

Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108  
Office: 412-269-6300  
Fax: 412-375-3995

November 19, 2009

Navy BRAC Program Management Office  
4130 Farber Place Drive  
Suite 202  
N. Charleston, SC 29405

Attn: Mr. Mark Davidson, P.E.  
BRAC Environmental Coordinator

Re: Contract N62470-07-D-0502  
IQC for A/E Services for Multi-Media  
Environmental Compliance Engineering Support  
Delivery Order (DO) 0002  
Final Pico Del Este Site Investigation Report

Dear Mr. Davidson:

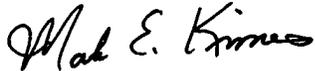
Baker Environmental, Inc. (Baker), is pleased to provide you with the Final Pico Del Este Site Investigation Report. The replacement pages, which make up the Final Site Investigation Report for Pico Del Este, are included for those recipients receiving a hard copy of the report. Directions for inserting the replacement pages into the Draft Site Investigation Report have been provided. Also included with the copy of the replacement pages is one electronic copy provided on CD of the Final Pico Del Este Site Investigation Report for Pico Del Este Radar Facility.

This document is being submitted in accordance with PREQB comments dated June 20, 2008. The Navy responses to these comments have also been provided. Additional distribution has been made as indicated below.

If you have questions regarding this submittal, please contact Mr. Mark Davidson at (843) 743-2124.

Sincerely,

**BAKER ENVIRONMENTAL, INC.**



Mark E. Kimes, P.E.  
Activity Coordinator

MEK/lp  
Attachments

cc: Ms. Debra Evans-Ripley, BRAC PMO SE (letter only)  
Mr. David Criswell, BRAC PMO SE (letter only)  
Mr. Pedro Ruiz, NAPR (1 CD)  
Ms. Willmarie Rivera, PREQB (1 hard copy and 1 CD)  
Mr. Pablo Cruz, CFS (1 hard copy and 1 CD)  
Ms. Carolyn Krupp, CFS (1 hard copy and 1 CD)  
Ms. Miriam Santana, FAA (1 hard copy and 1 CD)  
Mr. Christopher Rodriguez, FAA (1 hard copy and 1 CD)

**NAVY RESPONSE TO PREQB COMMENTS DATED JUNE 20, 2008 ON THE  
DRAFT SITE INVESTIGATION REPORT, PICO DEL ESTE RADAR  
FACILITY, CARIBBEAN NATIONAL FOREST, LUQUILLO, PUERTO RICO  
SEPTEMBER 30, 2009**

**PREQB COMMENTS DATED JUNE 20, 2008**

(PREQB comments are provided in italics, while Navy responses are provided in plain text).

**GENERAL COMMENTS**

1. *The horizontal and vertical limit of subsurface soil contamination outside the perimeter fencing has not been delineated. The extent of contamination outside the fence needs to be included in the report in order to assess the adequacy of proposed response(s).*

**Navy Response to PREQB Comment 1:** Please see Navy Response to PREQB Comment 15.

2. *The potential impact to groundwater contamination is not discussed. The report should also identify and sample nearby surface water bodies that might receive overland drainage or recharge from the subsurface. Data from all potential migration pathways should be reported.*

**Navy Response to PREQB Comment 2:** The flow of precipitation from the site is over land flow with no discernable drainage features present at the site. Therefore, it is not possible to locate surface water bodies down gradient which would be receiving direct flow from the site.

3. *The report should propose a response to address contamination that may remain in the subsurface following the shallow soil removal. The current removal is of soil to a depth of no more than two feet below ground surface. Therefore, contaminated subsurface soil, documented to occur below two feet, would remain and needs to be addressed. For example, TPH-DRO was detected at 1,400 mg/kg from a depth of 3-5 feet at PESB03. Additionally, contaminated soil appears to be underneath Building 3034, the Concrete Pad" and outside the perimeter fencing. Please address contaminated soil that remains in the subsurface that may act as a Secondary source.*

**Navy Response to PREQB Comment 3:** The depth of contaminated subsurface soil removal has been revised based on discussions with PREQB on September 9, 2008. The depth of excavation recommended in the Site Investigation report will range from approximately 3 feet below the ground surface (BGS) northeast of Building 3034 (in the vicinity of PESB01, PESP03 and PESB04) to approximately 15 feet bgs east and southeast of Building 3034 to the fence line.

**PAGE-SPECIFIC COMMENTS**

4. *Page 1-1, Section 1.1. Clarify the owners and stakeholders of land that may be potentially impacted by Contamination (i.e., both within and outside the fence).*

**Navy Response to PREQB Comment 4:** The Navy leased the property from the U.S. Forestry Service, who is the land owner. The U.S. Forestry Service owns the property inside and outside the fence line. Section 1.1 has been modified accordingly.

5. *Page 1-1, Section 1.2. Revise the last bullet in this section to reflect that although groundwater samples were planned, groundwater was not encountered; therefore, no groundwater samples were collected (as presented in Section 3.2).*

**Navy Response to PREQB Comment 5:** The last bullet in Section 1.2 has been revised to indicate that groundwater was not encountered.

6. *Page 2-1, Section 2.1, Paragraph 2. Provide an inventory of site structures and indicate their state of occupancy (e.g., storage only, office space, manned radar operations, etc).*

**Navy Response to PREQB Comment 6:** The following site structures and their state of occupancy were referenced from *Naval Facilities Engineering Command (NAVFAC), 2003. Environmental Baseline Survey (EBS), Pico del Este Radar Facility.*

- Building 3011 – Quarters, offices, and dining facility for FAA and security personnel, currently unoccupied. Constructed in 1963.
- Building 3012 – Emergency generator building for FAA radar facility. Constructed in 1963.
- Building 3034 – Former emergency generator building for Navy activities; currently empty. Constructed in 1983.

7. *Page 2-1, Section 2.2, Paragraph 2. The text refers to the collection of seven soil samples as part of the Environmental Baseline Survey. However, only six locations are shown on the corresponding Figure 2-1. Location PE-S2 appears to be missing from the figure. Revise the text or the figure accordingly.*

**Navy Response to PREQB Comment 7:** Figure 2-1 has been revised to include EBS sample location PE-S2.

8. *Page 3-2, Section 3.3.2, Paragraph 1. The text states that "Sample PEERO1 is a rinsate blank associated with the stainless steel spoon and sample PEERO2 is a rinsate blank associated with the Macrocore® acetate liner. However, the associated field notes in Appendix C show that these are reversed. Revise the text accordingly.*

**Navy Response to PREQB Comment 8:** The text has been revised to indicate that PEER01 is a rinsate blank associated with the Macrocore acetate liner and PEER02 is a rinsate blank associated with the stainless steel spoon.

9. *Page 4-1, Section 4.1, Paragraph 1. Please revise the first sentence to reflect that this section discusses the nature and extent of contamination.*

**Navy Response to PREQB Comment 9:** The first sentence of Section 4.0 has been revised as suggested by this comment: “This section discusses the nature and extent of contamination....”

10. *Page 4-1, Section 4.2, Paragraph 1. Please clarify why the additional surface soil samples collected in January 2008 were only analyzed for TPH-DRO.*

**Navy Response to PREQB Comment 10:** No VOCs or PAHs were detected in the 2007 surface soil samples at concentrations that exceeded the EPA PRGs. TPH DRO was however detected in

11 of the 14 surface soil samples collected in 2007 and exceeded the PREQB criterion in 10 of 14 samples. The purpose for collecting the additional surface soil samples in 2008 was further delineation of TPH DRO.

11. *Page 4-1, Section 4.2, Paragraph 3. Table 3.2 also presents the results of the data screening against applicable criteria. Please include this information in the text of this section.*

**Navy Response to PREQB Comment 11:** The third sentence of paragraph three has been revised as follows: "Summaries of the surface soil detected parameters for the Pico Del Este Radar Facility and comparison of the detected results to applicable screening criteria are presented in Table 3-2."

12. *Page 4-1, Section 4.1. Clarify how the photo ionization detector (PID) soil field screening readings were obtained (e.g., open spoon, jar headspace, other).*

**Navy Response to PREQB Comment 12:** Field screening of the soils with the photo ionization detector (PID) was performed by: cutting open the acetate macrocore sampler, fracturing the soil core, and screening the fresh break in the soil core with the PID. The highest reading on the instrument was recorded for the core sampled.

13. *Page 4-2, Section 4.3. Clarify what the use is of Building 3034. Depending upon the occupancy status of Building 3034, sub-slab soil gas analysis may be required to evaluate potential contaminated vapor intrusion issues.*

**Navy Response to PREQB Comment 13:** All structures are unoccupied and are planned to be demolished. No vapor intrusion issues exist at this facility

14. *Page 4-2, Section 4.3. Figure 4.2 indicate TPH-DRO Contamination above screening criteria outside the fenced area. However, no subsurface soil samples have been collected in this area. Please clarify the basis for the statement that "The subsurface soil results indicate levels of DRO above the EQB soil screening value beyond the fence line and under the concrete pad to the south." Additional subsurface soil contamination delineation is warranted to the 'south, east, and west. There are insufficient analytical data in these areas to 'fully define the extent of impacted soil.*

**Navy Response to PREQB Comment 14:** As discussed and agreed to during the September 9, 2008 meeting between the PREQB, Navy, U.S. Forestry Service, and Baker; additional sampling was conducted at potential down-gradient locations along the hillside. The results from this sampling were provided in the revised figures that were submitted on October 10, 2008. No additional sampling is required at the site.

*Page 5-1, Section 5.0. There are significant data gaps that need to be addressed prior to determining appropriate remedial action inside and outside the fenced area:*

- *As commented on previously, subsurface soil samples were not collected outside the fenced area; therefore, the extent of subsurface contamination outside the fenced area is unknown. This area needs to be sufficiently delineated in order to make informed decisions concerning what, if any, remediation should be conducted.*

**Navy Response to PREQB Comment 15, Bullet One:** As discussed and agreed to during the September 9, 2008 meeting between the PREQB, Navy, U.S. Forestry Service, and Baker, additional sampling was conducted at potential down-gradient locations along the hillside. The results from this sampling were provided in the revised figures that were submitted on October 10, 2008.

- *Figures 2-2 and 2-3 indicate that TPH-DRO contamination exists down to bedrock. The hydrogeology of the site should be documented. Although groundwater was not encountered in the vadose zone, the depth to bedrock groundwater should be discussed and groundwater discharge points should be investigated. Surface water features that could be a repository for contamination carried from the site via overland flow or via infiltration and subsurface migration should be discussed in the report.*

**Navy Response to PREQB Comment 15, Bullet Two:** As discussed and agreed to during the September 9, 2008 meeting between the PREQB, Navy, U.S. Forestry Service, and Baker, additional sampling was conducted at potential down-gradient locations along the hillside. The results from this sampling were provided in the revised figures that were submitted on October 10, 2008. See Navy Response to PREQB Comment 2.

- *Fate and transport of contamination should be discussed in the report.*

**Navy response to PREQB Comment 15, Bullet Three:** As discussed and agreed to during the September 9, 2008 meeting between the PREQB, Navy, U.S. Forestry Service, and Baker; additional sampling was conducted at potential down-gradient locations along the hillside to address this issue. The results from this sampling were provided in the revised figures that were submitted October 10, 2008. Additionally please see the Navy Response to PREQB Comment 2.

- *Section 2.3 discusses the rainforest in general, but a biological survey was not conducted outside the fenced area; therefore, the Navy's conclusion that no remediation should be conducted due to the sensitive ecosystem of the rainforest is not supported by data demonstrating that remediation of a small area outside the fence would adversely affect threatened or endangered species or an entire rainforest as a whole. Once the contamination outside the fenced area has been delineated, a biological survey should be conducted to determine whether threatened or endangered species inhabit the area in the vicinity of the site.*

**Navy Response to PREQB Comment 15, Bullet Four:** As discussed and agreed to during the September 9, 2008 meeting between the PREQB, Navy, U.S. Forestry Service, and Baker; additional sampling was conducted at potential down-gradient locations along the hillside. The results from this sampling were provided in the revised figures that were submitted October 10, 2008. No contamination was detected outside the fence line from that sampling event. Therefore a biological survey is not required due to the results from this event. The property owner, the U.S. Forestry Service has indicated that the property is a very sensitive ecosystem of the rainforest and will not allow any work to be conducted outside of the fence line except for the October 10, 2008 sampling event.

- *No data was collected that documents the degradation of DRO.*

**Navy Response to PREQB Comment 15, Bullet Five:** This comment correctly states that documentation of the degradation of DRO was not collected during the site investigation;

however, such natural degradation would be expected to occur in a shallow, biologically active soil zone. The document at <http://www.epa.gov/ada/download/fact/pet-hyd.pdf> is just one of many USEPA documents discussing degradation of petroleum hydrocarbons.

- *No information is provided on the potential future uses of the site (including the contaminated area outside the fence). It is unclear how the Navy proposes to ensure that exposure to subsurface soil outside the fenced area will not occur in the future.*

*These data gaps need to be addressed to make informed decisions on what remedial action should be taken.*

**Navy Response to PREQB Comment 15, Bullet Six:** Surface soil samples collected from outside the fenced area did not exhibit contamination. Additionally surface soil samples collected downslope from the site also did not show elevated contaminant concentrations. The Navy proposes increasing the depth of the excavation to 15 feet bgs thereby removing the contaminated source area within the fenced area. Furthermore the U.S. Forestry Service will not allow intrusive activities outside of the fence line at east peak.

16. Table 3-1.

- The sample date for samples PESB13-00 and PESB14-00 should be 8/2/07, not 8/1/07.*
- Sample PESB08-05/9.0-11.0 should be PESB08-04/7.0-9.0. This is what is recorded on the boring log as well as Table 3-3.*
- Equipment rinsate PEERO1 is from the Macrocore Acetate Liner (not the stainless steel spoon) as per the field notes in Appendix C.*
- Equipment rinsate PEERO2 is from the stainless steel spoon (not the Macrocore Acetate Liner) as per the field notes in Appendix C.*

**Navy Response to PREQB Comment 16:**

- Table 3-1 has been revised to indicate that the correct sample collection date for samples PESB13-00 and PESB14-00 is 8/2/2007.
- Table 3-1 has been revised to change PESB08-05 to PESB08-04, as indicated by this comment.
- Table 3-1 has been revised to indicate that equipment rinsate sample PEER01 is from a Macrocore Acetate Liner rather than from a stainless steel spoon.
- Similarly, Table 3-1 has been revised to indicate that equipment rinsate sample PEER02 is from a stainless steel spoon rather than from a macrocore liner.

17. Table 3-2.

- For screening purposes, the screening values for noncarcinogenic compounds should be adjusted downward by an order of magnitude to account for multiple chemicals at a site.*
- The PRGs for naphthalene and fluoranthene shown in this table are 10x higher than the Region IX PRG values. Please correct the values.*
- Phenanthrene is more structurally similar to anthracene, which should therefore be used as the surrogate screening value.*
- Please define "NA" in the footnotes.*

**Navy Response to PREQB Comment 17:**

- Table 3-2 has been revised to divide the screening values for noncarcinogenic compounds by a factor of 10 to account for multiple chemicals at a site.

- b. The PRGs for naphthalene and fluoranthene in Table 3-2 have been corrected.
  - c. While it is acknowledged that phenanthrene may be more structurally similar to anthracene, pyrene was selected as a surrogate since its soil PRGs were the most conservative of the noncarcinogenic PAHs. Additionally, revising the screening value will not change the results of the screening. No revisions to Table 3-2 are necessary.
  - d. Table 3-2 has been revised to add “NA - Not Applicable” to the footnotes.
18. Table 3-3.
- a. *For screening purposes, the screening values for noncarcinogenic compounds should be adjusted downward by an order of magnitude to account for multiple chemicals at a site.*
  - b. *Phenanthrene is more structurally similar to anthracene which should therefore be used as the surrogate screening value.*
  - c. *Please define "NA" in the footnotes.*

**Navy Response to PREQB Comment 18:**

- a. Table 3-3 has been revised to divide the screening values for noncarcinogenic compounds by a factor of 10 to account for multiple chemicals at a site.
  - b. Please refer to Response to Comment No. 17c.
  - c. Table 3-3 has been revised to add “NA - Not Applicable” to the footnotes.
19. Figure 2-1. *Sample location PE-S2 should be added to Figure 2-1.*

**Navy Response to PREQB Comment 19:** PE-S2 has been added to Figure 2-1 (and including Figures 4-1 and 4-2) as suggested by this comment.

20. Figure 4-1. *The TPH-DRO concentrations listed on the figure for locations PESB14/0-1 and PESB13/0-1 are reversed. The figure should be revised accordingly.*

**Navy Response to PREQB Comment 20:** Figure 4-1 has been revised as indicated by this comment.

21. Figure 4-2. *Figure 4-2 indicates that the eastern, southern, and western boundaries of the area of TPH contamination exceeding 100 mg/kg is inferred. This indicates that the objective of determining the horizontal extent of contamination has not been achieved; the report should be revised to identify this deficiency and present corrective action.*
- 22.

**Navy Response to PREQB Comment 21:** Please see the Navy Response to PREQB Comment 15.

22. Appendix C. *There are no field notes for sample PESB18-00 collected on 1/30/08. Please clarify.*

**Navy Response to PREQB Comment 22:** These field notes were inadvertently left out and not recorded in the field log book.

23. Appendix D.
- a. *Tables D-1 and D-2: Results for VOCs, PAHs, and DRO were reported down to the method detection limit (MDL) instead of the reporting or quantitation*

*limit. The MDL is a statistically derived value and is not an accurate representation of the lowest concentration the laboratory is able to detect. All nondetect results should be reported down to the quantitation limit which should be based on the lowest concentration standard analyzed adjusted for the soil preparation factor and dry weight of the sample. Quantitation limits and not MDLs should be used in a risk assessment.*

- b. Table D-1: It is unclear why the VOC detection limits for sample PESB04-00 are so high. There were no VOCs detected in this sample; yet it appears that a dilution was performed. Please explain.*
- c. Table D-2:*
  - i. It is unclear why the VOC detection limits for samples PESB03-02 and PESB05-05 are so high. There were no VOCs detected in these samples; yet it appears that a dilution was performed. Please explain.*
  - ii. The depth of sample PESBIO-04D should be 7.0-9.0, not 5.0-7.0.*
- d. Chains-of-custody: It is unclear from the chains-of-custody, as well as the text of the report, how soil samples for VOCs were collected. Please specify whether these samples were collected using EnCore samplers, preserved in the field, etc. In addition, if EnCore samplers were used, please provide confirmation on how samples were preserved by the laboratory and if preservation was performed within 48 hours of collection.*

#### **Navy Response to PREQB Comment 23:**

- a. TestAmerica Savannah's process for performing MDL studies is outlined in laboratory SOP SA-QA-007: *Determination and Verification of Detection and Reporting Limits*. This process is performed in accordance with the 40CFR Part 136 Appendix B procedure and includes determining a statistical MDL value using the standard deviation of results from the analysis of a minimum of 7 replicates spiked near the reporting limit. The laboratory has also adopted an MDL verification procedure such that this statistical MDL value is verified via an MDL verification sample and the long term evaluation of method blanks. This verification procedure ensures the laboratory's MDL values are reasonable, consistently recovered, and at least 3 times the background noise. The laboratory's MDL study, MDL verification data, and SOPs are available for review upon request.

The convention for evaluating non-detect values to the MDL is a common industry-wide laboratory practice. This convention is consistent with that outlined in the Department of Defense Quality Systems Manual (DOD QSM) and several other state requirements, including the Florida Department of Environmental Protection, FLDEP, who issues the laboratory's NELAC certification upon which our Puerto Rico certification is based.

Based on the above and considering that this data is not being used for a risk assessment, no revisions to the text or tables are proposed.

- b. Sample PESB04-00 was diluted (1:100) due to the abundance of non-target analytes. Elevated reporting limits were provided for this sample due to the dilutions. No revisions to Table D-1 are necessary.

- c. Samples PESB03-02 and PESB05-05 were diluted (1:40), (1:200) respectively due to the abundance of non-target analytes. Elevated reporting limits were provided for these samples due to the dilutions.

The depth of sample for PESB10-04D in Appendix D (Table D-2) has been revised accordingly.

- d. Sample collection for VOCs included the use of EnCore samplers. All samples were placed on ice immediately after collection. At the end of each day, all samples that were collected were appropriately packed, and re-iced for shipment to the analytical laboratory. Preservation was performed by the analytical laboratory within 48 hours of sample collection.

- 24. *Appendix E. For SDGs 680-28859 and 680-28896, the Action Level for PAHs due to equipment blank contamination should be presented in units of ug/kg, as was done for DRO.*

**Navy Response to PREQB Comment 24:** Whenever validation flags were required to the data for blank contamination, the validator converted the units appropriately while applying the listed action limits. Therefore, no revisions to Appendix E are proposed.



# **FINAL SITE INVESTIGATION REPORT PICO DEL ESTE RADAR FACILITY**

---

## **CARIBBEAN NATIONAL FOREST LUQUILLO, PUERTO RICO**



*Prepared for:*

**Department of the Navy  
NAVFAC SOUTHEAST**  
*North Charleston, South Carolina*



*Prepared by:*

**Baker**

Michael Baker Jr., Inc.  
Moon Township, PA

Contract No. N62470-07-D-0502  
DO 0002

November 19, 2009

---

**IQC for A/E Services for Multi-Media Environmental Compliance  
Engineering Support**

---

**FINAL**  
**SITE INVESTIGATION REPORT**  
**PICO DEL ESTE RADAR FACILITY**

**CARIBBEAN NATIONAL FOREST**  
**LUQUILLO, PUERTO RICO**

**NOVEMBER 19, 2009**

*Prepared for:*

**DEPARTMENT OF THE NAVY**  
**NAVFAC SOUTHEAST**  
*North Charleston, South Carolina*

**Contract N62470-07-D-0502**  
**Delivery Order 0002**

*Prepared by:*

**MICHAEL BAKER JR., INC.**  
*Moon Township, Pennsylvania*

I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that this document and its attachments were prepared either by me personally or under my direction or supervision in a manner designed to ensure that qualified and knowledgeable personnel properly gather and present the information contained therein. I further certify, based on my personal knowledge or on my inquiry of those individuals immediately responsible for obtaining the information, that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowingly and willfully submitting a materially false statement.

Signature: 

Name: Mark E. Davidson

Title: BRAC Env. Coordinator

Date: November 19, 2009

**TABLE OF CONTENTS**

	<u>Page</u>
<b>LIST OF ACRONYMS AND ABBREVIATIONS .....</b>	<b>iv</b>
<b>1.0 INTRODUCTION.....</b>	<b>1-1</b>
1.1 Site History .....	1-1
1.2 Objectives .....	1-1
1.3 Organization of the Site Investigation Report .....	1-2
<b>2.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA .....</b>	<b>2-1</b>
2.1 Current Site Conditions .....	2-1
2.2 Previous Investigations .....	2-1
2.3 Local Geology and Rain Forest Information .....	2-1
<b>3.0 FACILITY INVESTIGATION .....</b>	<b>3-1</b>
3.1 Soil Sampling and Analysis Program .....	3-1
3.1.1 Soil Sample Collection .....	3-1
3.2 Monitoring Well Installation Program.....	3-1
3.3 Quality Assurance/Quality Control Sampling and Analysis Program.....	3-2
3.3.1 Trip Blanks .....	3-2
3.3.2 Equipment Rinsates .....	3-2
3.3.3 Field Blanks .....	3-2
3.3.4 Field Duplicates .....	3-2
3.3.5 Matrix Spike/Matrix Spike Duplicates .....	3-2
<b>4.0 NATURE AND EXTENT OF CONTAMINATION.....</b>	<b>4-1</b>
4.1 PID Field Screening.....	4-1
4.2 Surface Soils .....	4-1
4.3 Subsurface Soils.....	4-1
4.4 Laboratory Data Validation Summary.....	4-2
4.5 Summary of Detected Compounds in Field QA/QC Samples .....	4-2
4.6 Other Investigation Considerations .....	4-3
4.6.1 National Forest Service Coordination.....	4-3
4.6.2 Investigation Derived Wastes .....	4-3
4.6.3 Decontamination.....	4-3
4.6.4 Surveying.....	4-4
4.6.5 Health and Safety Procedures.....	4-4
4.6.6 Chain-of-Custody .....	4-4
4.6.7 Puerto Rico Certification Stamps .....	4-4
<b>5.0 CONCLUSIONS AND RECCOMMENDATIONS .....</b>	<b>5-1</b>
<b>6.0 REFERENCES.....</b>	<b>6-1</b>

**TABLE OF CONTENTS**  
**(Continued)**

**LIST OF TABLES**

3-1	Sample Matrix
3-2	Summary of Detected Results – Surface Soils
3-3	Summary of Detected Results – Subsurface Soils
3-4	Summary of Detected Results – QA/QC

**LIST OF FIGURES**

1-1	Regional Location Map
1-2	Pico del Este Location Map
2-1	Site Plan
2-2	Geologic Cross-Section A-A'
2-3	Geologic Cross-Section B-B'
4-1	DRO above EQB Criteria, Surface Soil
4-2	DRO above EQB Criteria, Subsurface Soil

**LIST OF APPENDICES**

A	Photograph Log
B	Soil Boring Logs
C	Field Notes
D	Analytical Data Appendix Tables, Chain-of-Custody, and Puerto Rico Certificates
E	Data Validation Summary Reports

## LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Asbestos Containing Material
Baker	Baker Environmental, Inc.
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
bgs	below ground surface
BRAC	Base Realignment and Closure
DO	Delivery Order
DPT	Direct Push Technology
DRO	Diesel Range Organic
EBS	Environmental Baseline Survey
El Yunque	El Yunque National Forest
EQB	Puerto Rico Environmental Quality Board
FAA	Federal Aviation Administration
GPS	Global Positioning System
HQ	hazard quotient
IDW	Investigation Derived Waste
ILCR	Incremental Lifetime Cancer Risk
LBP	Lead Based Paint
NAVFAC	Naval Facilities Engineering Command Atlantic Division
MBaker	Michael Baker Jr., Inc.
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
MDL	Method Detection Limit
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NFS	National Forest Service
RPD	Relative Percent Difference
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
PMO	Program Management Office
PRG	Preliminary Remediation Goal
QA/QC	Quality Assurance/Quality Control

**LIST OF ACRONYMS AND ABBREVIATIONS**  
**(Continued)**

SDG	Sample Delivery Group
SE	Southeast
SI	Site Investigation
SOP	Standard Operating Procedures
TPH	Total Petroleum Hydrocarbon
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
VNTR	Vieques Naval Training Range

## **1.0 INTRODUCTION**

This site investigation report presents the activities for the Site Investigation (SI) at Pico del Este Radar Facility located within the Caribbean National Forest, Luquillo, Puerto Rico (Figure 1-1).

This document was prepared by Michael Baker Jr., Inc. (MBaker), for the Navy Base Realignment and Closure (BRAC) Program Management Office (PMO) Southeast (SE) office. This site investigation was developed under contract with the Naval Facilities (NAVFAC) SE under Contract No. N62470-07-D-0502, Delivery Order (DO) 0002.

### **1.1 Site History**

This site was used as a radar/communications complex by the Navy for tracking of various military weapons systems and communications during military training exercises formerly conducted at the Vieques Naval Training Range (VNTR). The Navy leased the property from the U.S. Forestry Service, who owns the property inside and outside the fence line of the radar facility. The radar/communications complex lies at the top of a mountain peak (Pico del Este or “East Peak”) at an approximate elevation of 3,500 feet above sea level, see aerial photograph on Figure 1-2. An Environmental Baseline Survey (EBS) was conducted in 2003, which identified a petroleum spill near Building 3034, and a spill of polychlorinated biphenyl (PCB) transformer oil in Building 3012, in addition to verification of asbestos containing material (ACM) and lead-based paint (LBP) in numerous buildings located at Pico del Este Radar Facility.

### **1.2 Objectives**

The objective for this investigation, as outlined in the Site Investigation Work Plan Pico Del Este Radar Facility (MBaker, 2007), was to delineate the nature and extent (horizontal and vertical) of contamination related to the petroleum spill near Building 3034.

Specific elements of the August 2007 field effort performed to support this SI include:

- Surface soil sampling at fourteen locations;
- Subsurface soil sampling collected at two depths from the fourteen locations;
- The installation of two temporary wells at two of the fourteen boring locations; and
- Groundwater sampling at the two temporary monitoring wells. However, groundwater was not present. Therefore, no monitor wells were installed and as a result, a groundwater sampling and analysis program was not conducted.

Additional sampling was conducted in January 2008, to delineate potential hydrocarbon impact outside the fence line of the radar facility. An additional 18 surface soil samples were collected outside the fence line and under/near the concrete pad to the south of the leak area.

The PCB spill at Building 3012 was remediated and clean closure is documented by a report dated March 26, 2004. ACM and LBP materials are not considered an immediate threat to human health or the environment, and were not investigated as part of this investigation. ACM and LBP will be addressed if and when demolition of the buildings occurs.

### **1.3 Organization of the Site Investigation Report**

This work plan is organized into six sections. Section 1.0 of this document includes the introduction, site history and objectives of this site investigation report. Section 2.0 provides a description of the current conditions and previous investigations. Section 3.0 provides a description of the complete facility investigation including soil sampling and analysis program, soil sample collection, monitoring well installation program and quality assurance/quality control (QA/QC) samples. The nature and extent of contamination is included in Section 4.0, while the conclusions and recommendations are described in Section 5.0. Section 6.0 presents the report references.

## **2.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA**

The following sections provide a discussion of the current conditions that exist at Pico del Este Radar Facility, a summary of the EBS, and the relevance to the location within the Caribbean National Forest.

### **2.1 Current Site Conditions**

The Pico del Este Radar Facility is currently not utilized by the Navy since the operational closure of Naval Station Roosevelt Roads occurred on March 31, 2004. The Federal Aviation Administration (FAA) is currently licensed and using the site as a Radar Facility. The Navy discontinued its use in early 2003. The site is located at the top of a mountain peak and is divided into two flat tiers connected by a roadway with an elevation difference of approximately 50 feet. The surrounding areas to the facility beyond the fence line drop off significantly down the mountain. A site plan map is presented on Figure 2-1, showing the radar facility layout.

### **2.2 Previous Investigations**

The 2003 EBS report indicates a records search uncovered a spill of diesel fuel occurring at the Pico del Este Radar Facility in April 2002. The spill record indicates that a broken seal on a fuel feed pump caused a release of diesel fuel from the emergency generator formerly housed in Building 3034. An area of approximately 116 square feet of soil was contaminated during this release according to the report. The record also indicates that the contaminated soil was removed and properly disposed off site, while the affected areas were restored with clean topsoil (NAVFAC, 2003).

Samples were collected as part of the EBS, and included seven soil samples from the subject area from 0 to one (1) foot below ground surface. The existing sample locations are shown on Figure 2-1. Four of the seven soil samples were reported above Puerto Rico Environmental Quality Board (EQB) Cleanup Standard of 100 mg/kg for Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO). Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) were not detected above the method detection limits (MDLs) for each parameter at the seven soil boring locations.

