF	NF
Nonacosane	96		NF	NF	NF	NF	NF
n-Decanoic acid	64		NF	NF	4.06 NJ	NF	4.06 NJ
Naphthalene, 1,6-dimethyl-4-(1-methyleth	72		NF	204 NJ	NF	204 NJ	NF
Hexatriacontane	90		167.4 NJ	NF	NF	NF	NF
Hexanoic acid, 2-methyl-	43		NF	NF	NF	NF	NF
Hexadecane, 2-methyl-	93		NF	103.4 NJ	NF	103.4 NJ	NF
Hexadecane, 2,6,11,15-tetramethyl-	90		NF	NF	NF	NF	NF
Hexadecane, 2,6,10,14-tetramethyl-	90		16.26 NJ	87.8 NJ	NF	87.8 NJ	NF

Table 3.4-6
Summary of Tentatively Identified Compound Results for Wipe Samples, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: / Date:	G473-RM10-SP08 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02
Hexadecane	93		38.2 NJ	NF	NF	NF	NF
Hexacosane	93		NF	NF	59.06 NJ	NF	59.06 NJ
Heptanoic acid, methyl ester	25		NF	NF	NF	NF	NF
Heptane, 2,2,3,3,5,6,6-heptamethyl-	28		NF	NF	NF	NF	NF
Heptadecane, 9-octyl-	93		NF	NF	NF	NF	NF
Heptadecane	83		NF	406 NJ	NF	406 NJ	NF
Heptacosane	91		39 NJ	NF	NF	NF	NF
Heneicosane	95		NF	146 NJ	NF	146 NJ	NF
HAHNFETT	87		NF	NF	NF	NF	NF
Furan, tetrahydro-3,4-dimethyl-, cis-	18		NF	NF	NF	NF	NF
Ether, heptyl hexyl	34		NF	NF	NF	NF	NF
Ethanol, 2,2'-oxybis-	64		NF	NF	12.38 NJ	NF	12.38 NJ
Ethanol, 2,2'-(oxybis(2,1-ethanediyloxy)	78		NF	NF	NF	NF	NF
Ethanol, 2,2'-(1,2-ethanediylbis(oxy))bi	38		18.8 NJ	NF	NF	NF	NF
Eicosane, 10-methyl-	93		NF	NF	NF	NF	NF
Eicosane	89		330 NJ	NF	30.1 NJ	NF	30.1 NJ
E-8-Methyl-9-tetradecen-1-ol acetate	52		NF	NF	NF	NF	NF
d-Ribonic acid, _gamma_-lactone, cyclic	59		NF	28.2 NJ	NF	28.2 NJ	NF
Dotriacontane	91		NF	NF	NF	NF	NF
Docosane	93		NF	210 NJ	NF	210 NJ	NF
Cyclopentane, 1,2,3-trimethyl-, (1_alpha	43		13.46 NJ	NF	NF	NF	NF
CYCLOPENTANCARBONIC ACID, 3-METHYL-, M	25		NF	NF	NF	NF	NF
Cyclohexanemethanol, 2-methyl-	43		NF	NF	NF	NF	NF
Cyclohexane, decyl-	76		NF	NF	NF	NF	NF
Cyclohexane, 1-ethyl-4-methyl-, cis-	38		NF	NF	NF	NF	NF
CAPRONIC ACID, OCTYL ESTER	18		NF	NF	NF	NF	NF
Bicyclo(3_1_1)heptane, 2,6,6-trimethyl-,	60		NF	NF	39.4 NJ	NF	39.4 NJ
Bicyclo(3_1_0)hexan-2-one, 4-methyl-1-(1	68		NF	NF	NF	NF	NF
Benzothiazole	91		NF	NF	NF	NF	NF
Benzenethiol, 2-amino-	64		NF	NF	NF	NF	NF
8-Nonenoic acid	17		NF	NF	8.2 NJ	NF	8.2 NJ
7-Octynoic acid, methyl ester	17		NF	NF	NF	NF	NF
6-METHYL-6-(5'METHYL-2'-FURYL)HEPTA-2,3-	43		NF	NF	NF	NF	NF
4-Cyanocyclohexene	99		NF	NF	43.4 NJ	NF	43.4 NJ

Table 3.4-6
Summary of Tentatively Identified Compound Results for Wipe Samples, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: / Date:	G473-RM10-SP08 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02	G473-RM10-SP09 7/17/02	G473-RM10-SP10 7/17/02
4-Chloro-3-n-hexyltetrahydropyrane	60		NF	NF	NF	NF	NF
4-Benzylamino-1,3-diphenyl-5,6,7,8-tetra	74		NF	NF	NF	NF	NF
4,5-DIDEUTERO ISOTHIAZOLE	27		NF	NF	NF	NF	NF
4(5)-METHYL-5(4)-NITROIMIDAZOLE	38		NF	NF	NF	NF	NF
3-Pentanol, 2-methyl-	53		NF	NF	NF	NF	NF
3-Methyl-2-butyl acetate	42		NF	NF	NF	NF	NF
3-Hydroxy-3-methyl-2-butanone	50		NF	NF	NF	NF	NF
3-HEXEN-2-ONE, 3-CYCLOHEXYL-4-ETHYL-	43		NF	NF	NF	NF	NF
2-Pentenoic acid, 4-methylphenyl ester	22		NF	NF	NF	NF	NF
2-Pentanone, 4-hydroxy-4-methyl-	23		2380 NJ	2180 NJ	1764 NJ	2180 NJ	1764 NJ
2-Octanone	47		NF	NF	NF	NF	NF
2-Hexanone, 4-hydroxy-5-methyl-	50		NF	NF	26.8 NJ	NF	26.8 NJ
2-Heptanone	23		212 NJ	NF	152.6 NJ	NF	152.6 NJ
2H-1,3-Benzoxazine, 6-chloro-3-cyclohexy	35		NF	NF	NF	NF	NF
2-Butanone, 3-hydroxy-3-methyl-	33		NF	NF	NF	NF	NF
2-Butanol, 3-methyl-, acetate	50		NF	NF	NF	NF	NF
2-Acetylthiazole	32		NF	NF	NF	NF	NF
2,6,10-Dodecatrien-1-ol, 3,7,11-trimethy	68		NF	NF	NF	NF	NF
2,4-Hexadiene	35		NF	NF	NF	NF	NF
2,4,6-Tris-(1-phenylethyl)-phenol	38		100.2 NJ	47 NJ	15 NJ	47 NJ	15 NJ
1-Tetradecanol	38		NF	NF	NF	NF	NF
1-Bromo-3-(2-bromoethyl)heptane	52		NF	NF	NF	NF	NF
17-Pentatriacontene	43		NF	NF	12000 NJ	NF	12000 NJ
10-Methylnonadecane	91		NF	NF	NF	NF	NF
1,4-Hexadiene, 2-methyl-	38		NF	NF	NF	NF	NF
1,4-Benzenediol, 2,5-bis(1,1-dimethylpro	83		NF	870 NJ	NF	870 NJ	NF
1,3-Hexadiene, 3-ethyl-2-methyl-, (Z)-	25		NF	NF	NF	NF	NF
1,2-Ethanediamine, N-methyl-	35		NF	NF	NF	NF	NF
1,2,3,4-Tetrahydronaphthalene-d12	70		NF	NF	NF	NF	NF

Note: Results are reported as total for similar tentatively identified compounds.

Key:

AOI = Area of Interest.
ESI = Expanded Site Investigation.
µg/wipe = Micrograms per wipe.
NF = Not found.
NJ = Identification not confirmed, estimated value.
SP = Wipe sample.

Table 3.4-7
Complete Analytical Data Summary for the Field Blank Wipe Samples, AOI 473 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte		Sample ID: / Date:	FIELDQC-FB473-RM10-SP1 / 07/17/02
Semivolatile Organics by Method 8270C (µg/wipe)				
SW8270C	1,2,4-Trichlorobenzene		µg/wipe	10.0 U
SW8270C	1,2-Dichlorobenzene		µg/wipe	10.0 U
SW8270C	1,3-Dichlorobenzene		µg/wipe	10.0 U
SW8270C	1,4-Dichlorobenzene		µg/wipe	10.0 U
SW8270C	2,4,5-Trichlorophenol		µg/wipe	50.0 U
SW8270C	2,4,6-Trichlorophenol		µg/wipe	10.0 U
SW8270C	2,4-Dichlorophenol		µg/wipe	10.0 U
SW8270C	2,4-Dimethylphenol		µg/wipe	10.0 U
SW8270C	2,4-Dinitrophenol		µg/wipe	50.0 U
SW8270C	2,4-Dinitrotoluene		µg/wipe	10.0 U
SW8270C	2,6-Dinitrotoluene		µg/wipe	10.0 U
SW8270C	2-Chloronaphthalene		µg/wipe	10.0 U
SW8270C	2-Chlorophenol		µg/wipe	10.0 U
SW8270C	2-Methylnaphthalene		µg/wipe	10.0 U
SW8270C	2-Methylphenol		µg/wipe	10.0 U
SW8270C	2-Nitroaniline		µg/wipe	50.0 U
SW8270C	2-Nitrophenol		µg/wipe	10.0 U
SW8270C	3,3´-Dichlorobenzidine		µg/wipe	20.0 U
SW8270C	3-Nitroaniline		µg/wipe	50.0 U
SW8270C	4,6-Dinitro-2-methylphenol		µg/wipe	50.0 U
SW8270C	4-Bromophenyl phenyl ether		µg/wipe	10.0 U
SW8270C	4-Chloro-3-methylphenol		µg/wipe	10.0 U
SW8270C	4-Chloroaniline		µg/wipe	10.0 U
SW8270C	4-Chlorophenyl phenyl ether		µg/wipe	10.0 U
SW8270C	4-Methylphenol		µg/wipe	10.0 U
SW8270C	4-Nitroaniline		µg/wipe	50.0 U
SW8270C	4-Nitrophenol		µg/wipe	50.0 U
SW8270C	Acenaphthene		µg/wipe	10.0 U
SW8270C	Acenaphthylene		µg/wipe	10.0 U
SW8270C	Anthracene		µg/wipe	10.0 U
SW8270C	Benz(a)anthracene		µg/wipe	10.0 U
SW8270C	Benzo(a)pyrene		µg/wipe	10.0 U
SW8270C	Benzo(b)fluoranthene		µg/wipe	10.0 U
SW8270C	Benzo(g,h,i)perylene		µg/wipe	10.0 U
SW8270C	Benzo(k)fluoranthene		µg/wipe	10.0 U
SW8270C	Benzoic acid		µg/wipe	150 U
SW8270C	Benzyl alcohol		µg/wipe	10.0 U
SW8270C	Bis(2-chloroethoxy)methane		µg/wipe	10.0 U
SW8270C	Bis(2-chloroethyl)ether		µg/wipe	10.0 U
SW8270C	Bis(2-chloroisopropyl)ether		µg/wipe	10.0 U
SW8270C	Bis(2-ethylhexyl)phthalate		µg/wipe	10.0 U
SW8270C	Butyl benzyl phthalate		µg/wipe	10.0 U
SW8270C	Carbazole		µg/wipe	10.0 U
SW8270C	Chrysene		µg/wipe	10.0 U
SW8270C	Dibenz(a,h)anthracene		µg/wipe	10.0 U
SW8270C	Dibenzofuran		µg/wipe	10.0 U
SW8270C	Diethyl phthalate		µg/wipe	10.0 U
SW8270C	Dimethyl phthalate		µg/wipe	10.0 U
SW8270C	Di-n-butyl phthalate		µg/wipe	10.0 U
SW8270C	Di-n-octyl phthalate		µg/wipe	10.0 U

Table 3.4-7
Complete Analytical Data Summary for the Field Blank Wipe Samples, AOI 473 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Method	Analyte	Sample ID: / Date:	FIELDQC-FB473-RM10-SP1 07/17/02
SW8270C	Fluoranthene	µg/wipe	10.0 U
SW8270C	Fluorene	µg/wipe	10.0 U
SW8270C	Hexachlorobenzene	µg/wipe	10.0 U
SW8270C	Hexachlorobutadiene	µg/wipe	10.0 U
SW8270C	Hexachlorocyclopentadiene	µg/wipe	50.0 U
SW8270C	Hexachloroethane	µg/wipe	10.0 U
SW8270C	Indeno(1,2,3-cd)pyrene	µg/wipe	10.0 U
SW8270C	Isophorone	µg/wipe	10.0 U
SW8270C	Naphthalene	µg/wipe	10.0 U
SW8270C	Nitrobenzene	µg/wipe	10.0 U
SW8270C	N-Nitrosodimethylamine	µg/wipe	10.0 U
SW8270C	N-Nitrosodi-n-propylamine	µg/wipe	10.0 U
SW8270C	N-Nitrosodiphenylamine	µg/wipe	10.0 U
SW8270C	Pentachlorophenol	µg/wipe	50.0 U
SW8270C	Phenanthrene	µg/wipe	10.0 U
SW8270C	Phenol	µg/wipe	10.0 U
SW8270C	Pyrene	µg/wipe	10.0 U
Metals/Mercury Analysis by Method 6010B/7471A (µg/wipe)			
SW6010B	Aluminum	µg/wipe	12.4
SW6010B	Antimony	µg/wipe	1.81
SW6010B	Arsenic	µg/wipe	1.00 U
SW6010B	Barium	µg/wipe	1.25 J
SW6010B	Beryllium	µg/wipe	0.500 U
SW6010B	Cadmium	µg/wipe	0.500 U
SW6010B	Calcium	µg/wipe	462
SW6010B	Chromium	µg/wipe	1.00 U
SW6010B	Cobalt	µg/wipe	2.00 U
SW6010B	Copper	µg/wipe	0.974 J
SW6010B	Iron	µg/wipe	20.4
SW6010B	Lead	µg/wipe	2.29
SW6010B	Magnesium	µg/wipe	164
SW6010B	Manganese	µg/wipe	1.88
SW7471A	Mercury	µg/wipe	0.0200 U
SW6010B	Nickel	µg/wipe	2.00 U
SW6010B	Potassium	µg/wipe	49.0 J
SW6010B	Selenium	µg/wipe	1.00 U
SW6010B	Silver	µg/wipe	1.00 U
SW6010B	Sodium	µg/wipe	1550
SW6010B	Sodium	µg/wipe	1550
SW6010B	Thallium	µg/wipe	0.765 J
SW6010B	Vanadium	µg/wipe	2.00 U
SW6010B	Zinc	µg/wipe	4.26

Note: Units of %REC indicate that the compound is a surrogate spike.

Key:

AOI = Area of Interest.
ESI = Expanded Site Investigation.
FB = Field blank sample.
J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.
µg/wipe = Micrograms per wipe.
SP = Wipe sample.
U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to background.

Table 3.4-8
Summary of Tentatively Identified Compound Results for the Field Blank Wipe Sample, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Analyte	Match Quality	Sample ID: Date:	FIELDQC-FB473-RM10-SP1 07/17/02
Semivolatile Organics by Method 8270C (µg/wipe)			
Unknown	0		13.7 NJ
PENTADECANE, 2,6,10-TRIMETHYL-	43		21.4 NJ
Octacosane (23.243)	72		12.76 NJ
Heptadecane	83		46.2 NJ
Heptacosane, 1-chloro-	50		44.8 NJ
Eicosane	89		14.12 NJ
Decane, 1,1'-oxybis-	18		15.3 NJ
Decane	52		11.8 NJ
Cyclohexane, undecyl-	53		20 NJ
4,8,12-Trimethyltridecan-4-olide	90		10.12 NJ
3-Methyl-2-butyl acetate	42		36.6 NJ
2-Pentanone, 4-hydroxy-4-methyl-	23		2620 NJ
2-Hexene, 1-(1-ethoxyethoxy)-, (Z)-	35		22 NJ
2-Heptanone	23		248 NJ
2-Furanmethanol	14		15.44 NJ
2,2'-Bi-1,3-dioxolane	35		26.6 NJ
1H-Isoindole-1,3(2H)-dione, 3a,6,7,7a-te	11		14.12 NJ
17-Pentatriacontene	43		16.16 NJ
1,3-DIOXANE, 6-ACETOXY-2,4-DIMETHYL-	22		11.1 NJ
1,2-Benzenedicarboxylic acid, bis(2-ethy	25		15.74 NJ
(Z)-Methyl-5-((E)-3-(1-ethoxyethoxy)oct-	43		7.84 NJ

Note: Results are reported as total for similar tenatively identified compounds.

Key:

AOI = Area of Interest.
ESI = Expanded Site Investigation.
FB = Field blank sample.
NF = Not found.
µg/wipe = Micrograms per wipe.
NJ = Identification not confirmed, estim
SP = Wipe sample.

Table 3.4-9
Summary of Positive Analytical Results for the Sludge Sample, AOI 473 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

Analyte	NYSDEC TAGM 4046 [1]	EPA RBCs - Industrial [2]	Sample ID: / Date:	G473-RM10-SD01 07/17/02
PCBs by Method 8082 (mg/Kg)				
Aroclor 1260	1	2.9		0.473 J
Semivolatile organics by Method 8270C (µg/Kg)				
Acenaphthene	50,000	120,000,000		181 J
Anthracene	50,000	610,000,000		660 J
Benz(a)anthracene	224	7,800		[redacted]
Benzo(a)pyrene	61	780		[redacted]
Benzo(b)fluoranthene	1,100	7,800		897 J
Benzo(g,h,i)perylene	50,000	NA		392 J
Benzo(k)fluoranthene	1,100	78,000		[redacted]
Chrysene	400	780,000		[redacted]
Dibenzofuran	6,200	8,200,000		68.0 J
Fluoranthene	50,000	82,000,000		1690 J
Fluorene	50,000	82,000,000		190 J
Indeno(1,2,3-cd)pyrene	3,200	7,800		227 J
Naphthalene	13,000	41,000,000		101 J
Phenanthrene	50,000	NA		2210 J
Pyrene	50,000	61,000,000		1440 J
Metals/Mercury by Method 6010B7471A (mg/Kg)				
Aluminum	18,306	2,000,000		5530
Antimony	3.4	820		[redacted]
Arsenic	4.9	3.8		[redacted]
Barium	71	140,000		[redacted]
Cadmium	1.1	1,000		[redacted]
Calcium	23,821	NA		[redacted]
Chromium	22.6	6,100		[redacted]
Cobalt	30	41,000		8.36 J
Copper	43	82,000		[redacted]
Iron	47,350	610,000		[redacted]
Lead	200	400		[redacted]
Magnesium	7,175	NA		4070
Manganese	2,106	41,000		801
Mercury	0.1	NA		[redacted]
Nickel	46	41,000		[redacted]
Potassium	1,993	NA		[redacted]
Silver	1.1	10,000		[redacted]
Sodium	259	NA		[redacted]
Thallium	0.45	140		[redacted]
Vanadium	150	14,000		12.0 J
Zinc	120	610,000		[redacted]
TRPH by Method 418.1M (mg/Kg)				
Petroleum Hydrocarbons	NA	NA		8710

Key at the end of Table.

Table 3.4-9
Summary of Positive Analytical Results for the Sludge Sample, AOI 473 Year 2002 ESI, Former Griffiss Air Force Base, Rome, New York

(1) New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

(2) Environmental Protection Agency Region III Risk-based concentration for industrial soil, April 2002.

Note: For a complete list of the screening criteria see Section 2.

Key:

AOI = Area of Interest
EPA = Environmental Protection Agency.
ESI = Expanded Site Investigation.
J = Estimated value.
mg/Kg = Milligrams per kilogram.
µg/Kg = Micrograms per kilogram
NA = No criteria available.
NYSDEC = New York State Department of Environmental Conservation.
PCBs = Polychlorinated biphenyls.
RBC = Risk-based concentration.
SD = Sludge sample.
TAGM = Technical and Administrative Guidance Memorandum
TRPH = Total recoverable petroleum hydrocarbons.

11140 J Result above NYSDEC screening criteria (shaded and bolded).

19.0 J Result above both NYSDEC screening criteria and EPA RBCs (shaded, bolded, and underlined).

Table 3.4-10
Summary of Positive Analytical Results for Wipe Samples, AOI 473 2002 ESI,
Former Griffiss Air Force Base, Rome, NY

Analyte	Screening Criteria [1]	Sample ID:	FIELDQC-FB473-RM10-SP1	G473-RM10-SP01	G473-RM10-SP01/D	G473-RM10-SP02	G473-RM10-SP03	G473-RM10-SP04	G473-RM10-SP05
		Date:	07/17/02	07/17/02	07/17/02	07/17/02	07/17/02	07/17/02	07/17/02
PCBs by Method 8082 (µg/wipe)									
Aroclor 1242	6		NS	1.50 U	1.50 U	2.09	2.01	1.50 U	1.50 U
Aroclor 1254	6		NS	1.73	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U
Aroclor 1260	6		NS	1.50 U	1.50 U	1.58	1.62	1.50 U	1.50 U
SVOCs by Method 8270C (µg/wipe)									
Benzyl alcohol	500,000		10.0 U	5.45 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2-ethylhexyl)phthalate	600		10.0 U	14.3 J	17.8 J	10.4 J	6.64 J	168 J	10.0 U
Metals/Mercury by Method 6010B/7471A (µg/wipe)									
Aluminum	2,000,000,000		12.4	9170 J	4190 J	3320	2850	9180	1650
Antimony	30,000		1.81	5.38 U	7.15 U	50.0 U	10.0 U	10.0 U	10.0 U
Arsenic	40		1.00 U	5.54	5.00 U	50.0 U	10.0 U	8.99 J	10.0 U
Barium	20,000,000		1.25 J	134 J	73.4 J	57.6 J	101	155	53.1
Beryllium	70,000,000		0.500 U	0.654 J	2.50 U	25.0 U	5.00 U	5.00 U	5.00 U
Cadmium	300,000		0.500 U	26.6 J	15.8 J	11.2 J	18.3	21.0	101
Calcium	NA		462	79200 J	38000 J	25300	29100	102000	15700
Chromium	20,000,000		1.00 U	93.9 J	28.4 J	75.6	26.7	57.1	17.1
Cobalt	100,000		2.00 U	13.4	5.60 J	9.75 J	5.44 J	10.4 J	3.99 J
Copper	60,000		0.974 J	283 J	123 J	335	100	86.1	94.9
Iron	50,000,000		20.4	81100 J	34600 J	314000	87000	45900	128000
Lead	70,000		2.29	2780 J	1170 J	539	571	461	327
Magnesium	NA		164	3980 J	1840 J	1420 J	1860	5150	1030
Manganese	20,000,000		1.88	5030 J	1640 J	1020	259	410	315
Mercury	1,000,000		0.0200 U	20.1	21.9	124	67.4	45.5	35.3
Nickel	20,000,000		2.00 U	83.9 J	31.6 J	139	22.0	30.0	158
Potassium	NA		49.0 J	4980 J	2280 J	23100	29000	56700	7070
Silver	5,000,000		1.00 U	32.5 J	5.87 J	50.0 U	3.42 J	5.94 J	2.23 J
Sodium	NA		1550	1160 U	679 U	7840	14400	28600	2650 U
Thallium	100		0.765 J	14.8 J	7.97 J	21.7 J	6.16 J	12.1	6.38 J
Vanadium	20,000,000		2.00 U	26.0 J	12.7 J	65.0 J	26.4	31.3	13.8 J
Zinc	500,000		4.26	1680 J	713 J	1010	639	1320	428
TRPH by Method 418.1M (mg/wipe)									
Petroleum Hydrocarbons	NA		NS	1650 J	879 J	3020	5580	4850	3970

Table 3.4-10
Summary of Positive Analytical Results for Wipe Samples, AOI 473 2002 ESI,
Former Griffiss Air Force Base, Rome, NY

Analyte	Screening Criteria [1]	Sample ID: Date:	G473-RM10-SP06 07/17/02	G473-RM10-SP07 07/17/02	G473-RM10-SP08 07/17/02	G473-RM10-SP09 07/17/02	G473-RM10-SP10 07/17/02
PCBs by Method 8082 (µg/wipe)							
Aroclor 1242	6		0.402 J	4.50 U	1.50 U	1.50 U	1.50 U
Aroclor 1254	6		1.50 U	4.50 U	1.50 U	1.50 U	1.50 U
Aroclor 1260	6		1.50 U	4.50 U	1.50 U	1.50 U	1.50 U
SVOCs by Method 8270C (µg/wipe)							
Benzyl alcohol	500,000		10.0 U	10.0 U	10.0 U	10.0 U	4.37 J
Bis(2-ethylhexyl)phthalate	600		10.0 U	189 J	2.88 J	10.0 U	5.32 J
Metals/Mercury by Method 6010B/7471A (µg/wipe)							
Aluminum	2,000,000,000		1980	2600	2420	2500	5170
Antimony	30,000		5.00 U	6.75 U	2.70 U	5.00 U	11.6 J
Arsenic	40		5.00 U	2.48 J	0.671 J	5.00 U	25.0 U
Barium	20,000,000		100	95.9	180	87.3	130
Beryllium	70,000,000		2.50 U	2.50 U	1.00 U	2.50 U	12.5 U
Cadmium	300,000		9.73	12.1	14.6	19.2	17.8
Calcium	NA		20400	21300	18300	13600	55800
Chromium	20,000,000		14.1	19.5	15.7	22.9	37.3
Cobalt	100,000		1.99 J	3.56 J	3.13 J	18.3	50.0 U
Copper	60,000		1720	45.1	80.6	192	41500
Iron	50,000,000		35800	7790	12900	9510	19500
Lead	70,000		405	208	258	188	1910
Magnesium	NA		1340	1650	1250	1160	4490
Manganese	20,000,000		127	95.3	77.7	81.5	197
Mercury	1,000,000		29.0	14.9	25.9	14.2	0.576
Nickel	20,000,000		13.1	8.93 J	9.38	20.7	23.3 J
Potassium	NA		18200	37000	11100	3670	32500
Silver	5,000,000		1.39 J	3.93 J	15.5	1.81 J	5.74 J
Sodium	NA		7310 U	17200	4350 U	1220 U	11600
Thallium	100		4.76 J	5.00 U	2.45 U	5.00 U	11.4 J
Vanadium	20,000,000		9.69 J	8.79 J	6.27	4.20 J	15.5 J
Zinc	500,000		394	372	448	346	1560
TRPH by Method 418.1M (mg/wipe)							
Petroleum Hydrocarbons	NA		7260	7190	1960	4820	3020

Table 3.4-10
Summary of Positive Analytical Results for Wipe Samples, AOI 473 2002 ESI, Former Griffiss Air Force Base, Rome, NY

Note: Shaded and bolded results exceed the calculated risk based screening levels.