### **2.3 Local Geology and Rain Forest Information**

The Pico del Este Radar Site is located within the El Yunque National Forest (El Yunque), formerly known as the Caribbean National Forest, in the Luquillo Mountains. El Yunque contains approximately 28,000 acres of rainforest located 40 km southeast of San Juan. The rainforest contains many rare species of plants and animals (26 trees and plants found no where else in the world), and includes the habitat for the Puerto Rican Parrot, an endangered bird species. The climate is frost-free, can receive up to 240 inches per year in some areas, and is typically cooled by strong easterly trade winds. The temperature in the higher elevations is typically 10 to 20 degrees cooler than nearby coastal areas ([www.welcome.topuertorico.org](http://www.welcome.topuertorico.org), Riveria, 2007).

The rocks underlying the Luquillo Mountains were formed by active volcanoes at or near sea level during the Cretaceous and Tertiary geological periods. Debris from these volcanoes was deposited in deep water after being moved by submarine landslides and currents. Later tectonic activity uplifted this debris and it became the dominant structure of the Luquillo Mountains. The Luquillo Mountains are composed mainly of igneous rock formed in the Cretaceous period, with some intrusive materials from the Tertiary ([www.elyunque.com](http://www.elyunque.com), Mowbray, 2007).

Luquillo mountain soils were formed in residual volcanic ash, and are moderately rich in nutrients. Little stable organic matter accumulates, due to rapid decomposition, except in local areas at upper elevations, where decomposition is inhibited by water saturation of the soil. Except for phosphorous, nutrients in the soil are typically greater than those found above ground.

Most soils in the upper Luquillo Mountains are typically a red or yellowish color, due to their high concentrations of iron and aluminum oxides and hydroxides. In addition they often contain quartz and kaolin, and small amounts of other minerals and organic matter. Soil profiles vary as a function of topography. Steep slopes, cliffs and stream beds may have less soil depth than flatter areas ([www.elyunque.com](http://www.elyunque.com), Mowbray, 2007).

Soil observed during the boring activities found the reddish soils at depth, usually below 12 feet. Soil encountered for the first 12 feet was most likely non-native fill material placed during construction of the radar facility consisting of brown sandy and silty clay. Geologic cross sections are presented as Figures 2-2 and 2-3, and are derived from the lithologic descriptions in the boring logs. The underlying soils are very heterogeneous, which is typical of fill material. The top of bedrock is also shown on the cross sections and varies from 9 to greater than 20 feet below ground surface. No significant water was encountered during the boring activities, therefore water levels are not shown on the cross sections.

### **3.0 FACILITY INVESTIGATION**

Sampling locations presented in this section were confirmed in the field, as outlined in Section 3 of the Site Investigation Work Plan for the Pico del Este Radar Facility dated July 9, 2007. Specifically for each site, the topography, utilities, facilities and encumbrances, and anticipated groundwater flow direction was taken into consideration. Following the sampling activities, the final locations were surveyed more precisely using a Global Positioning System (GPS) receiver.

#### **3.1 Soil Sampling and Analysis Program**

Surface and subsurface soil samples were collected from the Pico del Este Radar Facility. The following discussion outlines the specific sampling protocol and rationale for the sampling activities. Table 3-1 presents a summary of the soil sampling and analytical program used for the site investigation. This table describes individual sample identification, sampling depth, date collected, and sample analysis performed. Site photographs are presented in Appendix A documenting the SI activities.

##### **3.1.1 Soil Sample Collection**

Samples were collected using a track mounted Geoprobe® direct push technology (DPT) drilling rig. Samples were collected using five foot acetate sleeves and each soil core was logged and screened using a photoionization detector (PID). New acetate sleeves were used for each five foot run of DPT drilling. Stainless steel spoons were used to remove soil from the sleeve and place into the sampling container supplied by the analytical laboratory. A new stainless steel spoon was used for each sample collected. A surface soil sample was collected at each location and the subsurface sample collection depths were determined based on the PID screening results. Two subsurface samples were collected from each boring. Boring logs, which show the depth of each sample collected, are presented in Appendix B. Field notes documenting daily work activity are provided in Appendix C.

Fourteen surface soil samples along with three duplicate samples and two matrix spike/matrix spike duplicates (MS/MSDs) were collected and analyzed for Appendix IX volatile organic compounds (VOCs), Low-level polynuclear aromatic hydrocarbons (PAHs), and TPH DRO. Analytical results were compared to United States Environmental Protection Agency (USEPA) Region IX Residential Soil Preliminary Remediation Goals (PRGs), Industrial Soil PRGs and the EQB Soil Screening Criteria for DRO. Twenty eight subsurface soils samples along with two duplicate samples and one MS/MSD were collected and analyzed for Appendix IX VOCs, Low-level PAHs, and TPH DRO. Analytical results were compared to USEPA Region IX Residential Soil PRGs, Industrial Soil PRGs and the EQB Soil Screening Criteria for DRO.

Surface soil samples collected in January 2008 included 18 samples along with two duplicates and one MS/MSD and were analyzed for TPH DRO. Analytical results were compared to the EQB Soil Screening Criteria for DRO. These surface soil samples were collected by hand using a stainless steel spoon. The results are discussed in Section 4.0 Nature and Extent of Contamination.

#### **3.2 Monitor Well Installation Program**

As outlined in Section 3.2 of the Site Investigation Work Plan (MBaker, 2007), a total of two monitor wells were proposed for installation at the Pico Del Este Radar Facility if groundwater was discovered. However, significant groundwater was not discovered at any of the soil boring sample locations. Therefore, no monitor wells were installed and as a result, a groundwater sampling and analysis program was not conducted.

### **3.3 Quality Assurance/Quality Control Sampling and Analysis Program**

QA/QC requirements for the investigation consisted of trip blanks, equipment rinsates, field blanks, field duplicates, and MS/MSDs.

#### **3.3.1 Trip Blanks**

One trip blank sample accompanied each cooler containing the samples for Appendix IX VOC analysis. A total of three trip blank samples were prepared: One was submitted on July 31, 2007, another on August 1, 2007 and finally the last trip blank sample was submitted on August 2, 2007. Trip blank sample results are used to determine whether cross-contamination of VOCs occurred during sampling and/or shipping. No trip blanks were collected during the January 2008 sampling event since no VOCs were analyzed.

#### **3.3.2 Equipment Rinsates**

Two decontaminated equipment rinsate samples were collected, submitted, and analyzed as part of the QA/QC program. PEER01 is a rinsate from the Macrocore<sup>®</sup> Acetate liner used with the DPT drilling rig and PEER02 is a rinsate of the stainless steel spoon associated with soil sample collection. Since new stainless steel spoons and new acetate liners were used on each sample a rinsate was not collected every day. Only one sample was collected for each tool representing a clean new piece.

A rinsate of a stainless steel spoon was collected during the surface soil sample collection in January 2008 and was identified as RB-01. A new spoon was used on each sample.

Equipment rinsate samples were analyzed for the same parameters as the related environmental samples. Therefore, each equipment rinsate sample was analyzed for Appendix IX VOCs, Low-level PAHs, and TPH DRO. The January 2008 rinsate sample was only analyzed for TPH DRO.

Results from equipment rinsate samples are useful in determining if the sampling equipment was contaminant-free during the field investigation.

#### **3.3.3 Field Blanks**

One field blank sample (PEFB01) was collected from lab grade de-ionized water. Field blank samples were analyzed for the same parameters as the related environmental samples. Therefore, the field blank sample was sent to the laboratory for analysis of Appendix IX VOCs, Low-level PAHs, and TPH DRO.

A field blank of lab grade de-ionized water was collected during the January 2008 sampling event and was identified as FB-01. This sample was analyzed for only TPH DRO.

Field blank testing is useful in determining if other environmental impact sources are being picked up in the soil samples submitted to the laboratory (i.e. air pollutants or vapors).

#### **3.3.4 Field Duplicates**

Field duplicate samples of the surface and subsurface soil were collected during the same time the corresponding environmental sample was collected. One duplicate sample was collected for every 10 environmental samples collected per media. A total of 42 soils samples were collected as part of the

site investigation field sampling activity. Thus, five field duplicate samples (PESB05-00D, PESB10-00D, PESB10-04D, PESB12-00D, and PESB12-01D) were collected concurrently. Each was analyzed for Appendix IX VOCs, Low-level PAHs, and TPH DRO.

Duplicate samples were collected from PESB19-00D and PESB26-00D during the January 2008 sampling event and analyzed for TPH DRO.

### **3.3.5 Matrix Spike/Matrix Spike Duplicates**

The Work Plan specifies one matrix spike/matrix spike duplicate sample be collected for every 20 primary samples collected (for each matrix). Therefore, three QA/QC soil samples, PESB05-00-MS/MSD, PESB12-00-MS/MSD and PESB12-01-MS/MSD were collected to evaluate the matrix effect upon the analytical methodology. In addition, one MS/MSD was collected during January 2008, PESB19-00-MS/MSD.

## **4.0 NATURE AND EXTENT OF CONTAMINATION**

This section discusses the nature and extent of the Pico del Este contamination related to the petroleum spill near Building 3034 as determined from chemical analysis of environmental samples with regards to the July 31 - August 2, 2007 Site Investigation and the January 30, 2008 surface soil sample collection event. Laboratory analytical data collected in 2007 and 2008 went through a formal data validation process. Complete validated data tables for the above mentioned field effort in 2007 and 2008 is included in Appendix D. Detected compounds for each media are compared to applicable regulatory criteria. Applicable criteria for surface and subsurface soil include USEPA Region IX Residential Soil PRGs, USEPA Region IX Industrial Soil PRGs, and EQB Soil Screening Criteria.

### **4.1 PID Field Screening**

PID screening was conducted at each sample location. These readings were taken to protect the field team from excessive exposure and to assist with temporary well location selection (if groundwater was detected). The PID readings also provided the field team with an initial insight into historical impacts (i.e., a broken seal on a fuel feed pump caused a release of diesel fuel from the emergency generator formerly housed in Building 3034) and potential “hot spots”. Subsurface soil sample locations were based on obtaining a sample from the highest PID reading zone and also the zone where PID readings stopped in order to delineate the plume vertically. The field screening PID results can be referenced in the boring logs presented in Appendix B.

### **4.2 Surface Soils**

A total of thirty two (32) surface soil samples and five duplicate samples were collected during both the investigations. The initial fourteen surface soil samples collected in 2007 were analyzed for Appendix IX VOCs, Low-level PAHs, and TPH DRO. Results were compared to USEPA Region IX Residential PRGs, USEPA Region IX Industrial PRGs, and the EQB Screening Criteria. The additional eighteen surface soil samples collected in January 2008 were analyzed for TPH DRO and compared to EQB Screening Criteria.

No VOCs or PAHs exceeded the EPA PRGs in the initial surface soil samples. Some minor detections of VOCs including acetone, carbon disulfide, ethylbenzene, and methyl ethyl ketone were detected in one or more samples at levels that were orders of magnitude below the PRGs. Similarly, several PAH parameters were detected in the surface soil sample at concentrations well below the PRGs. DRO exceeded the EQB soil screening value set at 100 mg/kg in many samples collected in 2007. No TPH DRO values exceeded the EQB screening value in the additional 18 samples collected in January 2008 from outside the fence line and under the concrete pad, see Figure 4-1. Complete data appendix tables, chain of custody documentation and Puerto Rico laboratory certification stamps for the two sampling events are presented in Appendix D.

TPH DRO was detected in eleven of the fourteen surface soil sample locations collected in 2007. The EQB criterion for TPH DRO (100 mg/kg) was exceeded at ten of these locations ranging in concentrations from 370 to 3,800 mg/kg. Summaries of the surface soil detected parameters for the Pico Del Este Radar Facility and comparison of the detected results to applicable screening criteria are presented in Table 3-2. The spatial distribution of DRO in the surface soil is presented vertically on the geologic cross sections on Figures 2-2 and 2-3 and horizontally on Figure 4-1. Four of the eighteen samples collected in 2008 reported detections of TPH DRO. None of these four surface soil samples were detected above the EQB screening criteria outside the fence line of the Radar Facility, in addition, delineation extents to the north and west are defined with samples below the EQB criteria in the surface soil.

#### 4.3 Subsurface Soils

A total of twenty eight (28) subsurface soils samples were collected and analyzed as part of the Site Investigation field activities in 2007. All twenty eight subsurface soil samples were analyzed for Appendix IX VOCs, Low-level PAHs, and TPH DRO. Results were compared to EPA Region IX Residential PRGs, USEPA Region IX Industrial PRGs, and the EQB Soil Screening Criteria.

Similar to the surface soil, the subsurface soil analytical results indicated minor detections of VOC and PAH parameters which were orders of magnitude below their respective PRGs. DRO exceeded the EQB's soil screening value set at 100 mg/kg. Complete data appendix tables, chain of custody documentation and Puerto Rico laboratory certification stamps are presented in Appendix D.

TPH DRO was detected in fourteen (14) of the twenty-eight (28) subsurface soil samples from eight of the fourteen soil boring locations. The PREQB criterion for TPH DRO was exceeded at eight of these borings ranging in concentrations from 110 to 1,400 mg/kg. The majority of these detections are less than the detections in the surface soil samples. The average concentration of the surface soil detections was approximately 1,080 mg/kg and the average concentration of the subsurface soil detections was approximately 425 mg/kg. Summaries of the subsurface soil detected parameters for the Pico Del Este Radar Facility are presented in Table 3-3. Similar to the surface soil results, the subsurface soil delineation is presented vertically on the geologic cross sections, Figures 2-2 and 2-3, and horizontally on Figure 4-2. For reference, the EBS sample locations are presented on Figures 4-1 and 4-2. The subsurface soil results indicate levels of DRO above the EQB soil screening value beyond the fence line and under the concrete pad to the south.

#### 4.4 Laboratory Data Validation Summary

A total of three data validation reports were prepared for the three separate sample delivery groups (SDGs) including 680-28896-1, 680-28859-1, and 680-28831, provided by the analytical laboratory for the 2007 sampling event. One SDG, 680-33838 was validated for the January 2008 sampling event. Data validation report summaries are included in Appendix E. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory; the Region II Standard Operating Procedures (SOPs) for the Validation of Organic Data Acquired using SW-846 Methods, and professional judgment. Since no specific SOP is available for TPH-DRO; specific method requirements, Region II flagging conventions, and professional judgment were used.

Some method blank contamination was identified related to the VOC, PAH, and DRO samples. Overall the detection levels of VOCs and PAHs from the environmental samples were very low and did not exceed PRGs. DRO samples were at times detected at significant levels, but DRO is not individual parameter specific and does not include a Region II SOP for data validation. The data from both sampling events is considered usable.

#### 4.5 Summary of Detected Compounds in Field QA/QC Samples

Field generated QA/QC samples consisted of trip blanks, field blanks, equipment rinsates, and environmental duplicates. Trip blanks were only analyzed for Appendix IX VOCs. Other blanks were analyzed for all fractions requested in these investigations including Appendix IX VOCs, Low-level PAHs, and TPH DRO.

Table 3-4 presents QA/QC data detection results. The equipment rinsate (PEER01) collected in 2007, which is a rinsate of the Geoprobe® acetate sleeves, contained minor detections of PAHs (fluoranthene, phenanthrene, and pyrene), and TPH DRO. In addition, minor detections of toluene were detected in the field blank and trip blanks from the 2007 investigation. Since the field blank

and trip blanks were derived from laboratory grade supplied water these toluene detections are a result of laboratory artifacts. Overall, the detections of parameters in the QA/QC field blanks was not significant to reported data, with the exception of qualifying some data as “estimated” (J flagged), which was done by the data validation contractor.

The rinsate and field blanks collected in January 2008 were analyzed for TPH-DRO. The results of these two blanks were estimated detections at levels an order of magnitude below the reporting limit. These low detections would indicate no significant impact to the validity of the surface soil sample data collected in January 2007.

Detections in two environmental duplicates (PESB05-00D and PESB12-01D) exceeded the EQB’s criteria for DRO. The relative percent difference (RPD) for PESB05-00 and PESB05-00D; and PESB12-01 and PESB12-01D was greater than 100 percent and was flagged by the validator as estimated “J”. Re-analysis of these two samples did not provide a better RPD result and therefore the original results were reported and flagged. The high RPD is most likely a result of the samples being pulled from separate containers and differences in the sample matrices.

The duplicates collected during the January 2008 sampling event were from PESB19-00D and PESB26-00D and were analyzed for TPH-DRO. The comparative results were very similar resulting in estimated detected values just above the reporting limit.

#### **4.6 Other Investigation Considerations**

##### **4.6.1 National Forest Service Coordination**

Although the Pico del Este Radar Facility is predominantly industrial in nature, it is situated within the Caribbean National Forest; a resource defined by its many ecologically sensitive environs. In order to ensure that the proper approvals were obtained, coordination with the National Forest Service (NFS) was initiated prior to the start of the Site Investigation field work. Given that the field work would be done only within the confines of the perimeter fence line and necessary equipment would only be transported along Hwy 191 before 10 AM and removed after 4 PM to minimize encounters with tour buses and other traffic; Caribbean National Forest service engineering and ecosystem staff granted their approval.

##### **4.6.2 Investigation Derived Wastes**

The soil cuttings from the subsurface soil sampling were placed back into the boring from which they came. Whenever possible, soils last out of the hole were returned first, thereby, approximating original stratigraphy. Used acetate sleeves and stainless steel spoons, in addition to gloves were disposed as municipal waste and hauled out of the Caribbean National Forest. No decontamination water or purge water was generated during this SI.

##### **4.6.3 Decontamination**

Since new stainless steel spoons and new acetate sleeves were utilized at each sample location, decontamination of equipment was not necessary. No groundwater samples were collected, so no groundwater sampling equipment was used or decontaminated during the SI.

#### **4.6.4 Surveying**

All sampling locations were pre-determined and presented on a figure prior to entering the field. This figure was uploaded into a GPS unit for locating purposes in the field. However, given the small size and defined location of the investigation area, accurately locating the sample locations was determined using a tape measure. Once each sample location was confirmed and flagged in the field, that final location was surveyed and recorded with the GPS unit. Sample locations for the site investigation are shown on Figure 2-1, Site Plan.

#### **4.6.5 Health and Safety Procedures**

The health and safety procedures found in the base RFI work plan (Baker, 1995), were employed during this investigation.

#### **4.6.6 Chain-of-Custody**

Chain-of-Custody procedures were followed to ensure a documented, traceable link between measurement results and the sample/parameter that they represent. These procedures are intended to provide a legally acceptable record of sample preparation, storage, and analysis.

To track sample custody transfers before ultimate disposition, sample custody was documented using a similar chain-of-custody form as presented in the base RFI work plan (Baker, 1995).

A chain-of-custody form was completed for each individual sample shipment. All samples were properly packaged; the shipping cooler was sealed and prepared for shipment to the analytical laboratory. Copies of the chain-of-custody documentation for both sampling events are presented in Appendix D.

#### **4.6.7 Puerto Rico Certification Stamps**

As required by Puerto Rico Law 97 of June 4, 1983 to regulate the chemical profession in Puerto Rico, certification stamps were issued for the analytical data by a licensed chemist. The stamps are sealed by the licensed chemist, which certifies the documents validity. Puerto Rico analytical laboratory certification stamps for both sampling events are presented in Appendix D.

## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

It is evident from the analytical results and their distribution, that contamination to the soil (predominantly related to the presence of Total Petroleum Hydrocarbons - DRO) has occurred due to the release of diesel fuel from the emergency generator formerly housed in Building 3034 at the Pico del Este Radar Facility.

DRO was found at concentrations exceeding the EQB DRO soil screening criteria in both surface and subsurface soil. The delineation of DRO results indicated subsurface soil with levels higher than the EQB criteria are extending outside the perimeter fence, while the additional sample collection in January 2008 confirms surface soil is not impacted at levels above the EQB screening criteria outside the fence line. Due to the extremely sensitive ecosystem in the rainforest, it is not advisable to perform soil removal activities outside the fence line to remove potentially DRO-impacted subsurface soil. No individual VOC or PAH parameters exceed the EPA PRGs and DRO will biodegrade over time, especially if the point source area in the surface soil is removed within the fence line. The Navy proposes to conduct surface soil removal activities within the fence line to a depth of no more than two feet below ground surface in the area delineated on Figure 4-1.

## 6.0 REFERENCES

Baker Environmental, Inc. (Baker), 1995. Final RCRA Facility Investigation Management Plans, Naval Station Roosevelt Roads, Ceiba, Puerto Rico. September 14, 1995. Coraopolis, Pennsylvania.

Mowbray, Alan; 2007. Geology, Soils, and Climate; how they affect the El Yunque National Forest. 16 Oct. 2007. <[http://www.elyunque.com/sierra\\_palm.htm](http://www.elyunque.com/sierra_palm.htm)>.

Michael Baker Jr., Inc. (MBaker), 2007. Site Investigation Work Plan, Pico del Este Radar Facility Caribbean National Forest, Luquillo, Puerto Rico. Coraopolis, Pennsylvania. July 9, 2007.

Naval Facilities Engineering Command (NAVFAC), 2003. Environmental Baseline Survey (EBS), Pico del Este Radar Facility.

Riveria, Magaly; 2007. Caribbean National Forest: El Yunque. 2007. <<http://welcome.topuertorico.org/reference/yunque.shtml>>.

## **TABLES**

---

---

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Sample ID	Site ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested			Comment
				App IX VOCs	Low Level PAHs	TPH DRO	
<b>Surface Soil Samples</b>							
PESB01-00	PESB01	0.0 - 1.0	07/31/07	X	X	X	
PESB02-00	PESB02	0.0 - 1.0	07/31/07	X	X	X	
PESB03-00	PESB03	0.0 - 1.0	07/31/07	X	X	X	
PESB04-00	PESB04	0.0 - 1.0	07/31/07	X	X	X	
PESB05-00	PESB05	0.0 - 1.0	07/31/07	X	X	X	
PESB05-00D	PESB05	0.0 - 1.0	07/31/07	X	X	X	Duplicate
PESB05-00MS/MSD	PESB05	0.0 - 1.0	07/31/07	X	X	X	Matrix Spike/Matrix Spike Duplicate
PESB06-00	PESB06	0.0 - 1.0	08/01/07	X	X	X	
PESB07-00	PESB07	0.0 - 1.0	08/01/07	X	X	X	
PESB08-00	PESB08	0.0 - 1.0	08/01/07	X	X	X	
PESB09-00	PESB09	0.0 - 1.0	08/01/07	X	X	X	
PESB10-00	PESB10	0.0 - 1.0	08/01/07	X	X	X	
PESB10-00D	PESB10	0.0 - 1.0	08/01/07	X	X	X	Duplicate
PESB11-00	PESB11	0.0 - 1.0	08/01/07	X	X	X	
PESB12-00	PESB12	0.0 - 1.0	08/01/07	X	X	X	
PESB12-00D	PESB12	0.0 - 1.0	08/01/07	X	X	X	Duplicate
PESB12-00MS/MSD	PESB12	0.0 - 1.0	08/01/07	X	X	X	Matrix Spike/Matrix Spike Duplicate
PESB13-00	PESB13	0.0 - 1.0	08/02/07	X	X	X	
PESB14-00	PESB14	0.0 - 1.0	08/02/07	X	X	X	
PESB16-00	PESB16	0.0 - 1.0	01/30/08			X	
PESB17-00	PESB17	0.0 - 1.0	01/30/08			X	
PESB18-00	PESB18	0.0 - 1.0	01/30/08			X	
PESB19-00	PESB19	0.0 - 1.0	01/30/08			X	
PESB19-00D	PESB19	0.0 - 1.0	01/30/08			X	Duplicate
PESB19-00MS/MSD	PESB19	0.0 - 1.0	01/30/08			X	Matrix Spike/Matrix Spike Duplicate
PESB20-00	PESB20	0.0 - 1.0	01/30/08			X	
PESB21-00	PESB21	0.0 - 1.0	01/30/08			X	
PESB22-00	PESB22	0.0 - 1.0	01/30/08			X	
PESB23-00	PESB23	0.0 - 1.0	01/30/08			X	
PESB24-00	PESB24	0.0 - 1.0	01/30/08			X	
PESB25-00	PESB25	0.0 - 1.0	01/30/08			X	
PESB26-00	PESB26	0.0 - 1.0	01/30/08			X	
PESB26-00D	PESB26	0.0 - 1.0	01/30/08			X	Duplicate
PESB27-00	PESB27	0.0 - 1.0	01/30/08			X	
PESB28-00	PESB28	0.0 - 1.0	01/30/08			X	
PESB29-00	PESB29	0.0 - 1.0	01/30/08			X	
PESB30-00	PESB30	0.0 - 1.0	01/30/08			X	
PESB31-00	PESB31	0.0 - 1.0	01/30/08			X	
PESB32-00	PESB32	0.0 - 1.0	01/30/08			X	
PESB33-00	PESB33	0.0 - 1.0	01/30/08			X	

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Sample ID	Site ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested			Comment
				App IX VOCs	Low Level PAHs	TPH DRO	
<b>Subsurface Soil Samples</b>							
PESB01-01	PESB01	1.0 - 3.0	07/31/07	X	X	X	
PESB01-02	PESB01	3.0 - 5.0	07/31/07	X	X	X	
PESB02-04	PESB02	7.0 - 9.0	07/31/07	X	X	X	
PESB02-06	PESB02	11.0 - 13.0	07/31/07	X	X	X	
PESB03-02	PESB03	3.0 - 5.0	07/31/07	X	X	X	
PESB03-04	PESB03	7.0 - 9.0	07/31/07	X	X	X	
PESB04-05	PESB04	9.0 - 11.0	07/31/07	X	X	X	
PESB04-07	PESB04	13.0 - 15.0	07/31/07	X	X	X	
PESB05-05	PESB05	9.0 - 11.0	07/31/07	X	X	X	
PESB05-07	PESB05	13.0 - 15.0	07/31/07	X	X	X	
PESB06-04	PESB06	7.0 - 9.0	08/01/07	X	X	X	
PESB06-07	PESB06	13.0 - 15.0	08/01/07	X	X	X	
PESB07-05	PESB07	9.0 - 11.0	08/01/07	X	X	X	
PESB07-07	PESB07	13.0 - 15.0	08/01/07	X	X	X	
PESB08-02	PESB08	3.0 - 5.0	08/01/07	X	X	X	
PESB08-04	PESB08	7.0 - 9.0	08/01/07	X	X	X	
PESB09-05	PESB09	9.0 - 11.0	08/01/07	X	X	X	
PESB09-07	PESB09	13.0 - 15.0	08/01/07	X	X	X	
PESB10-04	PESB10	7.0 - 9.0	08/01/07	X	X	X	
PESB10-04D	PESB10	7.0 - 9.0	08/01/07	X	X	X	Duplicate
PESB10-06	PESB10	11.0 - 13.0	08/01/07	X	X	X	
PESB11-01	PESB11	1.0 - 3.0	08/01/07	X	X	X	
PESB11-03	PESB11	5.0 - 7.0	08/01/07	X	X	X	
PESB12-01	PESB12	1.0 - 3.0	08/01/07	X	X	X	
PESB12-01D	PESB12	1.0 - 3.0	08/01/07	X	X	X	Duplicate
PESB12-01MS/MSD	PESB12	1.0 - 3.0	08/01/07	X	X	X	Matrix Spike/Matrix Spike Duplicate
PESB12-04	PESB12	7.0 - 9.0	08/01/07	X	X	X	
PESB13-03	PESB13	5.0 - 7.0	08/02/07	X	X	X	
PESB13-09	PESB13	17.0 - 19.0	08/02/07	X	X	X	
PESB14-07	PESB14	13.0 - 15.0	08/02/07	X	X	X	
PESB14-09	PESB14	17.0 - 19.0	08/02/07	X	X	X	
<b>Equipment Rinsate Samples</b>							
PEER01	NA	NA	07/31/07	X	X	X	Macrocore Acetate Liner
PEER02	NA	NA	08/02/07	X	X	X	Stainless Steel Spoon
RB-01	NA	NA	01/30/08			X	Stainless Steel Spoon
<b>Field Blank Sample</b>							
PEFB01	NA	NA	08/02/07	X	X	X	Lab grade de-ionized water
FB-01	NA	NA	01/30/08			X	Lab grade de-ionized water
<b>Trip Blank Samples</b>							
Trip Blank	NA	NA	07/31/07	X			
Trip Blank	NA	NA	08/01/07	X			
Trip Blank	NA	NA	08/02/07	X			

**Notes:**

ft bgs - feet below ground surface.