(1) Screening criteria for the wipe samples were developed in a manner similar to a method that was used by EPA to develop the TSCA screening criteria for PCBs, based on potential cancer risk from dermal exposure, presented in a 1986 memorandum.

Key:

AOI = Area of Interest.
EPA = Environmental Protection Agency.
ESI = Expanded Site Investigation.
FIELDQC-FB = Field blank.
J = Estimated value.
mg/wipe = Milligrams per wipe.
µg/wipe = Micrograms per wipe.
NA = No criteria available.
NS = Not sampled.
PCBs = Polychlorinated biphenyls.
SP = Wipe sample.
SVOCs = Semivolatile organic compounds.
TRPH = Total recoverable petroleum hydrocarbons.
U = Not detected (practical quantitation limit listed).

Table 3.4-11
List of Sample Results Qualified, AOI 473 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Lab Order	Method	Sample ID	Analyte	Result	Lab Qualifier	Validation Qualifier
0207128	EPA418.1	G473-RM10-SP01	Petroleum Hydrocarbons, TR	1650		J
0207128	EPA418.1	G473-RM10-SP01/D	Petroleum Hydrocarbons, TR	879		J
0207128	SW6010B	G473-RM10-SP01	Aluminum	9170		J
0207128	SW6010B	G473-RM10-SP01	Antimony	5.38		U
0207128	SW6010B	G473-RM10-SP01	Barium	134		J
0207128	SW6010B	G473-RM10-SP01	Cadmium	26.6		J
0207128	SW6010B	G473-RM10-SP01	Calcium	79200		J
0207128	SW6010B	G473-RM10-SP01	Chromium	93.9		J
0207128	SW6010B	G473-RM10-SP01	Copper	283		J
0207128	SW6010B	G473-RM10-SP01	Iron	81100		J
0207128	SW6010B	G473-RM10-SP01	Lead	2780		J
0207128	SW6010B	G473-RM10-SP01	Magnesium	3980		J
0207128	SW6010B	G473-RM10-SP01	Manganese	5030		J
0207128	SW6010B	G473-RM10-SP01	Nickel	83.9		J
0207128	SW6010B	G473-RM10-SP01	Potassium	4980		J
0207128	SW6010B	G473-RM10-SP01	Silver	32.5		J
0207128	SW6010B	G473-RM10-SP01	Sodium	1160		U
0207128	SW6010B	G473-RM10-SP01	Thallium	14.8		J
0207128	SW6010B	G473-RM10-SP01	Vanadium	26.0		J
0207128	SW6010B	G473-RM10-SP01	Zinc	1680		J
0207128	SW6010B	G473-RM10-SP01/D	Aluminum	4190		J
0207128	SW6010B	G473-RM10-SP01/D	Antimony	7.15		U
0207128	SW6010B	G473-RM10-SP01/D	Barium	73.4		J
0207128	SW6010B	G473-RM10-SP01/D	Cadmium	15.8		J
0207128	SW6010B	G473-RM10-SP01/D	Calcium	38000		J
0207128	SW6010B	G473-RM10-SP01/D	Chromium	28.4		J
0207128	SW6010B	G473-RM10-SP01/D	Copper	123		J
0207128	SW6010B	G473-RM10-SP01/D	Iron	34600		J
0207128	SW6010B	G473-RM10-SP01/D	Lead	1170		J
0207128	SW6010B	G473-RM10-SP01/D	Magnesium	1840		J
0207128	SW6010B	G473-RM10-SP01/D	Manganese	1640		J
0207128	SW6010B	G473-RM10-SP01/D	Nickel	31.6		J
0207128	SW6010B	G473-RM10-SP01/D	Potassium	2280		J
0207128	SW6010B	G473-RM10-SP01/D	Silver	5.87		J
0207128	SW6010B	G473-RM10-SP01/D	Sodium	679		U
0207128	SW6010B	G473-RM10-SP01/D	Thallium	7.97		J
0207128	SW6010B	G473-RM10-SP01/D	Vanadium	12.7		J
0207128	SW6010B	G473-RM10-SP01/D	Zinc	713		J
0207128	SW6010B	G473-RM10-SP04	Antimony	7.65	J	U
0207128	SW6010B	G473-RM10-SP05	Sodium	2650		U
0207128	SW6010B	G473-RM10-SP06	Antimony	1.68	J	U
0207128	SW6010B	G473-RM10-SP06	Sodium	7310		U
0207128	SW6010B	G473-RM10-SP07	Antimony	6.75		U
0207128	SW6010B	G473-RM10-SP07	Thallium	3.33	J	U
0207128	SW6010B	G473-RM10-SP08	Antimony	2.70		U
0207128	SW6010B	G473-RM10-SP08	Sodium	4350		U
0207128	SW6010B	G473-RM10-SP08	Thallium	2.45		U
0207128	SW6010B	G473-RM10-SP09	Antimony	2.87	J	U

Table 3.4-11
List of Sample Results Qualified, AOI 473 Year 2002 ESI,
Former Griffiss Air Force Base, Rome, New York

Lab Order	Method	Sample ID	Analyte	Result	Lab Qualifier	Validation Qualifier
0207128	SW6010B	G473-RM10-SP09	Sodium	1220		U
0207128	SW6010B	G473-RM10-SP09	Thallium	2.15	J	U
0207128	SW8082	G473-RM10-SD01	Aroclor 1260	473		J
0207128	SW8270C	G473-RM10-SD01	Anthracene	660		J
0207128	SW8270C	G473-RM10-SD01	Benz(a)anthracene	1140		J
0207128	SW8270C	G473-RM10-SD01	Benzo(a)pyrene	810		J
0207128	SW8270C	G473-RM10-SD01	Benzo(b)fluoranthene	897		J
0207128	SW8270C	G473-RM10-SD01	Benzo(k)fluoranthene	1160		J
0207128	SW8270C	G473-RM10-SD01	Bis(2-ethylhexyl)phthalate	1100		U
0207128	SW8270C	G473-RM10-SD01	Chrysene	1130		J
0207128	SW8270C	G473-RM10-SD01	Fluoranthene	1690		J
0207128	SW8270C	G473-RM10-SD01	Phenanthrene	2210		J
0207128	SW8270C	G473-RM10-SD01	Pyrene	1440		J
0207128	SW8270C	G473-RM10-SP01	Bis(2-ethylhexyl)phthalate	14.3		J
0207128	SW8270C	G473-RM10-SP01/D	Bis(2-ethylhexyl)phthalate	17.8		J
0207128	SW8270C	G473-RM10-SP02	Bis(2-ethylhexyl)phthalate	10.4		J
0207128	SW8270C	G473-RM10-SP04	Bis(2-ethylhexyl)phthalate	168		J
0207128	SW8270C	G473-RM10-SP07	Bis(2-ethylhexyl)phthalate	189		J

Key:
AOI = Area of Interest.
/D = Duplicate.
ESI = Expanded Site Investigation.
J = Estimated value. The reported value is below the quantitation limit or estimated due to variance from quality control limits.
SD - Sludge sample.
SP = Swipe sample.
U = Analyte was not detected or not present above background levels. The reported value is the quantitation limit or value elevated due to background.

4

System Audits

Internal audits of the laboratory are conducted at ASC on a schedule determined by the ASC QA Coordinator. For this project, the ASC QA Coordinator did not perform an internal audit of the project-specific requirements. he ASC has undergone external audits from the following agencies over the past year:

Agency/Company	Audit Dates	Scope of Audit
California Department of Health Services	June 20, 2001	California ELAP (not NELAP)
The Environmental Company	June 27, 2001	AFCEE
Florida Department of Health	August 13-14, 2001	NELAP (extra parameters)
SAIC	August 29, 2001	Savannah Army Depot Activity
Jacobs	October 24-25, 2001	Project Chanute AFCEE
New York State Department of Health	February 12-14, 2002	NELAP (Wastewater, drinking water, solid and hazardous waste)
SAIC	May 1-3, 2002	Jacobs/Tooele
Wisconsin Department of Natural Resources	June 18-20, 2002	Wisconsin DNR certification
NUCOR	July 12, 2002	Consent Decree

One field inspection was performed during the field program. Richard Watt, as QA Inspector, performed all audits and inspections. The field inspection reports are included in Appendix F. None of the findings impact data usability or indicated non-compliance with USACE requirements.

5

Report Distribution and Review

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6

References

Ecology and Environment Inc. (E & E), 2002 *Final Field Sampling Plan, Health and Safety Plan, and Quality Assurance Project Plan for the 2002 Expanded Site Investigation, Former Griffiss Air Force Base, Rome, New York,* Lancaster, New York.

_____., 2002a, *Laboratory Quality Assurance Manual*, Analytical Services Center, Lancaster, New York.

_____., 1999, *Quality Control Plan*, Griffiss AFB, Rome, NY, September 1999.

_____., July 1998, Draft Report for Expanded Site Investigation and Confirmatory Sampling of Areas of Interest and Drywell/Wastewater-Related Systems, Former Griffiss Air Force Base, Rome, New York.

Law Engineering and Environmental Services, Inc. (Law), 1993, *Draft-Final Preliminary Report Remedial Investigation Planning Documents, Volume IIA Sampling and Analysis Plan, Quality and Assurance Project Plan,* Kennesaw, Georgia.

United States Environmental Protection Agency (EPA), 1999, *National Functional Guidelines for Organic Data Review,* EPA Contract Laboratory Program (CLP), EPA-540/R-99-008, Washington, D.C.

_____., 1994, *National Functional Guidelines for Inorganic Data Review,* EPA Contract Laboratory Program (CLP) 540/R-94/013, Washington, D.C.

A

Reference Data for Proposed Work

3.1 OTH-305: Building 305 - Paint Spray Booth/Floor Drain

The objective of this work is to remove contaminated water and sediment detected in the paint spray booth floor drain during the Year 2000 ESI program, sample the soil beneath the floor drain to see if it has been impacted by the contamination within the floor drain, and seal the floor drain and associated discharge pipe with concrete.

3.1.1 Site Background

Building 305 was originally a quartermaster motor pool garage before being converted to an automotive hobby shop (AFCEE 1998). The paint spray booth (OTH-305) is located inside Building 305 at the building's south end. The dates of operation and activities carried out at this site are unknown. At one time the location of a satellite waste accumulation point (STW 305) for paint thinners, the site is currently used to paint auto and truck parts.

3.1.2 Physical Characteristics

Building 305 is located in the central industrial area of the base. The area around the building is generally flat, with less than 5 feet of topographic relief. It is grassed to the north, south, and west, and paved to the east. Building 305 is not located near any major surface water drainage features. Site runoff is channeled to the base stormwater drainage system, which drains into Three Mile Creek, which in turn drains to the New York State Barge Canal approximately 1.5 miles south of the base.

The 13- by 22-foot paint spray booth is located inside Building 305 (the Auto Skills Center), at the building's south end. This enclosed unit (doors at one end and a filter wall at the other) is used for painting automobiles and small trucks. The filter wall consists of a forced air ventilation system with disposable filter elements.

The floor drain inside the paint spray booth consists of a concrete-lined sump (approximately 2 feet wide, 2.5 feet long, and 2 feet deep) with an overflow pipe that exits the sump to the northwest. This floor drain was covered by a steel grate, which was found to be sealed with plywood and tape during both the 1999 site inspection conducted by E & E and the Year 2000 ESI field program.

Most of Building 305 is being used to store lawn-mowing and snow-removal equipment. Five interconnected floor drains in this part of the building drain to the north before discharging to the sanitary sewer system (U.S. Army Air Corps 1942).

3.1.3 Previous Investigations

During a site inspection conducted in April 1994 by Tetra Tech, paint residue and overspray was observed on the floor and walls of the booth. Overall, however, the booth was in good condition. A satellite waste accumulation point (STW 305) was located inside the booth.

Parsons Engineering Science, Inc., and OHM Remediation Services Corp. performed a Closure of Hazardous Waste/Hazardous Materials Storage Areas Investigation at the former Griffiss Air Force Base in 1996. Building 305 was included in this investigation and underwent a closure action under RCRA. The investigation included pre-closure sampling in July 1996, remediation in December 1996, and post-remediation sampling in December 1996.

The pre-closure sampling consisted of the collection of six wipe samples from within Building 305, one of which was collected from STW 305 within the paint spray booth (OTH-305). All six of the wipe samples were analyzed for metals and extractable organic halides. Three of the six samples (collected from north of the paint spray booth) were also analyzed for PCBs, and one of the three was analyzed for pesticides. Lead was detected in two samples and aldrin was detected in one sample at concentrations above action levels in samples collected from north of the paint spray booth. None of the samples exceeded the PCB action level, and none of the analytes in the sample collected from STW 305 (inside the paint spray booth) exceeded action levels.

Due to the percentage of exceedances of action levels for aldrin and lead, Building 305 was recommended for remediation. Approximately 225 square feet of the area north of OTH-305 were remediated for lead and aldrin.

Three post-remediation wipe samples were collected and analyzed for lead and aldrin. Lead and aldrin were not detected at concentrations above action levels. Remediation goals were met, and the building was recommended for closure (AFCEE 1998).

E & E inspected the booth on May 26, 1999, and confirmed its condition. There was no waste or evidence of spills at the satellite waste accumulation point. However, a floor drain partly filled with water and containing sludge approximately 1 inch deep was

observed at the eastern end of the booth. A drainpipe exited the floor drain toward the northwest. The discharge point of the drainpipe could not be determined during the inspection.

In spring 2000, E & E investigated OTH-305 as part of the Year 2000 ESI program. To determine the discharge point of the floor drain, a dye test was conducted. Results of the dye trace test indicated that the overflow pipe contained within the paint spray booth floor drain discharged westward into the storm sewer system that parallels March Street, west of Building 305. This 1,000-foot storm sewer discharges into the headwaters of Three Mile Creek approximately 1,000 feet south of Building 305.

To establish whether hazardous substances were present in the floor drain pit, a water sample and a sludge sample were collected from the floor drain. The samples were analyzed for Target Compound List volatile organic compounds (TCL VOCs), semivolitile organic compounds (SVOCs), pesticides/PCBs, and Target Analyte List (TAL) metals.

Levels of two PCBs, two pesticides, three VOCs, five SVOCs, and thirteen metals detected in samples collected from the Building 305 floor drain pit were found to exceed state or federal standards (see Figure 3-1). However, the standing water and sludge were contained within the floor drain sump (beneath the level of the overflow pipe), appeared to be stagnant, and did not appear to be leaking into the ground beneath Building 305. The floor drain is currently restricted from use, there is no flow into the storm sewer, and the water and sludge remaining in the floor drain pit are contained.

Based on these findings and on the planned commercial use of this site (USAF 1995), the Final Year 2000 ESI Report (E & E 2002) recommended that the water and sludge within the paint spray booth floor drain be removed and the floor drain pit and associated piping be plugged with concrete.

3.1.4 2002 ESI Addendum Sampling and Remedial Actions

The objectives of the 2002 ESI program/addendum program are to remove and properly dispose of the contaminated water and sediment from within the floor drain sump, sample the soil beneath the floor drain to determine whether it has been impacted by the contamination within the floor drain, and plug the sump and associated piping with concrete. The waste water/sediment will be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) VOCs, SVOCs, pesticides, herbicides, metals, and mercury; TCL

PCBs; ignitability; reactive cyanide; reactive sulfide; pH; and percent solids for disposal purposes.

Three subsurface soil samples will be collected from beneath the floor drain. The subsurface soil samples will be collected from 0.0 to 0.5 foot, 0.5 foot to 1.0 foot, and 1.0 foot to 2.0 feet beneath the bottom of the floor drain sump after the sump has been cleaned out and a hole has been drilled through the bottom (see Figure 3-1). The subsurface soil samples will be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, TAL metals, mercury, and percent solids.

The Year 2000 ESI sampling locations and results and the proposed 2002 ESI sampling locations are shown on Figure 3-1. A list of the 2002 ESI Addendum sample identifications and analyses is presented on Table 3-1.

3.4 AOI 473 - Building 112 Room 10

A former base employee stated that a basement room, which has since had a false floor put over it, previously contained a large oil tank. The former employee stated there were two 150-gallon tanks outside the room and a large tank inside the room and that the pipes/fittings often leaked and soaked the entire floor of the room with oil. The objective of this work is to determine if petroleum hydrocarbons, potentially containing PCBs, have been spilled in AOI 473-Building 112 Room 10.

3.4.1 Site Background

Building 112, formerly a High Power Laboratory, is located in the central industrialized area of Griffiss AFB. Two aboveground storage tanks (ASTs) and one underground storage tank (UST) were located near the northeast corner of Building 112 before they were removed prior to 1994. The loading dock area was used for the storage of PCB containers, which resulted in PCB soil contamination. A PCB Dump Area south of Building 112, comprising a 16-foot by 44-foot fenced-in gravel area, was used to store PCB transformers until they were removed in 1994.

In spring 1999, a former Griffiss AFB employee reported to AFBCA that he dumped transformer oil along the northern wall of the building and the northern section of the east and west walls. Oil reportedly was also dumped into a concrete pit (terra-cotta sump) in the northernmost cell of the basement floor. These areas were designated AOI 469 and investigated during the Year 2000 ESI program. No further study was recommended for AOI 469 in the Final Year 2000 ESI Report.

However, in winter 2002, the same former Griffiss AFB employee reported to AFBCA that the terra-cotta sump investigated during the Year 2000 ESI program was not the concrete pit he was referring to in the spring of 1999. The former employee stated that he was referring to a basement room, which has since had a false floor put over it. The former employee stated there were two 150-gallon tanks outside the room and a large tank inside the room and that the pipes/fittings often leaked and soaked the entire floor of the room with oil. This area has been designated AOI 473-Building 112 Room 10.

3.4.2 Physical Characteristics

Building 112 is located in the central industrial area of the base. The site is generally flat, with less than 5 feet of topographic relief across the site. The area surrounding

Building 112 is grassed to the east and predominantly paved to the west. A substation is present on the south side of the building.

Building 112 is not located near any major surface water drainage features. Run-off from the site is channeled to the base stormwater drainage system, which drains into Six Mile Creek, which, in turn, ultimately drains to the New York State Barge Canal approximately 1.5 miles south of the base.

Based on field descriptions of soils encountered in 74 borings drilled during a remedial investigation (RI) (Law 1995) and 11 borings drilled during the Year 2000 ESI, the upper 10 feet of soil at Building 112 consists of predominantly brown, silty, fine to coarse sand and gravel. Soils encountered from 10 to 20 feet BGS consisted predominantly of brown, silty, fine to coarse sand.

The groundwater zone investigated at Building 112 exists under unconfined conditions within an unconsolidated aquifer. The saturated zone in the vicinity of Building 112 was encountered at depths ranging from 4 feet BGS in well TF3MW-1 east of Building 112 to 16 feet BGS in boring 112SB-57 south of Building 112.

3.4.3 Previous Investigations

Four areas were investigated at Building 112 prior to the Year 2000 ESI: a drywell located east of Building 112; the southwest roof of the building; the area around the loading dock located to the southwest; and the PCB dump site located south of the building.

In 1981, Griffiss AFB bioenvironmental engineers sampled site soils to determine whether PCBs were present. In 1982, soils were collected from areas next to the building and were analyzed for PCBs. PCBs were detected on the west and south sides of Building 112 and on a transformer pad on the roof. A limited groundwater investigation in the vicinity of Building 112 also identified the presence of inorganic compounds in groundwater. In 1984, a leaking transformer on the roof of Building 112 and contaminated roof materials were removed. In 1994 and early 1995, in accordance with a Federal Facility Agreement, Law Environmental Services performed a remedial investigation for the Building 112 Area of Concern (AOC) (Law 1996). The RI for the Building 112 AOC included collection of surface soil samples, subsurface soil samples, and a grab water sample and preparation of a baseline risk assessment. Based on the results of the baseline risk assessment, no further action was recommended at the drywell location. In 1996, E & E prepared a design analysis report to address remediation of contaminants at the

Building 112 AOC (E & E 1997). A drywell investigation for Building 112 was conducted by OHM Remediation Services Corp. in January 1997 (OHM 1998). Two presumed drywells were investigated. Drywell No. 1 was recommended for closure. Based on a smoke trace test, it was concluded that there was no second drywell; therefore, no further study was recommended for what was initially identified as Drywell No. 2.

In 1999, a removal action was performed to remove PCB-contaminated materials at the Building 112 AOC. The action included removal of a contaminated transformer pad from the roof, contaminated soil and a concrete retaining wall from the south side of the building, and contaminated soils from the southwest side of the building.

Extensive sampling for PCBs was performed at the south side of the building (dump area). However, prior to the Year 2000 ESI there was no sampling performed at the north side, except for a three-point composite sample collected from Drywell No. 1.

During a site visit in May 1999, E & E inspected Building 112 both inside and outside. A terra-cotta sump approximately 2 feet deep and 2 feet in diameter was discovered beneath the tile floor in the northwest corner of the basement beneath the stairway access. The terra-cotta sump had a concrete bottom. Both the sump and the concrete appeared clean and intact. Therefore sampling was not warranted in the area of the sump. There were no signs of stressed vegetation outside of the building.

In spring 2000, E & E investigated the north side of Building 112, where the waste oil was reportedly spilled (AOI 469), as part of the Year 2000 ESI program.

A sampling grid with 25-foot spacing, covering the area where PCBs were allegedly dumped, was used to collect 22 near-surface soil samples (0 to 2 inches BGS) (see Figure 3-4a). All the samples were analyzed for TCL SVOCs, TCL PCBs, total recoverable petroleum hydrocarbons (TRPH), TAL metals, and percent solids. Also, based on the analytical results of the 22 near-surface soil samples, additional sampling of soil borings at 11 locations with elevated PCB concentrations was completed. At nine of these borings, an intermediate depth soil sample (approximately 5 to 7 feet BGS) and a deeper soil sample (immediately above the water table [approximately 10 to 14 foot BGS]) were collected. Soil boring G469-NS19 was located due east of AOI 473-Building 112 Room 10, approximately 6 feet from the eastern exterior wall of Building 112 (See Fig. 3-4b). PCBs were detected at very low levels (0.0160J mg/kg) in the soil sample collected from immediately above the water table (12 to 13 feet BGS) and were not detected in the soil sample collected from 6 to 7 feet BGS. TRPH was not detected in either soil sample collected from boring G469-NS19. Soil samples were collected continuously from ground

surface to the water table at the remaining two borings (G469-NS01 and G469-NS20). All deeper soil samples were analyzed for the same parameters as specified previously for the near-surface soil samples. The primary contaminants detected at AOI 469 are PCBs and lead.

Three PCBs were detected in the 22 near-surface soil samples collected, including Aroclor 1242, Aroclor 1254, and Aroclor 1260. Concentrations of Aroclor 1242 ranged from non-detected to 0.495 mg/kg in NS01. Concentrations of Aroclor 1254 ranged from non-detected to 1.04 mg/kg in NS01. Concentrations of Aroclor 1260 ranged from 0.0206 mg/kg to 7.12 mg/kg in NS20. None of the concentrations of Aroclor 1242 detected exceeded either NYSDEC or EPA RBC criteria values. Concentrations of Aroclor 1254 only marginally exceeded the NYSDEC criterion (1 mg/kg) in NS01 (1.02 mg/kg) and NS01/D (1.04 mg/kg). Concentrations of Aroclor 1260 exceeded the NYSDEC and EPA RBC criteria value only in NS20 (7.12 mg/kg).

Thirty-one subsurface soil samples were collected at AOI 469 from the 11 soil borings installed. Two PCBs were detected in the subsurface soil samples, including Aroclor 1254 and Aroclor 1260 (see Figure 3-4a). Concentrations of Aroclor 1254 ranged from non-detected to 0.684 mg/kg in SS01-Z1. Concentrations of Aroclor 1260 ranged from non-detected to 12.40 mg/kg in SS20-Z1.

Concentrations of Aroclor 1260 exceeded screening criteria values in only two shallow subsurface soil samples, which were collected from soil boring G469-NS20. The concentration of Aroclor 1260 detected in SS20-Z1 (12.40 mg/kg) exceeded both NYSDEC and EPA RBC criterion value. The concentration of Aroclor 1260 in SS20-Z2 (3.88 mg/kg) exceeded EPA RBC criterion value but not the NYSDEC value. No other PCBs were detected in the subsurface soil samples above NYSDEC or EPA RBC screening criteria values.

Concentrations of lead ranged from 8.29 mg/kg in NS09 to 1,880 mg/kg in NS10 and exceeded both the NYSDEC and EPA RBC criteria values in NS10, NS14, NS16, and NS21. No other metals exceeded EPA RBCs. An Assessment of Adult Exposure to Lead in Soil was performed due to the levels of lead detected in the near-surface soil. The assessment indicated that the levels of lead present are unlikely to pose any significant health risk to future industrial/commercial workers.

During a site visit in February 2002, E & E inspected AOI 473-Building 112 Room 10. Room 10 currently has a false floor over it (half-inch thick steel plate) and can be accessed through a 3-foot-square opening in the false floor, which is situated above a

metal ladder. A sump is located near the northeast corner of the room. The sump pump has been removed from the sump and is presently located on the concrete floor next to the sump. The floor and walls of the room were observed to be clean and in good condition. No significant signs of spilled oil were observed on the floor or walls of the room.

During a site visit in March 2002, E & E inspected AOI 473-Building 112 Room 10 a second time in an attempt to determine the discharge point of the sump pump observed during the previous inspection. The sump pump discharge line appeared to consist of a flexible hose, which currently is coiled on the floor and extends up to the northwest ceiling of the room and then out of sight. The discharge point of the hose could not be determined during the site inspection without entering Room 10. E & E personnel also reviewed the existing Building 112 drawings in an attempt to determine the discharge point of the sump pump, but were unable to find a drawing showing the sump pump discharge line.

3.4.4 2002 ESI Addendum Sampling

The objective of this work is to determine if petroleum hydrocarbons, potentially containing PCBs, have been spilled in AOI 473-Building 112 Room 10. Collection of samples from the sump and the floor of Room 10 are planned (see Figure 3-4b). Sampling of the sump will include collection of a sediment sample if sediment is present in the sump and collection of a swipe sample. Nine additional swipe samples will be collected from the floor of Room 10. The floor swipe samples will be evenly spaced in a grid pattern as shown on Figure 3-4b. The sediment sample and 10 swipe samples will be analyzed for TCL SVOCs, PCBs, TRPH, and TAL metals. A list of sample identifications and analyses is presented on Table 3-4. In addition, the field crew will attempt to determine the discharge point of the sump pump upon entering Room 10.

Provisional 2002 ESI Addendum Sampling

In addition, up to four provisional subsurface soil samples may be collected from AOI 469-Room 10. If, upon closer inspection of Room 10, either the sump has an open bottom or cracks are observed in the floor, then soil samples will be collected from beneath the sump and/or cracks in the floor with a hand auger. If necessary, the concrete floor will first be cored and the soil samples collected from the first soil encountered. All subsurface soil samples collected will be analyzed for TCL SVOCs, PCBs, TRPH, and TAL metal with mercury.

The proposed 2002 ESI Addendum sampling locations for AOI 469-Room 10 are provided on Figure 3-4b. A list of sample identifications and analyses is presented on Table 3-4.

TABLE 3-1
OTH-305 SAMPLE LISTING
FORMER GRIFFISS AIR FORCE BASE

							ANALYSES																	
Location	Date	Sample Number	Lab	Matrix	Depth	Type	TCLP VOCs SW1311/8260B	TCLP SVOC's SW1311/8270C	TCLP Pesticides SW1311/8081A	TCLP Herbicides SW1311/9151A	TCLP Metals + Extraction SW1311/6010B	TCLP Mercury1311/7470A	Total PCBs SW8082	Ignitability SW1030	pH SW9045	Reactivity - Cyanide SW7.3.3.2	Reactivity - Sulfide SW7.3.4.2	% Solids ASTM_D2216	TCL VOCs SW8260B	TCL SVOC's SW8270C	TCL Pesticides SW8081A	TCL PCBs SW8082	TAL Metals/Mercury SW1311/6010B
OTH-305	TBD	OTH305-WG02	ASC	Water Grab		N1	X	X	X	X	X	X	X	X	X	X	X						
	TBD	OTH305-SS01	ASC	Subsurface soil	0.0'-0.5'	N1												X	X	X	X	X	X
	TBD	OTH305-SS02	ASC	Subsurface soil	0.5'-1.0'	N1												X	X	X	X	X	X
	TBD	OTH305-SS03	ASC	Subsurface soil	1.0'-2.0'	N1												X	X	X	X	X	X

Key:

ASC = E & E's Analytical Services Center
N = Original
OTH = Other Miscellaneous Environmental Factor sites
PCB = polychlorinated biphenyls
SS = Subsurface soil sample
SVOCs = semivolatile organic compounds
TAL = Target Analyte List
TBD = to be determined
TCL = Target Compound List
TCLP = Toxicity Characteristic Leaching Procedure
VOCs = volatile organic compound
WG = water grab sample

TABLE 3-2
PCI 20 ADDITIONAL SAMPLING
SAMPLE LISTING
FORMER GRIFFISS AIR FORCE BASE

							ANALYSES	
Location	Date	Sample Number	Lab	Matrix	Depth (feet)	Type	Lead Only SW6010B	% Solids ASTM_D2216
PCI-20	TBD	PCI20-NS06	ASC	Near-surface Soil	0.00-0.17	N1	X	X
	TBD	PCI20-NS06/D	ASC	Near-surface Soil	0.00-0.17	FD1	X	X
	TBD	PCI20-NS06/S	ERDC	Near-surface Soil	0.00-0.17	FR1	X	X
	TBD	PCI20-NS07	ASC	Near-surface Soil	0.00-0.17	N1	X	X
	TBD	PCI20-NS08	ASC	Near-surface Soil	0.00-0.17	N1	X	X
	TBD	PCI20-NS08 (extra volume)	ASC	Near-surface Soil (MS/MSD	0.00-0.17	MS1	X	X

Key:

ASC = E & E's Analytical Services Center
/D = duplicate
Depth = Depth interval at which sample was collected
ERDC = U.S. Army Engineer Research and Development Center Quality Assurance
FD = field duplicate
FR = field split/replicate
MS/MSD = matrix spike/matrix spike duplicate
N = Original
NS = near-surface soil sample
/S = split
TBD = to be determined
TCL = Target Compound List

TABLE 3-3
Building 211 PIPE VALUT FLOOR ADDITIONAL SAMPLING
SAMPLE LISTING
FORMER GRIFFISS AIR FORCE BASE

						ANALYSES
Location	Date	Sample Number	Lab	Matrix	Type	TAL Metals (SW6010B/7470/71A
Bldg 211	TBD	Bldg211-WG01	ASC	Water Grab	N1	X

Key:

ASC = E & E's Analytical Services Center
N = Original
TAL = Target Analyte List
TBD = To be determined
WG = grab water sample

TABLE 3-4
ADDITIONAL SAMPLING
SAMPLE LISTING FOR BUILDING 112 AOI 469-Room 10
FORMER GRIFFISS AIR FORCE BASE

						ANALYSES				
Location	Date	Sample Number	Lab	Matrix	Type	TCL PCBs 8082	% Solids ASTM_D2216	TCL SVOC SW8270C	TRPH 418.1M	TAL Metals SW6010B/7471
AOI 469-Room 10	TBD	G473-Rm10-SD01	ASC	Sediment	N1	X	X	X	X	X
	TBD	G473-Rm10-SD01/D	ASC	Sediment	FD1	X	X	X	X	X
	TBD	G473-Rm10-SD01/S	ERDC	Sediment	FR1	X	X	X	X	X
	TBD	G473-Rm10-SD01 (extra volume	ASC	Sediment (MS/MSD)	MS1	X	X	X	X	X
	TBD	G473-Rm10-SP01	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP01/D	ASC	Swipe	FD1	X		X	X	X
	TBD	G473-Rm10-SP01/S	ERDC	Swipe	FR1	X		X	X	X
	TBD	G473-Rm10-SP02	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP02 (extra volume	ASC	Swipe (MS/MSD)	MS1	X		X	X	X
	TBD	G473-Rm10-SP03	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP04	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP05	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP06	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP07	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP08	ASC	Swipe	N1	X		X	X	X
	TBD	G473-Rm10-SP09	ASC	Swipe	MS1	X		X	X	X
	TBD	G473-Rm10-SP10	ASC	Swipe	N1	X		X	X	X
	TBD	FIELDQC-FB473-Rm10-SP1	ASC	Swipe	FB1	X		X	X	X
	TBD	G473-Rm10-SS01	ASC	Subsurface soil	**N1	X	X	X	X	X
	TBD	G473-Rm10-SS01/D	ASC	Subsurface soil	**FD1	X	X	X	X	X
	TBD	G473-Rm10-SS01/S	ASC	Subsurface soil	**FR1	X	X	X	X	X
	TBD	G473-Rm10-SS01 (extra volume	ASC	Subsurface soil	**MS1	X	X	X	X	X
	TBD	G473-Rm10-SS02	ASC	Subsurface soil	**N1	X	X	X	X	X
	TBD	G473-Rm10-SS03	ASC	Subsurface soil	**N1	X	X	X	X	X
	TBD	G473-Rm10-SS04	ASC	Subsurface soil	**N1	X	X	X	X	X

TABLE 3-4
ADDITIONAL SAMPLING
SAMPLE LISTING FOR BUILDING 112 AOI 469-Room 10
FORMER GRIFFISS AIR FORCE BASE

						ANALYSES				
Location	Date	Sample Number	Lab	Matrix	Type	TCL PCBs 8082	% Solids ASTM_D2216	TCL SVOC SW8270C	TRPH 418.1M	TAL Metals SW6010B/7471,
	TBD	FIELDQC-RB473-Rm10-SS1	ASC	Eqpt. Washwater	**RB1	X		X	X	X

Key:

AOI = Area of Interest.
ASC = E & E's Analytical Services Center.
Eqpt.= Equipment Washwater.
ERDC = U.S. Army Engineer Research and Developmer Center Quality Assurance Laboratory.
/D = Duplicate sample.
FB= Field blank sample.
FD = Field duplicate.
FR = Field split/replicate.
MS/MSD = Matrix spike/matrix spike duplicate.
N = Original.
NS = Near-surface soil sample.
PCB = Polychlorinated biphenyls.
QC = Quality control.
RB = Rinsate blank sample.
/S = Split sample.
SD = Sediment sample.
SP= Swipe sample.
Stat = Status (T = Taken, S = Skipped).
SVOC = Semivolatile organic compounds.
TAL = Target Analyte List.
TCL = Target Compound List.
**= Provisional samples collected only if cracks are observed in floor.

B Field Quality Control Reports

Daily Activity Summary

Date: Monday 7-15-02 | **Report No.:** 01

Project Name: GAFB WAD9 field Program | **Weather:** 70°-86° Humid, Partly Cloudy

Personnel	Hrs.	Affiliation	Personnel	Hrs.	Affiliation
R. Meyers	12+	E+E			
B. Cervi	12+	E+E			
S. Reynolds	12+	E+E			
Phil Orsi	8) hours	Zebra			
Dominic Pino	8) on	Zebra			
Ethan Plank	8) site	Zebra			

Summary of Activities

Equipment	AOC/Task	Activities Performed
TVA 1000	AOC 4	Began Geoprobe Survey
O2/EXP	↓	Collected GP44D2. Also collected
W.L. Indicator	↓	2 Sed. Samples from AFFF lagoon.
↓	PLI2.0	Collected 3-NS soil Samples
		for lead (Site Compete)
		* Also Completed Initial Decon.
		and set up for Drilling Project.

Daily Activity Summary

Date: 7-~~17~~-02 wed. **Report No.:** 03

Project Name: WADG Field Program **Weather:** 70°-85° Humid, Poss. T-Storms

Personnel	Hrs.	Affiliation	Personnel	Hrs.	Affiliation
R. Meyers	12	E+E			
B. Lervi	12	E+E			
S. Reynolds	12	E+E			
C. Taber	12	E+E			
Phil Orsi	11	~~E+E~~ Zebra			
Dom. Pino	11	~~E+E~~ Zebra			

Summary of Activities

Equipment	AOC/Task	Activities Performed
TVA1000	AOC 9/	Installed & Sampled 12 GP
O2/EXP	GP Survey	points
W.L. Indicator		
	AOI 473	Completed Swipe/Sed. Sampling
	Sampling	

Daily Activity Summary

Date: 7-24-02 & 7-25-02 **Report No.:** 08 & 09

Project Name: GAFB IWAD 9 Field Program **Weather:** 70°, Sunny / 75° Nice

	Personnel	Hrs.	Affiliation	Personnel	Hrs.	Affiliation
7-24-02	B. Meyers	11	E&E			
	S. Reynolds Smith	11	E&E			
	Will Mualliga	9	Zebra			
	Tim Siciliano	9	Zebra			
7-25-02	B. Meyers	11	E&E			
	S. Reynolds Smith	11	E&E			
	Will Mualliga	6	Zebra			
	Tim Siciliano	6	Zebra			

Summary of Activities

	Equipment	AOC/Task	Activities Performed
7-24-02	TVA1000 O2/Exp W.L. Indicator Camera	AOC 9	• Completed GP Survey. • Installed/Sampled 2 Soil borings.
7-25-02	Same as above	AOC 9	• Collected a full Round of W.L.'s • Secured area & demobed.
		Building 211	Installed 4 to 5" concrete slab on floor of Pipe Vault.

C Chain-of-Custody

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: 1
Lab: ASC

Page: 1 of 1

PROJECT No:	SITE NAME:	LOCATION: (Include State)
001002 UK10.06.01	GAFB Building 211	Rome N.Y.

CLIENT: USACE-KC dist.

PROJECT MANAGER: Bob Meyers — OFFICE No: Buffalo

FIELD TEAM LEADER: Bob Meyers — PHONE No: E&E HQ

SAMPLERS: (PRINT) Bob Meyers

CONTAINER TYPE AND PRESERVATIVE: 1L Poly (Nitric)

REQUESTED ANALYSIS: TAL Metals and Mercury

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
2-6-02	1110	Bldg 211-WG01	WS		N1	1	0	NA	NA	Vault Grab Water Sample
		Note: Call Bob Meyers @2623 for exact Job Charge								
31-33										

TURNAROUND TIME
- 24-HOUR
- 48-HOUR
- 1-WEEK
- STANDARD [X]
- RUSH _____ days
- OTHER _____

(FOR LAB USE ONLY)
Lab Job No:
Report type:
Batch QC: Yes No

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:
Robert A Meyers	2/6/02	[illegible]	2/6/02 1235	Hand	2-6-02
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number: NA	

Temperature Blank Info.
Enclosed: (Yes) No

(FOR LAB USE ONLY)
Date: _____ Time: _____
Temperature: _____ °C

Distribution: White - Lab original Yellow - Field team leader

0881297

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: 1
Lab: ASC

PROJECT No: 001002UK1005011
LOCATION: (Include State) GA FB Rome N.Y.
CLIENT: USACE - KC district
SITE NAME: Griffiss AFB - OTH305
PROJECT MANAGER: Bob Meyers
OFFICE No.: 716-684-8060
FIELD TEAM LEADER: Bob Meyers
PHONE No.:
SAMPLERS: (PRINT) Bob Meyers, Gene Florentino

CONTAINER TYPE AND PRESERVATIVE: 40ml Vial | 40ml Vial | 1 L Amber | 1 L Amber | 1 L Amber | 1 L Amber | 1 L Poly | 1 L Amber | 1 L Poly

TURNAROUND TIME: 24-HOUR ☐ RUSH | 48-HOUR ☐ | 1-WEEK ☐ | STANDARD ☒ | OTHER

REQUESTED ANALYSIS

DATE	TIME	SAMPLE ID	Sample Type	MATRIX CODE	CHECK FOR MS/MSD	No. OF CONTAINERS	TCL VOC[4]	TCLP VOCs	TCLP Pesticides Herbicides	Total PCB's	Reactivity - CN Sulfide	pH, Ignitability	TCLP Metals + extraction	TCLP SVOC[5]	TCLP Mercury	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
5-9-02	0800	OTH305-TB1	TBI	WQ		2	X												Trip Blank
5-9-02	1600	OTH305-WG02	NI	G		8	X	X	X	X	X	X	X	X	X	Oppm	–	–	Drum Sample (Pit water)
5-9-02	1615	OTH305-WG03	NI	G		8	X	X	X	X	X	X	X	X	X	Oppm	–	–	Drum Sample (rinse water)

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Temperature Blank Info. Enclosed: (Yes) No	LAB PROJECT No.:	LAB PROJECT MANAGER:
Robert A Meyers	5-9-02/2000	Denise Giglia	5/9/02 2000			
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via: Hand delivery Date: 5-9-02	(FOR LAB USE ONLY)	
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number: NA	Date: Time: Temperature: °C Work Order No:	

CHAIN OF CUSTODY RECORD

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LAB: _____ Page: 2 of 2

PROJECT No: 00100ZUK100501	LOCATION: (Include State) GAFB Rome N.Y.	CONTAINER TYPE AND PRESERVATIVE: 2-4oz Jars; 8oz. Jar; 8oz Jar; 8 oz Jar	TURNAROUND TIME: 24-HOUR ☐ RUSH; 48-HOUR ☐; 1-WEEK ☐; STANDARD ☒; OTHER
CLIENT: USACE - KC district			
SITE NAME: Griffiss AFB - OTH305			
PROJECT MANAGER: Bob Meyers	OFFICE No.: 716-684-8060		
FIELD TEAM LEADER: Bob Meyers	PHONE No.:		
SAMPLERS: (PRINT) Bob Meyers, Gene Florentino			

DATE	TIME	SAMPLE ID	Sample Type	MATRIX CODE	CHECK FOR MS/MSD	No. OF CONTAINERS	TCL VOCs	TCL SVOCs	TCL Pest/PCBs	%o Solids	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
5-9-02	1500	OTH305-SS01	NI	SO		3	X	X	X	X	X	0'	0.5'	OVA/HNU = 1/22 ppm
5-9-02	1515	OTH305-SS02	NI	SO		3	X	X	X	X	X	0.5'	1.0'	OVA/HNU = 0/12 ppm
5-9-02	1530	OTH305-SS03	NI	SO		3	X	X	X	X	X	1.0'	2.0'	OVA/HNU = 0/20 ppm

Relinquished By: (Signature) Robert A Meyers	Date/Time: 5-9-02/2000	Received By: (Signature) Denise Giglia	Date/Time: 5/9/02 2000	Temperature Blank Info. Enclosed: (Yes) No	LAB PROJECT No.: / LAB PROJECT MANAGER:
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via: Hand delivery Date: 5-9-02	(FOR LAB USE ONLY) Date: Time: Temperature: °C Work Order No:
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number: NA	

Distribution: White - Lab original Yellow - Field team leader/Project Manager

F1260699.P65

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
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Cooler No: 1
Lab: ASC
Page: 1 of 2

PROJECT No: 001002UK100202
CLIENT: USACS-KS
LOCATION: (Include State) Rome NY
SITE NAME: Former Griffiss AFB
PROJECT MANAGER: Bob Meyers
OFFICE No.: 716-684-8060
FIELD TEAM LEADER: Brian Cervi
PHONE No.: Same
SAMPLERS: (PRINT) Bob Meyers, Brian Cervi, Stephanie Reynolds

CONTAINER TYPE AND PRESERVATIVE: 1-4oz Jar; 3-4oz Vials; 1-8oz Jar; 1-8oz Jar

REQUESTED ANALYSIS

TURNAROUND TIME: 24-HOUR ☐ RUSH; 48-HOUR ☐; 1-WEEK ☐; STANDARD ☐; OTHER ____

DATE	TIME	SAMPLE ID	MATRIX CODE	CHECK FOR MS/MSD	No. OF CONTAINERS	TCL VOC's Select List	TCL VOC's	TCL SVOC's Pest/PCB's	TAL Metals % Solids	Lead Only % Solids	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
7-15-02	1540	AFFF-SD01	SE		2	1	← 1 →							
7-15-02	1540	AFFF-SD01 MS/MSD	SE	✓	4	2	← 2 →							
7-15-02	1540	AFFF-SD01/D	SE		2	1	← 1 →							
7-15-02	1555	AFFF-SD02	SE		2	1	← 1 →							
~~7-15-02~~														
7-15-02	1425	PCI20-NS06	SO		1					1				
7-15-02	1440	PCI20-NS07	SO		1					1				
7-15-02	1450	PCI20-NS08	SO	✓	3					3				MS/MSD
7-15-02	1425	PCI20-NS06/D	SO		1					1				Dup.

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Temperature Blank Info.	LAB PROJECT No.:	LAB PROJECT MANAGER:
Robert Meyers	7/15/02 1800	Rich A. Cervi	7-15-02 6:30	Enclosed: (Yes) No		
Relinquished By: (Signature) Rich A. Cervi	Date/Time: 7/15/02 10:36	Received By: (Signature)	Date/Time: 7-15-02 10:36	Ship Via: Courier	Date: 7-15-02	(FOR LAB USE ONLY)
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:		Date: ____ Time: ____ Temperature: ____ °C

CHAIN OF CUSTODY RECORD

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Where Scientific Excellence and Efficiency Meet

Cooler No: ____ Lab: ASC

PROJECT No: 001002UK100801

CLIENT: USACE-KC

LOCATION: (Include State) Rome, NY

SITE NAME: Griffiss AFB (AOI 473)

PROJECT MANAGER: Robert Meyers

OFFICE No.: HQ

FIELD TEAM LEADER: R. Meyers

PHONE No.: —

SAMPLERS: (PRINT) Robert Meyers, Charles Taber

CONTAINER TYPE AND PRESERVATIVE: 4oz Jar Acetone; 4oz Jar Acetone; 4oz Jar Freon 113; 4oz Jar 5% HNO3; 4oz Jar 5% HNO3; 1-8oz Jar

TURNAROUND TIME: 24-HOUR ☐ RUSH; 48-HOUR ☐; 1-WEEK ☐; STANDARD ☒; OTHER ____

REQUESTED ANALYSIS

DATE	TIME	SAMPLE ID	MATRIX CODE	CHECK FOR MS/MSD (ERPIMS)	No. OF CONTAINERS	PCB's (TCL)	TCL SVOC's	TRPH (418.1M)	TAL Metals	Mercury	TCL SVOC's, PCB's, & TAL metals, Mercury and TRPH (418.1M)	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
7-17-02	1800	FieldQC-FB473-Rm10-SP1	SQ		1	See Remark						0	—	—	Baggie with 5 unopened Gauze pads inside
7-17-02	1500	G473-Rm10-SD01	SE	✓	← NO MS/MSD Collected,										Sediment from Sump
Not Collected	~~G473-Rm10-SD01/D~~		~~SE~~		← Insufficient Sediment to Collect										
7-17-02	1502	G473-Rm10-SP01	SQ		5	1	1	1	1	1					
	1502	G473-Rm10-SP01/D	SQ		5	1	1	1	1	1					
	1515	G473-Rm10-SP02	SQ	✓	15	3	3	3	3	3					MS/MSD
	1528	G473-Rm10-SP03	SQ		5	1	1	1	1	1					
	1539	G473-Rm10-SP04	SQ		5	1	1	1	1	1					
	1550	G473-Rm10-SP05	SQ		5	1	1	1	1	1					
↓	1556	G473-Rm10-SP06	SQ		5	1	1	1	1	1					

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Temperature Blank Info.	LAB PROJECT No.:	LAB PROJECT MANAGER:
Robert A Meyers	7-17-02/1830	Sara Allen	7-17-02/1830	Enclosed: (Yes) No		Caryn Wojtowicz
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via: Hand deliver Date: 7-17-02		
NA			7/17/02 0806		(FOR LAB USE ONLY)	
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number: NA	Date: ____ Time: ____	
					Temperature: ____ °C	
					Work Order No: ____	

Distribution: White - Lab original Yellow - Field team leader/Project Manager

F1260699.P65

CHAIN OF CUSTODY RECORD

ASC analytical services center

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Cooler No: 1
Lab: ASC

PROJECT No: 001002UK100801
CLIENT: USACE - KC
LOCATION: (Include State) Rome N.Y.
SITE NAME: Griffiss AFB - AOI473
PROJECT MANAGER: Robert Meyers
OFFICE No.: HQ
FIELD TEAM LEADER: R. Meyers
PHONE No.: —
SAMPLERS: (PRINT) Robert Meyers, Charles Taber

CONTAINER TYPE AND PRESERVATIVE: 4 oz Jar Acetone; 4 oz Jar Acetone; 4 oz Jar Freon 113; 4 oz Jar 5% HNO3; 4 oz Jar 5% HNO3

TURNAROUND TIME: 24-HOUR; 48-HOUR; 1-WEEK; RUSH; STANDARD (X); OTHER

REQUESTED ANALYSIS

DATE	TIME	SAMPLE ID	MATRIX CODE	CHECK FOR MS/MSD (ERPIMS)	No. OF CONTAINERS	TCL PCB's	TCL 5 VOC's	TRPH (418.1 M)	TAL Metals	Mercury	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
7-17-02	1605	G473-Rm10-SP07	SQ		5	1	1	1	1	1				
7-17-02	1615	G473-Rm10-SP08	SQ		5	1	1	1	1	1				
7-17-02	1621	G473-Rm10-SP09	SQ		5	1	1	1	1	1				
7-17-02	1628	G473-Rm10-SP10	SQ		5	1	1	1	1	1				

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:
Robert A Meyers	7-17-02/1830	SAMPLER	7-17-02/1830
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:
CT			7/17/02 1806
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:

Temperature Blank Info. Enclosed: (Yes) No
Ship Via: Hand deliver Date: 7-17-02
Bl/Airbill Number: N/A

LAB PROJECT No.:
LAB PROJECT MANAGER: Caryn Wojtowicz

(FOR LAB USE ONLY)
Date: _____ Time: _____
Temperature: _____

D Validation Memoranda

DATA VALIDATION MEMORANDUM

DATE: June 25, 2002 (Updated October 2002)

TO: Robert Meyers, Project Manager,
Ecology and Environment, Inc. (E & E)

FROM: Marcia Meredith Galloway, QA Officer, Buffalo

SUBJ: 2002 Expanded Site Investigation
USACE Contract DACW41-99-D-9005, Task Order No. 0001
WAD 9
Laboratory - Analytical Services Center (ASC)

REF:

Project	Lab Work Order
Griffiss AFB- OTH305	0205079

DELIVERABLES

The laboratory report is complete as stipulated in the master Quality Assurance Project Plan (QAPP) (E & E, 2002) and the site-specific QAPP for the above referenced project and site. The data validation memo findings and the potential impacts on data usability will be presented in a Quality Control Summary Report (QCSR) submitted as a separate report.

SAMPLE INTEGRITY

Based on the information provided on the cooler receipt form, the samples arrived at the laboratory intact and properly preserved. Completed chain-of-custody (COC) documents are included in the laboratory report.

SAMPLE IDENTIFICATION

The field samples for this laboratory data package and related laboratory identifications (IDs) are listed on the following Table 1. There were no field duplicates and project-specific matrix spike/matrix spike duplicates (MS/MSD) collected. Any samples noted as MS/MSD on Table 1 are provided as batch quality control (QC) MS/MSD. Samples identified with a matrix code of "WQ" are trip blanks (samples identified as -TB). All tables are included at the end of this memo except for Table 1 Sample Listing.

Table 1 - List of Samples Reported

Sample Date	Sample ID	Matrix	Lab ID	Lab QC	ID Corrections
5/9/2002	OTH305-TB1	Water	0205079-01		None
5/9/2002	OTH305-WG02		0205079-02		None
5/9/2002	OTH305-WG03	Water	0205079-03	MS/MSD	None
5/9/2002	OTH305-SS01	Soil	0205079-04		None
5/9/2002	OTH305-SS02	Soil	0205079-05	MS/MSD	None
5/9/2002	OTH305-SS03	Soil	0205079-06	MS/MSD	None

Work Orders	Matrix	Test Method	Number of Samples
0205079	Soil	SW6010B	3
0205079	Soil	SW7471A	3
0205079	Soil	SW8081A	3
0205079	Soil	SW8082	3
0205079	Soil	SW8260B	3
0205079	Soil	SW8270C	3
0205079	Soil	ASTM_D2216	3
0205079	Water	SW8260B	1
0205079	Water	SW1311_7470A	2
0205079	Water	SW1311_6010B	2
0205079	Water	SW9040B	2
0205079	Water	SW7.3.3.2	2
0205079	Water	SW7.3.4.2	2
0205079	Water	SW8081A	2
0205079	Water	SW8082	2
0205079	Water	SW8151A	2
0205079	Water	SW8270C	2
0205079	Water	SW1010	2

Holding Times

All samples were analyzed within the project-specified holding time with the following exceptions:

Method	Sample ID	Sample Date	Matrix	Sample Type	PrepHT	Prep Date	AnalHT	Analysis Date	Samp Qual
Reactive Sulfide	OTH305-WG02	5/9/2002	Water	SAMP	5	5/20/2002	40	5/29/2002	UJ Flag All Data
Reactive Sulfide	OTH305-WG03	5/9/2002	Water	SAMP	5	5/20/2002	40	5/29/2002	UJ Flag All Data

Samples for reactive sulfide should be run as soon as possible. The laboratory ran the samples originally with the applied water method holding time for sulfide and got bad LCS recovery. The samples were re-analyzed 20 days after sample collection.