NA - not applicable

TABLE 3-2

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>USEPA</b>	<i>USEPA</i>	PESB01	PESB02	PESB03	PESB04	PESB05	PESB05
<b>Sample ID</b>	<b>Region IX</b>	<i>Region IX</i>	PESB01-00	PESB02-00	PESB03-00	PESB04-00	PESB05-00	PESB05-00D
<b>Sample Depth (ft bgs)</b>	<b>Residential</b>	<i>Industrial</i>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Sampling Date</b>	<b>Soil PRGs</b>	<i>Soil PRGs</i>	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007
<b>Volatiles (ug/kg)</b>								
Acetone	14,126,570	54,320,980	39 J	19 J	53 J	570 UJ	220 UJ	53 J
Carbon disulfide	355,340	720,000	0.64 U	0.72 U	0.81 U	66 UJ	26 U	0.63 U
Ethylbenzene	395,000	395,000	0.94 U	1.1 U	1.2 U	97 UJ	38 U	0.93 U
Methyl Ethyl Ketone	22,311,190	113,264,390	3.4 U	3.8 U	25 J	350 UJ	140 U	6.5 J
<b>Low-level PAHs (ug/kg)</b>								
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	15 U	15 U	1.7 U	1.6 U	42 J	1.5 UJ
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	21 U	22 U	2.4 U	2.2 U	11 J	2.2 UJ
Benzo[a]anthracene	621	2,109	21 U	22 U	2.4 U	2.2 U	2.2 U	2.2 U
Benzo[a]pyrene	62	210	8 U	8.4 U	5 J	0.85 U	0.85 U	0.85 U
Chrysene	62,146	210,962	7.4 U	7.8 U	7.3 J	0.79 U	0.78 U	0.79 U
Fluoranthene	2,293,610	22,000,350	21 U	22 U	2.4 U	2.2 U	2.2 U	2.2 U
Naphthalene	5,591	18,769	7.3 U	7.6 U	0.84 U	0.78 U	0.77 U	0.77 U
Phenanthrene	231,595 <sup>(2)</sup>	291,262 <sup>(2)</sup>	21 U	22 U	2.4 U	140 130	J	2.2 UJ
Pyrene	231,595	2,912,620	21 U	22 U	31 2.2	U	2.2 U	2.2 U
<b>Total Petroleum Hydrocarbons (mg/kg)</b>								
Diesel Range Organics	100 <sup>(3)</sup>	NE	710 58		1600	1600	2800 J	350 J

**Notes:**

<sup>(1)</sup> Screening value for Naphthalene used as surrogate

<sup>(2)</sup> Screening value for pyrene used as a surrogate

<sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

NA - Not Applicable

Dark Shading - Exceeds EQB Criteria

TABLE 3-2

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Site ID	USEPA	USEPA	PESB06	PESB07	PESB08	PESB09	PESB10	PESB10
Sample ID	Region IX	Region IX	PESB06-00	PESB07-00	PESB08-00	PESB09-00	PESB10-00	PESB10-00D
Sample Depth (ft bgs)	Residential	Industrial	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Sampling Date	Soil PRGs	Soil PRGs	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007
<b>Volatiles (ug/kg)</b>								
Acetone	14,126,570	54,320,980	7.6 R	35 J	14 J	25 J	21 R	19 R
Carbon disulfide	355,340	720,000	0.77 U	0.73 U	0.69 U	0.78 U	0.61 U	0.68 U
Ethylbenzene	395,000	395,000	1.1 U	1.1 U	1 U	1.2 U	0.89 U	1 U
Methyl Ethyl Ketone	22,311,190	113,264,390	4.1 U	3.9 U	3.6 U	8.5 J	6.3 J	3.6 U
<b>Low-level PAHs (ug/kg)</b>								
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	230 15	U	1.5 U	15 U	14 U	14 U
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	120 22	U	2.2 U	22 U	20 U	20 U
Benzo[a]anthracene	621	2,109	24 U	22 U	2.2 U	22 U	20 U	20 U
Benzo[a]pyrene	62	210	9.2 U	8.5 U	0.85 U	8.5 U	7.6 U	7.9 U
Chrysene	62,146	210,962	8.5 U	7.9 U	2 J	7.8 U	7.1 U	7.3 U
Fluoranthene	2,293,610	22,000,350	24 U	22 U	2.2 U	22 U	20 U	20 U
Naphthalene	5,591	18,769	8.4 U	7.7 U	0.77 U	7.7 U	6.9 U	7.2 U
Phenanthrene	231,595 <sup>(2)</sup>	291,262 <sup>(2)</sup>	640 210		2.2 U	22 U	20 U	20 U
Pyrene	231,595	2,912,620	240 38	U	2.2 U	22 U	50 U	20 U
<b>Total Petroleum Hydrocarbons (mg/kg)</b>								
Diesel Range Organics	100 <sup>(3)</sup>	NE	3800 420		21 U	870	430 J	76 J

**Notes:**

- <sup>(1)</sup> Screening value for Napthalene used as surrogate
- <sup>(2)</sup> Screening value for pyrene used as a surrogate
- <sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

NA - Not Applicable

Dark Shading - Exceeds EQB Criteria

TABLE 3-2

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Site ID	USEPA	USEPA	PESB11	PESB12	PESB12	PESB13	PESB14	PESB16
Sample ID	Region IX	Region IX	PESB11-00	PESB12-00	PESB12-00D	PESB13-00	PESB14-00	PESB16-00
Sample Depth (ft bgs)	Residential	Industrial	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Sampling Date	Soil PRGs	Soil PRGs	8/1/2007	8/1/2007	8/1/2007	8/2/2007	8/2/2007	1/30/2008
<b>Volatiles (ug/kg)</b>								
Acetone	14,126,570	54,320,980	6.2 R	5.8 R	6.6 R	14 J	430 J	NA
Carbon disulfide	355,340	720,000	0.72 U	0.67 U	0.77 U	0.76 U	4.8 J	NA
Ethylbenzene	395,000	395,000	1.1 U	0.99 U	1.1 U	1.1 U	12 J	NA
Methyl Ethyl Ketone	22,311,190	113,264,390	3.8 U	3.5 U	4.1 U	7.9 J	150 J	NA
<b>Low-level PAHs (ug/kg)</b>								
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	1.4 U	1.5 U	1.6 U	1.7 U	210 NA	
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	2 U	2.2 U	2.2 U	2.4 U	220 NA	
Benzo[a]anthracene	621	2,109	2 U	2.2 U	2.2 U	6.2 J	3.3 U	NA
Benzo[a]pyrene	62	210	0.8 U	0.85 U	0.87 U	3.4 J	1.3 U	NA
Chrysene	62,146	210,962	0.74 U	3.3 J	0.81 U	6.3 J	14 NA	
Fluoranthene	2,293,610	22,000,350	2 U	2.2 U	2.2 U	16 3.3	U	NA
Naphthalene	5,591	18,769	0.72 U	0.77 U	0.79 U	0.84 U	76 NA	
Phenanthrene	231,595 <sup>(2)</sup>	291,262 <sup>(2)</sup>	2 U	2.2 U	2.2 U	14 120		NA
Pyrene	231,595	2,912,620	2 U	6.1 U	2.2 U	15 35		NA
<b>Total Petroleum Hydrocarbons (mg/kg)</b>								
Diesel Range Organics	100 <sup>(3)</sup>	NE	9.4 U	25 U	0.79 U	370 1000		6.5 U

**Notes:**

- <sup>(1)</sup> Screening value for Naphthalene used as surrogate
- <sup>(2)</sup> Screening value for pyrene used as a surrogate
- <sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

NA - Not Applicable

Dark Shading - Exceeds EQB Criteria

TABLE 3-2

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>USEPA</b>	<i>USEPA</i>	PESB17	PESB18	PESB19	PESB19	PESB20	PESB21
<b>Sample ID</b>	<b>Region IX</b>	<i>Region IX</i>	PESB17-00	PESB18-00	PESB19-00	PESB19-00D	PESB20-00	PESB21-00
<b>Sample Depth (ft bgs)</b>	<b>Residential</b>	<i>Industrial</i>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Sampling Date</b>	<b>Soil PRGs</b>	<i>Soil PRGs</i>	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008
<b>Volatiles (ug/kg)</b>								
Acetone	14,126,570	54,320,980	NA	NA	NA	NA	NA	NA
Carbon disulfide	355,340	720,000	NA	NA	NA	NA	NA	NA
Ethylbenzene	395,000	395,000	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	22,311,190	113,264,390	NA	NA	NA	NA	NA	NA
<b>Low-level PAHs (ug/kg)</b>								
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	621	2,109	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	62	210	NA	NA	NA	NA	NA	NA
Chrysene	62,146	210,962	NA	NA	NA	NA	NA	NA
Fluoranthene	2,293,610	22,000,350	NA	NA	NA	NA	NA	NA
Naphthalene	5,591	18,769	NA	NA	NA	NA	NA	NA
Phenanthrene	231,595 <sup>(2)</sup>	291,262 <sup>(2)</sup>	NA	NA	NA	NA	NA	NA
Pyrene	231,595	2,912,620	NA	NA	NA	NA	NA	NA
<b>Total Petroleum Hydrocarbons (mg/kg)</b>								
Diesel Range Organics	100 <sup>(3)</sup>	NE	19	5.5 U	6.1 U	5.5 U	5.3 U	5.2 U

**Notes:**<sup>(1)</sup> Screening value for Naphthalene used as surrogate<sup>(2)</sup> Screening value for pyrene used as a surrogate<sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

NA - Not Applicable

Dark Shading - Exceeds EQB Criteria

TABLE 3-2

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>USEPA</b>	<i>USEPA</i>	PESB22	PESB23	PESB24	PESB25	PESB26	PESB26
<b>Sample ID</b>	<b>Region IX</b>	<i>Region IX</i>	PESB22-00	PESB23-00	PESB24-00	PESB25-00	PESB26-00	PESB26-00D
<b>Sample Depth (ft bgs)</b>	<b>Residential</b>	<i>Industrial</i>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Sampling Date</b>	<b>Soil PRGs</b>	<i>Soil PRGs</i>	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008
<b>Volatiles (ug/kg)</b>								
Acetone	14,126,570	54,320,980	NA	NA	NA	NA	NA	NA
Carbon disulfide	355,340	720,000	NA	NA	NA	NA	NA	NA
Ethylbenzene	395,000	395,000	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	22,311,190	113,264,390	NA	NA	NA	NA	NA	NA
<b>Low-level PAHs (ug/kg)</b>								
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	621	2,109	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	62	210	NA	NA	NA	NA	NA	NA
Chrysene	62,146	210,962	NA	NA	NA	NA	NA	NA
Fluoranthene	2,293,610	22,000,350	NA	NA	NA	NA	NA	NA
Naphthalene	5,591	18,769	NA	NA	NA	NA	NA	NA
Phenanthrene	231,595 <sup>(2)</sup>	291,262 <sup>(2)</sup>	NA	NA	NA	NA	NA	NA
Pyrene	231,595	2,912,620	NA	NA	NA	NA	NA	NA
<b>Total Petroleum Hydrocarbons (mg/kg)</b>								
Diesel Range Organics	100 <sup>(3)</sup>	NE	4.5 U	24	5.3 U	5.7 U	5.4 U	5.3 U

**Notes:**<sup>(1)</sup> Screening value for Naphthalene used as surrogate<sup>(2)</sup> Screening value for pyrene used as a surrogate<sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

NA - Not Applicable

Dark Shading - Exceeds EQB Criteria

TABLE 3-2

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>USEPA</b>	<i>USEPA</i>	PESB27	PESB28	PESB29	PESB30	PESB31	PESB32-00	PESB33
<b>Sample ID</b>	<b>Region IX</b>	<i>Region IX</i>	PESB27-00	PESB28-00	PESB29-00	PESB30-00	PESB31-00	PESB32-00	PESB33-00
<b>Sample Depth (ft bgs)</b>	<b>Residential</b>	<i>Industrial</i>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Sampling Date</b>	<b>Soil PRGs</b>	<i>Soil PRGs</i>	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008
<b>Volatiles (ug/kg)</b>									
Acetone	14,126,570	54,320,980	NA						
Carbon disulfide	355,340	720,000	NA						
Ethylbenzene	395,000	395,000	NA						
Methyl Ethyl Ketone	22,311,190	113,264,390	NA						
<b>Low-level PAHs (ug/kg)</b>									
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	NA						
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	NA						
Benzo[a]anthracene	621	2,109	NA						
Benzo[a]pyrene	62	210	NA						
Chrysene	62,146	210,962	NA						
Fluoranthene	2,293,610	22,000,350	NA						
Naphthalene	5,591	18,769	NA						
Phenanthrene	231,595 <sup>(2)</sup>	291,262 <sup>(2)</sup>	NA						
Pyrene	231,595	2,912,620	NA						
<b>Total Petroleum Hydrocarbons (mg/kg)</b>									
Diesel Range Organics	100 <sup>(3)</sup>	NE	4.5 U	5.1 U	6.4 U	5.3 U	5.0 U	7.9	9.5

**Notes:**<sup>(1)</sup> Screening value for Naphthalene used as surrogate<sup>(2)</sup> Screening value for pyrene used as a surrogate<sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

NA - Not Applicable

Dark Shading - Exceeds EQB Criteria

TABLE 3-3

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SUBSURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>USEPA</b>	<i>USEPA</i>	PESB01	PESB01	PESB02	PESB02	PESB03	PESB03	PESB04
<b>Sample ID</b>	<b>Region IX</b>	<i>Region IX</i>	PESB01-01	PESB01-02	PESB02-04	PESB02-06	PESB03-02	PESB03-04	PESB04-05
<b>Sample Depth (ft bgs)</b>	<b>Residential</b>	<i>Industrial</i>	1.0-3.0	3.0-5.0	7.0-9.0	11.0-13.0	3.0-5.0	7.0-9.0	9.0-11.0
<b>Sampling Date</b>	<b>Soil PRGs</b>	<i>Soil PRGs</i>	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007
<b>Volatiles (ug/kg)</b>									
1,2-Dibromo-3-Chloropropane	460	2,017	3.6 U	3.5 U	3.3 U	3.5 U	160 UJ	65 J	3.7 UJ
Acetone	14,126,570	54,320,980	11 J	5.6 UJ	5.1 UJ	15 J	250 UJ	5.9 UJ	5.8 UJ
Carbon disulfide	355,340	720,000	0.66 U	0.64 U	0.59 U	1.7 J	29 U	0.68 U	0.67 U
Ethylbenzene	395,000	395,000	0.97 U	0.95 U	0.87 U	0.95 U	43 U	1 U	0.99 U
Methyl Ethyl Ketone	22,311,190	113,264,380	3.5 U	3.4 U	3.1 U	3.4 U	150 U	3.6 U	3.5 U
Vinyl acetate	425,730	1,396,420	1.9 U	1.9 U	1.7 U	1.9 U	85 U	2 U	2 U
<b>Low-level PAHs (ug/kg)</b>									
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	1.6 U	1.5 U	1.4 U	1.4 U	15 U	1.5 U	1.5 U
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U	2.1 U
Benzo[a]pyrene	62	210	0.87 U	0.8 U	0.77 U	0.77 U	8.4 U	0.82 U	0.8 U
Benzo[g,h,i]perylene	2,315,950 <sup>(2)</sup>	2,912,6200 <sup>(2)</sup>	2.2 U	2.1 U	7.4 J	2 U	22 U	2.1 U	2.1 U
Chrysene	62,146	210,962	0.8 U	0.74 U	0.71 U	0.71 U	7.7 U	0.76 U	0.74 U
Dibenz(a,h)anthracene	62	210	0.78 U	0.72 U	17 0.68	U	7.5 U	0.73 U	0.72 U
Fluorene	27,471	262,814	1 U	0.93 U	0.89 U	0.89 U	9.8 U	0.96 U	0.94 U
Naphthalene	5,591	18,769	0.79 U	0.73 U	0.7 U	0.7 U	7.6 U	0.75 U	0.73 U
Phenanthrene	231,595 <sup>(2)</sup>	2,912,620 <sup>(2)</sup>	2.2 U	2.1 U	2 U	2 U	1200 2.1	U	15
Pyrene	231,595	2,912,620	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U	2.1 U
<b>Total Petroleum Hydrocarbons (mg/kg)</b>									
Diesel Range Organics	100 <sup>(3)</sup>	NE	2.9 U	2.6 U	10 U	25 U	1400 2.4	U	270

**Notes:**

- <sup>(1)</sup> Screening value for Napthalene used as surrogate
- <sup>(2)</sup> Screening value for pyrene used as a surrogate
- <sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

Dark Shading - Exceeds EQB Criteria

TABLE 3-3

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SUBSURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Site ID	USEPA	USEPA	PESB04	PESB05	PESB05	PESB06	PESB06	PESB07	PESB07	PESB08
Sample ID	Region IX	Region IX	PESB04-07	PESB05-05	PESB05-07	PESB06-04	PESB06-07	PESB07-05	PESB07-07	PESB08-02
Sample Depth (ft bgs)	Residential	Industrial	13.0-15.0	9.0-11.0	13.0-15.0	7.0-9.0	13.0-15.0	9.0-11.0	13.0-15.0	3.0-5.0
Sampling Date	Soil PRGs	Soil PRGs	7/31/2007	7/31/2007	7/31/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007
<b>Volatiles (ug/kg)</b>										
1,2-Dibromo-3-Chloropropane	460	2,017	3.4 U	900 UJ	3.4 UJ	5 UJ	3.5 UJ	4.5 UJ	3.3 UJ	3.7 UJ
Acetone	14,126,570	54,320,980	12 J	1400 UJ	5.9 J	7.8 UJ	48 J	59 J	13 J	5.9 UJ
Carbon disulfide	355,340	720,000	0.62 U	160 UJ	0.62 U	0.91 U	0.64 U	1.8 J	0.6 U	0.68 U
Ethylbenzene	395,000	395,000	0.91 U	240 UJ	0.91 U	1.3 U	0.94 U	1.2 U	0.88 U	1 U
Methyl Ethyl Ketone	22,311,190	113,264,380	3.3 U	860 UJ	3.3 U	4.8 U	7.3 J	14 J	3.2 U	3.6 U
Vinyl acetate	425,730	1,396,420	1.8 U	480 UJ	1.8 U	2.7 U	1.9 U	4 J	1.8 U	2 U
<b>Low-level PAHs (ug/kg)</b>										
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	1.4 U	14 1.4	U	1.7 U	1.8 J	3.3 J	1.3 U	1.4 U
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	1.9 U	4.1 J	2 U	2.3 U	2 U	2.4 U	1.9 U	2 U
Benzo[a]pyrene	62	210	0.75 U	0.92 U	0.77 U	0.91 U	0.79 U	0.93 U	0.74 U	0.77 U
Benzo[g,h,i]perylene	2,315,950 <sup>(2)</sup>	2,912,6200 <sup>(2)</sup>	1.9 U	2.4 U	2 U	2.3 U	2 U	2.4 U	1.9 U	2 U
Chrysene	62,146	210,962	0.69 U	0.85 U	8.4 0.84	U	0.73 U	0.86 U	0.68 U	0.71 U
Dibenz(a,h)anthracene	62	210	0.67 U	0.82 U	0.69 U	0.81 U	0.71 U	0.84 U	0.66 U	0.69 U
Fluorene	27,471	262,814	0.87 U	1.1 U	0.9 U	48 0.92	U	10	0.86 U	0.9 U
Naphthalene	5,591	18,769	0.68 U	0.84 U	0.7 U	0.83 U	0.76 J	0.85 U	0.67 U	0.7 U
Phenanthrene	231,595 <sup>(2)</sup>	2,912,620 <sup>(2)</sup>	1.9 U	70 2	U	120	400	15 U	1.9 U	2 U
Pyrene	231,595	2,912,620	1.9 U	8.3 U	19 20		2 U	4.2 U	1.9 U	2 U
<b>Total Petroleum Hydrocarbons (mg/kg)</b>										
Diesel Range Organics	100 <sup>(3)</sup>	NE	2.6 U	700 320		190	330	77	18 U	16 U

**Notes:**<sup>(1)</sup> Screening value for Naphthalene used as surrogate<sup>(2)</sup> Screening value for pyrene used as a surrogate<sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

Dark Shading - Exceeds EQB Criteria

TABLE 3-3

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SUBSURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>USEPA</b>	<i>USEPA</i>	PESB08	PESB09	PESB09	PESB10	PESB10	PESB10	PESB11	PESB11
<b>Sample ID</b>	<b>Region IX</b>	<i>Region IX</i>	PESB08-04	PESB09-05	PESB09-07	PESB10-04	PESB10-04D	PESB10-06	PESB11-01	PESB11-03
<b>Sample Depth (ft bgs)</b>	<b>Residential</b>	<i>Industrial</i>	7.0-9.0	9.0-11.0	13.0-15.0	7.0-9.0	5.0-7.0	11.0-13.0	1.0-3.0	5.0-7.0
<b>Sampling Date</b>	<b>Soil PRGs</b>	<i>Soil PRGs</i>	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007
<b>Volatiles (ug/kg)</b>										
1,2-Dibromo-3-Chloropropane	460	2,017	3.6 UJ	4 UJ	3.7 UJ	3.2 U	4 U	3.2 U	4.1 U	3.5 U
Acetone	14,126,570	54,320,980	5.6 UJ	33 J	13 J	7.2 R	6.2 R	5 R	6.5 R	5.4 R
Carbon disulfide	355,340	720,000	0.65 U	1.7 J	0.67 U	0.58 U	0.72 U	0.58 U	0.75 U	0.63 U
Ethylbenzene	395,000	395,000	0.96 U	1.1 U	0.98 U	0.85 U	1.1 U	0.85 U	1.1 U	0.93 U
Methyl Ethyl Ketone	22,311,190	113,264,380	3.4 U	3.9 U	3.5 U	3.1 U	3.8 U	3.1 U	4 U	3.3 U
Vinyl acetate	425,730	1,396,420	1.9 U	2.1 U	2 U	1.7 U	2.1 U	1.7 U	2.2 U	1.9 U
<b>Low-level PAHs (ug/kg)</b>										
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	1.3 U	1.5 U	1.3 U	1.3 U	1.4 U	14 U	14 U	1.3 U
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	1.9 U	2.1 U	1.9 U	1.9 U	2 U	20 U	20 U	1.8 U
Benzo[a]pyrene	62	210	0.74 U	0.83 U	0.74 U	0.74 U	0.76 U	7.8 U	7.9 U	0.72 U
Benzo[g,h,i]perylene	2,315,950 <sup>(2)</sup>	2,912,6200 <sup>(2)</sup>	1.9 U	2.1 U	1.9 U	1.9 U	2 U	20 U	20 U	1.8 U
Chrysene	62,146	210,962	0.69 U	0.76 U	0.69 U	0.68 U	0.71 U	7.2 U	7.3 U	0.66 U
Dibenz(a,h)anthracene	62	210	0.66 U	0.74 U	0.66 U	0.66 U	0.68 U	7 U	7.1 U	0.64 U
Fluorene	27,471	262,814	0.86 U	0.96 U	0.87 U	0.86 U	0.89 U	9.1 U	9.3 U	0.84 U
Naphthalene	5,591	18,769	0.67 U	0.75 U	0.67 U	0.67 U	0.7 U	7.1 U	7.2 U	0.65 U
Phenanthrene	231,595 <sup>(2)</sup>	2,912,620 <sup>(2)</sup>	1.9 U	2.1 U	1.9 U	1.9 U	2 U	20 U	20 U	1.8 U
Pyrene	231,595	2,912,620	1.9 U	2.1 U	1.9 U	1.9 U	2 U	20 U	20 U	1.8 U
<b>Total Petroleum Hydrocarbons (mg/kg)</b>										
Diesel Range Organics	100 <sup>(3)</sup>	NE	16 U	98 15	U	13 U	12 U	120	5.9 U	0.9 U

**Notes:**<sup>(1)</sup> Screening value for Naphthalene used as surrogate<sup>(2)</sup> Screening value for pyrene used as a surrogate<sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

Dark Shading - Exceeds EQB Criteria

TABLE 3-3

Revised: November 19, 2009

**SUMMARY OF DETECTED RESULTS - SUBSURFACE SOIL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>USEPA</b>	<i>USEPA</i>	PESB12	PESB12	PESB12	PESB13	PESB13	PESB14	PESB14
<b>Sample ID</b>	<b>Region IX</b>	<i>Region IX</i>	PESB12-01	PESB12-01D	PESB12-04	PESB13-03	PESB13-09	PESB14-07	PESB14-09
<b>Sample Depth (ft bgs)</b>	<b>Residential</b>	<i>Industrial</i>	1.0-3.0	1.0-3.0	7.0-9.0	5.0-7.0	17.0-19.0	13.0-15.0	17.0-19.0
<b>Sampling Date</b>	<b>Soil PRGs</b>	<i>Soil PRGs</i>	8/1/2007	8/1/2007	8/1/2007	8/2/2007	8/2/2007	8/2/2007	8/2/2007
<b>Volatiles (ug/kg)</b>									
1,2-Dibromo-3-Chloropropane	460	2,017	4.2 U	4.3 U	4.7 U	3.7 U	3.6 U	4.4 U	3.7 U
Acetone	14,126,570	54,320,980	6.6 R	6.8 R	7.5 R	28 J	19 J	43 J	5.8 U
Carbon disulfide	355,340	720,000	0.76 U	0.79 U	0.86 U	0.67 U	1.3 J	0.8 U	0.67 U
Ethylbenzene	395,000	395,000	1.1 U	1.2 U	1.3 U	0.99 U	0.97 U	1.2 U	1.4 J
Methyl Ethyl Ketone	22,311,190	113,264,380	4 U	4.2 U	4.6 U	8 J	6.8 J	16 J	3.5 U
Vinyl acetate	425,730	1,396,420	2.2 U	2.3 U	2.5 U	2 U	1.9 U	2.4 U	2 U
<b>Low-level PAHs (ug/kg)</b>									
1-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	1.6 U	1.6 U	1.5 U	15 U	14 U	68 15	U
2-Methylnaphthalene	5,591 <sup>(1)</sup>	18,769 <sup>(1)</sup>	2.2 U	2.3 U	2.1 U	21 U	20 U	52 21	U
Benzo[a]pyrene	62	210	0.87 U	1.2 J	0.8 U	8 U	7.7 U	0.83 U	8.1 U
Benzo[g,h,i]perylene	2,315,950 <sup>(2)</sup>	2,912,6200 <sup>(2)</sup>	2.2 U	2.3 U	2.1 U	21 U	20 U	2.1 U	21 U
Chrysene	62,146	210,962	0.8 U	2.1 J	0.74 U	7.4 U	7.1 U	0.77 U	7.5 U
Dibenz(a,h)anthracene	62	210	0.78 U	0.8 U	0.72 U	7.2 U	6.9 U	0.74 U	7.3 U
Fluorene	27,471	262,814	1 U	1 U	0.94 U	9.4 U	9 U	0.97 U	9.5 U
Naphthalene	5,591	18,769	0.79 U	0.81 U	0.73 U	7.3 U	7 U	3.7 J	7.4 U
Phenanthrene	231,595 <sup>(2)</sup>	2,912,620 <sup>(2)</sup>	2.2 U	2.3 U	2.1 U	21 U	73 U	350 1300	
Pyrene	231,595	2,912,620	2.3 U	2.3 U	2.1 U	40 U	20 U	31 21	U
<b>Total Petroleum Hydrocarbons (mg/kg)</b>									
Diesel Range Organics	100 <sup>(3)</sup>	NE	220 120		0.82 U	350	110	1100	950

**Notes:**<sup>(1)</sup> Screening value for Naphthalene used as surrogate<sup>(2)</sup> Screening value for pyrene used as a surrogate<sup>(3)</sup> Puerto Rico Environmental Quality Board (EQB) Soil Screening Criteria

U - Not detected NE - Not Established NA - Not Applicable

UJ - Reported quantitation limit is qualified as estimated

J - Analyte present - Reported value is estimated

R - Validator rejected analytical result

PRG - Preliminary Remediation Goal

ft bgs - feet below ground surface

Dark Shading - Exceeds EQB Criteria

**TABLE 3-4**

**SUMMARY OF DETECTED RESULTS - QUALITY ASSURANCE/QUALITY CONTROL  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Sample ID Sampling Date	Equipment Rinsates			Field Blanks		Trip Blanks		
	PEER01 7/31/2007	PEER02 8/2/2007	RB-01 1/30/2008	PEFB01 8/2/2007	FB-01 1/30/2008	Trip Blank 7/31/2007	Trip Blank 8/1/2007	Trip Blank 8/2/2007
<b>Volatiles (ug/L)</b>								
2-Butanone	0.6 U	2 J	NA	0.6 U	NA	0.6 U	0.6 U	0.6 U
Toluene	0.31 U	0.31 U	NA	0.99 J	NA	0.31 U	0.37 J	0.39 J
<b>Low-level PAHs (ug/L)</b>								
Fluoranthene	0.062 J	0.047 U	NA	0.047 U	NA	NA NA		NA
Phenanthrene	0.064 J	0.017 U	NA	0.017 U	NA	NA NA		NA
Pyrene	0.051 J	0.025 U	NA	0.025 U	NA	NA NA		NA
<b>TPH (mg/L)</b>								
Diesel Range Organics	0.13	0.097 U	0.088 J	0.027 U	0.090 J	NA	NA	NA

**Notes:**

U - Not detected

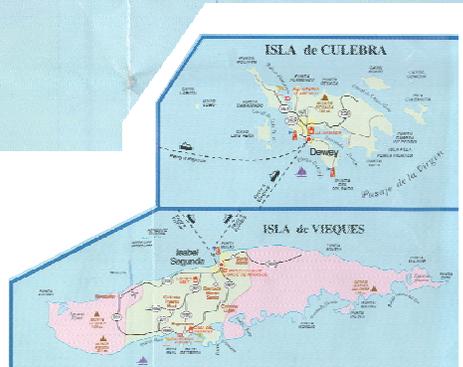
J - Analyte present - Reported value is estimated

NA - Not Analyzed

**FIGURES**

---

---



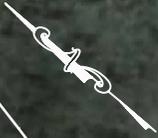
1 inch = 4 miles



FIGURE 1-1  
REGIONAL LOCATION MAP  
SITE INVESTIGATION

PICO DEL ESTE RADAR FACILITY  
PUERTO RICO

SOURCE: METRODATA, INC., 1999.