Go to Tables List

VOLATILE ANALYSES (8260B)

Blank Summary

Laboratory method blanks and trip blanks were performed at the required frequency and no compounds were present above the practical quantitation limit (PQL) or at trace levels (Table 2).

Surrogates

The recoveries for surrogates; 1,2-Dichloroethane-d4, 4-Bromofluorobenzene, Dibromofluoromethane, and Toluene-d8 were within acceptable QC limits for all samples except dibromofluoromethane in OTH305-SS01as noted on Table 3. The sample was re-analyzed as noted on Table 6 with similar results indicating a matrix effect. The results for the sample analysis are reported and qualified as indicated on Table 6.

Matrix Spike/Matrix Spike Duplicates (MS/MSD)

Batch QC MS/MSD was performed as indicated on Table 1. The percent recovery and relative percent difference (RPD) values were within laboratory QC limits (Table 4).

Laboratory Control Sample (LCS)

The LCSs were analyzed at the required frequency and all recoveries were within QC limits.

Calibration

The method calibration criteria for initial and continuing calibration were met for all samples except for acetone in one batch. Acetone was not detected in the associated samples and the response was sufficient to meet the detection limit. No manual integrations were required.

SEMIVOLATILE ANALYSES (8270C)

Blank Summary

Laboratory method blanks were performed at the required frequency and no compounds were present above the PQL or in trace levels.

Surrogates

The recoveries for surrogates 2,4,6-tribromophenol, 2-fluorobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5, and terphenyl-d14 were within acceptable QC limits except for 2,4,6-tribromophenol in OTH305-SS01as noted on Table 3. No action is required for one surrogate recovery per fraction outside QC limits. The sample results are reported and qualified as indicated on Table 3.

Matrix Spike/Matrix Spike Duplicates (MS/MSD)

Batch QC MS/MSD was not performed with these samples. An LCS duplicate was performed instead. The LCS recoveries were acceptable indicating no analytical concerns.

Laboratory Control Sample (LCS)

The LCSs were analyzed at the required frequency and all recoveries were within QC limits.

Calibration

The method calibration criteria for initial calibration and continuing calibration criteria were met No manual integrations were required

PESTICIDE ANALYSES (8081A)

Blank Summary

Laboratory method blanks were performed at the required frequency and no compounds were present above the PQL.

Surrogates

The recoveries for surrogates decachlorobiphenyl (DCB) and Tetrachloro-m-xylene (TCMX) were within acceptable QC limits except for DCB in OTH305-SS01 and TCMX in OTH305-WG02 as noted on Table 3. No action is required for one surrogate recovery per fraction outside QC limits. The sample results are reported and qualified as indicated on Table 3.

Matrix Spike/Matrix Spike Duplicates (MS/MSD)

Batch QC MS/MSD was performed as indicated on Table 1. The percent recovery and RPD values were within laboratory QC limits except as noted on Table 4 at the end of this memo. No data qualification is required on the MS/MSD outliers unless significant matrix effects are indicated. The LCS recoveries were acceptable with the exceptions noted below.

Laboratory Control Sample (LCS)

The LCSs were analyzed at the required frequency and all recoveries were within QC limits except as noted on Table 5. The recovery of methoxychlor was low because the compound was spiked at a level below the method detection limit. The other pesticides show good recovery and no data qualification is required.

Calibration

The method calibration criteria for initial calibration and continuing calibration criteria were met and no manual integrations were required.

PCB ANALYSES (8082)

Blank Summary

Laboratory method blanks were performed at the required frequency and no target compounds were present at levels above or below the PQL.

Surrogates

The recoveries for surrogates DCB and TCMX were within acceptable QC limits.

Matrix Spike/Matrix Spike Duplicates (MS/MSD)

Batch QC MS/MSD was not performed with these samples. An LCS duplicate was performed instead. The LCS recoveries were acceptable indicating no analytical concerns.

Laboratory Control Sample

The LCSs were analyzed at the required frequency and all recoveries were within QC limits.

Calibration

The method calibration criteria for initial calibration and continuing calibration criteria were met.

METALS (6010/7000)

Blank Summary

Laboratory method blanks were analyzed at the required frequency and had no target analytes detected above the laboratory PQL. Trace levels of several metals mercury, aluminum, manganese and potassium) were found below the PQL as shown on Table 2. The associated samples with positive results for the compounds are shown on Table 2A for method blanks. Sample results for TCLP mercury less than 5 times the blank levels are qualified "U" as non-detect. The results were below the PQL and therefore well below the TCLP limit. There is no impact on data usability.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Batch QC MS/MSD was performed as indicated on Table 1. The percent recovery and RPD values were within laboratory QC limits except as noted on Table 4 at the end of this memo. Qualifiers were added as noted in Table 4. For low recoveries, both the results and quantitation limit are flagged "J" as estimated. For high recoveries, only the positive results are flagged "J" as estimated. QC limits do not apply to metals with spike amounts less than four times the sample amount. These metals are flagged as "4X" on Table 4.

Laboratory Control Sample (LCS)

The LCSs were performed at the required frequency and all recoveries were within QC limits.

Calibration

The method calibration criteria for initial calibration and continuing calibration criteria were met.

GENERAL CHEMISTRY (7.3.4.2, 7.3.3.2, 1010, and 9040B)

Blank Summary

Laboratory method blanks were analyzed at the required frequency and had no target analytes detected above the laboratory PQL.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Batch QC MS/MSD was performed as indicated on Table 1. The percent recovery and RPD values were within laboratory QC limits.

Laboratory Control Sample (LCS)

The LCSs were performed at the required frequency and all recoveries were within QC limits except for reactive cyanide. The recovery for the LCS was zero. The analysis was not repeated because the holding time had expired. The reactive cyanide was non-detect and the results are flagged "UR" as rejected. However, the tests are highly variable and difficult to achieve good response. The results are for disposal purposes and there is no indication of cyanide or other hazardous materials in the samples. Therefore, there is no overall impact on the usability of the samples.

Calibration

The method calibration criteria for initial calibration and continuing calibration criteria were met.

FIELD DUPLICATE RESULTS

No field duplicates were collected.

Table 2 - List of Positive Results for Blank Samples

Method	Sample ID	Samp Type	Analyte	Result	Qual	Anal Type	Units	MDL	PQL
SW1311_7470A	MB-200201707	MBLK	Mercury	0.002013	J	A	mg/L	0.0001040	0.02000
SW1311_7470A	TB-200201404	TCLPMBLK	Mercury	0.001718	J	A	mg/L	0.0001040	0.02000
SW6010B	MB-200201471	MBLK	Aluminum	2.836	J	A	mg/Kg	1.200	10.00
SW6010B	MB-200201471	MBLK	Manganese	1.278		A	mg/Kg	0.2000	1.000
SW6010B	MB-200201471	MBLK	Potassium	4.932	J	A	mg/Kg	4.500	100.0

Table 2A - List of Samples Qualified for Method Blank Contamination

Method	Lab Blank	Matrix	Analyte	Blank Result	Result	Lab Qual	PQL	Affected Samples	Sample Flag
SW6010B	MB-200201471	Soil	Aluminum	2.836	16700	J	21.2	OTH305-SS02	Not Qualified
SW6010B	MB-200201471	Soil	Aluminum	2.836	16500	J	16.2	OTH305-SS01	Not Qualified
SW6010B	MB-200201471	Soil	Aluminum	2.836	17100	J	20.7	OTH305-SS03	Not Qualified
SW6010B	MB-200201471	Soil	Manganese	1.278	532		1.62	OTH305-SS01	Not Qualified
SW6010B	MB-200201471	Soil	Manganese	1.278	1230		2.07	OTH305-SS03	Not Qualified
SW6010B	MB-200201471	Soil	Manganese	1.278	1550		2.12	OTH305-SS02	Not Qualified
SW1311_7470A	TB-200201404	Water	Mercury	0.001718	0.000612	J	0.0200	OTH305-WG02	U Flag
SW1311_7470A	MB-200201707	Water	Mercury	0.002013	0.000612	J	0.0200	OTH305-WG02	U Flag
SW6010B	MB-200201471	Soil	Potassium	4.932	1080	J	212	OTH305-SS02	Not Qualified
SW6010B	MB-200201471	Soil	Potassium	4.932	1110	J	162	OTH305-SS01	Not Qualified
SW6010B	MB-200201471	Soil	Potassium	4.932	1140	J	207	OTH305-SS03	Not Qualified

Table 2B - List of Samples Qualified for Field Blank Contamination
None

Table 3 - List of Samples with Surrogates outside Control Limits

Method	Sample ID	Sample Type	Analyte	Rec.	Low Limit	High Limit	Dil Fac	Sample Qual.
SW8270C	OTH305-SS01	SAMP	2,4,6-Tribromophenol	24	32	130	1	None
SW8260B	OTH305-SS01	SAMP	Dibromofluoromethane	55	83	117	1	J flag acetone
SW8260B	OTH305-SS01	RA	Dibromofluoromethane	60	83	117	1	Do not report
SW8081A	OTH305-SS01	SAMP	Decachlorobiphenyl	173	39	135	1	None
SW8081A	OTH305-WG02	SAMP	Tetrachloro-m-xylene	40	44	135	20	Diluted Out

Table 4 - List MS/MSD Recoveries and RPDs outside Control Limits

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	Rec.	Dil Fac	Low Limit	High Limit	Sample Qual.
SW8081A	OTH305-SS03	MSD	4,4'-DDD	<3.290	3.649	129	1	73	119	None
SW8081A	OTH305-SS03	MS	Heptachlor	<3.320	3.688	170	1	75	143	None
SW8081A	OTH305-SS03	MSD	Heptachlor	<3.290	3.649	214	1	75	143	None
SW8081A	OTH305-SS03	MS	Methoxychlor	<44.30	36.88	16	1	74	147	None
SW8081A	OTH305-SS03	MSD	Methoxychlor	<43.80	36.49	12	1	74	147	None
SW6010B	OTH305-SS02	MS	Aluminum	16700	104	-296	2	75	125	4X
SW6010B	OTH305-SS02	MSD	Aluminum	16700	95.01	1143	2	75	125	4X
SW6010B	OTH305-SS02	MS	Antimony	5.56	104	60	2	75	125	J Flag
SW6010B	OTH305-SS02	MSD	Antimony	5.56	95.01	55	2	75	125	J Flag
SW6010B	OTH305-SS02	MS	Calcium	3370	1040	3042	2	75	125	None
SW6010B	OTH305-SS02	MSD	Calcium	3370	950.1	346	2	75	125	None
SW6010B	OTH305-SS02	MS	Iron	31300	104	-3971	2	75	125	4X
SW6010B	OTH305-SS02	MSD	Iron	31300	95.01	-1528	2	75	125	4X
SW6010B	OTH305-SS02	MS	Magnesium	5280	1040	143	2	75	125	4X
SW6010B	OTH305-SS02	MS	Manganese	1550	104	-422	2	75	125	4X
SW6010B	OTH305-SS02	MSD	Manganese	1550	95.01	-444	2	75	125	4X

Method	Sample ID	Sample Type	Analyte	RPD	RPD Limit	Sample Qual.
SW6010B	OTH305-SS02	MSD	Aluminum	340.0	35	None
SW6010B	OTH305-SS02	MSD	Calcium	159.1	35	None
SW6010B	OTH305-SS02	MSD	Iron	88.9	35	None

Table 5 - List LCS Recoveries outside Control Limits

Method	Sample ID	Analyte	Rec.	Low Limit	High Limit	Affected Samples	Samp Qual
SW7.3.3.2	LCS-200201346	Reactive Cyanide	0	1	125	OTH305-WG02/WG03	Non-Detect
SW8081A	LCS-200201303	Methoxychlor	0	74	147	OTH305-SS01/SS02/SS03	None, MDL problem
SW8151A	LCSD-200201331	2,4-D	57	74	120	OTH305-WG02/WG03	Non-Detect

Table 6 –Samples that were Reanalyzed

Sample ID	Lab ID	Method	Sample Type	Action
OTH305-SS01	0205079-04	SW8260B	SAMP	Report, add J flags
OTH305-SS01	0205079-04	SW8260B	RA	Do Not Report

DATA VALIDATION MEMORANDUM

DATE: August 8, 2002 (Updated October 2002)

TO: Robert Meyers, Project Manager,
Ecology and Environment, Inc. (E & E)

FROM: Marcia Meredith Galloway, QA Officer, Buffalo

SUBJ: Year 2002 Expanded Site Investigation at the Former Griffiss Air Force Base
USACE Contract DACW41-99-D-9005, Task Order 0001- WAD 9

Laboratory - Analytical Services Center (ASC) REF:

Project	Lab Work Order
Griffiss AFB- WAD 09 AOC 9/PCI 20	0207099

DELIVERABLES

The laboratory reports are complete as stipulated in the master Quality Assurance Project Plan (QAPP) (E & E 2000) and the site-specific QAPP for the above referenced project and site. The data validation memo findings and the potential impacts on data usability will be presented in a Quality Control Summary Report (QCSR) submitted as a separate report.

SAMPLE INTEGRITY

Based on the information provided on the cooler receipt form, the samples arrived at the laboratory intact and properly preserved. Completed chain-of-custody (COC) documents are included in the laboratory report.

SAMPLE IDENTIFICATION

The field samples for this laboratory data packages and related laboratory identifications (IDs) are listed on the following Table 1. Samples identified as /D are field duplicates. Project-specific matrix spike/matrix spike duplicates (MS/MSD) designated in the field as extra volume by on the COC are noted with a "*" on Table 1. Any other samples noted as MS/MSD on Table 1 are provided as batch quality control (QC) MS/MSD. Samples identified with a matrix code of "RB" are rinsate blanks and samples identified with a matrix code of "TP" or "TS" are trip blanks. All tables are included at the end of this memo except for Table 1 Sample Listing.

Table 1 - List of Samples Reported

Sample ID	Sample Date	Matrix	Lab ID	Lab QC	MS/MSD	ID Corrections
PCI20-NS06	7/15/2002	Soil	0207099-04			None
PCI20-NS07	7/15/2002	Soil	0207099-05			None
PCI20-NS08	7/15/2002	Soil	0207099-06	MS/MSD	*	None

Sample ID	Sample Date	Matrix	Lab ID	Lab QC	MS/MSD	ID Corrections
PCI20-NS06/D	7/15/2002	Soil	0207099-07			None

Work Orders	Matrix	Test Method	Number of Samples
0207099	Soil	SW6010B	4
0207099	Soil	ASTM_D2216	4

Go to Tables List

Holding Times

All samples were analyzed within the project-specified holding time.

METALS (6010/7000)

Blank Summary
Laboratory method blanks were analyzed at the required frequency and had no target analytes detected above the laboratory PQL.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)
The MS/MSD was performed at the required frequency on samples indicated on the COC as project-specific QC. The percent recovery and RPD values were within laboratory QC limits except as noted on Table 4 at the end of this memo. No qualifiers were added because the spike amount was less than four times the sample amount.

Laboratory Control Sample (LCS)
The LCSs were performed at the required frequency and all recoveries were within QC limits.

Calibration
The method calibration criteria for initial calibration and continuing calibration criteria were met.

FIELD DUPLICATE RESULTS

Field duplicates were analyzed as required in the QAPP. The samples are noted on Table 1 of this memo were field duplicates. The results will be summarized on a table in the QCSR. The field duplicate QC criteria are two times the laboratory duplicate QC criteria of 20% for water samples and 35% for soil samples (i.e., 40% for water samples and 70% for solid samples). The RPD ratings are listed as "Good" if the RPD is less than field duplicate QC criteria and as "Poor" if the RPD exceeded the field duplicate QC criteria.

Field duplicate results are summarized on Table 7 below. One set of duplicate samples were collected and overall the precision is very good.

Table 2 - List of Positive Results for Blank Samples
None

Table 3 - List of Samples with Surrogates outside Control Limits
None.

Table 4 - List MS/MSD Recoveries and RPDs outside Control Limits

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	Rec.	Dil Fac	Low Limit	High Limit	Sample Qual.
SW6010B	PCI20-NS08	MS	Lead	521	111	133	2	75	125	4X

Table 5 - List LCS Recoveries outside Control Limits
None

Table 6 –Samples that were Reanalyzed
None

Table 7 – Summary of Field Duplicate Results

WorkOrder	ClientSampID	Expr1	ProjectID	CollectionDate
0207099	PCI20-NS06/D	PCI20-NS0*	Griffiss AFB- WAD 09 AOC 9/PCI 20	7/15/2002 2:25:00 PM

Method	Analyte	Unit	PQL	Anal Type	PCI20-NS06	PCI20-NS06/D	RPD	RPD Rating	Samp Qual
ASTM_D2216	Percent Moisture	wt%	0.100	A	18.3	20	8.9%	Good	None
SW6010B	Lead	mg/Kg	6.01	A	183	202	9.9%	Good	None

DATA VALIDATION MEMORANDUM

DATE: September 19, 2002

TO: Robert Meyers, Project Manager,
Ecology and Environment, Inc. (E & E)

FROM: Marcia Meredith Galloway, QA Officer, Buffalo

SUBJ: Year 2002 Expanded Site Investigation at the Former Griffiss Air Force Base
USACE Contract DACW41-99-D-9005, Task Order 0001- WAD 9

Laboratory - Analytical Services Center (ASC)

REF:

Project	Lab Work Order
Griffiss AFB- WAD 09 AOI 473	0207128

DELIVERABLES

The laboratory reports are complete as stipulated in the master Quality Assurance Project Plan (QAPP) (E & E 2000) and the site-specific QAPP for the above referenced project and site. The data validation memo findings and the potential impacts on data usability will be presented in a Quality Control Summary Report (QCSR) submitted as a separate report.

SAMPLE INTEGRITY

Based on the information provided on the cooler receipt form, the samples arrived at the laboratory intact and properly preserved. Completed chain-of-custody (COC) documents are included in the laboratory report.

SAMPLE IDENTIFICATION

The field samples for this laboratory data packages and related laboratory identifications (IDs) are listed on the following Table 1. Samples identified as /D are field duplicates. Project-specific matrix spike/matrix spike duplicates (MS/MSD) designated in the field as extra volume by on the COC are noted with a "*" on Table 1. Any other samples noted as MS/MSD on Table 1 are provided as batch quality control (QC) MS/MSD. Samples identified with as Field QC are rinsate blanks. All tables are included at the end of this memo except for Table 1 Sample Listing.

Table 1 - List of Samples Reported

Sample Date	Sample ID	Matrix	Lab ID	Lab QC	MS MS	ID Corrections
7/17/2002	FIELDQC-FB473-RM10-SP1	Wipe	0207128-01			None

Sample Date	Sample ID	Matrix	Lab ID	Lab QC	MS MS	ID Corrections
7/17/2002	G473-RM10-SD01	Sediment	0207128-02			None
7/17/2002	G473-RM10-SP01	Wipe	0207128-03			None
7/17/2002	G473-RM10-SP01/D	Wipe	0207128-04			None
7/17/2002	G473-RM10-SP02	Wipe	0207128-05	MS/MSD	*	None
7/17/2002	G473-RM10-SP03	Wipe	0207128-06			None
7/17/2002	G473-RM10-SP04	Wipe	0207128-07			None
7/17/2002	G473-RM10-SP05	Wipe	0207128-08			None
7/17/2002	G473-RM10-SP06	Wipe	0207128-09			None
7/17/2002	G473-RM10-SP07	Wipe	0207128-10			None
7/17/2002	G473-RM10-SP08	Wipe	0207128-11			None
7/17/2002	G473-RM10-SP09	Wipe	0207128-12			None
7/17/2002	G473-RM10-SP10	Wipe	0207128-13			None

Work Orders	Matrix	Test Method	Number of Samples
0207128	Sediment	SW8270C	1
0207128	Sediment	SW8082	1
0207128	Sediment	SW7471A	1
0207128	Sediment	SW6010B	1
0207128	Sediment	EPA418.1	1
0207128	Sediment	ASTM_D2216	1
0207128	Wipe	SW8082	11
0207128	Wipe	EPA418.1	11
0207128	Wipe	SW8270C	12
0207128	Wipe	SW7471A	12
0207128	Wipe	SW6010B	12

Go to Tables List

Holding Times

All samples were analyzed within the project-specified holding time.

SEMIVOLATILE ANALYSES (8270C)

Blank Summary

Laboratory method blanks and field blanks were performed at the required frequency and no target compounds were present above the PQL. Bis(2-ethylhexyl)phthalate was found above the MDL at 118 µg/Kg in method blank MB-200202014 as indicated on Table 2. Numerous tentatively identified compounds (TICs) also were found. The associated samples with positive results for the compounds are shown on Table 2A for method blanks and Table 2B for field blanks. Sample results less than 10 times the blank levels are flagged "U" as non-detect for common laboratory contaminants. Sample results less than 5 times the blank levels are flagged "U" as non-detect for all other compounds.

The TICs present in the method blanks are related to the aldol condensation products generated from extraction with acetone . The TICs present in the field blank for wipes appear to be related to low level impurities in the hexane used for the wipe process.

Surrogates
The recoveries for surrogates 2,4,6-tribromophenol, 2-fluorobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5, and terphenyl-d14 were within acceptable QC limits except for one low surrogate in a sample and MSD as noted on Table 3. No action is required for one surrogate recovery per fraction outside QC limits.

Matrix Spike/Matrix Spike Duplicates (MS/MSD)
The MS/MSD was performed at the required frequency on samples indicated on the COC as project-specific QC. No additional batch QC was reported. The percent recovery and relative percent difference (RPD) values were within laboratory QC limits except as noted on Table 4. The recoveries were always above 10% except for several compounds with 0% recovery due to the fact that the spike amount was below the reporting limit. The other recoveries show a generally high bias indicating sufficient recovery. None of the associated compounds were detected in any of the sample and therefore, no data qualification is required on the MS/MSD outliers. The LCS recoveries were acceptable indicating no analytical concerns.

Laboratory Control Sample (LCS)
The LCSs were analyzed at the required frequency and all recoveries were within QC limits except as noted on Table 5 (low recovery 4-chloroaniline). 4-Chloroaniline was not detected in the associated samples and is not a compound of concern at the site. All other LCS recoveries were acceptable. Therefore no data qualification is required. The single extraction of wipe does not allow for repeat analysis as a corrective action.

Calibration
The method calibration criteria for initial and continuing calibration were met for all samples. Sample analysis for G473-RM10-SD01 and wipes G473-RM10-SP01, 02, 03, 04, 07 and 10 showed low internal standard responses and manual integrations were performed as noted in the narrative? The sample chromatograms showed classic hydrocarbon patterns indicating severe matrix effects. Several PAH compounds in the sludge sample were found. There were no positive target compounds in the wipes except for benzyl alcohol and bis(2-ethylhexyl)phthalate. All associated positive results present above the reporting limit are flagged "J" as estimated based on the matrix effects. The PQL values are not qualified because the surrogate recoveries were acceptable and no low bias was indicated.

PCBs (8082)
Blank Summary
Laboratory method blanks were performed at the required frequency and no target compounds were present at levels above or below the PQL.

Surrogates
Surrogate recoveries were high for several samples, LCS and method blank. The LCS recoveries also were slightly high side indicating an overall high bias likely due to slight over concentration. The recoveries were all within the method limits of 70 to 130% except for the recoveries in the sediment sample. The sediment sample had clear matrix effects and the

positive results are flagged "J" as estimated. The wipe samples had no matrix effects and the likely slightly high recoveries because the extraction in a wipe sample is much more efficient then in a soil sample. Therefore, the PCBs detected in the wipe samples were not qualified. The wipe samples cannot be re-extracted as there is no additional sample volume.

Matrix Spike/Matrix Spike Duplicates (MS/MSD)
The MS/MSD was performed at the required frequency on samples indicated on the COC as project-specific QC. No additional batch QC was reported. The percent recovery and relative percent difference (RPD) values were within laboratory QC limits except as noted on Table 4. The recoveries were always above 10%. No data qualification is required on the MS/MSD outliers unless significant matrix effects are indicated.

Laboratory Control Sample (LCS)
The LCSs were analyzed at the required frequency and all recoveries were acceptable except for a slightly high recovery in the wipe sample. The bias is probably due to a better extraction in the wipe sample compared to the soil limits. Re-extraction was not performed as no additional wipes were available.

Calibration
The method calibration criteria for initial and continuing calibration were met for all samples.

METALS (6010/7000)
Blank Summary
Laboratory method blanks were analyzed at the required frequency and had no target analytes detected above the laboratory PQL. Trace levels of potassium and selenium were found in the soil method blank and aluminum and manganese were found in the wipe method blank below the PQL as shown on Table 2. The associated samples with positive results for the compounds are shown on Table 2A. Sample results less than 5 times the blank levels are qualified "U" as non-detect.

Several metals also were detected in the field blank at levels above the PQL. The trace levels appear to be associated with field background. The sample results less than 5 times the blank levels are qualified "U" as non-detect as indicated on Table 2B. The metals results for antimony, sodium, and thallium could not be distinguished from background. The other metals are at much higher concentration then the blank samples.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)
The MS/MSD was performed at the required frequency on samples indicated on the COC as project-specific QC. The percent recovery and RPD values were within laboratory QC limits except as noted on Table 4 at the end of this memo. The metals were either diluted out of the analysis range or spike amount was less than 4 times the spike value. No data qualification is required because matrix effects cannot be established.

Laboratory Control Sample (LCS)
The LCSs were performed at the required frequency and all recoveries were within QC limits.

Calibration
The method calibration criteria for initial calibration and continuing calibration criteria were met.

FIELD DUPLICATE RESULTS

Field duplicates were analyzed as required in the QAPP. The samples are noted on Table 1 of this memo were field duplicates. The results will be summarized on a table in the QCSR. The field duplicate QC criteria are two times the laboratory duplicate QC criteria of 20% for water samples and 35% for soil samples (i.e., 40% for water samples and 70% for solid samples). The RPD ratings are listed as "Good" if the RPD is less than field duplicate QC criteria and as "Poor" if the RPD exceeded the field duplicate QC criteria.

Field duplicate results are summarized on Table 7 below. One set of duplicate wipe samples was collected and overall the precision was generally poor. The results indicate a high variability in the wipe sample collection. Field duplicate results with "Poor" are flagged "J" as estimated and the potential variability in the results needs to be evaluated if the results are compared to any regulatory criteria. Since the wipes results will probably be incorporated into an overall risk evaluation that would take into account the inherent variability of the results.

Table 2 - List of Positive Results for Blank Samples

Method	Sample ID	Samp Type	Analyte	Result	QUAL	Analyte Type	Units	MDL	PQL
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Aluminum	12.4		A	µg/wipe	1.20	10.0
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Antimony	1.81		A	µg/wipe	0.300	1.00
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Barium	1.25	J	A	µg/wipe	0.200	2.00
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Calcium	462		A	µg/wipe	16.8	50.0
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Copper	0.974	J	A	µg/wipe	0.900	2.00
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Iron	20.4		A	µg/wipe	2.90	5.00
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Lead	2.29		A	µg/wipe	0.300	0.500
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Magnesium	164		A	µg/wipe	5.00	50.0
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Manganese	1.88		A	µg/wipe	0.200	1.00
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Potassium	49.0	J	A	µg/wipe	4.50	100
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Sodium	1550		A	µg/wipe	29.1	100
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Thallium	0.765	J	A	µg/wipe	0.400	1.00
SW6010B	FIELDQC-FB473-RM10-SP1	SAMP	Zinc	4.26		A	µg/wipe	0.900	1.00
SW6010B	MB-200202003	MBLK	Potassium	11.63	J	A	mg/Kg	10.50	100.0
SW6010B	MB-200202003	MBLK	Selenium	0.8869	J	A	mg/Kg	0.5900	5.000
SW6010B	MB-200202084	MBLK	Aluminum	2.425	J	A	µg/wipe	1.200	10.00
SW6010B	MB-200202084	MBLK	Manganese	0.2242	J	A	µg/wipe	0.2000	1.000
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	(Z)-Methyl-5-((E)-3-(1-ethoxyethoxy)oct-	3.92	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	1,2-Benzenedicarboxylic acid, bis(2-ethy	7.87	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	1,3-DIOXANE, 6-ACETOXY-2,4-DIMETHYL-	5.55	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	17-Pentatriacontene	8.08	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	1H-Isoindole-1,3(2H)-dione, 3a,6,7,7a-te	7.06	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	2,2´-Bi-1,3-dioxolane	13.3	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	2-Furanmethanol	7.72	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	2-Heptanone	124	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	2-Hexene, 1-(1-ethoxyethoxy)-, (Z)-	11	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	2-Pentanone, 4-hydroxy-4-methyl-	1310	BNJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	3-Methyl-2-butyl acetate	18.3	NJ	T	µg/wipe	0	0

Method	Sample ID	Samp Type	Analyte	Result	QUAL	Analyte Type	Units	MDL	PQL
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	4,8,12-Trimethyltridecan-4-olide	5.06	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Cyclohexane, undecyl-	10	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Decane	5.9	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Decane, 1,1´-oxybis-	7.65	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Eicosane	7.06	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Heptacosane, 1-chloro-	22.4	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Heptadecane	23.1	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Octacosane (23.243)	6.38	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	PENTADECANE, 2,6,10-TRIMETHYL-	10.7	NJ	T	µg/wipe	0	0
SW8270C	FIELDQC-FB473-RM10-SP1	SAMP	Unknown	6.85	J	T	µg/wipe	0	0
SW8270C	MB-200202014	MBLK	2-Heptanone	2250	NJ	T	µg/Kg	0	0
SW8270C	MB-200202014	MBLK	2-Hexanone, 4-hydroxy-5-methyl-	357	NJ	T	µg/Kg	0	0
SW8270C	MB-200202014	MBLK	2-Hexen-1-ol, 2-ethyl-	59.5	NJ	T	µg/Kg	0	0
SW8270C	MB-200202014	MBLK	2-Pentanone, 4-hydroxy-4-methyl- (6.585)	23800	NJ	T	µg/Kg	0	0
SW8270C	MB-200202014	MBLK	2-Pentanone, 4-hydroxy-4-methyl- (6.768)	60.6	NJ	T	µg/Kg	0	0
SW8270C	MB-200202014	MBLK	3-Hexanol, 4-ethyl-	160	NJ	T	µg/Kg	0	0
SW8270C	MB-200202014	MBLK	Bis(2-ethylhexyl)phthalate	118.9	J	A	µg/Kg	41.40	292.0
SW8270C	MB-200202014	MBLK	DIPROPYLENE GLYCOL DIBENZOATE	99.7	NJ	T	µg/Kg	0	0
SW8270C	MB-200202067	MBLK	1-(4-Methyl-6-chloro-quinolin-2-yl)-3-me	5.58	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	1,2-Octadecanediol	15.9	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	1,7-Dicarbadodecaborane(12) (8Cl9Cl)	14.1	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	1-DECENE, 2-ETHYL-	3.72	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	2-(3-Fluorophenyl)pyrimidine	5.95	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	2-Butanol, 3-methyl-, acetate	5.2	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	2-Hexanone, 4-hydroxy-5-methyl-	19.7	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	2-Pentacosanone	4.04	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	2-Pentanone, 4-hydroxy-4-methyl- (6.557)	1720	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	2-Pentanone, 4-hydroxy-4-methyl- (7.957)	155	NJ	T	µg/wipe	0	0
SW8270C	MB-200202067	MBLK	3-BENZYL-2-OXO-2H-PYRIDO(2,1-	3	NJ	T	µg/wipe	0	0

ecology and environment, inc.

FIELD AUDIT CHECKLIST

Other Comments:

Experienced field team well versed in sampling procedures and related protocols. No gross discrepancies noted. Field team was asked to add sample cross-check process to field logbook.

FIELD AUDITOR: Rick Watt	Richard M Watt
FIELD TEAM LEADER: Bob Meyers	Robert A Meyers
DATE OF AUDIT: 7/18/02	

Method	Lab Blank	Matrix	Analyte	Blank Result	Result	Lab Qual	PQL	Affected Samples	Sample Flag
SW8270C	MB-200202067	Wipe	2-Hexanone, 4-hydroxy-5-methyl-	19.7	13.7	NJ	0	G473-RM10-SP04	U Flag
SW8270C	MB-200202067	Wipe	2-Hexanone, 4-hydroxy-5-methyl-	19.7	16.3	NJ	0	G473-RM10-SP07	U Flag
SW8270C	MB-200202067	Wipe	Eicosane	3.93	7.06	NJ	0	FIELDQC-FB473-RM10-SP1	U Flag
SW8270C	MB-200202067	Wipe	Eicosane	3.93	35.6	NJ	0	G473-RM10-SP05	U Flag
SW8270C	MB-200202067	Wipe	Eicosane	3.93	165	NJ	0	G473-RM10-SP08	Not Qualified

Table 2B - List of Samples Qualified for Field Blank Contamination

Blank ID	Method	Matrix	Analyte	Blank Result	Result	PQL	Affected Samples	Sample Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Aluminum	12.4	1980-9180	20-500	All wipes	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	1.68	5.00	G473-RM10-SP06	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	6.75	5.00	G473-RM10-SP07	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	11.6	25.0	G473-RM10-SP10	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	2.70	2.00	G473-RM10-SP08	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	7.15	5.00	G473-RM10-SP01/D	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	2.87	5.00	G473-RM10-SP09	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	5.38	5.00	G473-RM10-SP01	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Antimony	1.81	7.65	10.0	G473-RM10-SP04	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Barium	1.25	53.1-180	4.00-50.00	All wipe samples	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Calcium	462	13600-102000	100-2500	All wipe samples	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Copper	0.974	45.1 - 41500	10-100	All wipe samples	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Iron	20.4	7790-314000	10-250	All wipe samples	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Lead	2.29	188-2780	1-12.5	All wipe samples	Not Qualified

Blank ID	Method	Matrix	Analyte	Blank Result	Result	PQL	Affected Samples	Sample Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Magnesium	164	1250-5150	100-2500	All wipe samples	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Manganese	1.88	77.7-5030	2.00-50.0	All wipe samples	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Potassium	49	2280-56700	200-5000	All wipe samples	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	14400	1000	G473-RM10-SP03	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	11600	2500	G473-RM10-SP10	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	1220	500	G473-RM10-SP09	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	4350	200	G473-RM10-SP08	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	17200	500	G473-RM10-SP07	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	7310	500	G473-RM10-SP06	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	28600	1000	G473-RM10-SP04	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	7840	5000	G473-RM10-SP02	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	679	500	G473-RM10-SP01/D	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	1160	500	G473-RM10-SP01	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Sodium	1550	2650	1000	G473-RM10-SP05	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	4.76	5.00	G473-RM10-SP06	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	7.97	5.00	G473-RM10-SP01/D	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	2.15	5.00	G473-RM10-SP09	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	2.45	2.00	G473-RM10-SP08	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	3.33	5.00	G473-RM10-SP07	U Flag
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	11.4	25.0	G473-RM10-SP10	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	12.1	10.0	G473-RM10-SP04	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	21.7	50.0	G473-RM10-SP02	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	14.8	5.00	G473-RM10-SP01	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	6.38	10.0	G473-RM10-SP05	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Thallium	0.765	6.16	10.0	G473-RM10-SP03	Not Qualified
FIELDQC-FB473-RM10-SP1	SW6010B	Wipe	Zinc	4.26	346-1680	2-25	All wipe samples	Not Qualified

Blank ID	Method	Matrix	Analyte	Blank Result	Result	PQL	Affected Samples	Sample Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	17-Pentatriacontene	8.08	6000	0	G473-RM10-SP10	Not Qualified
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Heptanone	124	105	0	G473-RM10-SP01	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Heptanone	124	87.5	0	G473-RM10-SP02	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Heptanone	124	85.9	0	G473-RM10-SP03	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Heptanone	124	103	0	G473-RM10-SP04	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Heptanone	124	93.2	0	G473-RM10-SP05	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Heptanone	124	106	0	G473-RM10-SP08	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Heptanone	124	76.3	0	G473-RM10-SP10	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	1090	0	G473-RM10-SP09	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	882	0	G473-RM10-SP10	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	1190	0	G473-RM10-SP08	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	73.6	0	G473-RM10-SP06	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	1050	0	G473-RM10-SP05	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	1020	0	G473-RM10-SP03	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	1110	0	G473-RM10-SP02	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	1220	0	G473-RM10-SP01	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	2-Pentanone, 4-hydroxy-4-methyl-	1310	1420	0	G473-RM10-SP04	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	3-Methyl-2-butyl acetate	18.3	10.8	0	G473-RM10-SP01/D	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	Eicosane	7.06	35.6	0	G473-RM10-SP05	Not Qualified
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	Eicosane	7.06	165	0	G473-RM10-SP08	Not Qualified
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	Heptadecane	23.1	203	0	G473-RM10-SP09	Not Qualified

Blank ID	Method	Matrix	Analyte	Blank Result	Result	PQL	Affected Samples	Sample Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	Heptadecane	23.1	44.9	0	G473-RM10-SP01	U Flag
FIELDQC-FB473-RM10-SP1	SW8270C	Wipe	Pentadecane, 2,6,10-trimethyl-	10.7	93	0	G473-RM10-SP06	Not Qualified

Table 3 - List of Samples with Surrogates outside Control Limits

Method	Sample ID	Sample Type	Analyte	Rec.	Low Limit	High Limit	Dil Fac	Sample Qual.
SW8270C	G473-RM10-SP02	MSD	2,4,6-Tribromophenol	22	32	162	1	None
SW8270C	G473-RM10-SP07	SAMP	2,4,6-Tribromophenol	24	32	162	1	None, no acid phenols detected
SW8082	G473-RM10-SD01	SAMP	Decachlorobiphenyl	144	52	115	1	J Flag
SW8082	G473-RM10-SP02	MSD	Tetrachloro-m-xylene	146	32	110	1	None
SW8082	G473-RM10-SP02	MS	Decachlorobiphenyl	121	18	112	1	None
SW8082	G473-RM10-SP02	MS	Tetrachloro-m-xylene	113	32	110	1	None
SW8082	G473-RM10-SP04	SAMP	Decachlorobiphenyl	128	18	112	1	None
SW8082	G473-RM10-SP05	SAMP	Decachlorobiphenyl	121	18	112	1	None
SW8082	G473-RM10-SP08	SAMP	Decachlorobiphenyl	127	18	112	1	None
SW8082	G473-RM10-SP09	SAMP	Tetrachloro-m-xylene	111	32	110	1	None
SW8082	LCS-1545-30-1	LCS	Decachlorobiphenyl	136	18	112	1	None
SW8082	LCS-1545-30-1	LCS	Tetrachloro-m-xylene	132	32	110	1	None
SW8082	MB-1545-30-1	MBLK	Decachlorobiphenyl	118	18	112	1	None
SW8082	MB-1545-30-1	MBLK	Tetrachloro-m-xylene	117	32	110	1	None

Table 4 - List MS/MSD Recoveries and RPDs outside Control Limits

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	Rec.	Dil Fac	Low Limit	High Limit	Sample Qual.
SW8270C	G473-RM10-SP02	MS	2,4-Dinitrophenol	<50.0	30	0	1	20	115	Spike below <PQL
SW8270C	G473-RM10-SP02	MSD	2,4-Dinitrophenol	<50.0	30	0	1	20	115	Spike below <PQL
SW8270C	G473-RM10-SP02	MS	2,4-Dinitrotoluene	<10.0	30	117	1	42	111	None
SW8270C	G473-RM10-SP02	MS	3,3´-Dichlorobenzidine	<20.0	30	0	1	20	115	R Flag NDs

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	Rec.	Dil Fac	Low Limit	High Limit	Sample Qual.
SW8270C	G473-RM10-SP02	MSD	4,6-Dinitro-2-methylphenol	<50.0	30	0	1	20	115	Spike below <PQL
SW8270C	G473-RM10-SP02	MS	4-Bromophenyl phenyl ether	<10.0	30	172	1	20	115	None
SW8270C	G473-RM10-SP02	MSD	4-Bromophenyl phenyl ether	<10.0	30	228	1	20	115	None
SW8270C	G473-RM10-SP02	MSD	4-Chloroaniline	<10.0	30	15	1	20	115	None
SW8270C	G473-RM10-SP02	MSD	4-Nitrophenol	<50.0	30	0	1	10	115	Spike below <PQL
SW8270C	G473-RM10-SP02	MS	Anthracene	<10.0	30	202	1	20	115	None
SW8270C	G473-RM10-SP02	MS	Benzoic acid	<150	30	17	1	20	115	None
SW8270C	G473-RM10-SP02	MSD	Benzoic acid	<150	30	0	1	20	115	Spike below <PQL
SW8270C	G473-RM10-SP02	MS	Di-n-octyl phthalate	<10.0	30	124	1	20	115	None
SW8270C	G473-RM10-SP02	MS	Hexachlorobenzene	<10.0	30	122	1	20	115	None
SW8270C	G473-RM10-SP02	MS	Hexachlorocyclopentadiene	<50.0	30	0	1	20	115	Spike below <PQL
SW8270C	G473-RM10-SP02	MSD	Hexachlorocyclopentadiene	<50.0	30	0	1	20	115	Spike below <PQL
SW8270C	G473-RM10-SP02	MS	N-Nitrosodiphenylamine	<10.0	30	300	1	20	115	None
SW8270C	G473-RM10-SP02	MSD	N-Nitrosodiphenylamine	<10.0	30	292	1	20	115	None
SW8270C	G473-RM10-SP02	MS	Pentachlorophenol	<50.0	30	18	1	43	129	None
SW8270C	G473-RM10-SP02	MSD	Pentachlorophenol	<50.0	30	0	1	43	129	Spike below <PQL
SW8270C	G473-RM10-SP02	MS	Phenanthrene	<10.0	30	199	1	20	115	None
SW8270C	G473-RM10-SP02	MSD	Phenanthrene	<10.0	30	156	1	20	115	None
SW8082	G473-RM10-SP02	MSD	Aroclor 1016	<1.500	15	183	1	47	114	None
SW8082	G473-RM10-SP02	MS	Aroclor 1260	1.58	15	126	1	58	112	None
SW8082	G473-RM10-SP02	MSD	Aroclor 1260	1.58	15	123	1	58	112	None
SW7471A	G473-RM10-SP02	MS	Mercury	124	2	-168	50	80	120	4X
SW7471A	G473-RM10-SP02	MSD	Mercury	124	2	-1675	50	80	120	4X
SW6010B	G473-RM10-SP02	MS	Aluminum	3320	100	-1211	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Aluminum	3320	100	-789	50	75	125	4X

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	Rec.	Dil Fac	Low Limit	High Limit	Sample Qual.
SW6010B	G473-RM10-SP02	MS	Antimony	<50.00	100	66	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MS	Calcium	25300	1000	-220	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Calcium	25300	1000	274	50	75	125	4X
SW6010B	G473-RM10-SP02	MS	Chromium	75.6	100	70	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Chromium	75.6	100	61	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MS	Copper	335	100	264	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Copper	335	100	-107	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MS	Iron	314000	1000	-7991	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Iron	314000	1000	-17782	50	75	125	4X
SW6010B	G473-RM10-SP02	MS	Lead	539	100	-27	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Lead	539	100	555	50	75	125	4X
SW6010B	G473-RM10-SP02	MS	Manganese	1020	100	-295	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Manganese	1020	100	-524	50	75	125	4X
SW6010B	G473-RM10-SP02	MS	Nickel	139	100	37	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Nickel	139	100	2	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MS	Potassium	23100	1000	-354	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Potassium	23100	1000	-332	50	75	125	4X
SW6010B	G473-RM10-SP02	MS	Silver	<50.00	5	231	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Silver	<50.00	5	0	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MS	Sodium	7840	1000	-50	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Sodium	7840	1000	-81	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Vanadium	65.0	100	70	50	75	125	Diluted Out
SW6010B	G473-RM10-SP02	MS	Zinc	1010	100	-24	50	75	125	4X
SW6010B	G473-RM10-SP02	MSD	Zinc	1010	100	344	50	75	125	4X

Method	Sample ID	Sample Type	Analyte	RPD	RPD Limit	Sample Qual.
SW6010B	G473-RM10-SP02	MSD	Aluminum	42.1	35	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Copper	471.8	35	Diluted Out

Method	Sample ID	Sample Type	Analyte	RPD	RPD Limit	Sample Qual.
SW6010B	G473-RM10-SP02	MSD	Lead	220.7	35	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Manganese	55.8	35	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Nickel	181.8	35	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Silver	200.0	35	Diluted Out
SW6010B	G473-RM10-SP02	MSD	Zinc	230.2	35	Diluted Out
SW7471A	G473-RM10-SP02	MSD	Mercury	163.6	35	Diluted Out
SW8082	G473-RM10-SP02	MSD	Aroclor 1016	51.2	35	None
SW8270C	G473-RM10-SP02	MSD	1,2,4-Trichlorobenzene	56	20	None
SW8270C	G473-RM10-SP02	MSD	1,4-Dichlorobenzene	22	20	None
SW8270C	G473-RM10-SP02	MSD	2,4,5-Trichlorophenol	101	20	None
SW8270C	G473-RM10-SP02	MSD	2,4,6-Trichlorophenol	38	20	None
SW8270C	G473-RM10-SP02	MSD	2,4-Dinitrophenol	200	20	None
SW8270C	G473-RM10-SP02	MSD	2,4-Dinitrotoluene	23	20	None
SW8270C	G473-RM10-SP02	MSD	3,3'-Dichlorobenzidine	200	20	None
SW8270C	G473-RM10-SP02	MSD	4,6-Dinitro-2-methylphenol	200	20	None
SW8270C	G473-RM10-SP02	MSD	4-Bromophenyl phenyl ether	28	20	None
SW8270C	G473-RM10-SP02	MSD	4-Chloroaniline	103	20	None
SW8270C	G473-RM10-SP02	MSD	4-Nitrophenol	200	20	None
SW8270C	G473-RM10-SP02	MSD	Anthracene	127	20	None
SW8270C	G473-RM10-SP02	MSD	Benzoic acid	200	20	None
SW8270C	G473-RM10-SP02	MSD	Bis(2-ethylhexyl)phthalate	30	20	None
SW8270C	G473-RM10-SP02	MSD	Hexachlorocyclopentadiene	200	20	None
SW8270C	G473-RM10-SP02	MSD	Indeno(1,2,3-cd)pyrene	36	20	None
SW8270C	G473-RM10-SP02	MSD	Naphthalene	75	20	None
SW8270C	G473-RM10-SP02	MSD	Pentachlorophenol	200	20	None
SW8270C	G473-RM10-SP02	MSD	Phenanthrene	25	20	None

Table 5 - List LCS Recoveries outside Control Limits

Method	Sample ID	Analyte	Rec.	Low Limit	High Limit	Affected Samples	Samp Qual
SW8082	LCS-1545-30-1	Aroclor 1016	116	47	114	G473-RM10-SP01, SP01/D, SP04, SP05, 08	None
SW8082	LCS-1545-30-1	Aroclor 1260	117	58	112	G473-RM10-SP01, SP01/D, SP04, SP05, 08	None
SW8082	LCS-1545-30-1	Decachlorobiphenyl	136	18	112	G473-RM10-SP01, SP01/D, SP04, SP05, 08	None
SW8082	LCS-1545-30-1	Tetrachloro-m-xylene	132	32	110	G473-RM10-SP01, SP01/D, SP04, SP05, 08	None
SW8270C	LCS-200202067	4-Chloroaniline	11	20	115	All samples	Non-Detect

Table 6 –Samples that were Reanalyzed
None.

Table 7 – Summary of Field Duplicate Results

Method	Analyte	Unit	PQL	Anal Type	G473-RM10-SP01	G473-RM10-SP01/D	RPD	RPD Rating	Samp Qual
EPA418.1	Petroleum Hydrocarbons, TR	mg/wipe-dry	400	A	1650	879	61.0%	Poor	J Flag
SW7471A	Mercury	µg/wipe-dry	0.100	A	20.1	21.9	8.6%	Good	None
SW6010B	Aluminum	µg/wipe	50.0	A	9170	4190	74.6%	Poor	J Flag
SW6010B	Antimony	µg/wipe	5.00	A	5.38	7.15	28.3%	Good	None
SW6010B	Arsenic	µg/wipe	5.00	A	5.54	ND	NC		
SW6010B	Barium	µg/wipe	10.0	A	134	73.4	58.4%	Poor	J Flag
SW6010B	Beryllium	µg/wipe	2.50	A	0.654	ND	NC		
SW6010B	Cadmium	µg/wipe	2.50	A	26.6	15.8	50.9%	Poor	J Flag
SW6010B	Calcium	µg/wipe	250	A	79200	38000	70.3%	Poor	J Flag
SW6010B	Chromium	µg/wipe	5.00	A	93.9	28.4	107.1%	Poor	J Flag
SW6010B	Cobalt	µg/wipe	10.0	A	13.4	5.6	82.1%	Poor	J Flag
SW6010B	Copper	µg/wipe	10.0	A	283	123	78.8%	Poor	J Flag
SW6010B	Iron	µg/wipe	25.0	A	81100	34600	80.4%	Poor	J Flag
SW6010B	Lead	µg/wipe	2.50	A	2780	1170	81.5%	Poor	J Flag
SW6010B	Magnesium	µg/wipe	250	A	3980	1840	73.5%	Poor	J Flag
SW6010B	Manganese	µg/wipe	5.00	A	5030	1640	101.6%	Poor	J Flag
SW6010B	Nickel	µg/wipe	10.0	A	83.9	31.6	90.6%	Poor	J Flag

Method	Analyte	Unit	PQL	Anal Type	G473-RM10-SP01	G473-RM10-SP01/D	RPD	RPD Rating	Samp Qual
SW6010B	Potassium	µg/wipe	500	A	4980	2280	74.4%	Poor	J Flag
SW6010B	Silver	µg/wipe	5.00	A	32.5	5.87	138.8%	Poor	J Flag
SW6010B	Sodium	µg/wipe	500	A	1160	679	52.3%	Poor	J Flag
SW6010B	Thallium	µg/wipe	5.00	A	14.8	7.97	60.0%	Poor	J Flag
SW6010B	Vanadium	µg/wipe	10.0	A	26	12.7	68.7%	Poor	J Flag
SW6010B	Zinc	µg/wipe	5.00	A	1680	713	80.8%	Poor	J Flag
SW8082	Aroclor 1254	µg/wipe	1.50	A	1.73	ND	NC		
SW8270C	1,2-Ethanediamine, N-methyl-	µg/wipe	0	T	NA	3.89	NC		
SW8270C	10-Methylnonadecane	µg/wipe	0	T	31.6	NA	NC		
SW8270C	1-Bromo-3-(2-bromoethyl)heptane	µg/wipe	0	T	NA	3070	NC		
SW8270C	2,4,6-Tris-(1-phenylethyl)-phenol (26.92)	µg/wipe	0	T	NA	5.12	NC		
SW8270C	2,4,6-Tris-(1-phenylethyl)-phenol (26.932)	µg/wipe	0	T	8.83	NA	NC		
SW8270C	2,4,6-Tris-(1-phenylethyl)-phenol (27.033)	µg/wipe	0	T	NA	82.4	NC		
SW8270C	2,4,6-Tris-(1-phenylethyl)-phenol (27.054)	µg/wipe	0	T	23	NA	NC		
SW8270C	2,6,10-Dodecatrien-1-ol, 3,7,11-trimethy	µg/wipe	0	T	NA	80	NC		
SW8270C	2-Heptanone	µg/wipe	0	T	105	NA	NC		
SW8270C	2-Octanone	µg/wipe	0	T	NA	3.72	NC		
SW8270C	2-Pentenoic acid, 4-methylphenyl ester	µg/wipe	0	T	NA	3.19	NC		
SW8270C	3-Hydroxy-3-methyl-2-butanone	µg/wipe	0	T	NA	5.02	NC		
SW8270C	3-Methyl-2-butyl acetate	µg/wipe	0	T	NA	10.8	NC		
SW8270C	3-Pentanol, 2-methyl-	µg/wipe	0	T	5.42	NA	NC		
SW8270C	4-Chloro-3-n-hexyltetrahydropyrane	µg/wipe	0	T	1990	NA	NC		
SW8270C	4-Cyanocyclohexene	µg/wipe	0	T	39	8.58	127.9%	Poor	J Flag
SW8270C	7-Octynoic acid, methyl ester	µg/wipe	0	T	NA	3.71	NC		
SW8270C	Benzenethiol, 2-amino-	µg/wipe	0	T	5.33	NA	NC		
SW8270C	Benzothiazole	µg/wipe	0	T	NA	3.32	NC		
SW8270C	Benzyl alcohol	µg/wipe	10.0	A	5.45	ND	NC		
SW8270C	Bis(2-ethylhexyl)phthalate	µg/wipe	10.0	A	14.3	17.8	21.8%	Good	None
SW8270C	CAPRONIC ACID, OCTYL ESTER	µg/wipe	0	T	23.1	NA	NC		
SW8270C	Docosane	µg/wipe	0	T	54	NA	NC		
SW8270C	Eicosane, 10-methyl-	µg/wipe	0	T	71.3	NA	NC		

Method	Analyte	Unit	PQL	Anal Type	G473-RM10-SP01	G473-RM10-SP01/D	RPD	RPD Rating	Samp Qual
SW8270C	Ether, heptyl hexyl	µg/wipe	0	T	4.69	NA	NC		
SW8270C	Heptacosane	µg/wipe	0	T	7.04	NA	NC		
SW8270C	Heptadecane	µg/wipe	0	T	44.9	NA	NC		
SW8270C	Heptane, 2,2,3,3,5,6,6-heptamethyl-	µg/wipe	0	T	NA	3.59	NC		
SW8270C	Hexacosane	µg/wipe	0	T	20.2	NA	NC		
SW8270C	Pentacosane	µg/wipe	0	T	82.9	NA	NC		
SW8270C	Phenol, 4,4´-butylidenebis(2-(1,1-dimeth	µg/wipe	0	T	NA	62.2	NC		
SW8270C	Tetracosane	µg/wipe	0	T	38	NA	NC		

E

Laboratory Case Narratives

Ecology and Environment, Inc. Analytical Services Center

Cooler Receipt Form

'ACKAGE RECEIPT #: _____ NUMBER OF COOLERS: 1 DATE RECEIVED: 2/6/02

E & E PROJECT #: _____ PROJECT OR SITE NAME: GAFB

A. Preliminary Examination Phase

CIRCLE ONE

. Did coolers come with airbill or packing slip? YES (NO) NA

Enter carrier here and print airbill # below: *(Circle One)* FedEx Airborne (Client) Other

Ship as high hazard or dangerous goods YES (NO) NA

. Did cooler(s) have custody seals? (YES) NO NA

. Were custody seals unbroken and intact on receipt? (YES) NO* NA

. Were custody seals dated and signed? (YES) NO NA

. Sign here to acknowledge receipt of cooler (s): Kevin Oakley

Date cooler(s) opened: 2/6/02 C-O-C numbers: 1

Cooler(s) opened by (print): Kevin Oakley Signature: Kevin Oakley

. Were the C-O-C forms received? (YES) NO* NA

. Was the project identifiable from the C-O-C form? (YES) NO* NA
If YES, enter the project number and name in the heading above.