BUILDING 3012

BUILDING 3011

SITE INVESTIGATION AREA

BUILDING 3034

CONCRETE PAD

3400

3350

3300

3250

3200

3150

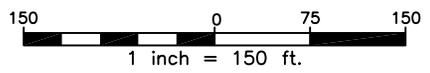
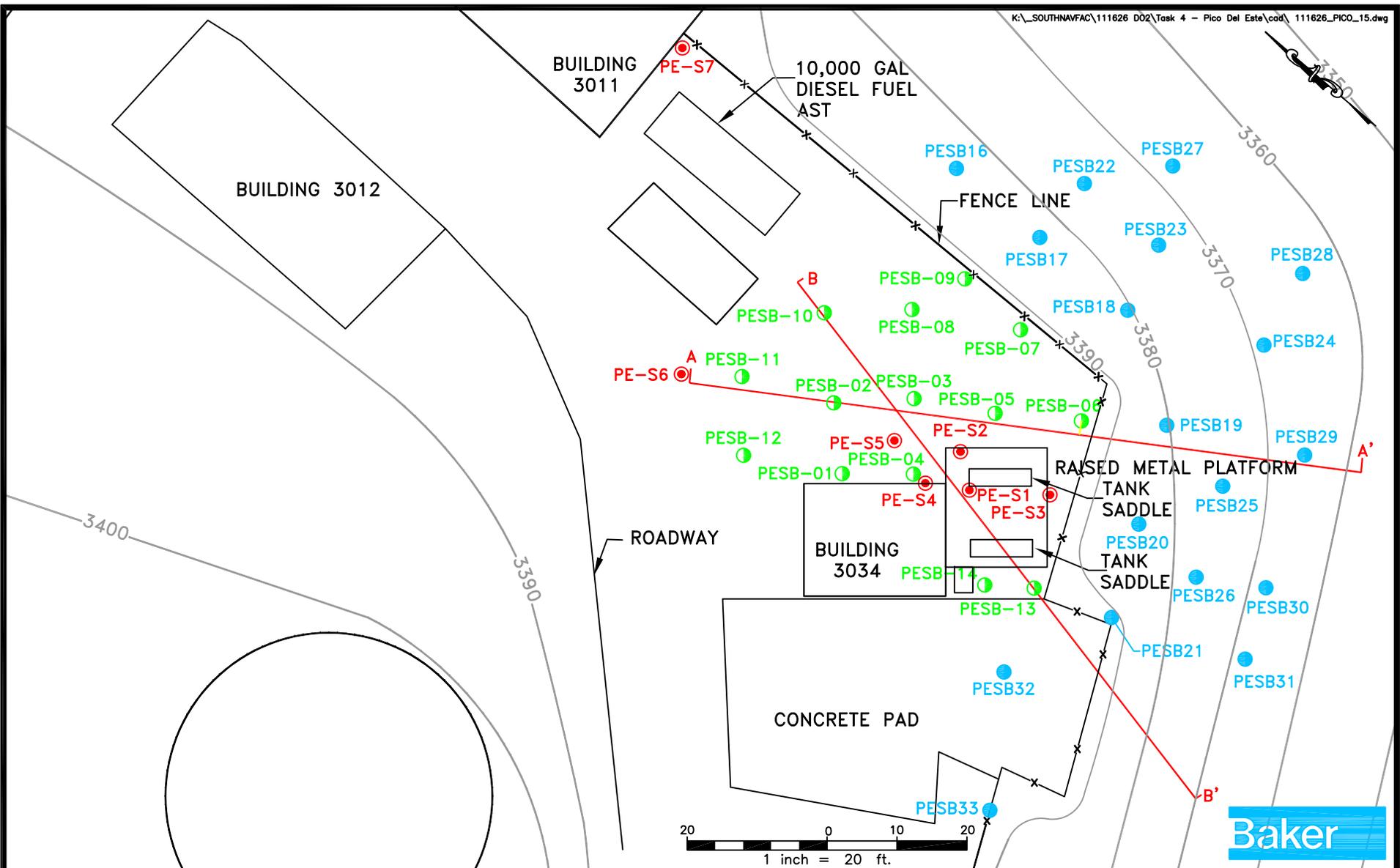


FIGURE 1-2  
PICO DEL ESTE LOCATION MAP  
SITE INVESTIGATION

PICO DEL ESTE RADAR FACILITY  
PUERTO RICO

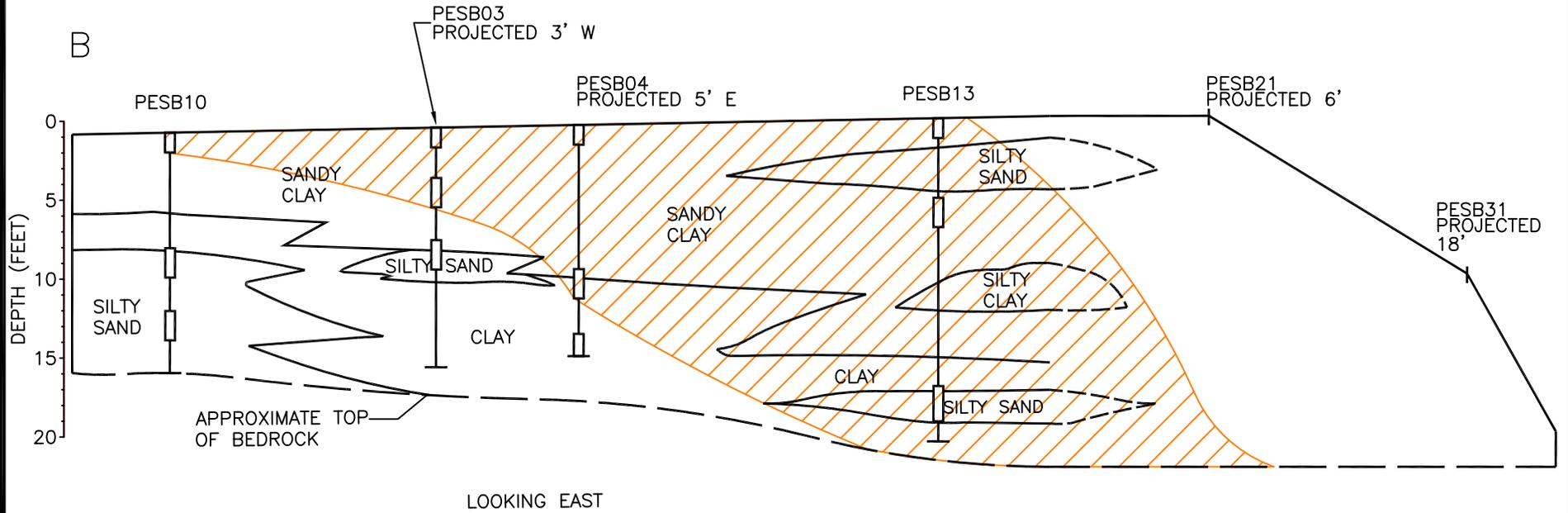
IMAGE SOURCE: GOOGLE EARTH  
CONTOUR SOURCE: GOOGLE MAPS



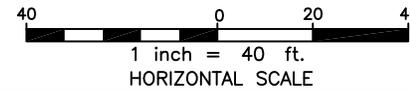
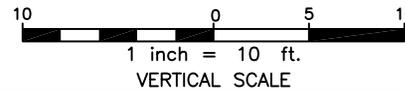
LEGEND	
	- PREVIOUS EBS BORING LOCATIONS 2003
	- NEWLY INSTALLED SI BORING LOCATIONS 2007
	- SI SURFACE SOIL LOCATIONS 2008
	- CROSS SECTION LOCATION

**FIGURE 2-1**  
**SITE PLAN**  
**SITE INVESTIGATION**  
  
 PICO DEL ESTE RADAR FACILITY  
 PUERTO RICO





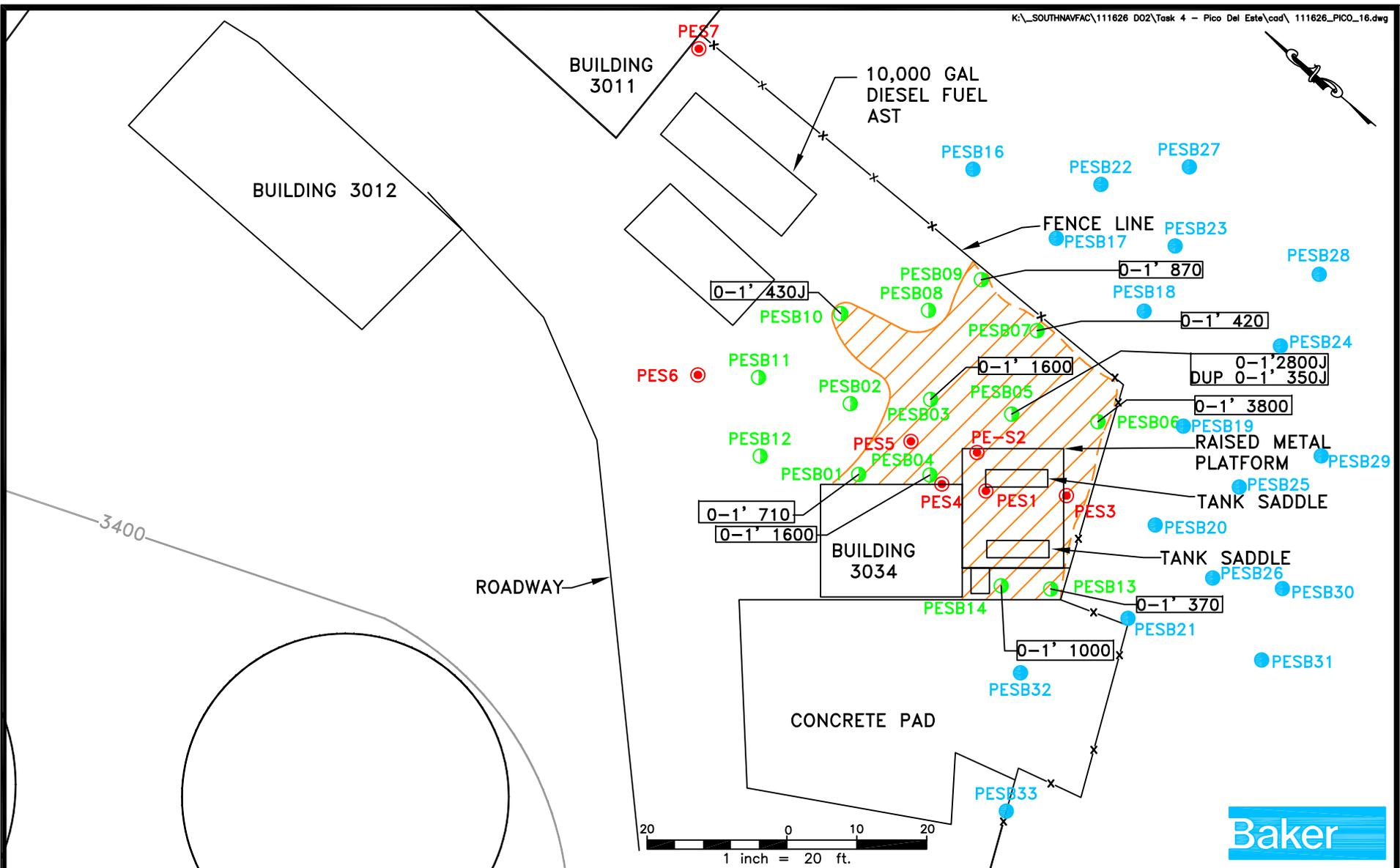
NOTE: GROUND SURFACE WAS ASSUMED RELATIVELY FLAT WITH A SLIGHT GRADE WEST TO EAST.



LEGEND	
	- SOIL SAMPLE DEPTH LOCATION
	- AREA WITH TPH-DRO ABOVE 100 mg/Kg

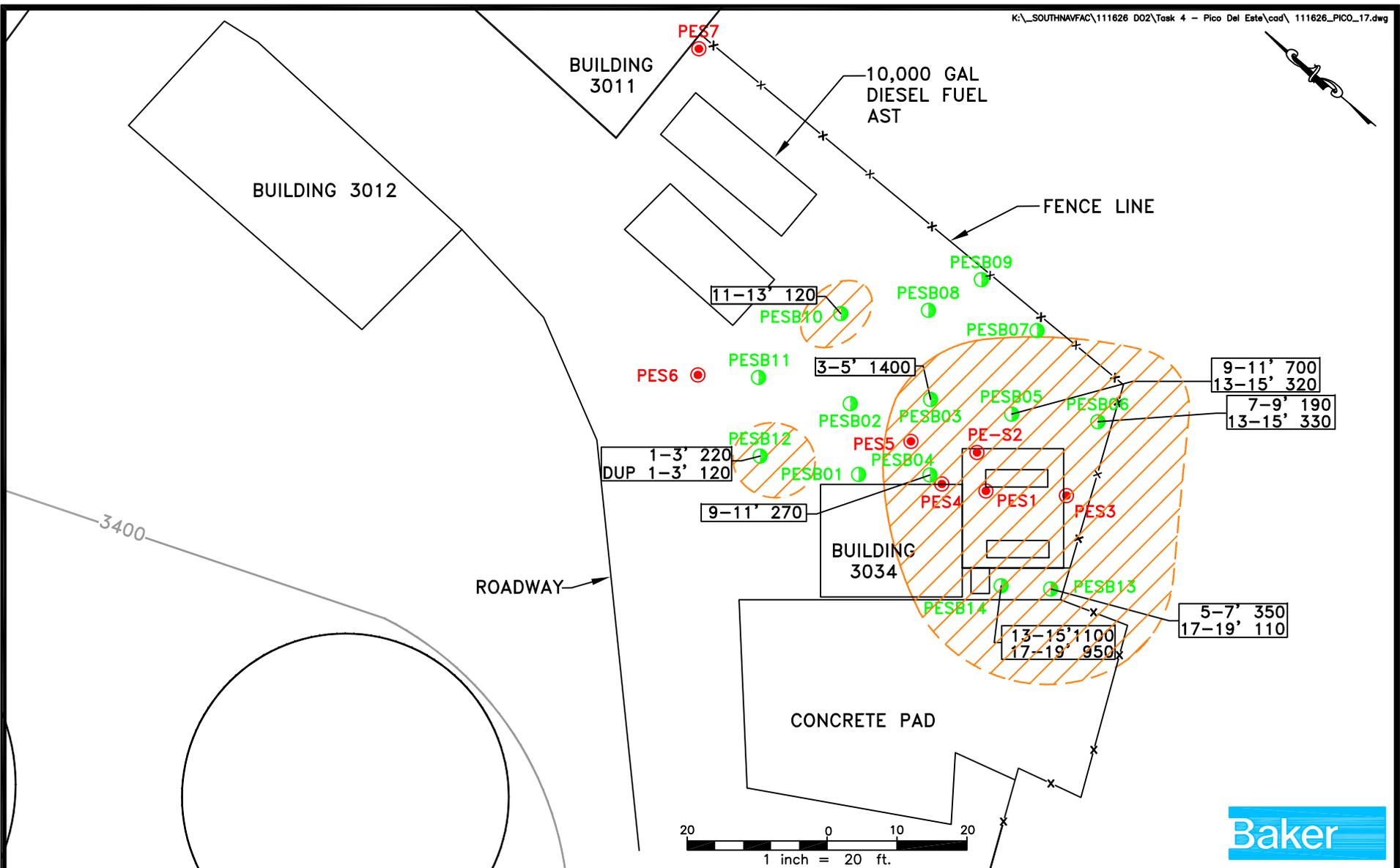
FIGURE 2-3  
 GEOLOGIC CROSS-SECTION B-B'  
 SITE INVESTIGATION

PICO DEL ESTE RADAR FACILITY  
 PUERTO RICO



LEGEND	
<span style="color: red;">●</span>	- PREVIOUS EBS BORING LOCATIONS 2003
<span style="color: green;">●</span>	- EXISTING SI BORING LOCATIONS 2007
<span style="color: blue;">●</span>	- SI SURFACE SOIL LOCATIONS 2008
1-3'	- DEPTH OF SAMPLE
<span style="border: 1px solid orange; display: inline-block; width: 10px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, orange 2px, orange 4px);"></span>	- AREA WITH TPH-DRO ABOVE 100 mg/Kg ALL CONCENTRATIONS IN mg/Kg

**FIGURE 4-1**  
**DRO ABOVE EQB CRITERIA, SURFACE SOIL**  
**SITE INVESTIGATION**  
  
**PICO DEL ESTE RADAR FACILITY**  
**PUERTO RICO**



**LEGEND**

- - PREVIOUS EBS BORING LOCATIONS 2003
- - SI BORING LOCATIONS 2007
- 1-3'- DEPTH OF SAMPLE
- ▨ - AREA WITH TPH-DRO ABOVE 100 mg/Kg

ALL CONCENTRATIONS IN mg/Kg

**FIGURE 4-2**  
**DRO ABOVE EQB CRITERIA, SUBSURFACE SOIL**  
**SITE INVESTIGATION**

PICO DEL ESTE RADAR FACILITY  
 PUERTO RICO

**APPENDIX A**  
**SITE PHOTOGRAPHS**

---

---



**Photo 1**  
Site Investigation area and Building 3034



**Photo 2**  
Site Investigation area and drill rig overview.



**Photo 3**  
North side of Building 3034



**Photo 4**  
South side of Building 3034 and adjacent concrete pad



**Photo 5**

East side of Building 3034 – previous diesel fuel spill area



**Photo 6**

Buildings 3012 (left) and 3011 (right) - looking north away from the site



**Photo 7**

Looking south away from the site



**Photo 8**

Looking East from the site at the Caribbean National Forest

**APPENDIX B**  
**SOIL BORING LOGS**

---

---

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB01  
 COORDINATES: EAST: 814727.663 NORTH: 890321.367  
 ELEVATION: SURFACE: \_\_\_\_\_ TOP OF PVC CASING: \_\_\_\_\_

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	7/31/2007	0 - 7	Cloudy, Rain, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	SS-1	4', 80%	N/A	PESB01-00	15	0-0.3' Topsoil, medium brown, soft, moist, 15 ppm 0.3-0.5' Gravel, limestone 0.5-1.1' Silt, some clay, soft, damp, olive brown	Backfill		
2				PESB01-01		1.1-3.4' Reddish brown, silty clay, moderately stiff, damp			
3				PESB01-02	1.0	3.4-5.0' Olive brown, silty clay, moderately stiff, damp, 1 ppm			
4									
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB01 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.:

PESB01

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	2', 100%	N/A	--	< 1	Continued from Sheet 1		
6						5' Rock very hard, black, fine-grained, dry		
7						5'-7' Rock black, broken, hard, fine grained, < 1 ppm		
8						Bottom of Boring at 7' Geoprobe Refusal		
9								
10								
11								
12								
13								
14								
15								
16								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB01 SHEET 2 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB02  
 COORDINATES: EAST: 814754.987 NORTH: 814754.987  
 ELEVATION: SURFACE: \_\_\_\_\_ TOP OF PVC CASING: \_\_\_\_\_

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	7/31/2007	0 - 17.5	Cloudy, Rain, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: \_\_\_\_\_

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Dept (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	SS-1	4', 80%	N/A	PESB02-00	< 1	0-0.4' Gravel and soil, medium brown and limestone gravel	Backfill		
2						0.4-1.5' Medium brown, moderately soft, olive, sandy clay			
3						1.5-5' Reddish brown, silty clay, moderately stiff, damp, occasional stone			
4									
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB02 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.:

PESB02

<u>SAMPLE TYPE</u>					<u>DEFINITIONS</u>			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	4', 80%	N/A	PESB02-04	0.8	Continued from Sheet 1		
6						5-7.5' Silty sand, medium to light brown, damp to dry, pebbles throughout		
7						7' 0.8 ppm		
8						7.5-10' Light grayish brown sandy silt, trace of clay, damp moderately hard		
11	SS-3	4.3', 86%	N/A	PESB02-06	8	11' 8 ppm		
12						11-11.5' Sandy clay, moderately soft, damp, olive gray		
13						11.5-11.7' Cobble		
14	SS-4	2.5', 100%	N/A	-	< 1	11.7-15' Sandy clay, orange brown, moderately stiff, stones throughout, damp		
15						14' < 1 ppm		
16						15-17.5' Medium gray, moderately hard, silty sand, pebbles throughout		
17						17.5' Very hard, damp to dry		
18						Bottom of Boring at 17.5' Geoprobe Refusal		

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB02 SHEET 2 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB03  
 COORDINATES: EAST: 814741.823 NORTH: 890341.644  
 ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	7/31/2007	0 - 15	Cloudy, Rain, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	SS-1	3.5', 70%	N/A	PESB03-00		0-0.5' Topsoil, dark brown, soft	Backfill		
					16	0.5-2' Medium brown gray, sandy clay, moderately soft, damp to moist. 16 ppm			
				2		2-5' Orange brown and gray stained sandy clay, moderately hard, some pebbles			
3				PESB03-02	65	3.5' 65 ppm			
					210	4.8' 210 ppm			
4									
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB03 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB03

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	4.5', 90%	N/A	PESB03-04		Continued from Sheet 1	Backfill	
6								
7								
8								
9						7.5' Orange brown		
10						7.5-10' Olive brown, silty clay trace sand, some pebbles, damp to dry		
11	SS-3	3', 60%	N/A	-	3-10	10-15' Reddish brown, clay moderately hard, sticky, damp to moist, range 3-10 ppm		
12								
13								
14								
15								
16						Bottom of Boring at 15'		
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB03 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB04  
 COORDINATES: EAST: 814749.845 NORTH: 890339.795  
 ELEVATION: SURFACE: \_\_\_\_\_ TOP OF PVC CASING: \_\_\_\_\_

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	7/31/2007	0 - 15	Cloudy, Rain, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	SS-1	3', 60%	N/A	PESB04-00	10	0-0.6' Topsoil, brown, soft, damp. 10 ppm		Backfill	
2						0.6-5' Sandy clay, medium brown gray, moderately hard, damp. 1-2 ppm			
3									
4									
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB04 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.:

PESB04

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	4.5', 90%	N/A		60	Continued from Sheet 1	Backfill	
6								
7								
8								
9						9.2-9.8' Orange brown, sandy clay, moderately hard, damp, zone of staining, pebbles throughout. < 60 ppm		
10				PESB04-05				
11	SS-3	4', 80%	N/A		5-15	10-15' Orange brown clay, damp, moderately hard		
12						5-15 ppm		
13								
14								
15				PESB04-07				
16						Bottom of Boring at 15'		
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB04 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB05  
 COORDINATES: EAST: 814741.638 NORTH: 890351.971  
 ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	7/31/2007	0 - 15	Cloudy, Rain, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	SS-1	3', 60%	N/A	PESB05-00 PESB05-00D PESB05-00MS PESB05-00MSD	30	0-0.8' Brown, soft, moist, 30 ppm	Backfill		
2					10	0.8-4.5' Sandy clay, light brownish red, damp to dry, 10 ppm			
3						4.5-5' Rock, very hard (cobble), move rig 1.5' to NW			
4									
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB05 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB05

PESB05

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	3.5', 70%	N/A	PESB05-05	10	Continued from Sheet 1	Backfill	
6						5-10' Orange brown, silty clay, some sand, damp to moist, moderately hard, stiff		
7								
8								
9					50	9' 50 ppm		
10								
11	--	--	N/A	PESB05-07	5-10	10-15' Reddish brown, clay, damp, moderately hard, stiff,		
12						14.5' Light gray, rocky		
13						5-10 ppm range		
14								
15								
16						Bottom of Boring at 15'		
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB05 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB06  
 COORDINATES: EAST: 814740.290 NORTH: 890366.176  
 ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	8/1/2007	0 - 20	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE					WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
					PVC Riser			
					PVC Screen			

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	SS-1	2.5', 50%	N/A	PESB06-00	20	0-5' Topsoil first 5" then sandy clay with rock, damp, moderately hard	Backfill	
2					30	0.6' 20 ppm 1.5' 30 ppm		
3					45	2.5' 45 ppm		
4								
5								
						Match to Sheet 2		

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB06 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB06

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	4', 80%	N/A	PESB06-04	10	Continued from Sheet 1	Backfill	
6						5-6.5' Silty clay		
7						6.5' 10 ppm		
8						6.5-10' Orange brown, sandy clay, some mottling, damp to moist		
9	SS-3	5', 100%	N/A	PESB06-07	25	9' < 1 ppm		
10								
11						11' 25 ppm		
12						13' 40 ppm		
13	SS-4	5', 100%	N/A	-	0	13.2-14' Orange brown, sandy clay then silty sand		
14						14-15' Light brown and red, silty clay with some sand, damp, moderately hard		
15						15-19.5' Sandy clay, orange brown, moderately hard, dry throughout, some white		
16						16' 0 ppm		
17						18' 0 ppm		
18						19.5' Hard rock fragments, damp		
19								
20								
						Bottom of Boring at 20' Geoprobe Refusal		

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB06 SHEET 2 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB07  
 COORDINATES: EAST: 814758.612 NORTH: 890360.017  
 ELEVATION: SURFACE: \_\_\_\_\_ TOP OF PVC CASING: \_\_\_\_\_

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	8/1/2007	0 - 15	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	SS-1	3.5', 70%	N/A	PESB07-00	15	0-4' Topsoil first 3" then gray brown, sandy clay with rock fragments 0.5' 15 ppm	Backfill		
2									
3									
4					2	4' 2 ppm 4-5' Sandy clay, reddish gray brown, moderately hard, damp			
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB07 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB07

PESB07

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	--	--	N/A	PESB07-05	< 1	Continued from Sheet 1	Backfill	
6			5-8' Dark brown, silty clay with plant debris, soft			6' < 1 ppm		
7			8.5' < 1 ppm					
8				PESB07-07	< 1	8-8.6' Soft, olive gray, silty clay, moist		
9			8.6-10' Reddish brown, sandy clay, moderately soft, some pebbles					
10	--	--	N/A		30	10-12' Reddish brown, sandy clay, soft, moist, 30 ppm		
11					< 1	12-15' Yellow brown gray, silty sand, dry, hard, trace of clay, < 1 ppm		
12								
13								
14								
15								
16						Bottom of Boring at 15'		
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB07 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Puerto Rico - Pico Del Este

PROJ. NO.: 111626 Task 4.3

BORING NO.: PESB08

COORDINATES: EAST: 814764.623

NORTH: 890339.576

ELEVATION: SURFACE:

TOP OF PVC CASING:

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	8/1/2007	0 - 10	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
						PVC Riser				
						PVC Screen				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	SS-1	4.6', 92%	N/A	PESB08-00	< 1	0-5' < 1 ppm 0-0.5' Topsoil, moderately soft, damp, brown 0.5-1.5' Olive gray, sandy clay, moderately soft with rock fragments 1.5-4.5' Orange brown, sandy clay, moderately hard, damp		Backfill		
2										
3										
4				PESB08-02						
5						4.5-5' Olive brown, silty sand, moderately hard, damp				
						Match to Sheet 2				

DRILLING CO.: GeoEnviroTech

DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa

BORING NO.: PESB08

SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB08

<u>SAMPLE TYPE</u>					<u>DEFINITIONS</u>			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	5', 100%	N/A	PESB08-04	< 1	Continued from Sheet 1	Backfill	
6						5-10' < 1 ppm		
7						6-6.7' Rock, cobble		
8						6.7-7.7' Clay, moderately hard, damp		
9						7.7-8.2' Rock, cobble		
10						8.2-10' Olive gray, silty sand with rock fragments, dry		
11						Bottom of Boring at 10'		
12								
13								
14								
15								
16								
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB08 SHEET 2 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB09  
 COORDINATES: EAST: 814768.683 NORTH: 890354.576  
 ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	8/1/2007	0 - 15	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	SS-1	3.8', 76%	N/A	PESB09-00	10	0.5' 10 ppm 0-0.5' Topsoil, brown, soft, moist 0.5-1.5' Olive gray, sandy clay, moderately soft, rocks then	Backfill		
2					5	olive brown sandy clay 1.5-5' Cobbles 1.5' 5 ppm			
3									
4						3.5-3.9' damp, mud, hard clay			
5					< 1	4.5' < 1 ppm 1.5-5' Cobbles			
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB09 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB09

SAMPLE TYPE					DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	5', 100%	N/A	PESB09-05	< 1	Continued from Sheet 1	Backfill	
6						5-10' < 1 ppm		
7						5-7' Dark brown, silty clay, very soft, moist, rock fragments throughout		
8						7-9.3' Orange brown, sandy clay, moderately hard, damp		
9								
10						9.5' Reddish brown clay, moist, moderately soft, mottling		
11	SS-3	5', 100%	N/A	PESB09-07	2	10-12' Reddish brown clay, soft, moist		
12						11' 2 ppm		
13					< 1	12-15' Silty sand, rock fragments throughout, dry, moderately hard, < 1 ppm		
14								
15								
16						Bottom of Boring at 15'		
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB09 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Puerto Rico - Pico Del Este

PROJ. NO.: 111626 Task 4.3

BORING NO.: PESB10

COORDINATES: EAST: 814767.522

NORTH: 890331.744

ELEVATION: SURFACE:

TOP OF PVC CASING:

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	8/1/2007	0 - 15	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
						PVC Riser				
						PVC Screen				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	SS-1	3.6', 72%	N/A	PESB10-00 PESB10-00D	< 1	0-5' < 1 ppm 0-0.5' Topsoil, brown, soft, damp 0.5-3' Olive gray, sandy clay with rocks, moderately hard, damp				
2										
3						3-5' Medium brown, sandy clay, rocks throughout, moderately soft, damp				
4										
5						0-5' < 1 ppm				
						Match to Sheet 2				

DRILLING CO.: GeoEnviroTech

BAKER REP.: Joe Burawa

DRILLER: Abraham Nunuez

BORING NO.: PESB10

SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB10

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	3', 60%	N/A	PESB10-04 PESB10-04D	< 1	Continued from Sheet 1	Backfill	
6						5-10' < 1 ppm		
7						5-6.5' Medium brown clay		
8						6.5-7.5' Olive gray brown silty clay, moderately hard, damp		
9	SS-3	5', 100%	N/A	PESB10-06	< 1	7.5-10' Brownish gray, silty sand, hard, rocks throughout, dry		
10						10-15' < 1 ppm		
11						10-12.5' Silty sand		
12						12.5-13' Light brown clay, some sand, moist		
13						13-15' Silty sand, dry, hard, rocks throughout		
14								
15								
16								
17						Bottom of Boring at 15'		
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB10 SHEET 2 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB11  
 COORDINATES: EAST: 814752.148 NORTH: 890327.007  
 ELEVATION: SURFACE: \_\_\_\_\_ TOP OF PVC CASING: \_\_\_\_\_

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	8/1/2007	0 - 8	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	SS-1	4.2', 84%	N/A	PESB11-00	< 1	0-5' < 1 ppm Topsoil first 2" then gravel to 0.5' 0.5-2' Olive gray, silty clay	Backfill		
2				PESB11-01		2-4' Orange brown, sandy clay			
3									
4						4-4.2' Dry, moderately hard, cobble 4.2-5' Silty sand, moderately hard, damp to dry, rocks throughout			
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB11 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB11

<u>SAMPLE TYPE</u>					<u>DEFINITIONS</u>			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	--	N/A	PESB11-03	< 1	Continued from Sheet 1	Backfill	
6						5-8' < 1 ppm		
7						5-8' Silty sand and rocks, dry, loose, very hard		
8						8' Refusal, rocks		
9						Bottom of Boring at 8'		
10								
11								
12								
13								
14								
15								
16								
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB11 SHEET 2 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este  
 PROJ. NO.: 111626 Task 4.3 BORING NO.: PESB12  
 COORDINATES: EAST: 814747.568 NORTH: 890327.524  
 ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel	Size (ID)				
--	--	--	--	--	8/1/2007	0 - 9.7	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	SS-1	3.2', 64%	N/A	PESB12-00 PESB12-00D PESB12-00MS PESB12-00MSD	10  < 1	0.4' Topsoil, brown, moist, soft 0.5' 10 ppm 0.4-1.2' Olive brown, sandy clay, moderately hard, damp 1.2-4.4' Orange red brown, sandy clay, rock fragments throughout, damp  1-5' < 1 ppm   4.4-5' Olive brown, silty sand, hard, dry, rocks	Backfill		
2									
3				PESB12-01 PESB12-01D PESB12-01MS PESB12-01MSD					
4									
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB12 SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB12

PESB12

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	4.7', 94%	N/A	PESB12-04	< 1	Continued from Sheet 1	 Backfill	
6						5-10' < 1 ppm		
7						5-7' Olive brown, silty sand		
8						7-8.2' Orange brown, silty clay		
9						8.2-9.7' Silty sand		
10						9.7' Cobbles and rocks, Refusal with Geoprobe		
11						Bottom of Boring at 9.7'		
12								
13								
14								
15								
16								
17								
18								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB12 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Puerto Rico - Pico Del Este

PROJ. NO.: 111626 Task 4.3

BORING NO.: PESB13

COORDINATES: EAST: 814720.760

NORTH: 890368.676

ELEVATION: SURFACE: \_\_\_\_\_

TOP OF PVC CASING: \_\_\_\_\_

Rig: GEOPROBE TRACK					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Split Spoon	Casing	Augers	Core Barrel					
Size (ID)	--	--	--	--	8/2/2007	0 - 20	Cloudy, 80°F	--
Length	--	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						PVC Riser			
						PVC Screen			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	SS-1	2.2', 44%	N/A	PESB13-00	< 1	Topsoil first 3", brown, soft, moist	Backfill		
					2	0.2-1.5' Medium brown, sandy clay			
2				1	0.5' < 1 ppm 1' 2 ppm 1.5-1.8' Moderately soft, damp				
3					2' 1 ppm 1.8-5' Gravel, limestone, gray, dry, hard, medium brown, silty clay, soft, root				
4									
5									
						Match to Sheet 2			

DRILLING CO.: GeoEnviroTech

BAKER REP.: Joe Burawa

DRILLER: Abraham Nunuez

BORING NO.: PESB13

SHEET 1 OF 2

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.: PESB13

SAMPLE TYPE					DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	3.4', 68% 2nd Attempt	N/A	PESB13-03	30-40	Continued from Sheet 1 5-7' Sandy clay with gravel, discolored, gray brown, 30-40 ppm range	Backfill	
6					10			
7								
8	SS-3	5', 100%	N/A	-	18	10-12.5' Silty clay, moderately soft, mottled, moist 11' 18 ppm		
9					> 60	12.5' Orange brown sandy clay, moderately hard, rock fragments throughout, zone of staining, > 60 ppm		
10					10-20	14.5' More clay, rich, 10-20 ppm		
11								
12	SS-4	3', 60%	N/A	PESB13-09	15-20	15-17' Orange brown, white, red clay, mottled, damp to dry, range 15-20 ppm		
13					20-30			
14						19-20' Mottled clay		
15								
16						Bottom of Boring at 20'		
17								
18								
19								
20								

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB13 SHEET 2 OF 2



## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Puerto Rico - Pico Del Este

CTO NO.: 111626 Task 4.3

BORING NO.:

PESB14

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
5	SS-2	4.5', 90%	N/A	--	20	Continued from Sheet 1	Backfill	
6						5.5' Orange brown/red, sandy clay, some pebbles, moist, 20 ppm		
7								
8								
9						9.5' Rainbow sheen, damp throughout, remainder moderately hard, medium grained sand throughout, more clay, rich		
10	SS-3	4.5', 90%	N/A	PESB14-07	80	10-12' Orange brown mottled clay, moderately soft, damp to moist, 80 ppm		
11						12-12.8' Zone of broken rocks and sand, 20 ppm		
12						12.8-15' Gray and black, hard, dry, mottled sandy clay, moderately soft, damp, 80 ppm		
13								
14								
15	SS-4	4.2', 84%	N/A	PESB14-09	20	15-16.5' Sandy, reddish gray, moderately soft		
16						16' 20 ppm		
17						16.5-18' Silty sand, loose, hard, some clay staining, 120 ppm		
18						18-20' White and red clay, mottled, black staining, damp, 12 ppm in clay		
19								
20								
						Bottom of Boring at 20'		

DRILLING CO.: GeoEnviroTech  
 DRILLER: Abraham Nunuez

BAKER REP.: Joe Burawa  
 BORING NO.: PESB14 SHEET 2 OF 2

**APPENDIX C**  
**FIELD NOTES**

---

---

February to May Dry Season at  
Pico Del Este

7/30/07

Pico Del Este

TRAVEL TO PUERTO RICO FROM  
Pittsburgh.