'lease record Temperature Blank Vial or Cooler Temperature for Each Cooler, Range (2 - 6C)* NJDEP must be <4C

AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C
~~_____~~	3.0				

Thermometer # 129 Correction Factor 0 * If No or Temperature Outside of Acceptable Range, prepare a PM Notification form.

3. Unpacking Phase

. Was enough packing material used in cooler(s)? YES NO (NA)
Type of material: ☐ Vermiculite ☐ Bubble Wrap ☐ Other

. If required, was enough ice used? (YES) NO NA
If YES, type of ice used: ☐ Wet ☐ Dry ☐ Blue ☒ Other

0. Was a temperature blank vial included inside cooler(s)? (YES) NO NA
If YES, indicate temperature blank vial temperature in table above. If NO, indicate cooler temperature in table above.

1. Were all containers sealed in separate plastic bags? YES (NO) NA

2. Did all containers arrive unbroken and in good condition? (YES) NO* NA

3. Samples stored in W Cooler before Login Phase? YES (NO)
If yes: Signature In: _____ Date/Time: _____

Signature Out: _____ Date/Time: _____

C. Login Phase

Samples Logged in By (print): Kevin Oakley Signature: Kevin Oakley Date: 2/6/02

4. Were all container labels complete (e.g. date, time preserved)? (YES) NO* NA

5. Were all C-O-C forms filled out properly in ink and signed? (YES) NO* NA

6. Did the C-O-C form agree with containers received? (YES) NO* NA

7. Were the correct containers used for the tests requested? (YES) NO* NA

8. Were the correct preservatives listed on the sample labels? (YES) NO* NA

9. Was a sufficient sample volume sent for the tests requested? (YES) NO* NA

10. Were all volatile samples received without head space? YES NO* (NA)

'Prepare a PM Notification form.

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Buffalo Office
Project: GAFB Building 211 sampling
Work Order: 0202063

Method References

Mercury

Mercury Analysis in Water by Method 7470A	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

Metals

Metals, TAL by ICP Method 6010B	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: GAFB Building 211 sampling
Lab Order: 0202063

CASE NARRATIVE

METALS
Sample Analysis
All samples were digested and analyzed within hold time.

Calibrations
All initial and continuing calibrations were acceptable except iron was high at 118% and 116% in the two CCVs in run 020422210R. The data was accepted and reported.

QC
All calibration and preparation blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable except for a high calcium recovery in the MSD of sample BLDG211-WG01 and low mercury recoveries in the batch MS/MSD. Sample results have been flagged "N".

All laboratory control sample (LCS) recoveries were acceptable.

All serial dilution %D values were acceptable except for barium and iron in sample BLDG211-WG01 and manganese in the batch QC. Sample results have been flagged "E".

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Tony Bogolin
Project Manager

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

June 13, 2002

Mr. Robert Meyers
E and E Buffalo Office
368 Pleasant View Dr.
Lancaster, NY 14086

RE: GAFB OTH305
CostPoint ID: **001002.UK10.05.01.**

Work Order No.: **0205079**

Dear Mr. Robert Meyers,

Ecology and Environment, Inc. received 6 samples on Thursday, May 09, 2002 for the analyses presented in the following report.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is $1.00 per sample container per month, to accrue until the client authorizes sample destruction.

Sincerely,

Tony Bogolin

Tony Bogolin
Project Manager

CC:
Enclosures as note

This report ends on page 257

Ecology and Environment, Inc.

Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: GAFB OTH305
Lab Order: 0205079
Date Received: 05/09/02

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Alt. Client Id	Collection Date
0205079-01A	OTH305-TB1		05/09/02 8:00:00 AM
0205079-02A	OTH305-WG02		05/09/02 4:00:00 PM
0205079-02B	OTH305-WG02		05/09/02 4:00:00 PM
0205079-02BRE	OTH305-WG02		05/09/02 4:00:00 PM
0205079-02C	OTH305-WG02		05/09/02 4:00:00 PM
0205079-02D	OTH305-WG02		05/09/02 4:00:00 PM
0205079-03A	OTH305-WG03		05/09/02 4:15:00 PM
0205079-03B	OTH305-WG03		05/09/02 4:15:00 PM
0205079-03BRE	OTH305-WG03		05/09/02 4:15:00 PM
0205079-03C	OTH305-WG03		05/09/02 4:15:00 PM
0205079-03D	OTH305-WG03		05/09/02 4:15:00 PM
0205079-04A	OTH305-SS01		05/09/02 3:00:00 PM
0205079-04B	OTH305-SS01		05/09/02 3:00:00 PM
0205079-05A	OTH305-SS02		05/09/02 3:15:00 PM
0205079-05B	OTH305-SS02		05/09/02 3:15:00 PM
0205079-06A	OTH305-SS03		05/09/02 3:30:00 PM
0205079-06B	OTH305-SS03		05/09/02 3:30:00 PM

Ecology and Environment, Inc. Analytical Services Center

Cooler Receipt Form

PACKAGE RECEIPT #: 9876 NUMBER OF COOLERS: 1 DATE RECEIVED: 5/9/02

E & E PROJECT #: _____ PROJECT OR SITE NAME: Griffis

A. Preliminary Examination Phase

CIRCLE ON

1. Did coolers come with airbill or packing slip? _____ YES (NO) N

   Enter carrier here and print airbill # below: *(Circle One)* FedEx Airborne Client (Other) _____

   Ship as high hazard or dangerous goods YES (NO) N

2. Did cooler(s) have custody seals? _____ (YES) NO N

3. Were custody seals unbroken and intact on receipt? _____ (YES) NO* N

4. Were custody seals dated and signed? _____ (YES) NO N

5. Sign here to acknowledge receipt of cooler (s): _____

   Date cooler(s) opened: 5/10/02 C-O-C numbers _____

   Cooler(s) opened by (print): JHenderson Signature JHenderson

6. Were the C-O-C forms received? _____ (YES) NO* NA

7. Was the project identifiable from the C-O-C form? _____ (YES) NO* NA
   If YES, enter the project number and name in the heading above.

Please record Temperature Blank Vial or Cooler Temperature for Each Cooler. Range (2 - 6C)* NJDEP must be <4C

AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C
———	3.0				

Thermometer # 129 Correction Factor 0 * If No or Temperature Outside of Acceptable Range, prepare a PM Notification form.

B. Unpacking Phase

8. Was enough packing material used in cooler(s)? _____ (YES) NO NA
   Type of material: ☐ Vermiculite ☒ Bubble Wrap ☐ Other

9. If required, was enough ice used? _____ (YES) NO NA
   If YES, type of ice used: ☒ Wet ☐ Dry ☒ Blue ☐ Other

10. Was a temperature blank vial included inside cooler(s)? _____ (YES) NO NA
    If YES, indicate temperature blank vial temperature in table above. If NO, indicate cooler temperature in table above.

11. Were all containers sealed in separate plastic bags? _____ YES (NO) NA

12. Did all containers arrive unbroken and in good condition? _____ (YES) NO* NA

13. Samples stored in W Cooler before Login Phase? (YES) NO
    If yes: Signature In: _____ Date/Time _____
    Signature Out: JHenderson Date/Time 5/10/02 745

C. Login Phase

Samples Logged in By (print): JHenderson Signature JHenderson Date: 5/10/0

14. Were all container labels complete (e.g. date, time preserved)? _____ (YES) NO* NA

15. Were all C-O-C forms filled out properly in ink and signed? _____ (YES) NO* NA

16. Did the C-O-C form agree with containers received? _____ (YES) NO* NA

17. Were the correct containers used for the tests requested? _____ (YES) NO* NA

18. Were the correct preservatives listed on the sample labels? _____ (YES) NO* NA

19. Was a sufficient sample volume sent for the tests requested? _____ (YES) NO* NA

20. Were all volatile samples received without head space? _____ (YES) NO* NA

*Prepare a PM Notification form.

4A

Ecology and Environment, Inc.
nalytical Services Center
ancaster, New York 14086
hone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

LIENT: E and E Buffalo Office
·oject: GAFB OTH305
ıb Order: 0205079

CASE NARRATIVE

AL metals was not listed on the chain-of-custody form for the soil samples. The analysis was added by Bob eyers on May 13, 2002.

CMS VOLATILES
DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the latile analysis.

mple Analysis
l aqueous volatile samples were determined to be at a pH of 7.

l samples were analyzed within hold time.

libration and Tunes
initial and continuing calibrations were acceptable.

nual integrations were not required.

surrogate recoveries were within acceptable limits except for a low dibromofluoromethane recovery for ıple OTH305-SS01. The sample was reanalyzed with similar results. Both sets of data have been reported.

blank analyses were acceptable.

laboratory control sample (LCS) recoveries were acceptable.

internal standard area responses were acceptable.

MS SEMIVOLATILES
ESTEK (Rtx-5ms) column, which is 30-m long, 0.25-mm wide, and has a 0.5-micron film thickness, was l for the semivolatile analyses. The column contains 5% diphenyl and 95% dimethylpolysiloxane.

ple Analysis
samples were extracted and analyzed within hold time.

bration and Tunes
nitial and continuing calibrations were acceptable.

ual integrations were not required.

QC
All surrogate recoveries were within acceptable limits except 2,4,6-tribromophenol recovery was low in sample OTH305-SS01. No further action was required nor taken.

All blank analyses were acceptable.

All laboratory control sample (LCS) recoveries were acceptable. The RPD for 3,3'-dichlorobenzidine was high for the LCS/LCSD pair.

All internal standard area responses were acceptable.

GC SEMIVOLATILES
PESTICIDE
The columns used for analysis were a CLPesticides (column 1) and a CLPesticides II (column 2), both 30 meters long and 0.53 mm in diameter, with a 1.0 um film thickness. A 1-ul injection was performed on all samples, QC, and standards.

Sample Analysis
All samples were extracted and analyzed within hold time.

Due to an oversight in the preparation of the matrix spiking solution, the concentration of methoxychlor is less than the calculated MDL for this compound. As a result, a percent recovery is not reported for this compound in the LCS, or in the MS/MSD pair.

Calibrations
All initial and continuing calibrations were acceptable.

Manual integrations were not required.

QC
All surrogate recoveries were within acceptable limits except for a high recovery of the surrogate DCB in sample OTH305-SS01. TCMX recovery was within QC limits.

All blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable for sample OTH305-SS03 except for high recoveries of heptachlor in both the MS and MSD, 4,4-DDD in the MSD and methoxychlor as noted above.

All laboratory control sample (LCS) recoveries were acceptable except methoxychlor as noted above.

PCB
The columns used for analysis were a CLPesticides (column 1) and a CLPesticides II (column 2), both 30 meters long and 0.53 mm in diameter, with a 1.0 um film thickness. A 1-ul injection was performed on all samples, QC, and standards.

ample Analysis
ll samples were extracted and analyzed within hold time.

secondary dilution was performed on samples OTH305-WG02 and OTH305-WG03 to bring PCB-1254 within e calibrated range of the instrument.

alibrations
ll initial and continuing calibrations were acceptable.

anual integrations were not required.

l surrogate recoveries were within acceptable limits.

l blank analyses were acceptable.

ETALS
il and TCLP Analysis
samples were digested and analyzed within hold time.

soil samples were analyzed at a two-fold dilution (except for silver) to remove interelemental interferences. porting limits have been adjusted accordingly.

ibrations
initial and continuing calibrations were acceptable.

calibration and preparation blank analyses were acceptable except for manganese which was present in the hod blank at 1.278 mg/kg. Manganese was present in the associated samples at levels 400 times the blank centration. Manganese results have been flagged "B".

matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable except for soil sample H305-SS02 which had low antimony and high calcium recoveries. RPDs were outside QC limits for minum, calcium and iron. Spike recoveries for aluminum, iron, magnesium and manganese were affected by higher levels found in this sample relative to the spike amounts added (4X rule).

aboratory control sample (LCS) recoveries were acceptable.

erial dilution %D values were acceptable except for soil sample OTH305-SS02 which had a high potassium at 36.7%.

CURY
and TCLP Analysis
amples were digested and analyzed within hold time.

rations

All initial and continuing calibrations were acceptable.

QC
All calibration and preparation blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable. The original TCLP data was not reported as a sample was accidentally spike instead of the MS. The reanalysis was within hold time and acceptable.

All laboratory control sample (LCS) recoveries were acceptable.

GENERAL ANALYTICAL CHEMISTRY
Sample Analysis
All samples were analyzed within hold time except for Reactive Sulfide analysis of samples OTH305-WG02 and OTH305-WG03. These samples were initially analyzed within hold time. The analysis had to be repeated due to no LCS recovery. The reanalysis of the samples was done thirteen days past hold time. Results of the original and reanalysis were the same (ND=not detected)

Calibrations
All initial and continuing calibrations standards were acceptable.

QC
All calibration and preparation blank analyses were acceptable.

All matrix duplicate analyses were acceptable.

All laboratory control sample (LCS) recoveries were acceptable except the LCS for Reactive Cyanide had a low recovery at 0.13% (recorded as 0% on the LCS report form; lower limit = 1%). The analysis was not repeated as the hold time had expired.

GCMS VOLATILES
A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

TCLP Analysis
All samples were analyzed within hold time.

Calibration and Tunes
All initial and continuing calibrations were acceptable.

Manual integrations were not required.

QC
All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All laboratory control sample (LCS) recoveries were acceptable.

All internal standard area responses were acceptable.

GCMS SEMIVOLATILES
A HP-5ms column, which is 30-m long, 0.25-mm wide, and has a 0.5-micron film thickness, was used for the emivolatile analyses. The column contains 5% diphenyl and 95% dimethylpolysiloxane.

CLP Analysis
ll samples were extracted and analyzed within hold time.

alibration and Tunes
ll initial and continuing calibrations were acceptable .

lanual integrations were not required.

C
ll surrogate recoveries were within acceptable limits.

ll blank analyses were acceptable.

l laboratory control sample (LCS) recoveries were acceptable.

l internal standard area responses were acceptable.

LP PESTICIDE
e columns used for analysis were a CLPesticides (column 1) and a CLPesticides II (column 2), both 30 meters ıg and 0.53 mm in diameter, with a 1.0 um film thickness. A 1-ul injection was performed on all samples, QC, l standards.

mple Analysis
samples were extracted and analyzed within hold time. The original extracts were not reported as many of surrogate recoveries were low. The reextraction was within hold time.

ibrations
initial and continuing calibrations were acceptable.

ıual integrations were not required.

surrogate recoveries were within acceptable limits except for a low recovery of the surrogate TCMX in ple OTH305-WG02. DCB recovery was within QC limits.

blank analyses were acceptable.

CLIENT:	E and E Buffalo Office
Project:	GAFB OTH305
Lab Order:	0205079

CASE NARRATIVE

All laboratory control sample (LCS) recoveries were acceptable.

TCLP HERBICIDE
The columns used for analysis were a CLPesticides (column 1) and a CLPesticides II (column 2), both 30 meters long and 0.53 mm in diameter, with a 1.0 um film thickness. A 1-ul injection was performed on all samples, QC, and standards.

Sample Analysis
All samples were extracted and analyzed within hold time.

Calibrations
All initial and continuing calibrations were acceptable.

A manual integration was performed on2,4-D in continuing calibration standard TCLP HERB M01 0524, to negate false area which resulted from a shouldering peak.

QC
All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All laboratory control sample (LCS) recoveries were acceptable except for a low recovery of 2,4-D in the LCSD.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Tony Bogolin
Project Manager

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0205079
Client: E and E Buffalo Office
Project: GAFB OTH305

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0205079-01A	OTH305-TB1	05/09/02 8:00:00 AM	05/09/02 8:00:00 PM	Water	VOC by GCMS Method 8260B			05/13/02
0205079-02A	OTH305-WG02	05/09/02 4:00:00 PM			TCLP VOCs by Method 8260B	05/14/02		05/15/02
0205079-02B					PCBs by Method 8082		05/13/02	05/29/02
					TCLP Herbicides by Method 8151A	05/13/02	05/15/02	05/25/02
					TCLP Semivolatile Organics by Method 8270C	05/13/02	05/14/02	05/16/02
0205079-02BRE					TCLP Pesticides by Method 8081A		05/20/02	05/22/02
0205079-02C					Ignitability (Flashpoint), Liquids by Method 1010			06/04/02
					pH by Method 9040B			05/10/02
					Reactive Cyanide by Method 9012A-7.3.3		05/15/02	05/15/02
					Reactive Sulfide by Method 9034-7.3.4		05/15/02 ✓	05/29/02
0205079-02D					TCLP Metals by ICP Method 6010B	05/20/02	05/24/02	06/04/02
0205079-02DRE					TCLP Mercury by Method 7470A		06/14/02 ✓	06/14/02
0205079-03A	OTH305-WG03	05/09/02 4:15:00 PM			TCLP VOCs by Method 8260B	05/14/02		05/15/02
0205079-03B					PCBs by Method 8082		05/13/02	05/29/02
					TCLP Herbicides by Method 8151A	05/13/02	05/15/02	05/25/02
					TCLP Semivolatile Organics by Method 8270C	05/13/02	05/14/02	05/16/02
0205079-03BRE					TCLP Pesticides by Method 8081A		05/20/02	05/22/02
0205079-03C					Ignitability (Flashpoint), Liquids by Method 1010			06/04/02
					pH by Method 9040B			05/10/02
					Reactive Cyanide by Method 9012A-7.3.3		05/15/02	05/15/02
					Reactive Sulfide by Method 9034-7.3.4		05/15/02 ✓	05/29/02
0205079-03D					TCLP Metals by ICP Method 6010B	05/20/02	05/24/02	06/04/02
0205079-03DRE					TCLP Mercury by Method 7470A		06/14/02 ✓	06/14/02
0205079-04A	OTH305-SS01	05/09/02 3:00:00 PM		Soil	Volatile Organic Compounds by Method 8260B			05/10/02

LIMS Version #: 3.1.4.2 - 06/13/02 1:45:00 AM

*Reflects Date of TCLP Extraction Completion

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0205079
Client: E and E Buffalo Office
Project: GAFB OTH305

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0205079-04B	OTH305-SS01	05/09/02 3:00:00 PM	05/09/02 8:00:00 PM	Soil	ACE Semivolatile Organics by Method 8270C		05/13/02	05/14/02
					Mercury Analysis in Soil by Method 7471A		05/24/02	05/29/02
					Metals, TAL by ICP Method 6010B		05/23/02	06/03/02
					PCBs by Method 8082		05/14/02	05/30/02
					Percent Moisture			05/13/02
					Pesticides by Method 8081A		05/14/02	05/30/02
0205079-05A	OTH305-SS02	05/09/02 3:15:00 PM			Volatile Organic Compounds by Method 8260B			05/10/02
0205079-05B					ACE Semivolatile Organics by Method 8270C		05/13/02	05/14/02
					Mercury Analysis in Soil by Method 7471A		05/24/02	05/29/02
					Metals, TAL by ICP Method 6010B		05/23/02	06/03/02
					PCBs by Method 8082		05/14/02	05/30/02
					Percent Moisture			05/13/02
					Pesticides by Method 8081A		05/14/02	05/30/02
0205079-06A	OTH305-SS03	05/09/02 3:30:00 PM			Volatile Organic Compounds by Method 8260B			05/10/02
0205079-06B					ACE Semivolatile Organics by Method 8270C		05/13/02	05/14/02
					Mercury Analysis in Soil by Method 7471A		05/24/02	05/29/02
					Metals, TAL by ICP Method 6010B		05/23/02	06/03/02
					PCBs by Method 8082		05/14/02	05/30/02
					Percent Moisture			05/13/02
					Pesticides by Method 8081A		05/14/02	05/30/02

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Buffalo Office
Project: GAFB OTH305
Work Order: 0205079

Method References

GC Semivolatiles

PCBs by Method 8082	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
Pesticides by Method 8081A	
TCLP Herbicides by Method 8151A	
TCLP Pesticides by Method 8081A	

GCMS Semivolatiles

ACE Semivolatile Organics by Method 8270C	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
TCLP Semivolatile Organics by Method 8270C	

GCMS Volatiles

TCLP VOCs by Method 8260B	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
VOC by GCMS Method 8260B	
Volatile Organic Compounds by Method 8260B	

Mercury

13

Client:	E and E Buffalo Office
Project:	GAFB OTH305
Work Order:	0205079

Method References

Mercury Analysis in Soil by Method 7471A	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
TCLP Mercury by Method 7470A	

Metals

Metals, TAL by ICP Method 6010B	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
TCLP Metals by ICP Method 6010B	

WetChemistry

Ignitability (Flashpoint), Liquids by Method 1010	NIOSH Manual of Analytical Methods (NMAM). 1994. Fourth Edition. National Institute for Occupational Safety and Health
Percent Moisture	Annual Book of ASTM Standards. 1997. Volumes 11.01-11.04 (Water Methods, Atmospheric Analysis, Hazardous Substances). American Society for Testing and Materials.
pH by Method 9040B	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
Reactive Cyanide by Method 9012A-7.3.3	
Reactive Sulfide by Method 9034-7.3.4	

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

ACCREDITED IN ACCORDANCE WITH nelac

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

July 30, 2002

Mr. Thomas Ferraro
E and E Buffalo Office
368 Pleasant View Dr.
Lancaster, NY 14086

RE: WAD 09 AOC 9/PCI 20
CostPoint ID: **001002.UK10.02.03.**

Work Order No.: **0207099**

Dear Mr. Thomas Ferraro,

Ecology and Environment, Inc. received 7 samples on Monday, July 15, 2002 for the analyses presented in the following report.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is $1.00 per sample container per month, to accrue until the client authorizes sample destruction.

Sincerely,

Amy Bogolin
Project Manager

Enclosures as noted

report ends on page 153

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Resul

NYS ELAP ID#: 104

CLIENT: E and E Buffalo Office
Project: WAD 09 AOC 9/PCI 20
Lab Order: 0207099
Date Received: 7/15/2002

Work Order Sample Summary

Lab Sample I	Client Sample ID	Alt. Client Id	Collection Date
0207099-01A	AFFF-SD01		7/15/2002 3:40:00 PM
0207099-01B	AFFF-SD01		7/15/2002 3:40:00 PM
0207099-02A	AFFF-SD01/D		7/15/2002 3:40:00 PM
0207099-02B	AFFF-SD01/D		7/15/2002 3:40:00 PM
0207099-03A	AFFF-SD02		7/15/2002 3:55:00 PM
0207099-03B	AFFF-SD02		7/15/2002 3:55:00 PM
0207099-04A	PCI20-NS06		7/15/2002 2:25:00 PM
0207099-05A	PCI20-NS07		7/15/2002 2:40:00 PM
0207099-06A	PCI20-NS08		7/15/2002 2:50:00 PM
0207099-07A	PCI20-NS06/D		7/15/2002 2:25:00 PM

Ecology and Environment, Inc. Analytical Services Center

Cooler Receipt Form

PACKAGE RECEIPT #: 10265 NUMBER OF COOLERS 1 DATE RECEIVED: 7-15-02

E & E PROJECT #: _____ PROJECT OR SITE NAME: Griffiss AFB

A. Preliminary Examination Phase

CIRCLE ONE

1. Did coolers come with airbill or packing slip? YES NO NA

   Enter carrier here and print airbill # below: *(Circle One)* FedEx Airborne Client Other

   Ship as high hazard or dangerous goods YES NO NA

2. Did cooler(s) have custody seals? YES NO NA

3. Were custody seals unbroken and intact on receipt? YES NO* NA

4. Were custody seals dated and signed? YES NO NA

5. Sign here to acknowledge receipt of cooler (s): William H. Howard

6. Cooler(s) opened: 7-15-02 C-O-C numbers: _____

7. Cooler(s) opened by (print): William H. Howard Signature: William H. Howard

8. Were the C-O-C forms received? YES NO* NA

9. Was the project identifiable from the C-O-C form? YES NO* NA
   If YES, enter the project number and name in the heading above.