6:45 to 3pm

Arrive in San Juan, call Pedro  
on cell phone (787) 206 2132

Drive to Roosevelt Roads and  
meet Pedro. Receive keys to  
Pico Del Este and utility maps.

Get coats and equipment  
load vehicle. Off-site @ 6:00pm

Drive to Wyndham Hotel  
and check in.

7/31/07

Cloudy  
Off & On Rain 86°F

Pico Del Este

Meet @ 7:00 am drive to  
Entrance of Rain Forest; buy  
supplies, ice...

Meet GeoEnviroTech @ 8:15  
at Entrance. Drive to Pico Del  
Este Radar Facility arrive at 9:45

Survey area and mark locations.  
Begin Drilling @ 10:30 am

PESB01 Drill @ 10:30am

0-5' D-0.3 Topsoil med Browns  
4' Rec soft, moist  
<1 ppm  
15 ppm

0.3-0.5 Gravel, limestone

0.5-1.1 silt some clay  
soft, damp olive  
browns

1.1-3.4 Reddish Browns  
silty clay, med stiff, damp

3.4-5.0' olive brown, silty  
clay, med stiff, damp  
1 ppm

5.0' Rock very hard, black  
fine-grained, dry

5-7' Rock black, broken, hard  
2' Rec fine grained

<1 ppm  
PESB01-00 1035  
PESB01-01 1050  
PESB01-02 1100

7/31/07

PESB2 - Drill @ 1115

0-5' 0-0.4 Gravel, and soil  
4' Rec med browns and limestone  
<1 ppm gravel.

throughout 0.4-1.5'  
Med, brown, med soft  
olive sandy clay,

1.5-5 Reddish brown  
silty clay med stiff  
damp, occasional stone

5-10'  
4' Rec 5-7.5 Silty Sand med to light  
0.8 ppm 0.7' brown, damp to dry, pebbles  
throughout

7.5-10 light grayish brown  
sandy silt, trace of clay  
damp, med hard

PES02-00 1130  
PES02-0001 1150  
PES02-0002 1200

PESB02 continued

10-15'  
4.3' Rec. Sandy clay, med soft  
damp olive gray to 11.5'  
cobble @ 11.5 to 11.7'  
8 ppm @ 11'

11.7-15 Sandy clay, orange  
brown, med stiff,  
stones throughout, damp  
< 1 ppm 14

15-17.5'  
2.5' Rec. med gray, med hard,  
silty sand, pebbles through  
at very hard @ 17.5'  
damp to dry  
< 1 ppm  
throughout

Bottom of Boring @ 17.5'

Collect Equipment Rinsate EP01  
from Geoprobe Sleeve. @ 1300  
Lab Grade DT water meter.

7/31/07

PESB03 Drilled 1310

0-5'  
3.5' Rec. Topsoil Dark Brown, soft  
to 0.5'

0.5-2.0 Med brown gray  
Sandy clay, med soft  
damp to moist. 16 ppm

2-5' Orange brown and  
gray stained sandy  
clay, med hard, some  
pebbles 65 ppm 3.5'  
210 ppm 4.8'

5-10'  
4.5' Rec. orange brown to 7.5' then  
dime brown, silty clay  
trace sand some pebbles  
damp to dry

PESB03-00 1320

PESB03-02 1325

PESB03-04 1335

PESB03 (continued)

10-15'  
3' Rec. Reddish Brown, clay  
mod hard, sticky, damp  
to most ppm measurements  
range from 3-10

Trailing remaining sleeve on  
Geoprobe, Bottom of Boring  
@ 15'

7/31/07

PESB04 Drilling @ 1350

0-5'  
3' Rec. Topsoil 0-0.6'  
ppm = 10, brown, soft  
damp.

0.6-5' Sandy clay, mod  
brown gray, mod hard,  
damp ppm = 1-2

5-10'  
4.5' Rec. orange brown sandy clay  
mod hard, damp  
zone of staining @ 9.2  
to 9.8' ppm = < 60  
some pebbles throughout

10-15'  
4' Rec. orange brown clay  
damp mod hard  
ppm range 5-15

Bottom of Boring @ 15'

PESB04-00 1355

PESB04-05 1410

PESB04-07 1415

PESBOS Drilling 1425

0-5' Topsoil 0-0.8'  
3' Rec. Browns, soft, moist  
PID = 30 ppm  
0.7-4.5 Sandy clay, light brownish  
red, damp to dry, PID = 10 ppm  
4.5'-5' Rock, very hard (cobble)  
move rig 1.5' to NW?

5-10' orange brown silty clay  
3.5' Rec. same sandy damp to moist  
med hard, stiff  
PID = 10 ppm @ 6'

10-15' reddish Browns, clay, damp  
med hard, stiff  
becomes light gray, rocky at  
14.5' PID range 5-10 ppm  
PESBOS-00 1420  
PESBOS-05 1450  
PESBOS-07 1455

7/31/07

PESBOS-00 D 1500  
PESBOS-00 MS 1505  
PESBOS-00 MSD 1510

8/1/07

Pino Del Este

Meet Dalkes @ 830 at gate  
March out next five locations

PESB06 Drilling at 900

0-5'  
2.5' Rec Topsoil first 5 inches  
then sandy clay with rock  
frags PID = 20 @ 0.6'  
30 @ 1.5'  
45 @ 2.5'  
damp, mod hard.

5-10'  
4' Rec silty clay to 6.5' then  
orange brown sandy clay  
some mottling, damp to moist  
rock frags PID @ 6.5' 10 ppm  
9.0 @ 1 ppm

10-15'  
5' Rec some orange brown sandy  
clay then silty sand from  
~~8.5'~~ 13.2' to 15' then light brown  
silty clay with some <sup>red</sup> sand  
damp mod hard  
PID @ 11' 25 ppm  
13' 40 ppm

8/1/07

PESB06 (continued)

15-20' Sandy clay, orange brown  
5' Rec. mod hard, dry some white  
clay fragments

PID = 0 @ 16'

0 @ 15'

number at 19.5' rock fragments  
damp

Bottom of Bore @ 20'

PESB06-00 910

PESB06-04 920

PESB06-07 930



PESB08 Drilling @ 1015

0-5' Topsoil first 6" mod soft  
 4.6' Rec damp, brown  
 olive gray sandy clay 0.5 to 1.5  
 mod soft with rock fragments  
 orange brown sandy clay from  
 1.5 to 4.5 mod hard, damp  
 4.5 to 5 olive brown silty  
 sand, mod hard, damp to dry  
 PID @ <1 throughout

5-10' rock cobbles at 6-6.7  
 5' Rec and 7.2-8.2, sandy  
 clay in between, mod  
 hard, damp  
 8.2 to 10 olive gray  
 silty sand with rock  
 fragments, dry

PID <1 ppm throughout  
 PESB08-00 1020  
 PESB08-02 1030  
 PESB08-04 1040

clean  
 Borings!

8/1/07

Pico Del Este

PESB09 Drilling @ 1050

0-5' Topsoil first 6" Brown  
 3.8' Rec soft, moist:  
 0.5 to 1.5 olive gray  
 sandy clay, mod soft, rocks  
 the olive brown sandy clay  
 1.5 to 5' cobbles @ 3.5-3.8'  
 damp, mod hard clay  
 PID 10 ppm @ 0.5'  
 5 ppm @ 1.5'  
 <1 ppm @ 4.5'

5-10' Dark Brown, silty clay  
 5' Rec. very soft, moist 5-7'  
 rock frags throughout. Becomes  
 orange brown 7-9.5' sandy  
 clay, mod hard, damp, mod  
 hard.

Reddish brown clay @ 9.5'  
 mottled, mod. soft, moist  
 PID <1 ppm throughout

PESB09 Continued.

10-15'  
5' Rec. Reddish Brown clay to  
12', soft, moist  
PID @ 11' 2 ppm  
Becomes Silty sand @ 12'  
to 15', rock fragments  
throughout, dry, mod hard  
PID @ 12 → 15'  
Bottom of Boring @ 15'

PESB09-00	1100
PESB09-05	1110
PESB09-07	1115

8/1/07

Pico Del Este

PESB10 Drilling @ 1120

0-5'  
3.6' Rec. Topsoil first 5", Brown  
soft, damp. then olive gray  
sandy clay with rocks. mod  
hard, damp. to 3'  
3-5' mod Brown, sandy clay  
rocks throughout, mod soft  
damp. PID < 1 ppm throughout.

5-10'  
3' Rec. mod Brown clay to 6.5'  
then olive gray sand silty  
clay, mod hard, damp.  
7.5 to 10 brownish gray silty  
sand, hard, rock throughout  
dry  
PID < 1 ppm throughout

PESB10

(Continued)

10-15' Silty sand to 12.5  
 5' Rec from 12.5 to 13' light brown  
 clay, some sand, marl,  
 then 13-15' silty sand  
 again. dry, hard, rocks  
 throughout.  
 PID < 1 ppm throughout

PESB10-00 11025

PESB10-00D ~~11025~~ 1125

PESB10-04 1145

PESB10-04D 1145

PESB10-06 1155

~~PESB10-00~~

8/1/07

Pico Del Este

PESB11

Drilling @ 1250

0-5'  
 4.2' Rec. Topsoil first 2 inches  
 then gravel to 0.5'  
 Olive grey. Silty clay  
 to 2'  
 orange brown sandy clay  
 2-4' dry, mod hard  
 rubble 4-4.2'  
 then silty sand, mod hard  
 damp to dry, rocks throughout

PID  
 < 1 ppm  
 throughout

5-8'

Silty sand and rocks  
 dry, loose, very hard.  
 PID < 1 ppm throughout  
 Refusal @ 8'  
 Rocks

PESB11-00 1300

PESB11-01 1315

PESB11-03 1320

PESB12 - Drilling @ 1330

0-5' Topsoil first 4 inches  
3.2' Rec. Brown, moist soft  
0.4 to 1.2' Olive brown  
Sandy clay, mod hard, damp  
PLD 10 ppm @ 0.5' 1.2 to 4.4' Orange red brown  
sandy clay, rock fragments  
throughout, damp  
21 ppm 1.0 to 5' then olive brown silty sand,  
hard, dry, blocks

5-10' Olive brown silty sand to  
4.7' Rec. 7 foot, then orange  
brown silty clay to 8.2  
then silty sand to 9.7  
Cobbles and rocks at 9.7'  
Recessed with Geoprobe

8/1/07

Rico Del Este

PESB12-00 1330

PESB12-00D 1330

PESB12-00MS 1335

PESB12-00MSD 1335

PESB12-04 1410

PESB12-01 1420

PESB12-01D 1420

PESB12-01MS 1425

PESB12-01MSD 1425

8/2/07

Pico Del Este

8:00 meet Drillers @ gate to  
Radon Facility.

8:20 Pedro Ruiz on site

PESB 13 Drilling @ 900

0-5' Top soil first 3" inches  
 2.2' Rec. branny soft, moist.  
 Med brown sandy clay 0.2  
 to 1.5, mod soft damp  
 1.5-1.8 gravel, limestone  
 gray, dry, hard  
 med Brn, silty clay,  
 soft, root  
 PID = <1 ppm @ 0.5  
 2 ppm @ 1.0'  
 1 ppm @ 2.0'

5-10'  
 No recovery  
 of first  
 attempt.  
 34' Rec  
 2nd time  
 Sandy Clay with gravel  
 discolored, gray brown  
 PID @ 5-7' 30-40 ppm  
 Becomes orange brown sandy clay  
 at 7.5' PID 10 ppm  
 mod soft, looks dry.

8/2/07

Pero Del Este

10-15'  
 5' Rec. Silty clay from 10-12.5  
 mod soft mottled, moist  
 PID @ 11' 18 ppm  
 becomes orange brown sandy  
 clay @ 12.5', mod hard, rock  
 frags throughout zone of staining  
 PID > 60, rest PID 10-20 ppm  
 more clay rich @ 14.5'

15-19'  
 3' Rec 15-17 orange brown / white / red clay  
 mottled, damp to dry  
 17-19 Silty sandy gray brown,  
 damp to dry, loose  
 PID 15-17 15-20 ppm  
 PID 17-19 20-30 ppm  
 mottled clay again @ 18-20'

PESB13-00 905  
 PESB13-03 925  
 PESB13-09 950

PESB14 Drilling @ 10:30

0-5' Topsoil first 4"  
3.8' Rec the light brown sandy clay to  
0.8, Med to Dark Brown  
silty clay 0.8 to 2.5 soft, moist  
lighter brown reddish brown to  
5' and more sandy

PID 15 ppm @ 0.5'  
20-25 @ 1.0-2.5'  
15-20 @ 2.5-5'

5-10'  
4.5' Rec orange brown/red sandy  
clay, some pebbles, moist  
at 5.5' rainbow sheen

PID 20 ppm @ 5.5'  
1-20 ppm @ 3.5'  
4.5 ppm @ 4.5' med. hard, medium grained  
sand throughout, more clay  
in clay rich @ 9.5'

8/2/07  
Pico Del Este

10-15'  
4.5' Rec. orange brown mottled clay  
@ 12'. Med soft, damp to  
moist, PID @ 80 ppm  
12-12.8 Zone of broken rock  
and sand PID @ 20 ppm  
gray and black, hard, dry  
Mottled sandy clay @ 12.8 to  
15. PID @ 80 ppm. med soft  
damp,

15-20'  
Rec 4.2 → Sandy to 16.5' reddish gray  
med soft 16.5 to 18 silty  
sand, loose, hard, some clay  
staining; PID 120 ppm  
White and red clay @ 18-20'  
mottled, black staining, damp  
PID 12 ppm in clay

PESB14-00 1030  
PESB14-07 1050  
PESB14-09 1105

8/2/07

Collect Equipment Rinsate  
for the new stainless steel  
spoons

"PEER02" collected at 1140  
using lab grade DI water

also collected field blank using  
lab grade DI water  
collected at 1130  
"PEEB01"

Off-site again clean up @ 1230

8/2/07

Collect Equipment Rinsate  
for the new stainless steel  
spoons

"PEER02" collected at 1140  
using lab grade DI water

also collected field blank using  
lab grade DI water  
collected at 1130  
"PEFB01"

Off-site again clean up @ 1230

1/29/08

Pico Del Este

Travel to Puerto Rico from Pittsburgh  
Depart at 0715 and arrive in San  
Juan at 1500

Drive to NARR to collect and pack  
sampling equipment and sample bottles  
for following day. Depart NARR  
at 1530 and drive to San Juan  
for hotel check in

1/30/08  
Pico Del Este

Depart San Juan for El Tanguae  
rain forest at 6:45 AM. Obtain  
gate key from Forest Service at  
El Tanguae and arrive at Pico Del  
Este at 10:00 AM

Cloudy and windy  
Temperature = 59°F

1040 collect field blank using  
laboratory grade PI water

1050 collect equipment rinse blank  
by passing laboratory grade water  
over an unused stainless  
steel spoon

Access hill side through gate behind  
sleeping quarters and begin sampling  
at 11:14

1/30/08  
Pico Del Este

PESB 16-00 1114 Surface Soil  
silty clay - No organic material

PESB 17-00 1119 Surface soil  
silty clay with rocks/gravel

PESB 22-00 1123 Surface soil  
silty clay/rocky

PESB 27-00 1127 Surface soil  
silty clay/rocky

PESB 33-00 1128 Surface soil  
silty clay (large earthworm)

PESB 23-00 1135 Surface Soil  
clay/rocky

PESB 19-00  
PESB 19-00D  
PESB 19-00 MS/MSD } 1131 Surface Soil  
silty clay with gravel

1/30/08  
Pico Del Este

PESB 24-00 1147 Surface Soil  
Clay with rock fragments

PESB 28-00 1151 Surface Soil  
sandy clay with rock fragments

PESB 29-00 1155 Surface soil  
sandy clay with rock fragments

PESB 25-00 1158 Surface soil  
silty clay

PESB 30-00 1202 Surface soil  
silty clay

PESB 26-00/D1209 Surface soil  
silty clay with rock fragments

PESB 20-00 1214 Surface soil  
silty clay

PESB 21-00 1219 Surface soil  
sandy clay with rock fragments

1/30/08  
Pico Del Este

PEB 31-00 1223 Surface Soil  
silty clay

PEB 32-00 1232 Surface Soil  
silty clay with rock fragments  
collected beneath concrete post-access ~~cut~~ <sup>cut</sup> ~~at~~ <sup>at</sup> ~~the~~ <sup>the</sup> ~~hill~~ <sup>hill</sup> ~~side~~ <sup>side</sup>

Depart Pico Del Este at 1320 and  
return gate key to Forest Service.  
Travel to NAPP to label and  
pack surface soil samples for shipment  
to analytical laboratory. Arrive at  
NAPP at 1435. Depart NAPP at  
1555 for Federal Express shipment  
center at San Juan airport. Arrive at  
Federal Express 1600 for sample  
drop off/shipment to analytical laboratory.

Depart Federal Express and return  
to hotel at 1935

**APPENDIX D**  
**ANALYTICAL DATA APPENDIX TABLES, CHAIN-OF-CUSTODY,**  
**AND PUERTO RICO CERTIFICATES**

---

---

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB01</b>	<b>PESB02</b>	<b>PESB03</b>	<b>PESB04</b>	<b>PESB05</b>	<b>PESB05</b>
<b>Sample ID</b>	<b>PESB01-00</b>	<b>PESB02-00</b>	<b>PESB03-00</b>	<b>PESB04-00</b>	<b>PESB05-00</b>	<b>PESB05-00D</b>
<b>Sampling Date</b>	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007
<b>Depth Range</b>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.8 U	0.91 U	1 U	83 UJ	32 UJ	0.79 UJ
1,1,1-Trichloroethane	0.73 U	0.82 U	0.92 U	75 UJ	29 U	0.72 U
1,1,2,2-Tetrachloroethane	1.8 U	2 U	2.2 U	180 UJ	71 UJ	1.7 UJ
1,1,2-Trichloroethane	1.5 U	1.7 U	1.9 U	160 UJ	61 U	1.5 U
1,1-Dichloroethane	0.63 U	0.71 U	0.8 U	65 UJ	25 U	0.62 U
1,1-Dichloroethene	0.68 U	0.76 U	0.86 U	70 UJ	27 U	0.67 U
1,2,3-Trichloropropane	1.8 U	2 U	2.2 U	180 UJ	71 U	1.7 U
1,2-Dibromo-3-Chloropropane	3.5 U	4 U	4.5 U	360 UJ	140 UJ	3.5 UJ
1,2-Dichloroethane	1.3 U	1.4 U	1.6 U	130 UJ	51 UJ	1.2 UJ
1,2-Dichloropropane	1.4 U	1.6 U	1.8 U	140 UJ	56 U	1.4 U
2-Chloro-1,3-butadiene	0.71 U	0.81 U	0.91 U	74 UJ	29 U	0.71 U
2-Hexanone	2.6 U	3 U	3.3 U	270 UJ	110 U	2.6 U
3-Chloro-1-propene	1.9 U	2.1 U	2.4 U	190 UJ	76 U	1.9 U
Acetone	39 J	19 J	53 J	570 UJ	220 UJ	53 J
Acetonitrile	56 UJ	64 UJ	72 UJ	5800 UJ	2300 U	56 U
Acrolein	24 U	27 U	30 U	2500 UJ	960 U	24 U
Acrylonitrile	29 U	33 U	37 U	3000 UJ	1200 UJ	29 UJ
Benzene	0.99 U	1.1 U	1.3 U	100 UJ	40 U	0.98 U
Bromoform	1.4 U	1.6 U	1.8 U	140 UJ	56 UJ	1.4 UJ
Bromomethane	2 UJ	2.3 UJ	2.5 UJ	210 UJ	81 UJ	2 UJ
Carbon disulfide	0.64 U	0.72 U	0.81 U	66 UJ	26 U	0.63 U
Carbon tetrachloride	1.3 U	1.4 U	1.6 U	130 UJ	51 UJ	1.2 UJ
Chlorobenzene	0.92 U	1 U	1.2 U	94 UJ	37 U	0.91 U
Chlorodibromomethane	0.63 U	0.71 U	0.8 U	65 UJ	25 U	0.62 U
Chloroethane	1.5 U	1.7 U	1.9 U	160 UJ	61 U	1.5 U
Chloroform	0.63 U	0.71 U	0.8 U	65 UJ	25 U	0.62 U
Chloromethane	0.89 U	1 U	1.1 U	92 UJ	36 U	0.88 U
cis-1,3-Dichloropropene	1.1 U	1.2 U	1.4 U	110 UJ	44 UJ	1.1 UJ
Dibromomethane	1.5 U	1.7 U	1.9 U	160 UJ	61 UJ	1.5 UJ
Dichlorobromomethane	1 U	1.2 U	1.3 U	110 UJ	42 U	1 U
Dichlorodifluoromethane	1.1 U	1.3 U	1.4 U	120 UJ	45 U	1.1 U
Ethyl methacrylate	2.8 U	3.1 U	3.5 U	280 UJ	110 U	2.7 U
Ethylbenzene	0.94 U	1.1 U	1.2 U	97 UJ	38 U	0.93 U
Ethylene Dibromide	1.9 U	2.1 U	2.4 U	190 UJ	76 U	1.9 U
Iodomethane	1.3 UJ	1.4 UJ	1.6 UJ	130 UJ	51 U	1.2 U
Isobutanol	87 R	98 R	110 R	8900 R	3500 R	86 R
Methacrylonitrile	30 U	34 U	38 U	3100 UJ	1200 U	30 UJ
Methyl Ethyl Ketone	3.4 U	3.8 U	25 J	350 UJ	140 U	6.5 J
methyl isobutyl ketone	3.6 U	4.1 U	4.6 U	380 UJ	150 U	3.6 UJ

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB01</b>	<b>PESB02</b>	<b>PESB03</b>	<b>PESB04</b>	<b>PESB05</b>	<b>PESB05</b>
<b>Sample ID</b>	<b>PESB01-00</b>	<b>PESB02-00</b>	<b>PESB03-00</b>	<b>PESB04-00</b>	<b>PESB05-00</b>	<b>PESB05-00D</b>
<b>Sampling Date</b>	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007
<b>Depth Range</b>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
Methyl methacrylate	4.6 U	5.2 U	5.9 U	480 UJ	190 U	4.6 U
Methylene Chloride	1.3 U	1.4 U	1.6 U	130 UJ	51 U	1.2 U
Pentachloroethane	2.8 U	3.1 U	3.5 U	280 UJ	110 UJ	2.7 U
Propionitrile	26 U	30 U	33 U	2700 UJ	1100 U	26 UJ
Styrene	0.83 U	0.93 U	1.1 U	85 UJ	33 U	0.82 U
Tetrachloroethene	0.92 U	1 U	1.2 U	94 UJ	37 U	0.91 U
Toluene	0.99 U	1.1 U	1.3 U	100 UJ	40 U	0.98 U
trans-1,2-Dichloroethene	1.2 U	1.4 U	1.5 U	130 UJ	49 U	1.2 U
trans-1,3-Dichloropropene	1.1 U	1.2 U	1.4 U	110 UJ	44 U	1.1 U
trans-1,4-Dichloro-2-butene	3.9 U	4.4 U	4.9 U	400 UJ	160 U	3.8 U
Trichloroethene	1.3 U	1.4 U	1.6 U	130 UJ	51 U	1.2 U
Trichlorofluoromethane	1.9 U	2.1 U	2.4 U	190 UJ	76 U	1.9 U
Vinyl acetate	1.9 U	2.1 U	2.4 U	190 UJ	76 U	1.9 U
Vinyl chloride	0.73 U	0.82 U	0.92 U	75 UJ	29 U	0.72 U
Xylenes, Total	2.9 U	3.3 U	3.7 U	300 UJ	120 U	2.9 U
<b>Low-level PAHS - 8270C (ug/kg)</b>						
1-Methylnaphthalene	15 U	15 U	1.7 U	1.6 U	42 J	1.5 UJ
2-Methylnaphthalene	21 U	22 U	2.4 U	2.2 U	11 J	2.2 UJ
Acenaphthene	6.9 U	7.2 U	0.8 U	0.74 U	0.73 U	0.73 U
Acenaphthylene	21 U	22 U	2.4 U	2.2 U	2.2 U	2.2 U
Anthracene	21 U	22 U	2.4 U	2.2 U	2.2 U	2.2 U
Benzo[a]anthracene	21 U	22 U	2.4 U	2.2 U	2.2 U	2.2 U
Benzo[a]pyrene	8 U	8.4 U	5 J	0.85 U	0.85 U	0.85 U
Benzo[b]fluoranthene	9.3 U	9.7 U	1.1 U	0.98 U	0.98 U	0.98 U
Benzo[g,h,i]perylene	21 U	22 U	2.4 U	2.2 U	2.2 U	2.2 U
Benzo[k]fluoranthene	12 U	13 U	1.4 U	1.3 U	1.3 U	1.3 U
Chrysene	7.4 U	7.8 U	7.3 J	0.79 U	0.78 U	0.79 U
Dibenz(a,h)anthracene	7.2 U	7.5 U	0.82 U	0.76 U	0.76 U	0.76 U
Fluoranthene	21 U	22 U	2.4 U	2.2 U	2.2 U	2.2 U
Fluorene	9.4 U	9.8 U	1.1 U	1 U	0.99 U	0.99 U
Indeno[1,2,3-cd]pyrene	15 U	15 U	1.7 U	1.6 U	1.5 U	1.5 U
Naphthalene	7.3 U	7.6 U	0.84 U	0.78 U	0.77 U	0.77 U
Phenanthrene	21 U	22 U	2.4 U	140 130	J	2.2 UJ
Pyrene	21 U	22 U	31 2.2	U	2.2 U	2.2 U
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	710	58	1600	1600	2800 J	350 J

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB06</b>	<b>PESB07</b>	<b>PESB08</b>	<b>PESB09</b>	<b>PESB10</b>	<b>PESB10</b>
<b>Sample ID</b>	<b>PESB06-00</b>	<b>PESB07-00</b>	<b>PESB08-00</b>	<b>PESB09-00</b>	<b>PESB10-00</b>	<b>PESB10-00D</b>
<b>Sampling Date</b>	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007
<b>Depth Range</b>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.97 U	0.92 UJ	0.86 UJ	0.98 UJ	0.76 U	0.86 U
1,1,1-Trichloroethane	0.88 U	0.83 U	0.78 U	0.89 U	0.69 U	0.78 U
1,1,2,2-Tetrachloroethane	2.1 U	2 UJ	1.9 UJ	2.1 UJ	1.7 U	1.9 U
1,1,2-Trichloroethane	1.8 U	1.7 U	1.6 U	1.8 U	1.4 U	1.6 U
1,1-Dichloroethane	0.76 U	0.72 U	0.67 U	0.77 U	0.6 U	0.67 U
1,1-Dichloroethene	0.82 U	0.77 U	0.73 U	0.83 U	0.64 U	0.72 U
1,2,3-Trichloropropane	2.1 U	2 U	1.9 U	2.1 U	1.7 U	1.9 U
1,2-Dibromo-3-Chloropropane	4.3 U	4 UJ	3.8 UJ	4.3 UJ	3.3 U	3.7 U
1,2-Dichloroethane	1.5 U	1.4 UJ	1.3 UJ	1.5 UJ	1.2 U	1.3 U
1,2-Dichloropropane	1.7 U	1.6 U	1.5 U	1.7 U	1.3 U	1.5 U
2-Chloro-1,3-butadiene	0.87 U	0.82 U	0.77 U	0.87 U	0.68 U	0.76 U
2-Hexanone	3.2 U	3 U	2.8 U	3.2 U	2.5 U	2.8 U
3-Chloro-1-propene	2.3 U	2.2 U	2 U	2.3 U	1.8 U	2 U
Acetone	7.6 R	35 J	14 J	25 J	21 R	19 R
Acetonitrile	68 R	65 U	60 U	69 U	54 R	60 R
Acrolein	29 U	27 U	26 U	29 U	23 U	25 UJ
Acrylonitrile	35 U	33 UJ	31 UJ	35 UJ	27 U	31 U
Benzene	1.2 U	1.1 U	1.1 U	1.2 U	0.94 U	1.1 U
Bromoform	1.7 U	1.6 UJ	1.5 UJ	1.7 UJ	1.3 U	1.5 U
Bromomethane	2.4 U	2.3 UJ	2.2 UJ	2.5 UJ	1.9 U	2.1 U
Carbon disulfide	0.77 U	0.73 U	0.69 U	0.78 U	0.61 U	0.68 U
Carbon tetrachloride	1.5 UJ	1.4 UJ	1.3 UJ	1.5 UJ	1.2 UJ	1.3 UJ
Chlorobenzene	1.1 U	1 U	0.98 U	1.1 U	0.87 U	0.98 U
Chlorodibromomethane	0.76 U	0.72 U	0.67 U	0.77 U	0.6 U	0.67 U
Chloroethane	1.8 U	1.7 U	1.6 U	1.8 U	1.4 U	1.6 U
Chloroform	0.76 U	0.72 U	0.67 U	0.77 U	0.6 U	0.67 U
Chloromethane	1.1 U	1 U	0.95 U	1.1 U	0.85 U	0.95 U
cis-1,3-Dichloropropene	1.3 U	1.2 UJ	1.2 UJ	1.3 UJ	1 U	1.2 U
Dibromomethane	1.8 U	1.7 UJ	1.6 UJ	1.8 UJ	1.4 U	1.6 U
Dichlorobromomethane	1.3 U	1.2 U	1.1 U	1.3 U	0.99 U	1.1 U
Dichlorodifluoromethane	1.4 U	1.3 U	1.2 U	1.4 U	1.1 U	1.2 U
Ethyl methacrylate	3.3 U	3.2 U	3 U	3.4 U	2.6 U	2.9 U
Ethylbenzene	1.1 U	1.1 U	1 U	1.2 U	0.89 U	1 U
Ethylene Dibromide	2.3 U	2.2 U	2 U	2.3 U	1.8 U	2 U
Iodomethane	1.5 U	1.4 U	1.3 U	1.5 U	1.2 U	1.3 U
Isobutanol	100 R	99 R	93 R	110 R	82 R	92 R
Methacrylonitrile	36 U	34 U	32 U	37 U	29 U	32 U
Methyl Ethyl Ketone	4.1 U	3.9 U	3.6 U	8.5 J	6.3 J	3.6 U
methyl isobutyl ketone	4.4 U	4.2 U	3.9 U	4.4 U	3.5 U	3.9 U