Please record Temperature Blank Vial or Cooler Temperature for Each Cooler, Range (2 - 6C)* NJDEP must be ≤4C

~~AIRBILL #~~ Manifest	TEMP. °C	AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C
109125	3.5				

Thermometer # 129 Correction Factor +0.5 * If No or Temperature Outside of Acceptable Range, prepare a PM Notification form.

B. Unpacking Phase

1. Was enough packing material used in cooler(s)? YES NO NA
   Type of material: Vermiculite Bubble Wrap Other

2. If required, was enough ice used? YES NO NA
   If YES, type of ice used: Wet Dry Blue Other

3. Was a temperature blank vial included inside cooler(s)? YES NO NA
   If YES, indicate temperature blank vial temperature in table above. If NO, indicate cooler temperature in table above.

4. Were all containers sealed in separate plastic bags? YES NO NA

5. Did all containers arrive unbroken and in good condition? YES NO* NA

6. Samples stored in W Cooler before Login Phase? YES NO
   If Yes Signature In: _____ Date/Time: _____
   Signature Out: _____ Date/Time: _____

C. Login Phase

Samples Logged In By (print): William H. Howard Signature: William H. Howard Date: 7-15-02

1. Were all container labels complete (e.g. date, time preserved)? YES NO* NA

2. Were all C-O-C forms filled out properly in ink and signed? YES NO* NA

3. Did the C-O-C form agree with containers received? YES NO* NA

4. Were the correct containers used for the tests requested? YES NO* NA

5. Were the correct preservatives listed on the sample labels? YES NO* NA

6. Was a sufficient sample volume sent for the tests requested? YES NO* NA

7. Were all volatile samples received without head space? YES NO* NA

*Prepare a PM Notification form.

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: WAD 09 AOC 9/PCI 20
Lab Order: 0207099

CASE NARRATIVE

GCMS VOLATILES
A DB 624 or equivalent column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

Sample Analysis
All samples were analyzed within hold time.

Calibration and Tunes
All initial and continuing calibrations were acceptable.

QC
All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable. Acetone was present in the soil method blank above the MDL and below the reporting limit.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable for sample AFFF-SD01except for low recoveries of vinyl acetate.

All laboratory control sample (LCS) recoveries were acceptable except acetone and carbon tetrachloride recoveries were 2% and 1% high, respectively.

All internal standard area responses were acceptable.

GCMS SEMIVOLATILES
A RESTEK (Rtx-5ms) column, which is 30-m long, 0.25-mm wide, and has a 0.5-micron film thickness, was used for the semivolatile analyses. The column contains 5% diphenyl and 95% dimethylpolysiloxane.

Sample Analysis
All samples were extracted and analyzed within hold time .

Calibration and Tunes
All initial and continuing calibrations were acceptable.

QC
All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable for sample AFFF-SD01

xcept two spike recoveries were low (3,3-Dichlorobenzidine, hexachlorocyclopentadiene) and two spike ecoveries were high (benzoic acid, pentachlorophenol). The corresponding MSD had the same compounds out. The following compounds had high RPD values: 3,3'-Dichlorobenzidine, hexachlorocyclopentadiene.

All laboratory control sample (LCS) recoveries were acceptable except for a high indeno(1,2,3-cd)pyrene ecovery.

ll internal standard area responses were acceptable.

C SEMIVOLATILES
ESTICIDE
he columns used for analysis were a CLPesticides (column 1) and a CLPesticides II (column 2), both 30 meters ng and 0.53 mm in diameter, with a 1.0 um film thickness. A 1-ul injection was performed on all samples, QC, d standards.

mple Analysis
l samples were extracted and analyzed within hold time.

librations
initial and continuing calibrations were acceptable.

nual integrations were not required.

surrogate recoveries were within acceptable limits.

blank analyses were acceptable.

matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable.

aboratory control sample (LCS) recoveries were acceptable.

column used for analysis was a CLPesticides, 30 meters long and 0.53 mm in diameter, with a 1.0 um film ness. A 1-ul injection was performed on all samples, QC, and standards.

le Analysis
mples were extracted and analyzed within hold time.

rations
itial and continuing calibrations were acceptable.

al integrations were not required.

rogate recoveries were within acceptable limits.

CLIENT:	E and E Buffalo Office
Project:	WAD 09 AOC 9/PCI 20
Lab Order:	0207099

CASE NARRATIVE

All blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable except for a high recovery of Aroclor 1016 in both the MS and MSD of sample AFFF-SD01.

All laboratory control sample (LCS) recoveries were acceptable.

METALS
Sample Analysis
All samples were digested and analyzed within hold time.

All soil samples were diluted two or five-fold due to poor internal standard response and/or interelemental interferences.

Calibrations
Calibration of the ICP utilizes a zero and one non-zero standard to determine the linear equation for quantitation. A low concentration standard (PQL) is analyzed at the reporting level.

All initial and continuing calibrations were acceptable.

QC
All calibration and preparation blank analyses were acceptable. Antimony and iron were present in the method blank above the MDL and below the reporting limit.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable for sample AFFF-SD-01except for aluminum,antimony, calcium, iron, magnesium, manganese, potassium and silver. Aluminum and iron recoveries were affected by the elevated levels of these elements in the sample relative to the spike amount added. RPDs were high for aluminum, calcium and manganese for the MS/MSD pair.

The matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable for sample PCI20-NS08 except for a high lead recovery in the MS. Lead recoveries were affected by the elevated level of this element in the sample relative to the spike amount added.

All laboratory control sample (LCS) recoveries were acceptable.

Serial dilution %D values were out for aluminum, iron, potassium, magnesium and manganese for sample AFF-SD01 and lead for sample PCI20-NS08.

MERCURY
Sample Analysis
All samples were digested and analyzed within hold time.

Calibrations
All initial and continuing calibrations were acceptable.

CLIENT:	E and E Buffalo Office
Project:	WAD 09 AOC 9/PCI 20
Lab Order:	0207099

CASE NARRATIVE

QC

All calibration and preparation blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable.

All laboratory control sample (LCS) recoveries were acceptable.

GENERAL ANALYTICAL CHEMISTRY

ample Analysis

ll samples were analyzed within hold time.

C

he matrix duplicate (MD) was acceptable.

ertify that this data package is in compliance with the terms and conditions of the contract, both technically d for completeness, for other than the conditions detailed above. Release of the data contained in this rdcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified the following signature.

ny Bogoli

ject Manager

Ecology and Environment, Inc.

Analytical Services Center

Lancaster, New York 14086

Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0207099

Client: E and E Buffalo Office

Project: WAD 09 AOC 9/PCI 20

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0207099-01A	AFFF-SD01	7/15/2002 3:40:00 PM	7/15/2002 10:36:00 PM	Sediment	Volatile Organic Compounds by Method 8260B			7/16/2002
0207099-01B					ACE Semivolatile Organics by Method 8270C		7/17/2002	7/20/2002
					Griffiss Metals, TAL by ICP Method 6010B		7/18/2002	7/25/2002
					Mercury Analysis in Soil by Method 7471A		7/18/2002	7/19/2002
					PCBs by Method 8082		7/16/2002	7/19/2002
					Percent Moisture			7/17/2002
					Pesticides by Method 8081A		7/16/2002	7/19/2002
0207099-02A	AFFF-SD01/D				Volatile Organic Compounds by Method 8260B			7/16/2002
0207099-02B					ACE Semivolatile Organics by Method 8270C		7/17/2002	7/25/2002
					Griffiss Metals, TAL by ICP Method 6010B		7/18/2002	7/26/2002
					Mercury Analysis in Soil by Method 7471A		7/18/2002	7/19/2002
					PCBs by Method 8082		7/16/2002	7/19/2002
					Percent Moisture			7/17/2002
					Pesticides by Method 8081A		7/16/2002	7/19/2002
0207099-03A	AFFF-SD02	7/15/2002 3:55:00 PM			Volatile Organic Compounds by Method 8260B			7/16/2002
0207099-03B					ACE Semivolatile Organics by Method 8270C		7/17/2002	7/25/2002
					Griffiss Metals, TAL by ICP Method 6010B		7/18/2002	7/26/2002
					Mercury Analysis in Soil by Method 7471A		7/18/2002	7/19/2002
					PCBs by Method 8082		7/16/2002	7/19/2002
6					Percent Moisture			7/17/2002
					Pesticides by Method 8081A		7/16/2002	7/19/2002
0207099-04A	PCI20-NS06	7/15/2002 2:25:00 PM		Soil	Griffiss Metals, TAL by ICP Method 6010B		7/18/2002	7/24/2002
					Percent Moisture			7/17/2002

**Reflects Date of TCLP Extraction Completion*

...gy and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0207099
Client: E and E Buffalo Office
Project: WAD 09 AOC 9/PCI 20

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0207099-05A	PCI20-NS07	7/15/2002 2:40:00 PM	7/15/2002 10:36:00 PM	Soil	Griffiss Metals, TAL by ICP Method 6010B		7/18/2002	7/24/2002
					Percent Moisture			7/17/2002
0207099-06A	PCI20-NS08	7/15/2002 2:50:00 PM			Griffiss Metals, TAL by ICP Method 6010B		7/18/2002	7/24/2002
					Percent Moisture			7/17/2002
0207099-07A	PCI20-NS06/D	7/15/2002 2:25:00 PM			Griffiss Metals, TAL by ICP Method 6010B		7/18/2002	7/24/2002
					Percent Moisture			7/17/2002

LIMS Version #: 3.1.4.4 - 7/26/2002 7:00:00 PM

**Reflects Date of TCLP Extraction Completion. For Re-extracted samples (*RE) reflects the TCLP Extraction from the original sample unless the date differs from the original sample's TCLP extraction date which indicates TCLP extraction was also re-done.*

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Buffalo Office
Project: WAD 09 AOC 9/PCI 20
Work Order: 0207099

Method References

GC Semivolatiles

PCBs by Method 8082	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
Pesticides by Method 8081A	

GCMS Semivolatiles

ACE Semivolatile Organics by Method 8270C	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

GCMS Volatiles

Volatile Organic Compounds by Method 8260B	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

Mercury

Mercury Analysis in Soil by Method 7471A	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

Metals

Griffiss Metals, TAL by ICP Method 6010B	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

WetChemistry

Client:	E and E Buffalo Office
Project:	WAD 09 AOC 9/PCI 20
Work Order:	0207099

Method References

Percent Moisture	Annual Book of ASTM Standards. 1997. Volumes 11.01-11.04 (Water Methods, Atmospheric Analysis, Hazardous Substances). American Society for Testing and Materials.

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

ACCREDITED IN ACCORDANCE WITH nelac

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

August 15, 2002

Mr. Thomas Ferraro
E and E Buffalo Office
368 Pleasant View Dr.
Lancaster, NY 14086

RE: WAD 09 AOI 473
Work Order No.: **0207128**

Dear Mr. Thomas Ferraro,

Ecology and Environment, Inc. received 13 samples on Wednesday, July 17, 2002 for the analyses presented in the following report.

You will receive an invoice under separate cover.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is $1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

Sincerely,

Tony Bogolin
Project Manager

CC:
Enclosures as note

This report ends on page 251

Ecology and Environment, Inc.

Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: WAD 09 AOI 473
Lab Order: 0207128
Date Received: 7/17/2002

Work Order Sample Summary

Lab Sample I	Client Sample ID	Alt. Client Id	Collection Date
0207128-01A	FIELDQC-FB473-RM10-SP1		7/17/2002 6:00:00 PM
0207128-02A	G473-RM10-SD01		7/17/2002 3:00:00 PM
0207128-03A	G473-RM10-SP01		7/17/2002 3:02:00 PM
0207128-03B	G473-RM10-SP01		7/17/2002 3:02:00 PM
0207128-03C	G473-RM10-SP01		7/17/2002 3:02:00 PM
0207128-03D	G473-RM10-SP01		7/17/2002 3:02:00 PM
0207128-03E	G473-RM10-SP01		7/17/2002 3:02:00 PM
0207128-04A	G473-RM10-SP01/D		7/17/2002 3:02:00 PM
0207128-04B	G473-RM10-SP01/D		7/17/2002 3:02:00 PM
0207128-04C	G473-RM10-SP01/D		7/17/2002 3:02:00 PM
0207128-04D	G473-RM10-SP01/D		7/17/2002 3:02:00 PM
0207128-04E	G473-RM10-SP01/D		7/17/2002 3:02:00 PM
0207128-05A	G473-RM10-SP02		7/17/2002 3:15:00 PM
0207128-05B	G473-RM10-SP02		7/17/2002 3:15:00 PM
0207128-05C	G473-RM10-SP02		7/17/2002 3:15:00 PM
0207128-05D	G473-RM10-SP02		7/17/2002 3:15:00 PM
0207128-05E	G473-RM10-SP02		7/17/2002 3:15:00 PM
0207128-06A	G473-RM10-SP03		7/17/2002 3:28:00 PM
0207128-06B	G473-RM10-SP03		7/17/2002 3:28:00 PM
0207128-06C	G473-RM10-SP03		7/17/2002 3:28:00 PM
0207128-06D	G473-RM10-SP03		7/17/2002 3:28:00 PM
0207128-06E	G473-RM10-SP03		7/17/2002 3:28:00 PM
0207128-07A	G473-RM10-SP04		7/17/2002 3:39:00 PM
0207128-07B	G473-RM10-SP04		7/17/2002 3:39:00 PM
0207128-07C	G473-RM10-SP04		7/17/2002 3:39:00 PM
0207128-07D	G473-RM10-SP04		7/17/2002 3:39:00 PM
0207128-07E	G473-RM10-SP04		7/17/2002 3:39:00 PM
0207128-08A	G473-RM10-SP05		7/17/2002 3:50:00 PM
0207128-08B	G473-RM10-SP05		7/17/2002 3:50:00 PM
0207128-08C	G473-RM10-SP05		7/17/2002 3:50:00 PM
0207128-08D	G473-RM10-SP05		7/17/2002 3:50:00 PM
0207128-08E	G473-RM10-SP05		7/17/2002 3:50:00 PM

CLIENT:	E and E Buffalo Office
Project:	WAD 09 AOI 473
Lab Order:	0207128
Date Received:	7/17/2002

Work Order Sample Summary

Lab Sample I	Client Sample ID	Alt. Client Id	Collection Date
0207128-09A	G473-RM10-SP06		7/17/2002 3:56:00 PM
0207128-09B	G473-RM10-SP06		7/17/2002 3:56:00 PM
0207128-09C	G473-RM10-SP06		7/17/2002 3:56:00 PM
0207128-09D	G473-RM10-SP06		7/17/2002 3:56:00 PM
0207128-09E	G473-RM10-SP06		7/17/2002 3:56:00 PM
0207128-10A	G473-RM10-SP07		7/17/2002 4:05:00 PM
0207128-10B	G473-RM10-SP07		7/17/2002 4:05:00 PM
0207128-10C	G473-RM10-SP07		7/17/2002 4:05:00 PM
0207128-10D	G473-RM10-SP07		7/17/2002 4:05:00 PM
0207128-10E	G473-RM10-SP07		7/17/2002 4:05:00 PM
0207128-11A	G473-RM10-SP08		7/17/2002 4:15:00 PM
0207128-11B	G473-RM10-SP08		7/17/2002 4:15:00 PM
0207128-11C	G473-RM10-SP08		7/17/2002 4:15:00 PM
0207128-11D	G473-RM10-SP08		7/17/2002 4:15:00 PM
0207128-11E	G473-RM10-SP08		7/17/2002 4:15:00 PM
0207128-12A	G473-RM10-SP09		7/17/2002 4:21:00 PM
0207128-12B	G473-RM10-SP09		7/17/2002 4:21:00 PM
0207128-12C	G473-RM10-SP09		7/17/2002 4:21:00 PM
0207128-12D	G473-RM10-SP09		7/17/2002 4:21:00 PM
0207128-12E	G473-RM10-SP09		7/17/2002 4:21:00 PM
0207128-13A	G473-RM10-SP10		7/17/2002 4:28:00 PM
0207128-13B	G473-RM10-SP10		7/17/2002 4:28:00 PM
0207128-13C	G473-RM10-SP10		7/17/2002 4:28:00 PM
0207128-13D	G473-RM10-SP10		7/17/2002 4:28:00 PM
0207128-13E	G473-RM10-SP10		7/17/2002 4:28:00 PM

Ecology and Environment, Inc. Analytical Services Center

Cooler Receipt Form

PACKAGE RECEIPT #: 10385 NUMBER OF COOLERS: 2 DATE RECEIVED: 7/17/02

E & E PROJECT #: _____ PROJECT OR SITE NAME: Griffis

A. Preliminary Examination Phase

CIRCLE ONE

1. Did coolers come with airbill or packing slip? YES (NO) NA
   Enter carrier here and print airbill # below: *(Circle One)* FedEx Airborne Client (Other) E+E
   Ship as high hazard or dangerous goods YES (NO) NA
2. Did cooler(s) have custody seals? (YES) NO NA
3. Were custody seals unbroken and intact on receipt? (YES) NO* NA
4. Were custody seals dated and signed? (YES) NO NA
5. Sign here to acknowledge receipt of cooler (s): Kevin Oakley
   Date cooler(s) opened: 7/17/02 C-O-C numbers: _____
   Cooler(s) opened by (print): Kevin Oakley Signature: Kevin Oakley
6. Were the C-O-C forms received? (YES) NO* NA
7. Was the project identifiable from the C-O-C form? (YES) NO* NA
   If YES, enter the project number and name in the heading above.

Please record Temperature Blank Vial or Cooler Temperature for Each Cooler, Range (2 - 6C)* NJDEP must be ≤4C

AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C
1 of 2	4.0	2 of 2	4.5		

Thermometer # 129 Correction Factor +.5 * If No or Temperature Outside of Acceptable Range, prepare a PM Notification form.

B. Unpacking Phase

8. Was enough packing material used in cooler(s)? (YES) NO NA
   Type of material: ☐ Vermiculite ☒ Bubble Wrap ☐ Other
9. If required, was enough ice used? (YES) NO NA
   If YES, type of ice used: ☒ Wet ☐ Dry ☐ Blue ☐ Other
10. Was a temperature blank vial included inside cooler(s)? (YES) NO NA
    If YES, indicate temperature blank vial temperature in table above. If NO, indicate cooler temperature in table above.
11. Were all containers sealed in separate plastic bags? (YES) NO NA
12. Did all containers arrive unbroken and in good condition? (YES) NO* NA
13. Samples stored in W Cooler before Login Phase? YES (NO)
    If Yes Signature In: _____ Date/Time: _____
    Signature Out: _____ Date/Time: _____

C. Login Phase

Samples Logged in By (print): Kevin Oakley Signature: Kevin Oakley Date: 7/17/02

14. Were all container labels complete (e.g. date, time preserved)? (YES) NO* NA
15. Were all C-O-C forms filled out properly in ink and signed? (YES) NO* NA
16. Did the C-O-C form agree with containers received? (YES) NO* NA
17. Were the correct containers used for the tests requested? (YES) NO* NA
18. Were the correct preservatives listed on the sample labels? (YES) NO* NA
19. Was a sufficient sample volume sent for the tests requested? (YES) NO* NA
20. Were all volatile samples received without head space? YES NO* (NA)

*Prepare a PM Notification form.

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: WAD 09 AOI 473
Lab Order: 0207128

CASE NARRATIVE

TRPH and PCB analysis was not performed on the blank wipe FIELDQC-FB473-RM10-SP1 as the blank wipes designated for these analysis were used in the remaining analysis. Bob Meyers was notified and additional blank wipes were requested but none were received.

GCMS SEMIVOLATILES
SOIL
A RESTEK (Rtx-5ms) column, which is 30-m long, 0.25-mm wide, and has a 0.5-micron film thickness, was used for the semivolatile analyses. The column contains 5% diphenyl and 95% dimethylpolysiloxane.

Sample Analysis
All samples were extracted and analyzed within hold time.

TIC's (Tentatively Identified Compounds) were computer generated. No analyst interpretation was performed on the TIC's.

Calibration and Tunes
All initial and continuing calibrations were acceptable.

A manual integration was required on sample G473-RM10-SD01 for internal standard phenanthrene-d10 which was not identified by the data system due to sample matrix interferences.

QC
All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable. Bis(2-ethylhexyl)phthalate was detected in the method blank above the MDL and below the reporting limit.

All laboratory control sample (LCS) recoveries were acceptable.

All internal standard area responses were acceptable except sample G473-RM10-SD01 had three low IS responses. The sample was analyzed a second time with two low IS responses. The sample exhibited the classic hydrocarbon cnvelope. Sample matrix interference is the cause of the low IS areas.

GCMS SEMIVOLATILES
WIPES
A RESTEK (Rtx-5ms) column, which is 30-m long, 0.25-mm wide, and has a 0.5-micron film thickness, was used for the semivolatile analyses. The column contains 5% diphenyl and 95% dimethylpolysiloxane.

Sample Analysis
All samples were extracted and analyzed within hold time.

TIC's (Tentatively Identified Compounds) were computer generated. No analyst interpretation was performed on the TIC's.

amples G473-RN10-SP04 and G473-RN10-SP07 were analyzed at a six-fold dilution for bis(2-thylhexyl)phthalate due to the levels detected. The result from the diluted run were merged and reported with ıe undiluted analysis.

ll initial and continuing calibrations were acceptable.

[anual integrations were required on multiple samples due to matrix interferences. Samples G473-RM10-P01, G473-RM10-SP01/D , G473-RM10-SP02, G473-RM10-SP03, G473-RM10-SP04, G473-RM10-SP07, 473-RM10-SP10 all required a manual integration for the interanl standard phenamthrene-d10 which eluted in e middle of large hydrocarbon "hump". Sample G473-RM10-SP01/D also required integrations for 2,4,6-bromophenol and bis(2-ethylhexyl)phthalate. Sample G473-RM10-SP07 also required integrations for 2,4,6-bromophenol, terphenyl-d14, and chrysene-d12. Sample G473-RM10-SP10 also required an integration for tyl benzyl phthalate. Samples G473-RM10-SP02MS, G473-RM10-SP02MSD both required multiple tegrations for spike compounds. Again, all the integrations were required because the data system did not egrate the peaks properly due to the matrix interferences from the sample.

l surrogate recoveries were within acceptable limits except sample G473-RM10-SP07 had a low recovery for ,6-tribromophenol at 24% (32% limit) and the MSD of sample G473-RM10-SP02 had a low recovery for ,6-tribromophenol at 22% (32% limit).

l blank analyses were acceptable.

matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable for sample G473-RM10-02 except the MS had 7 high recoveries and 5 low recoveries and the MSD had 7 low and 3 high recoveries ulting in 19 high RPD's. See the MS/MSD summary sheet for details.

laboratory control sample (LCS) recoveries were acceptable except LCS-200202067 had a low recovery for hloroaniline at 11% (20% limit).

internal standard area responses were acceptable except samples G473-RM10-SP01, G473-RM10-SP01/D , 73-RM10-SP02, G473-RM10-SP02MS, G473-RM10-SP02MSD, G473-RM10-SP03, G473-RM10-SP04, 73-RM10-SP07, G473-RM10-SP10 all had tow or three low IS responses due to sample matrix rferences. See enclosed chromatograms and IS summary form for details.

SEMIVOLATILES
3 SOIL
column used for analysis was a CLPesticides II, 30 meters long and 0.53 mm in diameter, with a 1.0 um film kness. A 1-ul injection was performed on all samples, QC, and standards.

ple Analysis
samples were extracted and analyzed within hold time.

Calibrations
All initial and continuing calibrations were acceptable.

Manual integrations were not required.

QC
All surrogate recoveries were within acceptable limits except for a high recovery of the surrogate DCB in sample G473-RM10-SD01. Recovery was elevated due to sample matrix interferences.

All blank analyses were acceptable.

All laboratory control sample (LCS) recoveries were acceptable.

PCB WIPES
The column used for analysis was a CLPesticides II, 30 meters long and 0.53 mm in diameter, with a 1.0 um film thickness. A 1-ul injection was performed on all samples, QC, and standards.

Sample Analysis
All samples were extracted and analyzed within hold time.

A secondary dilution was performed on sample G473-RM10-SP07, based on the level of non-target compounds present in the native extract.

Calibrations
All initial and continuing calibrations were acceptable.

A manual integration was performed on the surrogate DCB in samples G473-RM10-SP01 and G473-RM10-SP01/D, to negate false area which resulted from an elevated baseline.

QC
All surrogate recoveries were within acceptable limits except for a high recovery of the surrogate DCB in samples G473-RM10-SP04, G473-RM10-SP05 and G473-RM10-SP08. TCMX recovery was elevated in sample G473-RM10-SP09 and the MSD of sample G473-RM10-SP02. The elevated recoveries are a result of sample matrix interferences. The method blank, LCS and the MS of sample G473-RM10-SP02 had both surrogates high. Reextraction was not performed as no additional wipes were available.

All blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values for sample G473-RM10-SP02 were outside acceptable limits except for recovery of Aroclor 1016 in the MS.

All laboratory control sample (LCS) recoveries were slightly outside acceptable limits on the high side. Reextraction was not performed as no additional wipes were available.

CLIENT:	E and E Buffalo Office
Project:	WAD 09 AOI 473
Lab Order:	0207128

CASE NARRATIVE

METALS
Sample Analysis
All samples were digested and analyzed within hold time.

Sediment sample G473-RM10-SD01 was analyzed at a twenty-fold dilution due to the levels of calcium and iron present. All of the wipe samples except for sample FIELDQC-FB473-RM10-SP1 were analyzed at secondary dilutions due to the level of iron and/or calcium present.

Calibrations
Calibration of the ICP utilizes a zero and one non-zero standard to determine the linear equation for quantitation. A low concentration standard (PQL) is analyzed at the reporting level.

All initial and continuing calibrations were acceptable.

QC
All calibration and preparation blank analyses were acceptable. Potassium and selenium were present in the soil method blank above the MDL and below the reporting limit. Aluminum and manganese were present in the wipe method blank above the MDL and below the reporting limit. RPD values were high for aluminum, copper, lead, manganese, nickel, silver and zinc for the wipe MS/MSD pair.

All matrix spike/spike duplicate (MS/MSD) recoveries were outside acceptance limits in wipe sample G473-RM10-SP02 except for arsenic, barium, beryllium, cadmium, cobalt, magnesium, selenium and thallium. For any of the elements the concentration in the sample exceeded the spike amount by greater than four times.

All laboratory control sample (LCS) recoveries were acceptable.

All serial dilution %D values were acceptable for wipe sample G473-RM10-SP02 except for sodium.

MERCURY
Sample Analysis
All samples were digested and analyzed within hold time.

Sediment sample G473-RM10-SD01 was analyzed at a two-fold dilution due to the level of mercury present. All of the wipe samples except samples FIELDQC-FB473-RM10-SP1 and G473-RM10-SP10 were analyzed at secondary dilutions due to the levels of mercury present.

Calibrations
All initial and continuing calibrations were acceptable.

All calibration and preparation blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were outside acceptance limits for wipe sample G473-RM10-SP02. This sample contained mercury at levels greater than 60 times the spike amount added.

CLIENT:	E and E Buffalo Office
Project:	WAD 09 AOI 473
Lab Order:	0207128

CASE NARRATIVE

All laboratory control sample (LCS) recoveries were acceptable.

GENERAL ANALYTICAL CHEMISTRY
Sample Analysis
All samples were analyzed within hold time.

Wipe samples G473-RM10-SP03 and G473-RM10-SP10 were analyzed at two-fold dilutions due to the levels of petroleum hydrocarbons present.

QC
All calibration and preparation blank analyses were acceptable.

All matrix spikes (MS) and duplicates (MD) were acceptable.

All laboratory control sample (LCS) recoveries were acceptable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Tony Bogolin
Project Manager

Ecology and Environment, Inc.

Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0207128
Client: E and E Buffalo Office
Project: WAD 09 AOI 473

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0207128-01A	FIELDQC-FB473-RM10-SP1	7/17/2002 6:00:00 PM	7/17/2002 11:06:00 PM	Wipe	ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/2/2002
0207128-02A	G473-RM10-SD01	7/17/2002 3:00:00 PM		Sediment	ACE Semivolatile Organics by Method 8270C		7/19/2002	8/2/2002
					Griffiss Metals, TAL by ICP Method 6010B		7/19/2002	7/22/2002
					Mercury Analysis in Soil by Method 7471A		7/24/2002	7/25/2002
					PCBs by Method 8082		7/18/2002	7/23/2002
					Percent Moisture			7/19/2002
					TRPH by Method 418.1M			8/10/2002
0207128-03A	G473-RM10-SP01	7/17/2002 3:02:00 PM		Wipe	PCBs by Method 8082			7/26/2002
0207128-03B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-03C					TRPH by Method 418.1M			8/10/2002
0207128-03D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-03E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-04A	G473-RM10-SP01/D				PCBs by Method 8082			7/26/2002
0207128-04B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-04C					TRPH by Method 418.1M			8/10/2002
0207128-04D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-04E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-05A	G473-RM10-SP02	7/17/2002 3:15:00 PM			PCBs by Method 8082			7/31/2002
0207128-05B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/9/2002
0207128-05C					TRPH by Method 418.1M			8/10/2002
0207128-05D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002

LIMS Version #: 3.1.4.4 - 7/31/2002 1:00:00 PM

**Reflects Date of TCLP Extraction Completion. For Re-extracted samples (*RE) reflects the TCLP Extraction from the original sample unless the date differs from the original sample's TCLP extraction date which indicates TCLP extraction was also re-done.*

Ecology and Environment, Inc.

Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0207128
Client: E and E Buffalo Office
Project: WAD 09 AOI 473

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0207128-05E	G473-RM10-SP02	7/17/2002 3:15:00 PM	7/17/2002 11:06:00 PM	Wipe	Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-06A	G473-RM10-SP03	7/17/2002 3:28:00 PM			PCBs by Method 8082			7/31/2002
0207128-06B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-06C					TRPH by Method 418.1M			8/10/2002
0207128-06D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-06E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-07A	G473-RM10-SP04	7/17/2002 3:39:00 PM			PCBs by Method 8082			7/27/2002
0207128-07B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-07C					TRPH by Method 418.1M			8/10/2002
0207128-07D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-07E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-08A	G473-RM10-SP05	7/17/2002 3:50:00 PM			PCBs by Method 8082			7/27/2002
0207128-08B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-08C					TRPH by Method 418.1M			8/10/2002
0207128-08D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-08E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-09A	G473-RM10-SP06	7/17/2002 3:56:00 PM			PCBs by Method 8082			7/31/2002
0207128-09B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-09C					TRPH by Method 418.1M			8/10/2002
0207128-09D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-09E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-10A	G473-RM10-SP07	7/17/2002 4:05:00 PM			PCBs by Method 8082			7/31/2002
0207128-10B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002

*Reflects Date of TCLP Extraction Completion. For Re-extracted

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0207128
Client: E and E Buffalo Office
Project: WAD 09 AOI 473

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0207128-10C	G473-RM10-SP07	7/17/2002 4:05:00 PM	7/17/2002 11:06:00 PM	Wipe	TRPH by Method 418.1M			8/10/2002
0207128-10D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-10E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-11A	G473-RM10-SP08	7/17/2002 4:15:00 PM			PCBs by Method 8082			7/27/2002
0207128-11B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-11C					TRPH by Method 418.1M			8/10/2002
0207128-11D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-11E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-12A	G473-RM10-SP09	7/17/2002 4:21:00 PM			PCBs by Method 8082			7/31/2002
0207128-12B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-12C					TRPH by Method 418.1M			8/10/2002
0207128-12D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-12E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002
0207128-13A	G473-RM10-SP10	7/17/2002 4:28:00 PM			PCBs by Method 8082			7/31/2002
0207128-13B					ACE Semivolatile Organics by Method 8270C		7/24/2002	8/8/2002
0207128-13C					TRPH by Method 418.1M			8/10/2002
0207128-13D					Metals Analysis of a Wipe by ICP Method 6010B		7/25/2002	8/1/2002
0207128-13E					Mercury Analysis of Wipe by Method 7471A		7/19/2002	7/24/2002

**Reflects Date of TCLP Extraction Completion. For Re-extracted samples (*RE) reflects the TCLP Extraction from the original sample unless the date differs from the original sample's TCLP extraction date which indicates TCLP extraction was also re-done.*

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Buffalo Office
Project: WAD 09 AOI 473
Work Order: 0207128

Method References

GC Semivolatiles

PCBs by Method 8082	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

GCMS Semivolatiles

ACE Semivolatile Organics by Method 8270C	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

Mercury

Mercury Analysis in Soil by Method 7471A	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
Mercury Analysis of Wipe by Method 7471A	

Metals

Griffiss Metals, TAL by ICP Method 6010B	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes.1A, 1B, 1C & Volume 2. (Includes all promulgated Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
Metals Analysis of a Wipe by ICP Method 6010B	

WetChemistry

Client:	E and E Buffalo Office
Project:	WAD 09 AOI 473
Work Order:	0207128

Method References

Percent Moisture	Annual Book of ASTM Standards. 1997. Volumes 11.01-11.04 (Water Methods, Atmospheric Analysis, Hazardous Substances). American Society for Testing and Materials.
TRPH by Method 418.1M	Methods for Chemical Analysis of Water and Wastes. 1983. EPA-600/4-79-020. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory.

F

Systems Audits

ecology and environment, inc.

FIELD LOGBOOK AUDIT FORM

Audit Date: 7/18/02	**Site Name:** GAFB -WAD 9
Auditor: Rick Watt	**Team Members:** R. Meyers, B. Cervi, S. Reynolds Smith
Quality Assurance Notice (QAN):	

Initial Information	Yes	No	NA	Comments
Site Name	✓			
Location	✓			
Client I.D.		✓		Client name not included Job number (with Contract code) included
Date of Work	✓			
Arrival/Departure Times	✓			
Proposed Daily Activities	✓			
On-going Weather	✓			
Team Members and Duties	✓			
Other Personnel and Affiliations	✓			
Other:				
HEALTH AND SAFETY				
Meeting Conducted	✓			
Personnel Attending	✓			
Levels of Protection for each Phase of Work	✓			
Safety Equipment	✓			
Equipment I.D. #		✓		Equipment types noted, not serial numbers.
Calibration		✓		Calibration not applicable. Instrument zeroed in clean air.
Background Readings	✓			Noted for AOI473
On-site Reading	✓			For AOC9, readings recorded on COC
Other:				
SAMPLE/DATA COLLECTION EQUIPMENT				
Types	✓			
Serial # (I.D. #)		✓		
Calibration		✓		See above
Background Readings	✓			Noted for AOI473
On-site Readings/Locations	✓			For AOI473, readings recorded in log. For AOC9, readings recorded on COC.
Other:				

ecology and environment, inc.

FIELD LOGBOOK AUDIT FORM

	Yes	No	NA	Comments
DECONTAMINATION/DISPOSAL				
Solution Used	✓			Steam cleaning of Geoprobe equipment noted.
Procedures for Personnel		~~✓~~ DW	✓	Only process is glove removal; emergency decon in HASP
Procedures for Equipment	✓			Steam cleaning
Disposal Method for Wastes		✓		water discharged to ground but not noted.
Other:				
PHOTO DOCUMENTATION				
Camera		✓		
Lens			✓	
Serial #		✓		
Film Type/Roll #		✓		
Sequence #/Frame #	✓			
Photographer	✓			
Direction	✓			
Location/Subject	✓			
Date and Time	✓			
SITE ACTIVITY				
Conversation Interview with Site Representatives	✓			
Description of Site Management Practices			✓	
Descriptions of Wastes		✓		Only wastes were gloves & solids & decon water.
Pathways/targets			✓	
Reconnaissance Observations	✓			
Deviations from Approved Work Plan			✓	
Site Maps/Sketches	✓			
Field Calculations			✓	
Assumptions			✓	
Other:				

ecology and environment, inc.

FIELD LOGBOOK AUDIT FORM

	Yes	No	NA	Comments
SAMPLES				
Matrix and Numbers	✓			
Dates/Times Collected	✓			
Who Collected Sample	✓			
Locations	✓			
Depth	✓			
Composite/Grab	✓			
Physical Descriptions	✓			
Field Measurements	✓			
Sample I.D. #	✓			
Sampling Techniques		✓		Basic sampling procedures – no deviation from work plan
Preservation Techniques			✓	Pre preserved
Receipt for Samples Given	✓			Courier BOL; FedEx airbill
Portions Offered to Site Representative	✓			Splits to ERDC lab
Chain-of-custody (COC) Filled Out	✓			
Crosscheck of Sample Inventory vs. COC		✓		Observed – not noted in log
Other:				
GENERAL				
Each Page Signed and Dated by Team Leader	✓			Ongoing tables so that were not complete, not signed at time of audit
Entries Recorded by Anyone Else Initialed			✓	
Blank Pages/Spaces Voided	✓			
Corrections Made Properly	✓	✓		Some correct, some not initialed in one book.
Entries with 24-Hour Clock Time Notations	✓			
Other:				

Additional Comments

In general, very complete logs. Much sampling information that was not duplicated in log was on C-O-C forms.

Date 7/18/02

DAILY QUALITY CONTROL INSPECTION CHECKLIST FOR FIELD ACTIVITIES

HEALTH and SAFETY (H&S)	YES	NO	NA
Was the daily safety meeting held and documented?	☑	☐	☐
Were site contaminants of concern discussed in meeting?	☑	☐	☐
Were other H&S aspects discussed in meeting? Note below.	☑	☐	☐
Were exceptions, additions, or other changes in H&S procedures discussed?	☑	☐	☐

What level(s) of protection is required in HASP for today's work sites? A B C (D)

What level of personal protective equipment (PPE) is being worn by personnel at today's work sites? A B C (D)

COMMENTS Trip/fall in hummocky AOC-9 area and heat/humidity discussed. Use of respiratory protection during swipe sampling on a previous day noted (due to solvent used on swipes).

DAILY FIELD MEETING	YES	NO	NA
Was the daily meeting held by Field Team Leader and documented?	☑	☐	☐
Was the proposed scope of work discussed?	☑	☐	☐
Are work plan and subcontracts available for each field team to review if needed?	☑	☐	☐

COMMENTS Both logbooks reviewed contained daily objectives. Daily field activity report completed.

GEOPHYSICAL SURVEY	YES	NO	(NA)
Was equipment properly set-up?	☐	☐	☐
Was calibration of applicable equipment conducted?	☐	☐	☐
Were background readings established?	☐	☐	☐
Have potential sources of geophysical interference been identified?	☐	☐	☐
Was appropriate field documentation completed?	☐	☐	☐

COMMENTS Task not performed.

Date 7/18/02

NEAR-SURFACE SOIL SAMPLING	YES	NO	(NA)
Were the sample collection points located in accordance with the work plan?	☐	☐	☐
Was the sampling conducted in accordance with the work plan?	☐	☐	☐
Were the samples collected for the correct analyses?	☐	☐	☐
Was the appropriate field documentation completed?	☐	☐	☐
Was the sample handling, preservation, and shipping performed in accordance with the work plan?	☐	☐	☐

COMMENTS Task not performed.

DRILLING	YES	NO	NA
Have applicable drilling permits and utility clearances been obtained for this site?	☑	☐	☐
Was the exclusion zone and contaminant reduction zone established around the drill rig?	☐	☐	☑
Was the drilling and sampling equipment decontaminated prior to use in accordance with the work plan?	☑	☐	☐
Was the kill switch on the drill rig tested prior to drilling?	☐	☐	☑
Was the SSO present during drilling operations?	☑	☐	☐
Was the appropriate monitoring equipment used?	☑	☐	☐
Was the calibration of applicable equipment conducted?	☑	☐	☐
Were the instrument readings recorded?	☑	☐	☐
Were the geologic logs and proper documentation completed by the geologist?	☑	☐	☐
Were the soil samples field screened?	☐	☐	☑
Were the soil samples collected in accordance with the work plan?	☐	☐	☑
Was the collection of samples documented?	☐	☐	☑
Were the soil samples handled, cooled, and shipped in accordance with the work plan?	☐	☐	☑
Were drill cuttings field screened for contamination?	☐	☐	☑
If the cuttings required drumming, were the drums labeled and properly staged?	☐	☐	☑

Date 7/18/02

COMMENTS Rotary drilling not conducted, so much of above is not applicable. DPT rig (Mule) used to drive casing - no IDW generated / no cuttings brought to surface. Mule was moved location to location frequently.

MONITORING WELL INSTALLATION	YES	NO	NA
Was the total depth of the boring measured and recorded?	☑	☐	☐
Has water been added to the borehole during drilling or well installation?	☐	☑	☐
Was the PVC clean?	☑	☐	☐
Was the correct size and specification slotted screen and PVC riser placed into the well?	☑	☐	☐
Was the depth of the sandpack and bentonite seal measured during construction?	☐	☐	☑
Were the bentonite pellets allowed to hydrate?	☐	☐	☑
Was protective casing (above-ground or flush-mount type) installed?	☐	☐	☑
Was a permanent survey marker installed in the cement pad?	☐	☐	☑
Was a metal identification tag installed?	☐	☐	☑
Was the well locked upon completion?	☐	☐	☑
Was a water level monitoring reference point or notch established?	☐	☐	☑
Was a monitoring well construction diagram completed?	☐	☐	☑
Was the well construction completed in accordance with the work plan?	☑	☐	☐

COMMENTS Temporary groundwater sampling points installed. No permanent wells constructed.

WELL DEVELOPMENT	YES	NO	(NA)
Has an exclusion zone been properly set up around the well?	☐	☐	☐
Was the water level and total depth of the well measured?	☐	☐	☐
Were water quality parameters measured during development?	☐	☐	☐
In addition to standard volume removal, has additional volume been removed to compensate for water added during drilling (if any)?	☐	☐	☐
Was well development water screened and containerized (if necessary)?	☐	☐	☐
Was a record of the development parameters and volume of water removed kept?	☐	☐	☐
Was development completed in accordance with the work plan?	☐	☐	☐
Was a photograph taken of the final development water?	☐	☐	☐
Was calibration of applicable test equipment conducted?	☐	☐	☐

Date 7/18/02

COMMENTS Task not performed

GROUNDWATER SAMPLING AT PERMANENT MONITORING WELLS	YES	NO	(NA)
Was the well sampled a minimum of 14 days after grouting/ cementing (newly installed wells)?	☐	☐	☐
Was purge water screened and containerized (if necessary)?	☐	☐	☐
Were samples immediately placed inside a sample cooler with ice?	☐	☐	☐
Were the samples collected for the correct analyses?	☐	☐	☐
Were samples for dissolved metals (if any) field filtered?	☐	☐	☐
Was proper documentation completed for the samples collected?	☐	☐	☐
Were samples handled, preserved, and shipped in accordance with the work plan?	☐	☐	☐

COMMENTS Task not performed.

SURFACE WATER/SEDIMENT SAMPLING	YES	NO	(NA)
Were sample collection points located in accordance with the work plan?	☐	☐	☐
Were downstream samples collected before upstream?	☐	☐	☐
At each location, was the surface water sample collected prior to the sediment sample?	☐	☐	☐
Was proper documentation completed for the samples collected?	☐	☐	☐
Were field parameters measured and recorded for each surface water sample?	☐	☐	☐
Was the sampling conducted in accordance with the work plan?	☐	☐	☐
Were samples handled, preserved, and shipped in accordance with the work plan?	☐	☐	☐

COMMENTS Sediments for AOC-9 AFFF lagoon collected on a previous day.

Date 7/18/02

GROUNDWATER SCREENING SAMPLES AT TEMPORARY WELLS	YES	NO	NA
Has an exclusion zone been set up around the temporary well?	☑	☐	☐
Was purge water screened and containerized (if necessary)?	☐	☐	☑
Were water quality parameters measured and recorded during purging/sampling?	☐	☐	☑
Were turbidity of both the filtered and unfiltered metals samples measured and recorded?	☐	☐	☑
Were all samples handled, preserved and shipped in accordance with the work plan?	☑	☐	☐
Was proper documentation completed for the samples collected?	☑	☐	☐
Was the sampling conducted in accordance with the work plan?	☑	☐	☐

COMMENTS Grab samples collected with dedicated/disposable HDPE bailers. Exclusion zone consisted of "Caution" tape around cluster of sample points. Sample info recorded in log and immediately on chain-of-custody.

INVESTIGATION-DERIVED WASTE	YES	NO	(NA)
Were investigation-derived soils and groundwater field screened?	☐	☐	☐
Was any potentially contaminated soil or groundwater (as determined by field screening) drummed?	☐	☐	☐
Were all drums labeled and properly staged?	☐	☐	☐
Was handling of investigation-derived waste performed in accordance with the work plan?	☐	☐	☐

COMMENTS No sampling waste generated except solid waste such as gloves, used bailers, etc. This material was bagged for off-site disposal by E&E.

SOIL GAS SURVEY	YES	NO	(NA)
Was soil gas grid set up according to the work plan?	☐	☐	☐
Were the passive soil gas receptors labeled and installed according to the manufacturer's specifications?	☐	☐	☐
Were the passive soil gas receptors correctly removed, handled and shipped for analysis according to the manufacturer's instructions?	☐	☐	☐

COMMENTS Task not performed.

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TEST PITS	YES	NO	(NA)
Has an exclusion zone been properly set up at the test pit area?	☐	☐	☐
Have proper H&S concerns been addressed at the test pits?	☐	☐	☐
Was a fire extinguisher present on site?	☐	☐	☐
Were the subsurface conditions in the test pits properly described?	☐	☐	☐
Were the test pits properly photographed?	☐	☐	☐
Were the test pits properly backfilled and regraded?	☐	☐	☐

COMMENTS Task to be conducted 7/19/02.

Location Griffiss AFB, AOC-9 Date 7/18/02

QC Inspector Name Rick Watt

QC Inspector Signature R. L. M. Watt

General Description of Today's Scope of Work Field team (2 E&E) working with subcontractor (Zebra) to install temporary groundwater sampling points in clusters of five using Geoprobe rig. E&E then collected grab samples from each point for off-site analysis. FTL (B Meyers) assisted team, reviewed data, selected drilling locations, and packaged samples for shipment. All roles are well defined and team is very familiar with work plan and E&E SOPs. RMW

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FIELD AUDIT CHECKLIST 7/18/02

Project Name: GAFB WA09	Project Number: 001002.UK10
Location: Griffiss AFB, Rome, NY	
E & E Personnel: R. Meyers-FTL; Brian Cervi; Stephanie Reynolds Smith	

Presampling Procedures

1. Are routine/special sampling requirements discussed and documented in the logbook?
   Comments: No special requirements. Routine samples noted at time of collection.

2. Are personnel assigned as:
   a. Sample custodian (name): S. Reynolds Smith
   b. Team leader (name): R. Meyers
   c. Sampler (name): B. Cervi
   d. H&S (name): S. Reynolds Smith

3. Does the team member responsible for the following activities known how to complete them:
   a. Sample documentation and inventory yes
   b. Decontamination procedures yes
   c. Photodocumentation yes
   d. Chain-of-custody yes
   e. Sample packaging and shipping yes
   f. Site generated wastes yes
   Comments:

4. Are past problems reviewed, discussed, and solutions identified and documented in the logbook?
   Comments: Noted during daily meeting and recorded on separate form.

5. Are site safety concerns covered during the meeting?
   Comments: Yes. Noted on separate form.

Sampling Procedures and Documentation

1. Is a copy of the workplan/sampling plan available so the team members understand the procedures required for sampling and sample collection? Yes.
   Comments:

2. Do team members know what to do if procedures cannot be used as identified in the sampling plan? Yes.
   Comments: Contact field team leader to discuss

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FIELD AUDIT CHECKLIST 7/18/02

3. Have changes in the sampling procedures been noted in the logbook?
Comments: No deviation from procedures required. Where multiple attempt to Geoprobe at a given location occurred, this was noted.

4. Does the team have the necessary equipment for collecting appropriate samples?
Comments: Yes.

5. Does the team record appropriate information at the time that the sample is collected? (i.e., sample interval, sample type, composite or grab sample, etc.)
Comments: Yes. Noted in logbook and/or directly on chain-of-custody

6. Are sample jars kept clean during transfer of sample material?
Comments: Yes. Kept in box/cooler before use; gloves worn during sampling.

7. Are samples preserved as indicated in the sampling plan? Yes.
Comments:

8. Are there any visible signs of contamination evident on the sampling equipment? No.
Comments:

Chain-of-Custody

1. Are samples kept in a controlled area (i.e., in a locked location or with a team member) at all times?
Comments: Yes. Bottles (unused) stored in locked office.

2. Is all of the sample information (sample type, date, time, etc.) noted on the chain-of-custody?
Comments: Yes. Form kept up to date as sampling progressed.

3. Have all samplers signed the chain-of-custody form? Yes.
Comments:

4. Is the Federal Express air bill number listed on the chain-of-custody form? Yes.
Comments:

5. Has a separate team member been assigned to cross check the sample inventory and the chain-of-custody prior to shipment?
Comments: Yes. Performed by field team leader.

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FIELD AUDIT CHECKLIST 7/18/02

6. Is the cross check procedure noted in the logbook? No. But process was observed
Comments:

7. Are the sample numbers and Federal Express bill numbers listed in the sample log or the site logbook? No because C-O-C maintain on file at site with logbook.
Comments:

8. Were the labels, logbooks, and chain-of-custody form cross checked? Yes.
Comments:

Quality Control Samples

1. What QC samples are required (as per sampling plan)?
Comments: 1 dupe per 10 samples 1 MS/MSD per 20 samples
1 split per 10 (ERDC lab) 1 trip blank per cooler for VOCs only

2. What frequency must QC samples be collected?
See above.

3. Are trip blanks being used? Yes.
Comments:

4. Which laboratory provided trip blanks?
Premade by Analytical Services Center - discussion that day regarding contamination OF premade trip blanks with acetone.

5. Are appropriate materials used to generate QC samples? Yes.
Comments: Upon discovery of acetone-contaminated trip blanks, field team used new bottles and deionized water for samples & QC.

Site Generated Wastes

1. What level of protective clothing is required? D

2. What equipment is available on site? TVA 1000 for organic vapors, gastech explosimeter, water level indicator.

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FIELD AUDIT CHECKLIST

3. **Is the equipment calibrated daily and in accordance with appropriate procedures?**
Instrumentation calibrated before rental in shop. Gastech explosimeter zeroed in clean air.

4. **Are calibration data recorded in appropriate logbooks?**
Comments: Calibration not necessary. Zero air check not noted.

5. **Is data collected according to specific procedures and recorded in the site logbook?**
Comments: Readings recorded on chain-of-custody form for geoprobe waters. O_2 readings indoors during AOI 473 swipe sampling recorded (TVA readings too).

Sample Packaging and Shipping

1. **Describe sample packaging procedures.**
Jars taped, packaged with bubble wrap and iced (ice in Ziplocbags)

2. **Is packaging done at the end of the day, or as samples are collected?**
Samples labeled, sealed, & iced at time of collection. Bubble wrap and additional ice added just prior to shipment.

3. **Was an inventory conducted for chain-of-custody, logbook, and sample containers?** Yes.
Comments:

4. **Are samples packed on ice?** Yes.
Comments:

5. **Is the proper information being entered on the Federal Express form for billing purposes (i.e., project number and cost code)?** Yes.
Comments:

Personnel Management

1. **Is the team leader noting the time that each team member arrives and departs the site in the logbook?** Yes.
Comments:

2. **Do the weekly time reports reflect the on-site time only?** Yes.
Comments: Time cards reflect all billable time (including a portion of travel).

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FIELD AUDIT CHECKLIST

Other Comments:

Experienced field team well versed in sampling procedures and related protocols. No gross discrepancies noted. Field team was asked to add sample cross-check process to field logbook.

FIELD AUDITOR: Rick Watt	R L M Watt
FIELD TEAM LEADER: Bob Meyers	Robert A Meyers
DATE OF AUDIT: 7/18/02	