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB06</b>	<b>PESB07</b>	<b>PESB08</b>	<b>PESB09</b>	<b>PESB10</b>	<b>PESB10</b>
<b>Sample ID</b>	<b>PESB06-00</b>	<b>PESB07-00</b>	<b>PESB08-00</b>	<b>PESB09-00</b>	<b>PESB10-00</b>	<b>PESB10-00D</b>
<b>Sampling Date</b>	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007
<b>Depth Range</b>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
Methyl methacrylate	5.6 UJ	5.3 U	5 U	5.7 U	4.4 UJ	4.9 UJ
Methylene Chloride	1.5 U	1.4 U	1.3 U	1.5 U	1.2 U	1.3 U
Pentachloroethane	3.3 UJ	3.2 UJ	3 UJ	3.4 UJ	2.6 UJ	2.9 UJ
Propionitrile	32 UJ	30 U	28 U	32 U	25 UJ	28 UJ
Styrene	1 U	0.95 U	0.89 U	1 U	0.79 U	0.88 U
Tetrachloroethene	1.1 U	1 U	0.98 U	1.1 U	0.87 U	0.98 U
Toluene	1.2 U	1.1 U	1.1 U	1.2 U	0.94 U	1.1 U
trans-1,2-Dichloroethene	1.5 U	1.4 U	1.3 U	1.5 U	1.2 U	1.3 U
trans-1,3-Dichloropropene	1.3 U	1.2 U	1.2 U	1.3 U	1 U	1.2 U
trans-1,4-Dichloro-2-butene	4.7 U	4.4 U	4.2 U	4.8 U	3.7 U	4.1 U
Trichloroethene	1.5 U	1.4 U	1.3 U	1.5 U	1.2 U	1.3 U
Trichlorofluoromethane	2.3 U	2.2 U	2 U	2.3 U	1.8 U	2 U
Vinyl acetate	2.3 U	2.2 U	2 U	2.3 U	1.8 U	2 U
Vinyl chloride	0.88 U	0.83 U	0.78 U	0.89 U	0.69 U	0.78 U
Xylenes, Total	3.5 U	3.3 U	3.1 U	3.5 U	2.7 U	3.1 U
<b>Low-level PAHS - 8270C (ug/kg)</b>						
1-Methylnaphthalene	230 15	U	1.5 U	15 U	14 U	14 U
2-Methylnaphthalene	120 22	U	2.2 U	22 U	20 U	20 U
Acenaphthene	8 U	7.3 U	0.73 U	7.3 U	6.6 U	6.9 U
Acenaphthylene	24 U	22 U	2.2 U	22 U	20 U	20 U
Anthracene	24 U	22 U	2.2 U	22 U	20 U	20 U
Benzo[a]anthracene	24 U	22 U	2.2 U	22 U	20 U	20 U
Benzo[a]pyrene	9.2 U	8.5 U	0.85 U	8.5 U	7.6 U	7.9 U
Benzo[b]fluoranthene	11 U	9.8 U	0.98 U	9.8 U	8.8 U	9.1 U
Benzo[g,h,i]perylene	24 U	22 U	2.2 U	22 U	20 U	20 U
Benzo[k]fluoranthene	14 U	13 U	1.3 U	13 U	12 U	12 U
Chrysene	8.5 U	7.9 U	2 J	7.8 U	7.1 U	7.3 U
Dibenz(a,h)anthracene	8.2 U	7.6 U	0.76 U	7.6 U	6.8 U	7.1 U
Fluoranthene	24 U	22 U	2.2 U	22 U	20 U	20 U
Fluorene	11 U	9.9 U	0.99 U	9.9 U	8.9 U	9.3 U
Indeno[1,2,3-cd]pyrene	17 U	15 U	1.5 U	15 U	14 U	14 U
Naphthalene	8.4 U	7.7 U	0.77 U	7.7 U	6.9 U	7.2 U
Phenanthrene	640 210		2.2 U	22 U	20 U	20 U
Pyrene	240 38	U	2.2 U	22 U	50 U	20 U
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	3800 420		21 U	870	430 J	76 J

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB11</b>	<b>PESB12</b>	<b>PESB12</b>	<b>PESB13</b>	<b>PESB14</b>	<b>PESB16</b>
<b>Sample ID</b>	<b>PESB11-00</b>	<b>PESB12-00</b>	<b>PESB12-00D</b>	<b>PESB13-00</b>	<b>PESB14-00</b>	<b>PESB16-00</b>
<b>Sampling Date</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/2/2007</b>	<b>8/2/2007</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.9 U	0.84 U	0.96 U	0.95 U	1.9 U	NA
1,1,1-Trichloroethane	0.81 U	0.76 U	0.87 U	0.86 U	1.7 U	NA
1,1,2,2-Tetrachloroethane	2 U	1.8 U	2.1 U	2.1 U	4.2 U	NA
1,1,2-Trichloroethane	1.7 U	1.6 U	1.8 U	1.8 U	3.6 U	NA
1,1-Dichloroethane	0.7 U	0.66 U	0.75 U	0.74 U	1.5 U	NA
1,1-Dichloroethene	0.76 U	0.71 U	0.81 U	0.8 U	1.6 U	NA
1,2,3-Trichloropropane	2 U	1.8 U	2.1 U	2.1 U	4.2 U	NA
1,2-Dibromo-3-Chloropropane	3.9 U	3.7 U	4.2 U	4.2 U	8.4 U	NA
1,2-Dichloroethane	1.4 U	1.3 U	1.5 U	1.5 U	3 U	NA
1,2-Dichloropropane	1.5 U	1.4 U	1.7 U	1.6 U	3.3 U	NA
2-Chloro-1,3-butadiene	0.8 U	0.75 U	0.86 U	0.85 U	1.7 U	NA
2-Hexanone	2.9 U	2.8 U	3.2 U	3.1 U	6.3 U	NA
3-Chloro-1-propene	2.1 U	2 U	2.3 U	2.2 U	4.5 U	NA
Acetone	6.2 R	5.8 R	6.6 R	14 J	430 J	NA
Acetonitrile	63 R	59 R	68 R	67 U	130 U	NA
Acrolein	27 UJ	25 UJ	29 UJ	28 U	57 U	NA
Acrylonitrile	32 U	30 U	35 U	34 UJ	69 UJ	NA
Benzene	1.1 U	1 U	1.2 U	1.2 U	2.4 U	NA
Bromoform	1.5 U	1.4 U	1.7 U	1.6 U	3.3 U	NA
Bromomethane	2.2 U	2.1 U	2.4 U	2.4 U	4.8 U	NA
Carbon disulfide	0.72 U	0.67 U	0.77 U	0.76 U	4.8 J	NA
Carbon tetrachloride	1.4 UJ	1.3 UJ	1.5 UJ	1.5 U	3 U	NA
Chlorobenzene	1 U	0.96 U	1.1 U	1.1 U	2.2 UJ	NA
Chlorodibromomethane	0.7 U	0.66 U	0.75 U	0.74 U	1.5 U	NA
Chloroethane	1.7 U	1.6 U	1.8 U	1.8 U	3.6 U	NA
Chloroform	0.7 U	0.66 U	0.75 U	0.74 U	1.5 U	NA
Chloromethane	1 U	0.93 U	1.1 U	1.1 U	2.1 U	NA
cis-1,3-Dichloropropene	1.2 U	1.1 U	1.3 U	1.3 U	2.6 U	NA
Dibromomethane	1.7 U	1.6 U	1.8 U	1.8 U	3.6 U	NA
Dichlorobromomethane	1.2 U	1.1 U	1.2 U	1.2 U	2.5 U	NA
Dichlorodifluoromethane	1.3 U	1.2 U	1.3 U	1.3 U	2.7 U	NA
Ethyl methacrylate	3.1 U	2.9 U	3.3 U	3.3 U	6.6 U	NA
Ethylbenzene	1.1 U	0.99 U	1.1 U	1.1 U	12 J	NA
Ethylene Dibromide	2.1 U	2 U	2.3 U	2.2 U	4.5 U	NA
Iodomethane	1.4 U	1.3 U	1.5 U	1.5 U	3 U	NA
Isobutanol	97 R	91 R	100 R	100 R	210 R	NA
Methacrylonitrile	34 U	32 U	36 U	36 U	72 U	NA
Methyl Ethyl Ketone	3.8 U	3.5 U	4.1 U	7.9 J	150 J	NA
methyl isobutyl ketone	4.1 U	3.8 U	4.4 U	4.3 U	8.7 U	NA

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB11</b>	<b>PESB12</b>	<b>PESB12</b>	<b>PESB13</b>	<b>PESB14</b>	<b>PESB16</b>
<b>Sample ID</b>	<b>PESB11-00</b>	<b>PESB12-00</b>	<b>PESB12-00D</b>	<b>PESB13-00</b>	<b>PESB14-00</b>	<b>PESB16-00</b>
<b>Sampling Date</b>	8/1/2007	8/1/2007	8/1/2007	8/2/2007	8/2/2007	1/30/2008
<b>Depth Range</b>	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
Methyl methacrylate	5.2 UJ	4.9 U	5.6 U	5.5 UJ	11 U	NA
Methylene Chloride	1.4 U	1.3 U	1.5 U	1.5 UJ	3 U	NA
Pentachloroethane	3.1 UJ	2.9 U	3.3 U	3.3 R	6.6 R	NA
Propionitrile	29 UJ	28 U	32 U	31 UJ	63 U	NA
Styrene	0.93 U	0.87 U	0.99 U	0.98 UJ	2 U	NA
Tetrachloroethene	1 U	0.96 U	1.1 U	1.1 UJ	2.2 U	NA
Toluene	1.1 U	1 U	1.2 U	1.2 UJ	3.9 U	NA
trans-1,2-Dichloroethene	1.4 U	1.3 U	1.5 U	1.4 UJ	2.9 U	NA
trans-1,3-Dichloropropene	1.2 U	1.1 U	1.3 U	1.3 UJ	2.6 U	NA
trans-1,4-Dichloro-2-butene	4.4 U	4.1 U	4.7 U	4.6 UJ	9.3 U	NA
Trichloroethene	1.4 U	1.3 U	1.5 U	1.5 UJ	3 U	NA
Trichlorofluoromethane	2.1 U	2 U	2.3 U	2.2 UJ	4.5 U	NA
Vinyl acetate	2.1 U	2 U	2.3 U	2.2 UJ	4.5 U	NA
Vinyl chloride	0.81 U	0.76 U	0.87 U	0.86 UJ	1.7 U	NA
Xylenes, Total	3.2 U	3 U	3.5 U	3.4 UJ	6.9 U	NA
<b>Low-level PAHS - 8270C (ug/kg)</b>						
1-Methylnaphthalene	1.4 U	1.5 U	1.6 U	1.7 U	210 NA	
2-Methylnaphthalene	2 U	2.2 U	2.2 U	2.4 U	220 NA	
Acenaphthene	0.69 U	0.73 U	0.75 U	0.79 U	1.1 U	NA
Acenaphthylene	2 U	2.2 U	2.2 U	2.4 U	3.3 U	NA
Anthracene	2 U	2.2 U	2.2 U	2.4 U	3.3 U	NA
Benzo[a]anthracene	2 U	2.2 U	2.2 U	6.2 J	3.3 U	NA
Benzo[a]pyrene	0.8 U	0.85 U	0.87 U	3.4 J	1.3 U	NA
Benzo[b]fluoranthene	0.92 U	0.98 U	1 U	1.1 U	1.5 U	NA
Benzo[g,h,i]perylene	2 U	2.2 U	2.2 U	2.4 U	3.3 U	NA
Benzo[k]fluoranthene	1.2 U	1.3 U	1.3 U	1.4 U	2 U	NA
Chrysene	0.74 U	3.3 J	0.81 U	6.3 J	14 NA	
Dibenz(a,h)anthracene	0.71 U	0.76 U	0.78 U	0.82 U	1.2 U	NA
Fluoranthene	2 U	2.2 U	2.2 U	16 3.3	U	NA
Fluorene	0.93 U	0.99 U	1 U	1.1 U	1.5 U	NA
Indeno[1,2,3-cd]pyrene	1.4 U	1.5 U	1.6 U	1.7 U	2.4 U	NA
Naphthalene	0.72 U	0.77 U	0.79 U	0.84 U	76 NA	
Phenanthrene	2 U	2.2 U	2.2 U	14 120	NA	
Pyrene	2 U	6.1 U	2.2 U	15 35		NA
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	9.4 U	25 U	0.79 U	370 1000		6.5 U

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB17</b>	<b>PESB18</b>	<b>PESB19</b>	<b>PESB19</b>	<b>PESB20</b>	<b>PESB21</b>
<b>Sample ID</b>	<b>PESB17-00</b>	<b>PESB18-00</b>	<b>PESB19-00</b>	<b>PESB19-00D</b>	<b>PESB20-00</b>	<b>PESB21-00</b>
<b>Sampling Date</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA
3-Chloro-1-propene	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA
Chlorodibromomethane	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA
Dichlorobromomethane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA
Ethylene Dibromide	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	NA	NA	NA	NA	NA	NA
methyl isobutyl ketone	NA	NA	NA	NA	NA	NA

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB17</b>	<b>PESB18</b>	<b>PESB19</b>	<b>PESB19</b>	<b>PESB20</b>	<b>PESB21</b>
<b>Sample ID</b>	<b>PESB17-00</b>	<b>PESB18-00</b>	<b>PESB19-00</b>	<b>PESB19-00D</b>	<b>PESB20-00</b>	<b>PESB21-00</b>
<b>Sampling Date</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
Methyl methacrylate	NA	NA	NA	NA	NA	NA
Methylene Chloride	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA
Vinyl acetate	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA
Xylenes, Total	NA	NA	NA	NA	NA	NA
<b>Low-level PAHS - 8270C (ug/kg)</b>						
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	19 5.5	U	6.1 U	5.5 U	5.3 U	5.2 U

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB22</b>	<b>PESB23</b>	<b>PESB24</b>	<b>PESB25</b>	<b>PESB26</b>	<b>PESB26</b>
<b>Sample ID</b>	<b>PESB22-00</b>	<b>PESB23-00</b>	<b>PESB24-00</b>	<b>PESB25-00</b>	<b>PESB26-00</b>	<b>PESB26-00D</b>
<b>Sampling Date</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA
3-Chloro-1-propene	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA
Chlorodibromomethane	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA
Dichlorobromomethane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA
Ethylene Dibromide	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	NA	NA	NA	NA	NA	NA
methyl isobutyl ketone	NA	NA	NA	NA	NA	NA

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB22</b>	<b>PESB23</b>	<b>PESB24</b>	<b>PESB25</b>	<b>PESB26</b>	<b>PESB26</b>
<b>Sample ID</b>	<b>PESB22-00</b>	<b>PESB23-00</b>	<b>PESB24-00</b>	<b>PESB25-00</b>	<b>PESB26-00</b>	<b>PESB26-00D</b>
<b>Sampling Date</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
Methyl methacrylate	NA	NA	NA	NA	NA	NA
Methylene Chloride	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA
Vinyl acetate	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA
Xylenes, Total	NA	NA	NA	NA	NA	NA
<b>Low-level PAHS - 8270C (ug/kg)</b>						
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	4.5 U	24 5.3	U	5.7 U	5.4 U	5.3 U

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB27</b>	<b>PESB28</b>	<b>PESB29</b>	<b>PESB30</b>	<b>PESB31</b>	<b>PESB32</b>
<b>Sample ID</b>	<b>PESB27-00</b>	<b>PESB28-00</b>	<b>PESB29-00</b>	<b>PESB30-00</b>	<b>PESB31-00</b>	<b>PESB32-00</b>
<b>Sampling Date</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA
3-Chloro-1-propene	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA
Chlorodibromomethane	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA
Dichlorobromomethane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA
Ethylene Dibromide	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	NA	NA	NA	NA	NA	NA
methyl isobutyl ketone	NA	NA	NA	NA	NA	NA

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB27</b>	<b>PESB28</b>	<b>PESB29</b>	<b>PESB30</b>	<b>PESB31</b>	<b>PESB32</b>
<b>Sample ID</b>	<b>PESB27-00</b>	<b>PESB28-00</b>	<b>PESB29-00</b>	<b>PESB30-00</b>	<b>PESB31-00</b>	<b>PESB32-00</b>
<b>Sampling Date</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
Methyl methacrylate	NA	NA	NA	NA	NA	NA
Methylene Chloride	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA
Vinyl acetate	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA
Xylenes, Total	NA	NA	NA	NA	NA	NA
<b>Low-level PAHS - 8270C (ug/kg)</b>						
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	4.5 U	5.1 U	6.4 U	5.3 U	5 U	7.9

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB33</b>
<b>Sample ID</b>	<b>PESB33-00</b>
<b>Sampling Date</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>

**Volatiles - Method 8260B (ug/kg)**

1,1,1,2-Tetrachloroethane	NA
1,1,1-Trichloroethane	NA
1,1,2,2-Tetrachloroethane	NA
1,1,2-Trichloroethane	NA
1,1-Dichloroethane	NA
1,1-Dichloroethene	NA
1,2,3-Trichloropropane	NA
1,2-Dibromo-3-Chloropropane	NA
1,2-Dichloroethane	NA
1,2-Dichloropropane	NA
2-Chloro-1,3-butadiene	NA
2-Hexanone	NA
3-Chloro-1-propene	NA
Acetone	NA
Acetonitrile	NA
Acrolein	NA
Acrylonitrile	NA
Benzene	NA
Bromoform	NA
Bromomethane	NA
Carbon disulfide	NA
Carbon tetrachloride	NA
Chlorobenzene	NA
Chlorodibromomethane	NA
Chloroethane	NA
Chloroform	NA
Chloromethane	NA
cis-1,3-Dichloropropene	NA
Dibromomethane	NA
Dichlorobromomethane	NA
Dichlorodifluoromethane	NA
Ethyl methacrylate	NA
Ethylbenzene	NA
Ethylene Dibromide	NA
Iodomethane	NA
Isobutanol	NA
Methacrylonitrile	NA
Methyl Ethyl Ketone	NA
methyl isobutyl ketone	NA

**APPENDIX D**

**TABLE D-1  
SURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB33</b>
<b>Sample ID</b>	<b>PESB33-00</b>
<b>Sampling Date</b>	<b>1/30/2008</b>
<b>Depth Range</b>	<b>0.0-1.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>	
Methyl methacrylate	NA
Methylene Chloride	NA
Pentachloroethane	NA
Propionitrile	NA
Styrene	NA
Tetrachloroethene	NA
Toluene	NA
trans-1,2-Dichloroethene	NA
trans-1,3-Dichloropropene	NA
trans-1,4-Dichloro-2-butene	NA
Trichloroethene	NA
Trichlorofluoromethane	NA
Vinyl acetate	NA
Vinyl chloride	NA
Xylenes, Total	NA
<b>Low-level PAHS - 8270C (ug/kg)</b>	
1-Methylnaphthalene	NA
2-Methylnaphthalene	NA
Acenaphthene	NA
Acenaphthylene	NA
Anthracene	NA
Benzo[a]anthracene	NA
Benzo[a]pyrene	NA
Benzo[b]fluoranthene	NA
Benzo[g,h,i]perylene	NA
Benzo[k]fluoranthene	NA
Chrysene	NA
Dibenz(a,h)anthracene	NA
Fluoranthene	NA
Fluorene	NA
Indeno[1,2,3-cd]pyrene	NA
Naphthalene	NA
Phenanthrene	NA
Pyrene	NA
<b>TPH - Method 8015B (mg/kg)</b>	
Diesel Range Organics	9.5

**TABLE D-2**  
**SUBSURFACE SOIL ANALYTICAL RESULTS**  
**PICO DEL ESTE RADAR FACILITY**  
**SITE INVESTIGATION**

Site ID	PESB01	PESB01	PESB02	PESB02	PESB03	PESB03
Sample ID	PESB01-01	PESB01-02	PESB02-04	PESB02-06	PESB03-02	PESB03-04
Sampling Date	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007
Depth Range	1.0-3.0	3.0-5.0	7.0-9.0	11.0-13.0	3.0-5.0	7.9-9.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.83 U	0.81 U	0.75 U	0.81 U	36 UJ	0.85 UJ
1,1,1-Trichloroethane	0.75 U	0.73 U	0.68 U	0.73 U	33 U	0.77 U
1,1,2,2-Tetrachloroethane	1.8 U	1.8 U	1.6 U	1.8 U	80 UJ	1.9 UJ
1,1,2-Trichloroethane	1.6 U	1.5 U	1.4 U	1.5 U	68 U	1.6 U
1,1-Dichloroethane	0.65 U	0.63 U	0.58 U	0.63 U	28 U	0.66 U
1,1-Dichloroethene	0.7 U	0.68 U	0.63 U	0.68 U	31 U	0.72 U
1,2,3-Trichloropropane	1.8 U	1.8 U	1.6 U	1.8 U	80 U	1.9 U
1,2-Dibromo-3-Chloropropane	3.6 U	3.5 U	3.3 U	3.5 U	160 UJ	65 J
1,2-Dichloroethane	1.3 U	1.3 U	1.2 U	1.3 U	57 UJ	1.3 UJ
1,2-Dichloropropane	1.4 U	1.4 U	1.3 U	1.4 U	63 U	1.5 U
2-Chloro-1,3-butadiene	0.74 U	0.72 U	0.66 U	0.72 U	32 U	0.76 U
2-Hexanone	2.7 U	2.7 U	2.4 U	2.6 U	120 U	2.8 U
3-Chloro-1-propene	1.9 U	1.9 U	1.7 U	1.9 U	85 U	2 U
Acetone	11 J	5.6 UJ	5.1 UJ	15 J	250 UJ	5.9 UJ
Acetonitrile	58 UJ	57 UJ	52 UJ	57 UJ	2600 U	60 U
Acrolein	25 U	24 U	22 U	24 U	1100 U	25 U
Acrylonitrile	30 U	29 U	27 U	29 U	1300 UJ	31 UJ
Benzene	1 U	1 U	0.92 U	1 U	45 U	1.1 U
Bromoform	1.4 U	1.4 U	1.3 U	1.4 U	63 UJ	1.5 UJ
Bromomethane	2.1 UJ	2 UJ	1.9 UJ	2 UJ	91 UJ	2.1 UJ
Carbon disulfide	0.66 U	0.64 U	0.59 U	1.7 J	29 U	0.68 U
Carbon tetrachloride	1.3 U	1.3 U	1.2 U	1.3 U	57 UJ	1.3 UJ
Chlorobenzene	0.94 U	0.92 U	0.85 U	0.92 U	42 U	0.97 U
Chlorodibromomethane	0.65 U	0.63 U	0.58 U	0.63 U	28 U	0.66 U
Chloroethane	1.6 U	1.5 U	1.4 U	1.5 U	68 U	1.6 U
Chloroform	0.65 U	0.63 U	0.58 U	0.63 U	28 U	0.66 U
Chloromethane	0.92 U	0.9 U	0.83 U	0.9 U	40 U	0.94 U
cis-1,3-Dichloropropene	1.1 U	1.1 U	1 U	1.1 U	50 UJ	1.2 UJ
Dibromomethane	1.6 U	1.5 U	1.4 U	1.5 U	68 UJ	1.6 UJ
Dichlorobromomethane	1.1 U	1 U	0.97 U	1 U	47 U	1.1 U
Dichlorodifluoromethane	1.1 U	1.1 U	1 U	1.1 U	51 U	1.2 U
Ethyl methacrylate	2.8 U	2.8 U	2.6 U	2.8 U	130 U	2.9 U
Ethylbenzene	0.97 U	0.95 U	0.87 U	0.95 U	43 U	1 U
Ethylene Dibromide	1.9 U	1.9 U	1.7 U	1.9 U	85 U	2 U
Iodomethane	1.3 UJ	1.3 UJ	1.2 UJ	1.3 UJ	57 U	1.3 U
Isobutanol	89 R	87 R	80 R	87 R	3900 R	92 R
Methacrylonitrile	31 U	30 U	28 U	30 U	1400 U	32 U
Methyl Ethyl Ketone	3.5 U	3.4 U	3.1 U	3.4 U	150 U	3.6 U
methyl isobutyl ketone	3.7 U	3.7 U	3.4 U	3.7 U	170 U	3.9 U
Methyl methacrylate	4.8 U	4.7 U	4.3 U	4.7 U	210 U	4.9 U
Methylene Chloride	1.3 U	1.3 U	1.2 U	1.3 U	57 U	1.3 U
Pentachloroethane	2.8 U	2.8 U	2.6 U	2.8 U	130 UJ	2.9 UJ
Propionitrile	27 U	27 U	24 U	26 U	1200 U	28 U
Styrene	0.85 U	0.83 U	0.77 U	0.83 U	38 U	0.88 U
Tetrachloroethene	0.94 U	0.92 U	0.85 U	0.92 U	42 U	0.97 U

**TABLE D-2  
SUBSURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Site ID	PESB01	PESB01	PESB02	PESB02	PESB03	PESB03
Sample ID	PESB01-01	PESB01-02	PESB02-04	PESB02-06	PESB03-02	PESB03-04
Sampling Date	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007
Depth Range	1.0-3.0	3.0-5.0	7.0-9.0	11.0-13.0	3.0-5.0	7.9-9.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
Toluene	1 U	1 U	0.92 U	1 U	45 U	1.1 U
trans-1,2-Dichloroethene	1.3 U	1.2 U	1.1 U	1.2 U	55 U	1.3 U
trans-1,3-Dichloropropene	1.1 U	1.1 U	1 U	1.1 U	50 U	1.2 U
trans-1,4-Dichloro-2-butene	4 U	3.9 U	3.6 U	3.9 U	180 U	4.1 U
Trichloroethene	1.3 U	1.3 U	1.2 U	1.3 U	57 U	1.3 U
Trichlorofluoromethane	1.9 U	1.9 U	1.7 U	1.9 U	85 U	2 U
Vinyl acetate	1.9 U	1.9 U	1.7 U	1.9 U	85 U	2 U
Vinyl chloride	0.75 U	0.73 U	0.68 U	0.73 U	33 U	0.77 U
Xylenes, Total	3 U	2.9 U	2.7 U	2.9 U	130 U	3.1 U
<b>Low-level PAHs - 8270C (ug/kg)</b>						
1-Methylnaphthalene	1.6 U	1.5 U	1.4 U	1.4 U	15 U	1.5 U
2-Methylnaphthalene	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U
Acenaphthene	0.75 U	0.69 U	0.66 U	0.66 U	7.2 U	0.71 U
Acenaphthylene	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U
Anthracene	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U
Benzo[a]anthracene	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U
Benzo[a]pyrene	0.87 U	0.8 U	0.77 U	0.77 U	8.4 U	0.82 U
Benzo[b]fluoranthene	1 U	0.92 U	0.88 U	0.88 U	9.7 U	0.95 U
Benzo[g,h,i]perylene	2.2 U	2.1 U	7.4 J	2 U	22 U	2.1 U
Benzo[k]fluoranthene	1.3 U	1.2 U	1.2 U	1.2 U	13 U	1.2 U
Chrysene	0.8 U	0.74 U	0.71 U	0.71 U	7.7 U	0.76 U
Dibenz(a,h)anthracene	0.78 U	0.72 U	17 0.68	U	7.5 U	0.73 U
Fluoranthene	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U
Fluorene	1 U	0.93 U	0.89 U	0.89 U	9.8 U	0.96 U
Indeno[1,2,3-cd]pyrene	1.6 U	1.5 U	1.4 U	1.4 U	15 U	1.5 U
Naphthalene	0.79 U	0.73 U	0.7 U	0.7 U	7.6 U	0.75 U
Phenanthrene	2.2 U	2.1 U	2 U	2 U	1200 2.1	U
Pyrene	2.2 U	2.1 U	2 U	2 U	22 U	2.1 U
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	2.9 U	2.6 U	10 U	25 U	1400	2.4 U

**TABLE D-2  
SUBSURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB04</b>	<b>PESB04</b>	<b>PESB05</b>	<b>PESB05</b>	<b>PESB06</b>	<b>PESB06</b>
<b>Sample ID</b>	<b>PESB04-05</b>	<b>PESB04-07</b>	<b>PESB05-05</b>	<b>PESB05-07</b>	<b>PESB06-04</b>	<b>PESB06-07</b>
<b>Sampling Date</b>	<b>7/31/2007</b>	<b>7/31/2007</b>	<b>7/31/2007</b>	<b>7/31/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>
<b>Depth Range</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>	<b>7.0-9.0</b>	<b>13.0-15.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.84 UJ	0.78 U	210 UJ	0.78 UJ	1.1 UJ	0.8 UJ
1,1,1-Trichloroethane	0.76 U	0.7 U	190 UJ	0.7 U	1 U	0.72 U
1,1,2,2-Tetrachloroethane	1.8 UJ	1.7 U	450 UJ	1.7 UJ	2.5 UJ	1.7 UJ
1,1,2-Trichloroethane	1.6 U	1.5 U	380 UJ	1.5 U	2.1 U	1.5 U
1,1-Dichloroethane	0.66 U	0.61 U	160 UJ	0.61 U	0.89 U	0.62 U
1,1-Dichloroethene	0.71 U	0.65 U	170 UJ	0.65 U	0.96 U	0.67 U
1,2,3-Trichloropropane	1.8 U	1.7 U	450 UJ	1.7 U	2.5 U	1.7 U
1,2-Dibromo-3-Chloropropane	3.7 UJ	3.4 U	900 UJ	3.4 UJ	5 UJ	3.5 UJ
1,2-Dichloroethane	1.3 UJ	1.2 U	320 UJ	1.2 UJ	1.8 UJ	1.2 UJ
1,2-Dichloropropane	1.4 U	1.3 U	350 UJ	1.3 U	2 U	1.4 U
2-Chloro-1,3-butadiene	0.75 U	0.69 U	180 UJ	0.69 U	1 U	0.71 U
2-Hexanone	2.8 U	2.5 U	670 UJ	2.5 U	3.7 U	2.6 U
3-Chloro-1-propene	2 U	1.8 U	480 UJ	1.8 U	2.7 U	1.9 U
Acetone	5.8 UJ	12 J	1400 UJ	5.9 J	7.8 UJ	48 J
Acetonitrile	59 U	55 UJ	14000 UJ	55 U	80 U	56 U
Acrolein	25 U	23 U	6100 UJ	23 U	34 U	24 U
Acrylonitrile	30 UJ	28 U	7400 UJ	28 UJ	41 UJ	29 UJ
Benzene	1 U	0.96 U	250 UJ	0.96 U	1.4 U	0.99 U
Bromoform	1.4 UJ	1.3 U	350 UJ	1.3 UJ	2 UJ	1.4 UJ
Bromomethane	2.1 U	1.9 UJ	510 UJ	1.9 UJ	2.8 UJ	2 UJ
Carbon disulfide	0.67 U	0.62 U	160 UJ	0.62 U	0.91 U	0.64 U
Carbon tetrachloride	1.3 UJ	1.2 U	320 UJ	1.2 UJ	1.8 UJ	1.2 UJ
Chlorobenzene	0.96 U	0.88 U	230 UJ	0.88 U	1.3 U	0.91 U
Chlorodibromomethane	0.66 U	0.61 U	160 UJ	0.61 U	0.89 U	0.62 U
Chloroethane	1.6 U	1.5 U	380 UJ	1.5 U	2.1 U	1.5 U
Chloroform	0.66 U	0.61 U	160 UJ	0.61 U	0.89 U	0.62 U
Chloromethane	0.93 U	0.86 U	230 UJ	0.86 U	1.3 U	0.89 U
cis-1,3-Dichloropropene	1.1 UJ	1.1 U	280 UJ	1.1 UJ	1.5 UJ	1.1 UJ
Dibromomethane	1.6 UJ	1.5 U	380 UJ	1.5 UJ	2.1 UJ	1.5 UJ
Dichlorobromomethane	1.1 U	1 U	270 UJ	1 U	1.5 U	1 U
Dichlorodifluoromethane	1.2 U	1.1 U	290 UJ	1.1 U	1.6 U	1.1 U
Ethyl methacrylate	2.9 U	2.7 U	700 UJ	2.7 U	3.9 U	2.7 U
Ethylbenzene	0.99 U	0.91 U	240 UJ	0.91 U	1.3 U	0.94 U
Ethylene Dibromide	2 U	1.8 U	480 UJ	1.8 U	2.7 U	1.9 U
Iodomethane	1.3 U	1.2 UJ	320 UJ	1.2 U	1.8 U	1.2 U
Isobutanol	91 R	84 R	22000 R	84 R	120 R	86 R
Methacrylonitrile	32 U	29 U	7700 UJ	29 U	43 U	30 U
Methyl Ethyl Ketone	3.5 U	3.3 U	860 UJ	3.3 U	4.8 U	7.3 J
methyl isobutyl ketone	3.8 U	3.5 U	930 UJ	3.5 U	5.1 U	3.6 U
Methyl methacrylate	4.9 U	4.5 U	1200 UJ	4.5 U	6.6 U	4.6 U
Methylene Chloride	1.3 U	1.2 U	320 UJ	1.2 U	1.8 U	1.2 U
Pentachloroethane	2.9 U	2.7 U	700 UJ	2.7 U	3.9 UJ	2.7 UJ
Propionitrile	28 UJ	25 U	6700 UJ	25 UJ	37 U	26 U
Styrene	0.87 U	0.8 U	210 UJ	0.8 U	1.2 U	0.82 U
Tetrachloroethene	0.96 U	0.88 U	230 UJ	0.88 U	1.3 U	0.91 U

**TABLE D-2**  
**SUBSURFACE SOIL ANALYTICAL RESULTS**  
**PICO DEL ESTE RADAR FACILITY**  
**SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB04</b>	<b>PESB04</b>	<b>PESB05</b>	<b>PESB05</b>	<b>PESB06</b>	<b>PESB06</b>
<b>Sample ID</b>	<b>PESB04-05</b>	<b>PESB04-07</b>	<b>PESB05-05</b>	<b>PESB05-07</b>	<b>PESB06-04</b>	<b>PESB06-07</b>
<b>Sampling Date</b>	<b>7/31/2007</b>	<b>7/31/2007</b>	<b>7/31/2007</b>	<b>7/31/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>
<b>Depth Range</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>	<b>7.0-9.0</b>	<b>13.0-15.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
Toluene	1 U	0.96 U	250 UJ	0.96 U	1.4 U	0.99 U
trans-1,2-Dichloroethene	1.3 U	1.2 U	310 UJ	1.2 U	1.7 U	1.2 U
trans-1,3-Dichloropropene	1.1 U	1.1 U	280 UJ	1.1 U	1.5 U	1.1 U
trans-1,4-Dichloro-2-butene	4.1 U	3.8 U	990 UJ	3.8 U	5.5 U	3.9 U
Trichloroethene	1.3 U	1.2 U	320 UJ	1.2 U	1.8 U	1.2 U
Trichlorofluoromethane	2 U	1.8 U	480 UJ	1.8 U	2.7 U	1.9 U
Vinyl acetate	2 U	1.8 U	480 UJ	1.8 U	2.7 U	1.9 U
Vinyl chloride	0.76 U	0.7 U	190 UJ	0.7 U	1 U	0.72 U
Xylenes, Total	3 U	2.8 U	740 UJ	2.8 U	4.1 U	2.9 U
<b>Low-level PAHs - 8270C (ug/kg)</b>						
1-Methylnaphthalene	1.5 U	1.4 U	14 1.4	U	1.7 U	1.8 J
2-Methylnaphthalene	2.1 U	1.9 U	4.1 J	2 U	2.3 U	2 U
Acenaphthene	0.69 U	0.65 U	0.79 U	0.67 U	0.78 U	0.68 U
Acenaphthylene	2.1 U	1.9 U	2.4 U	2 U	2.3 U	2 U
Anthracene	2.1 U	1.9 U	2.4 U	2 U	2.3 U	2 U
Benzo[a]anthracene	2.1 U	1.9 U	2.4 U	2 U	2.3 U	2 U
Benzo[a]pyrene	0.8 U	0.75 U	0.92 U	0.77 U	0.91 U	0.79 U
Benzo[b]fluoranthene	0.93 U	0.86 U	1.1 U	0.89 U	1 U	0.91 U
Benzo[g,h,i]perylene	2.1 U	1.9 U	2.4 U	2 U	2.3 U	2 U
Benzo[k]fluoranthene	1.2 U	1.1 U	1.4 U	1.2 U	1.4 U	1.2 U
Chrysene	0.74 U	0.69 U	0.85 U	8.4 0.84	U	0.73 U
Dibenz(a,h)anthracene	0.72 U	0.67 U	0.82 U	0.69 U	0.81 U	0.71 U
Fluoranthene	2.1 U	1.9 U	2.4 U	2 U	2.3 U	2 U
Fluorene	0.94 U	0.87 U	1.1 U	0.9 U	48 0.92	U
Indeno[1,2,3-cd]pyrene	1.5 U	1.4 U	1.7 U	1.4 U	1.7 U	1.4 U
Naphthalene	0.73 U	0.68 U	0.84 U	0.7 U	0.83 U	0.76 J
Phenanthrene	15 1.9	U	70	2 U	120	400
Pyrene	2.1 U	1.9 U	8.3 U	19 20		2 U
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	270 2.6	U	700	320	190	330

**TABLE D-2**  
**SUBSURFACE SOIL ANALYTICAL RESULTS**  
**PICO DEL ESTE RADAR FACILITY**  
**SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB07</b>	<b>PESB07</b>	<b>PESB08</b>	<b>PESB08</b>	<b>PESB09</b>	<b>PESB09</b>
<b>Sample ID</b>	<b>PESB07-05</b>	<b>PESB07-07</b>	<b>PESB08-02</b>	<b>PESB08-04</b>	<b>PESB09-05</b>	<b>PESB09-07</b>
<b>Sampling Date</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>
<b>Depth Range</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>	<b>3.0-5.0</b>	<b>7.0-9.0</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	1 UJ	0.75 UJ	0.85 UJ	0.82 UJ	0.91 UJ	0.84 UJ
1,1,1-Trichloroethane	0.94 U	0.68 U	0.77 U	0.74 U	0.83 U	0.76 U
1,1,2,2-Tetrachloroethane	2.3 UJ	1.6 UJ	1.9 UJ	1.8 UJ	2 UJ	1.8 UJ
1,1,2-Trichloroethane	1.9 U	1.4 U	1.6 U	1.5 U	1.7 U	1.6 U
1,1-Dichloroethane	0.81 U	0.59 U	0.67 U	0.64 U	0.71 U	0.66 U
1,1-Dichloroethene	0.87 U	0.63 U	0.72 U	0.69 U	0.77 U	0.71 U
1,2,3-Trichloropropane	2.3 U	1.6 U	1.9 U	1.8 U	2 U	1.8 U
1,2-Dibromo-3-Chloropropane	4.5 UJ	3.3 UJ	3.7 UJ	3.6 UJ	4 UJ	3.7 UJ
1,2-Dichloroethane	1.6 UJ	1.2 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.3 UJ
1,2-Dichloropropane	1.8 U	1.3 U	1.5 U	1.4 U	1.6 U	1.4 U
2-Chloro-1,3-butadiene	0.92 U	0.67 U	0.76 U	0.73 U	0.81 U	0.75 U
2-Hexanone	3.4 U	2.5 U	2.8 U	2.7 U	3 U	2.8 U
3-Chloro-1-propene	2.4 U	1.8 U	2 U	1.9 U	2.1 U	2 U
Acetone	59 J	13 J	5.9 UJ	5.6 UJ	33 J	13 J
Acetonitrile	73 U	53 U	60 U	57 U	64 U	59 U
Acrolein	31 U	22 U	25 U	24 U	27 U	25 U
Acrylonitrile	37 UJ	27 UJ	31 UJ	29 UJ	33 UJ	30 UJ
Benzene	1.3 U	0.93 U	1.1 U	1 U	1.1 U	1 U
Bromoform	1.8 UJ	1.3 UJ	1.5 UJ	1.4 UJ	1.6 UJ	1.4 UJ
Bromomethane	2.6 UJ	1.9 UJ	2.1 UJ	2 UJ	2.3 UJ	2.1 UJ
Carbon disulfide	1.8 J	0.6 U	0.68 U	0.65 U	1.7 J	0.67 U
Carbon tetrachloride	1.6 UJ	1.2 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.3 UJ
Chlorobenzene	1.2 U	0.86 U	0.97 U	0.93 U	1 U	0.96 U
Chlorodibromomethane	0.81 U	0.59 U	0.67 U	0.64 U	0.71 U	0.66 U
Chloroethane	1.9 U	1.4 U	1.6 U	1.5 U	1.7 U	1.6 U
Chloroform	0.81 U	0.59 U	0.67 U	0.64 U	0.71 U	0.66 U
Chloromethane	1.1 U	0.83 U	0.95 U	0.91 U	1 U	0.93 U
cis-1,3-Dichloropropene	1.4 UJ	1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	1.1 UJ
Dibromomethane	1.9 UJ	1.4 UJ	1.6 UJ	1.5 UJ	1.7 UJ	1.6 UJ
Dichlorobromomethane	1.3 U	0.98 U	1.1 U	1.1 U	1.2 U	1.1 U
Dichlorodifluoromethane	1.4 U	1 U	1.2 U	1.1 U	1.3 U	1.2 U
Ethyl methacrylate	3.5 U	2.6 U	2.9 U	2.8 U	3.1 U	2.9 U
Ethylbenzene	1.2 U	0.88 U	1 U	0.96 U	1.1 U	0.98 U
Ethylene Dibromide	2.4 U	1.8 U	2 U	1.9 U	2.1 U	2 U
Iodomethane	1.6 U	1.2 U	1.3 U	1.3 U	1.4 U	1.3 U
Isobutanol	110 R	81 R	92 R	88 R	98 R	90 R
Methacrylonitrile	39 U	28 U	32 U	31 U	34 U	31 U
Methyl Ethyl Ketone	14 J	3.2 U	3.6 U	3.4 U	3.9 U	3.5 U
methyl isobutyl ketone	4.7 U	3.4 U	3.9 U	3.7 U	4.1 U	3.8 U
Methyl methacrylate	6 U	4.4 U	4.9 U	4.7 U	5.3 U	4.8 U
Methylene Chloride	1.6 U	1.2 U	1.3 U	1.3 U	1.4 U	1.3 U
Pentachloroethane	3.5 UJ	2.6 UJ	2.9 UJ	2.8 UJ	3.1 UJ	2.9 UJ
Propionitrile	34 U	25 U	28 U	27 U	30 U	28 U
Styrene	1.1 U	0.78 U	0.88 U	0.84 U	0.94 U	0.86 U
Tetrachloroethene	1.2 U	0.86 U	0.97 U	0.93 U	1 U	0.96 U

**TABLE D-2  
SUBSURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB07</b>	<b>PESB07</b>	<b>PESB08</b>	<b>PESB08</b>	<b>PESB09</b>	<b>PESB09</b>
<b>Sample ID</b>	<b>PESB07-05</b>	<b>PESB07-07</b>	<b>PESB08-02</b>	<b>PESB08-04</b>	<b>PESB09-05</b>	<b>PESB09-07</b>
<b>Sampling Date</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>
<b>Depth Range</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>	<b>3.0-5.0</b>	<b>7.0-9.0</b>	<b>9.0-11.0</b>	<b>13.0-15.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
Toluene	1.3 U	0.93 U	1.1 U	1 U	1.1 U	1 U
trans-1,2-Dichloroethene	1.6 U	1.1 U	1.3 U	1.2 U	1.4 U	1.3 U
trans-1,3-Dichloropropene	1.4 U	1 U	1.2 U	1.1 U	1.2 U	1.1 U
trans-1,4-Dichloro-2-butene	5 U	3.6 U	4.1 U	4 U	4.4 U	4.1 U
Trichloroethene	1.6 U	1.2 U	1.3 U	1.3 U	1.4 U	1.3 U
Trichlorofluoromethane	2.4 U	1.8 U	2 U	1.9 U	2.1 U	2 U
Vinyl acetate	4 J	1.8 U	2 U	1.9 U	2.1 U	2 U
Vinyl chloride	0.94 U	0.68 U	0.77 U	0.74 U	0.83 U	0.76 U
Xylenes, Total	3.7 U	2.7 U	3.1 U	2.9 U	3.3 U	3 U
<b>Low-level PAHs - 8270C (ug/kg)</b>						
1-Methylnaphthalene	3.3 J	1.3 U	1.4 U	1.3 U	1.5 U	1.3 U
2-Methylnaphthalene	2.4 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
Acenaphthene	0.81 U	0.64 U	0.67 U	0.64 U	0.71 U	0.64 U
Acenaphthylene	2.4 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
Anthracene	2.4 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
Benzo[a]anthracene	2.4 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
Benzo[a]pyrene	0.93 U	0.74 U	0.77 U	0.74 U	0.83 U	0.74 U
Benzo[b]fluoranthene	1.1 U	0.85 U	0.89 U	0.85 U	0.95 U	0.85 U
Benzo[g,h,i]perylene	2.4 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
Benzo[k]fluoranthene	1.4 U	1.1 U	1.2 U	1.1 U	1.3 U	1.1 U
Chrysene	0.86 U	0.68 U	0.71 U	0.69 U	0.76 U	0.69 U
Dibenz(a,h)anthracene	0.84 U	0.66 U	0.69 U	0.66 U	0.74 U	0.66 U
Fluoranthene	2.4 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
Fluorene	10 0.86	U	0.9 U	0.86 U	0.96 U	0.87 U
Indeno[1,2,3-cd]pyrene	1.7 U	1.3 U	1.4 U	1.3 U	1.5 U	1.3 U
Naphthalene	0.85 U	0.67 U	0.7 U	0.67 U	0.75 U	0.67 U
Phenanthrene	15 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
Pyrene	4.2 U	1.9 U	2 U	1.9 U	2.1 U	1.9 U
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	77 18	U	16 U	16 U	98	15 U

**TABLE D-2  
SUBSURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

Site ID	PESB10	PESB10	PESB10	PESB11	PESB11	PESB12
Sample ID	PESB10-04	PESB10-04D	PESB10-06	PESB11-01	PESB11-03	PESB12-01
Sampling Date	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007	8/1/2007
Depth Range	7.0-9.0	7.0-9.0	11.0-13.0	1.0-3.0	5.0-7.0	1.0-3.0
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.72 U	0.91 U	0.73 U	0.94 U	0.79 U	0.96 U
1,1,1-Trichloroethane	0.66 U	0.82 U	0.66 U	0.86 U	0.72 U	0.87 U
1,1,2,2-Tetrachloroethane	1.6 U	2 U	1.6 U	2.1 U	1.7 U	2.1 U
1,1,2-Trichloroethane	1.4 U	1.7 U	1.4 U	1.8 U	1.5 U	1.8 U
1,1-Dichloroethane	0.57 U	0.71 U	0.57 U	0.74 U	0.62 U	0.75 U
1,1-Dichloroethene	0.61 U	0.77 U	0.61 U	0.8 U	0.67 U	0.81 U
1,2,3-Trichloropropane	1.6 U	2 U	1.6 U	2.1 U	1.7 U	2.1 U
1,2-Dibromo-3-Chloropropane	3.2 U	4 U	3.2 U	4.1 U	3.5 U	4.2 U
1,2-Dichloroethane	1.1 U	1.4 U	1.1 U	1.5 U	1.2 U	1.5 U
1,2-Dichloropropane	1.2 U	1.6 U	1.3 U	1.6 U	1.4 U	1.6 U
2-Chloro-1,3-butadiene	0.64 U	0.81 U	0.65 U	0.84 U	0.7 U	0.85 U
2-Hexanone	2.4 U	3 U	2.4 U	3.1 U	2.6 U	3.1 U
3-Chloro-1-propene	1.7 U	2.1 U	1.7 U	2.2 U	1.9 U	2.2 U
Acetone	7.2 R	6.2 R	5 R	6.5 R	5.4 R	6.6 R
Acetonitrile	51 R	64 R	51 R	66 R	56 R	67 R
Acrolein	21 U	27 U	22 U	28 U	23 U	28 U
Acrylonitrile	26 U	33 U	26 U	34 U	28 U	34 U
Benzene	0.89 U	1.1 U	0.9 U	1.2 U	0.98 U	1.2 U
Bromoform	1.2 U	1.6 U	1.3 U	1.6 U	1.4 U	1.6 U
Bromomethane	1.8 U	2.3 U	1.8 U	2.4 U	2 U	2.4 U
Carbon disulfide	0.58 U	0.72 U	0.58 U	0.75 U	0.63 U	0.76 U
Carbon tetrachloride	1.1 UJ	1.4 UJ	1.1 U	1.5 U	1.2 U	1.5 U
Chlorobenzene	0.82 U	1 U	0.83 U	1.1 U	0.9 U	1.1 U
Chlorodibromomethane	0.57 U	0.71 U	0.57 U	0.74 U	0.62 U	0.75 U
Chloroethane	1.4 U	1.7 U	1.4 U	1.8 U	1.5 U	1.8 U
Chloroform	0.57 U	0.71 U	0.57 U	0.74 U	0.62 U	0.75 U
Chloromethane	0.8 U	1 U	0.81 U	1 U	0.88 U	1.1 U
cis-1,3-Dichloropropene	0.98 U	1.2 U	0.99 U	1.3 U	1.1 U	1.3 U
Dibromomethane	1.4 U	1.7 U	1.4 U	1.8 U	1.5 U	1.8 U
Dichlorobromomethane	0.94 U	1.2 U	0.94 U	1.2 U	1 U	1.2 U
Dichlorodifluoromethane	1 U	1.3 U	1 U	1.3 U	1.1 U	1.3 U
Ethyl methacrylate	2.5 U	3.1 U	2.5 U	3.2 U	2.7 U	3.3 U
Ethylbenzene	0.85 U	1.1 U	0.85 U	1.1 U	0.93 U	1.1 U
Ethylene Dibromide	1.7 U	2.1 U	1.7 U	2.2 U	1.9 U	2.2 U
Iodomethane	1.1 U	1.4 U	1.1 U	1.5 U	1.2 U	1.5 U
Isobutanol	78 R	98 R	79 R	100 R	85 R	100 R
Methacrylonitrile	27 U	34 U	27 U	35 U	30 U	36 U
Methyl Ethyl Ketone	3.1 U	3.8 U	3.1 U	4 U	3.3 U	4 U
methyl isobutyl ketone	3.3 U	4.1 U	3.3 U	4.3 U	3.6 U	4.3 U
Methyl methacrylate	4.2 UJ	5.2 UJ	4.2 UJ	5.5 UJ	4.6 UJ	5.5 UJ
Methylene Chloride	1.1 U	1.4 U	1.1 U	1.5 U	1.2 U	1.5 U
Pentachloroethane	2.5 UJ	3.1 UJ	2.5 UJ	3.2 UJ	2.7 UJ	3.3 UJ
Propionitrile	24 UJ	30 UJ	24 UJ	31 UJ	26 UJ	31 UJ
Styrene	0.75 U	0.94 U	0.75 U	0.97 U	0.82 U	0.99 U
Tetrachloroethene	0.82 U	1 U	0.83 U	1.1 U	0.9 U	1.1 U

**TABLE D-2**  
**SUBSURFACE SOIL ANALYTICAL RESULTS**  
**PICO DEL ESTE RADAR FACILITY**  
**SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB10</b>	<b>PESB10</b>	<b>PESB10</b>	<b>PESB11</b>	<b>PESB11</b>	<b>PESB12</b>
<b>Sample ID</b>	<b>PESB10-04</b>	<b>PESB10-04D</b>	<b>PESB10-06</b>	<b>PESB11-01</b>	<b>PESB11-03</b>	<b>PESB12-01</b>
<b>Sampling Date</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/1/2007</b>
<b>Depth Range</b>	<b>7.0-9.0</b>	<b>7.0-9.0</b>	<b>11.0-13.0</b>	<b>1.0-3.0</b>	<b>5.0-7.0</b>	<b>1.0-3.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
Toluene	0.89 U	1.1 U	0.9 U	1.2 U	0.98 U	1.2 U
trans-1,2-Dichloroethene	1.1 U	1.4 U	1.1 U	1.4 U	1.2 U	1.5 U
trans-1,3-Dichloropropene	0.98 U	1.2 U	0.99 U	1.3 U	1.1 U	1.3 U
trans-1,4-Dichloro-2-butene	3.5 U	4.4 U	3.5 U	4.6 U	3.8 U	4.6 U
Trichloroethene	1.1 U	1.4 U	1.1 U	1.5 U	1.2 U	1.5 U
Trichlorofluoromethane	1.7 U	2.1 U	1.7 U	2.2 U	1.9 U	2.2 U
Vinyl acetate	1.7 U	2.1 U	1.7 U	2.2 U	1.9 U	2.2 U
Vinyl chloride	0.66 U	0.82 U	0.66 U	0.86 U	0.72 U	0.87 U
Xylenes, Total	2.6 U	3.3 U	2.6 U	3.4 U	2.8 U	3.4 U
<b>Low-level PAHs - 8270C (ug/kg)</b>						
1-Methylnaphthalene	1.3 U	1.4 U	14 U	14 U	1.3 U	1.6 U
2-Methylnaphthalene	1.9 U	2 U	20 U	20 U	1.8 U	2.2 U
Acenaphthene	0.64 U	0.66 U	6.7 U	6.9 U	0.62 U	0.75 U
Acenaphthylene	1.9 U	2 U	20 U	20 U	1.8 U	2.2 U
Anthracene	1.9 U	2 U	20 U	20 U	1.8 U	2.2 U
Benzo[a]anthracene	1.9 U	2 U	20 U	20 U	1.8 U	2.2 U
Benzo[a]pyrene	0.74 U	0.76 U	7.8 U	7.9 U	0.72 U	0.87 U
Benzo[b]fluoranthene	0.85 U	0.88 U	9 U	9.2 U	0.82 U	1 U
Benzo[g,h,i]perylene	1.9 U	2 U	20 U	20 U	1.8 U	2.2 U
Benzo[k]fluoranthene	1.1 U	1.2 U	12 U	12 U	1.1 U	1.3 U
Chrysene	0.68 U	0.71 U	7.2 U	7.3 U	0.66 U	0.8 U
Dibenz(a,h)anthracene	0.66 U	0.68 U	7 U	7.1 U	0.64 U	0.78 U
Fluoranthene	1.9 U	2 U	20 U	20 U	1.8 U	2.2 U
Fluorene	0.86 U	0.89 U	9.1 U	9.3 U	0.84 U	1 U
Indeno[1,2,3-cd]pyrene	1.3 U	1.4 U	14 U	14 U	1.3 U	1.6 U
Naphthalene	0.67 U	0.7 U	7.1 U	7.2 U	0.65 U	0.79 U
Phenanthrene	1.9 U	2 U	20 U	20 U	1.8 U	2.2 U
Pyrene	1.9 U	2 U	20 U	20 U	1.8 U	2.3 U
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	13 U	12 U	120 5.9	U	0.9 U	220

**TABLE D-2**  
**SUBSURFACE SOIL ANALYTICAL RESULTS**  
**PICO DEL ESTE RADAR FACILITY**  
**SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB12</b>	<b>PESB12</b>	<b>PESB13</b>	<b>PESB13</b>	<b>PESB14</b>	<b>PESB14</b>
<b>Sample ID</b>	<b>PESB12-01D</b>	<b>PESB12-04</b>	<b>PESB13-03</b>	<b>PESB13-09</b>	<b>PESB14-07</b>	<b>PESB14-09</b>
<b>Sampling Date</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/2/2007</b>	<b>8/2/2007</b>	<b>8/2/2007</b>	<b>8/2/2007</b>
<b>Depth Range</b>	<b>1.0-3.0</b>	<b>7.0-9.0</b>	<b>5.0-7.0</b>	<b>17.0-19.0</b>	<b>13.0-15.0</b>	<b>17.0-19.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.99 U	1.1 U	0.85 U	0.83 U	1 U	0.84 U
1,1,1-Trichloroethane	0.89 U	0.98 U	0.77 U	0.75 U	0.92 U	0.76 U
1,1,2,2-Tetrachloroethane	2.2 U	2.4 U	1.9 U	1.8 U	2.2 U	1.8 U
1,1,2-Trichloroethane	1.8 U	2 U	1.6 U	1.6 U	1.9 U	1.6 U
1,1-Dichloroethane	0.77 U	0.85 U	0.66 U	0.65 U	0.79 U	0.66 U
1,1-Dichloroethene	0.83 U	0.91 U	0.71 U	0.7 U	0.85 U	0.71 U
1,2,3-Trichloropropane	2.2 U	2.4 U	1.9 U	1.8 U	2.2 U	1.8 U
1,2-Dibromo-3-Chloropropane	4.3 U	4.7 U	3.7 U	3.6 U	4.4 U	3.7 U
1,2-Dichloroethane	1.5 U	1.7 U	1.3 U	1.3 U	1.6 U	1.3 U
1,2-Dichloropropane	1.7 U	1.9 U	1.5 U	1.4 U	1.7 U	1.4 U
2-Chloro-1,3-butadiene	0.88 U	0.97 U	0.75 U	0.74 U	0.9 U	0.75 U
2-Hexanone	3.2 U	3.6 U	2.8 U	2.7 U	3.3 U	2.8 U
3-Chloro-1-propene	2.3 U	2.5 U	2 U	1.9 U	2.4 U	2 U
Acetone	6.8 R	7.5 R	28 J	19 J	43 J	5.8 U
Acetonitrile	69 R	76 R	60 U	58 U	71 U	59 U
Acrolein	29 UJ	32 UJ	25 U	25 U	30 U	25 UJ
Acrylonitrile	35 U	39 U	30 UJ	30 UJ	36 UJ	30 UJ
Benzene	1.2 U	1.3 U	1 U	1 U	1.2 U	1 U
Bromoform	1.7 U	1.9 U	1.5 U	1.4 U	1.7 U	1.4 U
Bromomethane	2.5 U	2.7 U	2.1 U	2.1 U	2.5 U	2.1 U
Carbon disulfide	0.79 U	0.86 U	0.67 U	1.3 J	0.8 U	0.67 U
Carbon tetrachloride	1.5 UJ	1.7 UJ	1.3 U	1.3 U	1.6 U	1.3 U
Chlorobenzene	1.1 U	1.2 U	0.97 U	0.94 U	1.2 U	0.96 U
Chlorodibromomethane	0.77 U	0.85 U	0.66 U	0.65 U	0.79 U	0.66 U
Chloroethane	1.8 U	2 U	1.6 U	1.6 U	1.9 U	1.6 U
Chloroform	0.77 U	0.85 U	0.66 U	0.65 U	0.79 U	0.66 U
Chloromethane	1.1 U	1.2 U	0.94 U	0.92 U	1.1 U	0.93 U
cis-1,3-Dichloropropene	1.3 U	1.5 U	1.2 U	1.1 U	1.4 U	1.1 U
Dibromomethane	1.8 U	2 U	1.6 U	1.6 U	1.9 U	1.6 U
Dichlorobromomethane	1.3 U	1.4 U	1.1 U	1.1 U	1.3 U	1.1 U
Dichlorodifluoromethane	1.4 U	1.5 U	1.2 U	1.2 U	1.4 U	1.2 U
Ethyl methacrylate	3.4 U	3.7 U	2.9 U	2.8 U	3.5 U	2.9 U
Ethylbenzene	1.2 U	1.3 U	0.99 U	0.97 U	1.2 U	1.4 J
Ethylene Dibromide	2.3 U	2.5 U	2 U	1.9 U	2.4 U	2 U
Iodomethane	1.5 U	1.7 U	1.3 U	1.3 U	1.6 U	1.3 U
Isobutanol	110 R	120 R	91 R	89 R	110 R	91 R
Methacrylonitrile	37 U	41 U	32 U	31 U	38 U	32 U
Methyl Ethyl Ketone	4.2 U	4.6 U	8 J	6.8 J	16 J	3.5 U
methyl isobutyl ketone	4.5 U	4.9 U	3.8 U	3.8 U	4.6 U	3.8 U
Methyl methacrylate	5.7 UJ	6.3 UJ	4.9 U	4.8 U	5.8 U	4.9 U
Methylene Chloride	1.5 U	1.7 U	1.3 U	1.3 U	1.6 U	1.3 U
Pentachloroethane	3.4 UJ	3.7 UJ	2.9 R	2.8 R	3.5 R	2.9 UJ
Propionitrile	32 UJ	36 UJ	28 U	27 U	33 U	28 U
Styrene	1 U	1.1 U	0.87 U	0.85 U	1 U	0.87 U
Tetrachloroethene	1.1 U	1.2 U	0.97 U	0.94 U	1.2 U	0.96 U

**TABLE D-2  
SUBSURFACE SOIL ANALYTICAL RESULTS  
PICO DEL ESTE RADAR FACILITY  
SITE INVESTIGATION**

<b>Site ID</b>	<b>PESB12</b>	<b>PESB12</b>	<b>PESB13</b>	<b>PESB13</b>	<b>PESB14</b>	<b>PESB14</b>
<b>Sample ID</b>	<b>PESB12-01D</b>	<b>PESB12-04</b>	<b>PESB13-03</b>	<b>PESB13-09</b>	<b>PESB14-07</b>	<b>PESB14-09</b>
<b>Sampling Date</b>	<b>8/1/2007</b>	<b>8/1/2007</b>	<b>8/2/2007</b>	<b>8/2/2007</b>	<b>8/2/2007</b>	<b>8/2/2007</b>
<b>Depth Range</b>	<b>1.0-3.0</b>	<b>7.0-9.0</b>	<b>5.0-7.0</b>	<b>17.0-19.0</b>	<b>13.0-15.0</b>	<b>17.0-19.0</b>
<b>Volatiles - Method 8260B (ug/kg)</b>						
Toluene	1.2 U	1.3 U	1 U	1 U	1.2 U	1 U
trans-1,2-Dichloroethene	1.5 U	1.6 U	1.3 U	1.3 U	1.5 U	1.3 U
trans-1,3-Dichloropropene	1.3 U	1.5 U	1.2 U	1.1 U	1.4 U	1.1 U
trans-1,4-Dichloro-2-butene	4.8 U	5.2 U	4.1 U	4 U	4.9 U	4.1 U
Trichloroethene	1.5 U	1.7 U	1.3 U	1.3 U	1.6 U	1.3 U
Trichlorofluoromethane	2.3 U	2.5 U	2 U	1.9 U	2.4 U	2 U
Vinyl acetate	2.3 U	2.5 U	2 U	1.9 U	2.4 U	2 U
Vinyl chloride	0.89 U	0.98 U	0.77 U	0.75 U	0.92 U	0.76 U
Xylenes, Total	3.5 U	3.9 U	3 U	3 U	3.6 U	3 U
<b>Low-level PAHs - 8270C (ug/kg)</b>						
1-Methylnaphthalene	1.6 U	1.5 U	15 U	14 U	68 15	U
2-Methylnaphthalene	2.3 U	2.1 U	21 U	20 U	52 21	U
Acenaphthene	0.77 U	0.69 U	6.9 U	6.6 U	0.72 U	7 U
Acenaphthylene	2.3 U	2.1 U	21 U	20 U	2.1 U	21 U
Anthracene	2.3 U	2.1 U	21 U	20 U	2.1 U	21 U
Benzo[a]anthracene	2.3 U	2.1 U	21 U	20 U	2.1 U	21 U
Benzo[a]pyrene	1.2 J	0.8 U	8 U	7.7 U	0.83 U	8.1 U
Benzo[b]fluoranthene	1 U	0.92 U	9.2 U	8.8 U	0.96 U	9.4 U
Benzo[g,h,i]perylene	2.3 U	2.1 U	21 U	20 U	2.1 U	21 U
Benzo[k]fluoranthene	1.4 U	1.2 U	12 U	12 U	1.3 U	12 U
Chrysene	2.1 J	0.74 U	7.4 U	7.1 U	0.77 U	7.5 U
Dibenz(a,h)anthracene	0.8 U	0.72 U	7.2 U	6.9 U	0.74 U	7.3 U
Fluoranthene	2.3 U	2.1 U	21 U	20 U	2.1 U	21 U
Fluorene	1 U	0.94 U	9.4 U	9 U	0.97 U	9.5 U
Indeno[1,2,3-cd]pyrene	1.6 U	1.5 U	15 U	14 U	1.5 U	15 U
Naphthalene	0.81 U	0.73 U	7.3 U	7 U	3.7 J	7.4 U
Phenanthrene	2.3 U	2.1 U	21 U	73 U	350 1300	
Pyrene	2.3 U	2.1 U	40 U	20 U	31 21	U
<b>TPH - Method 8015B (mg/kg)</b>						
Diesel Range Organics	120 0.82	U	350	110	1100	950

Serial Number **96810**

**ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD**  
Fed Ex Airbill #

**STL Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.stl-inc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

**SEVERN  
TRENT**

**STL** 8480 26947514

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE <b>Pico del Este</b>	PROJECT NO. CTO-110	PROJECT LOCATION (STATE/PR)	MATRIX TYPE	REQUIRED ANALYSIS				PAGE <b>2</b>	OF <b>2</b>
STL (LAB) PROJECT MANAGER <b>Kathy Smith</b>	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...) TPH-DRO PRESERVATIVE					STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM <b>Mark Kimes</b>	CLIENT PHONE <b>412-337-7465</b>	CLIENT FAX						DATE DUE <b>28 Day TAT</b>	
CLIENT NAME <b>Michael Baker Jr., Inc.</b>	CLIENT E-MAIL <b>mkimes@mbakercorp.com</b>							EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS <b>100 Airside Drive., Moon Twp., PA 15108</b>								DATE DUE _____	
COMPANY CONTRACTING THIS WORK (if applicable) <b>CH2M Hill/Southern University</b>							NUMBER OF COOLERS SUBMITTED PER SHIPMENT: <b>1</b>		

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	TPH-DRO	PRESERVATIVE	NUMBER OF CONTAINERS SUBMITTED				REMARKS
DATE	TIME									1	2	3	4	
1/30/08	1209	PESB26-00	G	X				1						
	1209	PESB26-00D	G	X				1						
	1127	PESB27-00	G	X				1						
	1151	PESB28-00	G	X				1						
	1155	PESB29-00	G	X				1						
	1202	PESB30-00	G	X				1						
	1223	PESB31-00	G	X				1						
	1232	PESB32-00	G	X				1						
	1228	PESB33-00	G	X				1						
	10:40	FB-01	G	X				2						
↓	10:50	RB-01	G	X				2						

RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE 1/30/08	TIME 1700	RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE 1/30/08	TIME 1700	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE) <i>[Signature]</i>	DATE 1/30/08	TIME 0800	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>[Signature]</i>	DATE 01/31/08	TIME 12:14	CUSTODY INTACT YES <input type="checkbox"/> NO <input type="checkbox"/>	CUSTODY SEAL NO.	STL SAVANNAH LOG NO. 480 35838	LABORATORY REMARKS
---	------------------	---------------	---	------------------	-----------------------------------	--------------------



ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**STL Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.stl-inc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:  
Fax:

**SEVERN**  
**TRENT** **STL**

PROJECT REFERENCE <i>Rio Del Este</i>	PROJECT NO. <i>111626 4.2</i>	PROJECT LOCATION (STATE) <i>PR</i>	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <i>1</i>	OF <i>2</i>				
STL (LAB) PROJECT MANAGER <i>KATHY SMITH</i>	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	<i>VOCs</i>	<i>PAHs Low Level</i>	<i>TPH-DRO</i>	<i>PRESERVATIVE</i>											STANDARD REPORT DELIVERY <input checked="" type="radio"/>	DATE DUE _____
CLIENT (SITE) PM <i>MARK KIMES</i>	CLIENT PHONE <i>412 269 6009</i>	CLIENT FAX																EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>	DATE DUE _____
CLIENT NAME <i>BAKER</i>	CLIENT E-MAIL <i>mkimes@mbakercorp.com</i>																	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
CLIENT ADDRESS <i>100 Airside Drive Mount Joy PA 15108</i>	COMPANY CONTRACTING THIS WORK (if applicable)																		

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS			
DATE	TIME							1	2	3	4	5	6	7	8	9	10				
<i>7/31/07</i>	<i>1035</i>	<i>PESB01 - 00</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1050</i>	<i>PESB01 - 01</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1100</i>	<i>PESB01 - 02</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1130</i>	<i>PESB02 - 00</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1150</i>	<i>PESB02 - 04</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1200</i>	<i>PESB02 - 06</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1320</i>	<i>PESB03 - 00</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1325</i>	<i>PESB03 - 02</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1335</i>	<i>PESB03 - 04</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1355</i>	<i>PESB04 - 00</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1410</i>	<i>PESB04 - 05</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											
<i>7/31/07</i>	<i>1415</i>	<i>PESB04 - 07</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>											

RELINQUISHED BY: (SIGNATURE) <i>The Bureau</i>	DATE <i>7/31/07</i>	TIME <i>1700</i>	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE) <i>EMPTY CONTAINERS</i>	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS		

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**STL Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.stl-inc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:  
Fax:



PROJECT REFERENCE <i>Pico Del Este</i>	PROJECT NO. <i>111626 4.2</i>	PROJECT LOCATION (STATE) <i>PR</i>	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <i>2</i>	OF <i>2</i>			
STL (LAB) PROJECT MANAGER <i>KATHY SMITH</i>	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VCLs PAHs TPH-DRO	Low Level	TPH-DRO	PRESERVATIVE										STANDARD REPORT DELIVERY <input checked="" type="radio"/>	DATE DUE _____
CLIENT (SITE) PM <i>MARK RIMES</i>	CLIENT PHONE <i>412 269 6009</i>	CLIENT FAX															EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>	DATE DUE _____
CLIENT NAME <i>BAKER</i>	CLIENT E-MAIL <i>mrimes@mbakercorp.com</i>																NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
CLIENT ADDRESS <i>100 AIRSIDE DRIVE Moon Twp PA 15108</i>	COMPANY CONTRACTING THIS WORK (if applicable)																REMARKS	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS							
DATE	TIME							1	2	3	4	5	6	7	8	9	10		11	12					
<i>7/21/07</i>	<i>1430</i>	<i>PESBOS -00</i>						X	X	X															
<i>7/21/07</i>	<i>1450</i>	<i>PESBOS -05</i>						X	X	X															
<i>7/21/07</i>	<i>1455</i>	<i>PESBOS -07</i>						X	X	X															
<i>7/31/07</i>	<i>1500</i>	<i>PESBOS -00D</i>						X	X	X															
<i>7/31/07</i>	<i>1505</i>	<i>PESBOS -00MS</i>						X	X	X															
<i>7/31/07</i>	<i>1510</i>	<i>PESBOS -00MSD</i>						X	X	X															
<i>7/31/07</i>		<i>Trip Blank</i>				X		X																	
<i>7/31/07</i>	<i>1300</i>	<i>PEEROL</i>				X		X	X	X															<i>Equipment Rinsate</i>

RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE <i>7/31/07</i>	TIME <i>1700</i>	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS		

**ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD**



**STL**

**STL Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.stl-inc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

○ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE <i>Vino Del Este</i>	PROJECT NO. <i>111626 412</i>	PROJECT LOCATION (STATE) <i>PR</i>	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <i>1</i>	OF <i>3</i>				
STL (LAB) PROJECT MANAGER <i>KATHY SMITH</i>	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NON-AQUEOUS LIQUID (OIL, SOLVENT,...)	<i>VOCs</i>	<i>PAHs based</i>	<i>TPH-DRG</i>	<i>PRESERVATIVE</i>											STANDARD REPORT DELIVERY <input checked="" type="radio"/>	DATE DUE _____
CLIENT (SITE) PM <i>Mark Kimes</i>	CLIENT PHONE <i>412 269 2009</i>	CLIENT FAX																EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>	DATE DUE _____
CLIENT NAME <i>Baker</i>	CLIENT E-MAIL <i>mkimes@mbakercorp.com</i>																	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
CLIENT ADDRESS <i>100 Hirsidale Drive Moon Twp. PA 15108</i>	COMPANY CONTRACTING THIS WORK (if applicable)																	REMARKS	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NON-AQUEOUS LIQUID (OIL, SOLVENT,...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME																		
8/1/07	910	PESB06-00				X		X	X	X									
8/1/07	920	PESB06-04				X		X	X	X									
8/1/07	930	PESB06-07				X		X	X	X									
8/1/07	955	PESB07-00				X		X	X	X									
8/1/07	1005	PESB07-05				X		X	X	X									
8/1/07	1010	PESB07-07				X		X	X	X									
8/1/07	1020	PESB08-00				X		X	X	X									
8/1/07	1030	PESB08-02				X		X	X	X									
8/1/07	1040	PESB08-04				X		X	X	X									
8/1/07	1100	PESB09-00				X		X	X	X									
8/1/07	1110	PESB09-05				X		X	X	X									
8/1/07	1115	PESB09-07				X		X	X	X									

RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE <i>8/1/07</i>	TIME <i>1700</i>	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS		

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**SEVERN  
TRENT**

**STL**

**STL Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.stl-inc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE <i>Pico DEL ESTE</i>	PROJECT NO. <i>111626 4.2</i>	PROJECT LOCATION (STATE) <i>PR</i>	MATRIX TYPE	REQUIRED ANALYSIS						PAGE <i>2</i>	OF <i>3</i>
STL (LAB) PROJECT MANAGER <i>KATHY SMITH</i>	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT,...)	<i>VOCS</i>	<i>PAHs Low Level</i>	<i>TPH-DRO</i>	<b>PRESERVATIVE</b>	STANDARD REPORT DELIVERY <input checked="" type="radio"/>		DATE DUE _____	
CLIENT (SITE) PM <i>MARK KIMES</i>	CLIENT PHONE <i>412 269 2009</i>	CLIENT FAX						EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>		DATE DUE _____	
CLIENT NAME <i>Baker</i>	CLIENT E-MAIL <i>MKIMES@mbakercorp.com</i>							NUMBER OF COOLERS SUBMITTED PER SHIPMENT:			
CLIENT ADDRESS <i>100 Hirsute Drive Moon Twp. PA 15108</i>		COMPANY CONTRACTING THIS WORK (if applicable)									

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	NUMBER OF CONTAINERS SUBMITTED						REMARKS
DATE	TIME													
<i>8/1/07</i>	<i>1125</i>	<i>PESB10-00</i>				<input checked="" type="checkbox"/>								
<i>8/1/07</i>	<i>1125</i>	<i>PESB10-00D ✓</i>				<input checked="" type="checkbox"/>								<i>Duplicate</i>
<i>8/1/07</i>	<i>1145</i>	<i>PESB10-04</i>				<input checked="" type="checkbox"/>								
<i>8/1/07</i>	<i>1145</i>	<i>PESB10-04D ✓</i>				<input checked="" type="checkbox"/>								<i>Duplicate</i>
<i>8/1/07</i>	<i>1155</i>	<i>PESB10-06</i>				<input checked="" type="checkbox"/>								
<i>8/1/07</i>	<i>1300</i>	<i>PESB11-00</i>				<input checked="" type="checkbox"/>								
<i>8/1/07</i>	<i>1315</i>	<i>PESB11-01</i>				<input checked="" type="checkbox"/>								
<i>8/1/07</i>	<i>1320</i>	<i>PESB11-03</i>				<input checked="" type="checkbox"/>								
<i>8/1/07</i>	<i>1330</i>	<i>PESB12-00</i>				<input checked="" type="checkbox"/>								
<i>8/1/07</i>	<i>1330</i>	<i>PESB12-00D ✓</i>				<input checked="" type="checkbox"/>								<i>Duplicate</i>
<i>8/1/07</i>	<i>1330</i>	<i>PESB12-00MS ✓</i>				<input checked="" type="checkbox"/>								<i>MATRIX Spike</i>
<i>8/1/07</i>	<i>1330</i>	<i>PESB12-00MSD ✓</i>				<input checked="" type="checkbox"/>								<i>MATRIX Spike Dup</i>

RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE <i>8/1/07</i>	TIME <i>1700</i>	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS		

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD



STL

**STL Savannah**  
 5102 LaRoche Avenue  
 Savannah, GA 31404  
 Website: www.stl-inc.com  
 Phone: (912) 354-7858  
 Fax: (912) 352-0165

Alternate Laboratory Name/Location  
 Phone:  
 Fax:

PROJECT REFERENCE <i>Pico Del Este</i>	PROJECT NO. <i>111626 4.2</i>	PROJECT LOCATION (STATE) <i>PR</i>	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <i>3</i>	OF <i>3</i>				
STL (LAB) PROJECT MANAGER <i>KATHY SMITH</i>	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT,...)	<i>VOCs</i>	<i>PAHs Low Level</i>	<i>TPH-DRG</i>	<i>PRESERVATIVE</i>											STANDARD REPORT DELIVERY <input checked="" type="radio"/>	DATE DUE _____
CLIENT (SITE) PM <i>MARK KIMES</i>	CLIENT PHONE <i>412 267 2009</i>	CLIENT FAX																EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>	DATE DUE _____
CLIENT NAME <i>BAKER</i>	CLIENT E-MAIL <i>m.kimes@mbakercorp.com</i>																	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
CLIENT ADDRESS <i>100 Airside Drive Moon Twp, PA 15108</i>	COMPANY CONTRACTING THIS WORK (if applicable)																		

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME							1	2	3	4	5	6	7	8	9	10		11
<i>8/1/07</i>	<i>1420</i>	<i>PESB02 - 01</i>						<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
<i>8/1/07</i>	<i>1420</i>	<i>PESB12 - 01 D -</i>						<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		<i>Duplicate</i>
<i>8/1/07</i>	<i>1425</i>	<i>PESB12 - 01 MS -</i>						<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		<i>MATRIX Spike</i>
<i>8/1/07</i>	<i>1425</i>	<i>PESB12 - 01 MSD -</i>						<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		<i>MATRIX Spike</i>
<i>8/1/07</i>	<i>1410</i>	<i>PESB12 - 04 -</i>						<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
<i>8/1/07</i>		<i>Trip Blanks</i>						<i>X</i>											

RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE <i>8/1/07</i>	TIME <i>1700</i>	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS		

**ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD**

**STL Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.stl-inc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:  
Fax:

**SEVERN**  
**TRENT** **STL**

PROJECT REFERENCE <i>Pico Del Este</i>	PROJECT NO. <i>111626 4.2</i>	PROJECT LOCATION (STATE) <i>PR</i>	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <i>1</i>	OF <i>1</i>				
STL (LAB) PROJECT MANAGER <i>KATHY SMITH</i>	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	<i>VOCs</i>	<i>PAHs Low Level</i>	<i>TPH - DRO</i>	<i>PRESERVATIVE</i>											STANDARD REPORT DELIVERY <input checked="" type="radio"/>	DATE DUE _____
CLIENT (SITE) PM <i>MARK KIMES</i>	CLIENT PHONE <i>412 369 2009</i>	CLIENT FAX																EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>	DATE DUE _____
CLIENT NAME <i>Baker</i>	CLIENT E-MAIL <i>mkimes@mbakercorp.com</i>																	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
CLIENT ADDRESS <i>100 Airside Drive Moon Twp, PA 15108</i>																			
COMPANY CONTRACTING THIS WORK (if applicable)																			

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME							1	2	3	4	5	6	7	8	9	10		11	12
<i>8/2/07</i>	<i>905</i>	<i>PESB13-00</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>8/2/07</i>	<i>925</i>	<i>PESB13-03</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>8/2/07</i>	<i>950</i>	<i>PESB13-09</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>8/2/07</i>	<i>1030</i>	<i>PESB14-00</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>8/2/07</i>	<i>1050</i>	<i>PESB14-07</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>8/2/07</i>	<i>1105</i>	<i>PESB14-09</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>8/2/07</i>	<i>1140</i>	<i>BEER02-</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										<i>Equipment Rinse System</i>
<i>8/2/07</i>	<i>1130</i>	<i>PEFB01-</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										<i>Field Blank</i>
<i>8/2/07</i>	<i>1145</i>	<i>TRIP BLANKS</i>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>												

RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE <i>8/2/07</i>	TIME <i>1500</i>	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE) <i>[Signature]</i>	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS		

## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-28896-1, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-28859-1, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-28831-1**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-33838-1**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



**APPENDIX E**  
**DATA VALIDATION SUMMARY REPORTS**

---

---

March 17, 2008

Mr. Mark Kimes  
Michael Baker Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

Subject: Data Validation Report for Site Investigation at Pico Del Este Radar Facility, Caribbean National Forest, Puerto Rico; Contract No. N62470-02-D-3052, CTO-110

Dear Mr. Kimes,

Enclosed is the data validation package for CTO #0110, Site Investigation at Pico Del Este Radar Facility, Caribbean National Forest, Puerto Rico. This report addressed a single data package from Test America and includes work order number 680-33838.

Please call me at (919) 829-3571 if you have any questions or need additional information.

Sincerely,

E-Data, Inc.



Christopher Ohland  
Senior Environmental Chemist

Enclosures  
CMO/kk

edata:CTO#0110 DV NARRATIVE

**Data Validation Report**  
**Site Investigation at Pico Del Este Radar Facility**  
**Caribbean National Forest, Puerto Rico**

**March 17, 2008**

Revision 0

**Prepared For Michael Baker Jr., Inc using CH2MHill**  
**Contract # N62470-02-D-3052, CTO#110**

**Prepared by E-Data, Inc.**  
**2262 North 71<sup>st</sup> Street**  
**Wauwatosa, Wisconsin 53213**

## Acronyms and Abbreviations

AA	Atomic Absorption	LCS	Laboratory Control Sample
AOB	Analytical Operations Branch	MDL	Method Detection Limit
APO	Administrative Project Officer	mL	Milliliter
BFB	Bromofluorobenzene	MS	Matrix Spike
BNA	Base-neutral/acid	MSD	Matrix Spike Duplicate
CCB	Continuing Calibration Blank	MSA	Method of Standard Addition
CCV	Continuing Calibration Verification	m/z	the ration of mass (m) to charge (z) of ions measured by GC/MS
CF	Calibration Factor	NFG	Nation Functional Guidelines
CLP	Contract Laboratory Program	PB	Preparation Blank
COC	Chain-of-Custody	PCB	Polychlorinated Biphenyl
CRDL	Contract Required Detection Limit	PEST	Pesticides
CRQL	Contract Required Quantitation Limit	QA	Quality Assurance
CV	Coefficient of Variation	QAPP	Quality Assurance Program Project (or Project) Plan
%D	Percent Difference	QC	Quality Control
DFTPP	Decafluorotriphenylphosphine	%R	Percent Recovery of Spiked Amounts of Analytes
DQO	Data Quality Objective	RIC	Reconstructed Ion Chromatogram
DV	Data Validation	RL	Reporting Limits
DUP	Duplicate	RPD	Relative Percent Difference
ECD	Electron Capture Detector	RRF	Relative Response Factor
EICP	Extracted Ion Current Profile	RSD	Relative Standard Deviation
EPA	Environmental Protection Agency	RT	Retention Time
GC	Gas Chromatography	SDG	Sample Delivery Group
GS/MS	Gas Chromatography/Mass Spectroscopy	SMC	System Monitoring Compound
GPC	Gel Permeation Chromatography	SOW	Scope of Work
ICB	Initial Calibration Blank	SVOC	Semi Volatile Organic Compound
ICP	Inductively Coupled Plasma	TAL	Target Analyte List
ICS	Inter-element Check Sample	TCL	Target Compound List
ICV	Initial Calibration Verification	TIC	Tentatively Identified Compound
IDL	Instrument Detection Limit	VOC	Volatile Organic Compoun
IS	Internal Standard		

## Overview

The U.S Department of the Navy issued a task order to conduct sampling and analysis activities for the Site Investigation at Pico Del Este Radar Facility, Caribbean National Forest, Puerto Rico; CH2MHILL JV1 Contract No., N62470-02-D-3052; CTO#110. This report describes the validation of analytical data generated under this scope of work. E-Data Inc., located in Wauwatosa, WI provided the data validation services.

Field teams collected solid media environmental samples and associated field quality control samples on January 30, 2008 and sent them to Test America laboratory located in Savannah, GA. A summary of the samples submitted for testing is shown in Table 1.

**TABLE 1**

Sample Cross-Reference Summary

(Site Investigation at Pico Del Este Radar Facility, Caribbean National Forest, Puerto Rico)

Lab ID No.	Field Sample ID No.	Type of Sample	Sampled
680-33838-1	PESB16-00	Normal	1/30/2008 11:14:00 AM
680-33838-2	PESB17-00	Normal	1/30/2008 11:19:00 AM
680-33838-3	PESB18-00	Normal	1/30/2008 11:31:00 AM
680-33838-4	PESB19-00	Normal	1/30/2008 11:39:00 AM
680-33838-5	PESB20-00	Normal	1/30/2008 12:14:00 PM
680-33838-6	PESB21-00	Normal	1/30/2008 12:19:00 PM
680-33838-7	PESB19-00D	Field Duplicate	1/30/2008 11:39:00 AM
680-33838-8	PESB22-00	Normal	1/30/2008 11:23:00 AM
680-33838-9	PESB23-00	Normal	1/30/2008 11:35:00 AM
680-33838-10	PESB24-00	Normal	1/30/2008 11:47:00 AM
680-33838-11	PESB25-00	Normal	1/30/2008 11:58:00 AM
680-33838-12	PESB26-00	Normal	1/30/2008 12:09:00 PM
680-33838-13	PESB26-00D	Field Duplicate	1/30/2008 12:09:00 PM
680-33838-14	PESB27-00	Normal	1/30/2008 11:27:00 AM
680-33838-15	PESB28-00	Normal	1/30/2008 11:51:00 AM
680-33838-16	PESB29-00	Normal	1/30/2008 11:55:00 AM
680-33838-17	PESB30-00	Normal	1/30/2008 12:02:00 PM
680-33838-18	PESB31-00	Normal	1/30/2008 12:23:00 PM
680-33838-19	PESB32-00	Normal	1/30/2008 12:32:00 PM
680-33838-20	PESB33-00	Normal	1/30/2008 12:28:00 PM
680-33838-21	FB-01	Field Blank	1/30/2008 10:40:00 AM
680-33838-22	RB-01	Rinsate Blank	1/30/2008 10:50:00 AM

Test America performed trace analytical tests for extractable total petroleum hydrocarbons by Method 8015B (modified) using SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (3<sup>rd</sup> Edition). All analyses were conducted at the Gaithersburg facility.

After laboratory analyses were completed and reviewed, Test America assembled a single hardcopy data package and electronic data deliverables (EDD), which were forwarded to E-Data. The Test America data was identified as laboratory work order 680-33838.

Data validation was conducted as described in National Functional Guidelines for Organic Data Review and EPA Region II SOPs for Data Evaluation.

A copy of the project chain-of-custody forms and laboratory reports with data qualifiers applied as a result of data validation are provided in Appendix A. Appendix B contains results of all tentatively identified compounds. Appendix C contains copies of the completed checklists used to document the data validation effort.

## Summary of Sample Analyses

### Hardcopy Data Packages

Project completeness is calculated at 100 percent (22 valid results of 22 total results) of the laboratory data undergoing data validation. No major issues were identified as a result of data validation. Minor issues are described below. Project data qualifiers are added to the laboratory reports. A list of project data qualifiers is shown in Table 2.

**TABLE 2**

List of Project Qualifiers

*(Site Investigation at Pico Del Este Radar Facility, Caribbean National Forest, Puerto Rico)*

Qualifier	Description
[none]	Detected at the reported concentration value
B	Not detected substantially above the level reported in laboratory or field blanks
J	Analyte present. Reported value may or may not be accurate or precise
U	Not detected

A summary of all qualified results is shown on Table D-1 (Appendix D).

### Electronic Data Deliverable

The sample results were verified by comparing the results to the validated laboratory Form 1's. Table E-1 (Appendix E) summarizes the sample results that were verified.

## **Major Technical Issues**

No major technical issues were identified.

## **Minor Technical Issues**

### **Total Petroleum Hydrocarbons (Extractable) by SW-846 Method 8015B (Modified) (SDG 680-33838)**

#### **Chain of Custody, Sample Login, and Holding Times**

Samples were received, prepared, and analyzed in good condition.

#### **Surrogate Recoveries**

Sample surrogate recoveries were within acceptable project accuracy limits.

#### **Matrix Spike and Matrix Spike Duplicate Analyses**

Matrix spike and matrix spike duplicate sample analysis was performed on field sample 680-33838-4. Project accuracy and precision objectives were met. No action was needed to qualify the sample result.

#### **Laboratory Control Samples**

Laboratory control samples were performed per extraction batch of samples. Laboratory accuracy objectives were obtained.

#### **Method and Field Blanks**

Measurable levels of TPH were reported in the field blank and equipment rinsate blank at levels below laboratory report limit but were detectable. Action levels were determined using the 5X Rule and corrected for sample extraction amounts and solids content. A calculated action level of 3.0 mg/Kg was applied. Sample results less than the adjusted action level were qualified as non-detected and flagged with a "U." The laboratory concentration result was raised to the report limit if the laboratory reported a value less than the report limit.

#### **Field Duplicate**

Field duplicate samples were collected and analyzed with the field pair samples 680-33838-4 / 680-33838-7 and 680-33838-12 / 680-33838-13. Acceptable field precision objectives were reported.

#### **Calibrations**

Initial and continuing calibrations were within acceptable control limits.

#### **Internal Standard Recovery**

The laboratory does not utilize a program of internal standard spike recoveries for this test methodology.

#### **Reporting Limits**

Parameters were reported to the nominal report limit.

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

October 25, 2007

SDG# 680-28831, CompuChem  
 Pico Del Este Radar Facility, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # 680-28831. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory; the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (for 8260B: Rev 2, October 2006-SOP #HW-24 and for 8270: Rev 3, October 2006-SOP #HW-22), and professional judgment. For those methods that do not have an applicable Region II checklist SOP (SW-846 method 8015B for DRO), worksheets were provided. Specific method requirements, Region II flagging conventions and professional judgment were used to validate DRO results. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	App IX VOA	LL-PAH	DRO
PESB01-00 680-28831-1	680-28831-1	soil	X	X	X
PESB01-01 680-28831-2	680-28831-2	soil	X	X	X
PESB01-02 680-28831-3	680-28831-3	soil	X	X	X
PESB02-00 680-28831-4	680-28831-4	soil	X	X	X
PESB02-04 680-28831-5	680-28831-5	soil	X	X	X
PESB02-06 680-28831-6	680-28831-6	soil	X	X	X
PESB03-00 680-28831-7	680-28831-7	soil	X	X	X
PESB03-02 680-28831-8	680-28831-8	soil	X	X	X
PESB03-04 680-28831-9	680-28831-9	soil	X	X	X
PESB04-00 680-28831-10	680-28831-10	soil	X	X	X
PESB04-05 680-28831-11	680-28831-11	soil	X	X	X
PESB04-07 680-28831-12	680-28831-12	soil	X	X	X
PESB05-00 680-28831-13	680-28831-13	soil	X	X	X
PESB05-05 680-28831-14	680-28831-14	soil	X	X	X
PESB05-07 680-28831-15	680-28831-15	soil	X	X	X
PESB05-00D 680-28831-16	680-28831-16	soil	X	X	X
TRIP BLANK	680-28831-17	water	X		
PEER01 680-28831-18	680-28831-18	water	X	X	X
PESB05-00 MS	680-28831-13 MS	soil	X	X	X
PESB05-00 MSD	680-28831-13 MSD	soil	X	X	X

The following quality control samples were provided with this SDG: sample TRIP BLANK-trip-blank; sample PEER01-equipment blank; and sample PESB05-00D-field duplicate of sample PESB05-00.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- Blanks
- Internal Standards \*
- Surrogate Recoveries
- Laboratory Control Samples \*
- Matrix Spike Recoveries \*
- Matrix Duplicate RPDs \*
- Field Duplicates
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values some compounds were qualified as estimated and rejected.

Three samples exhibited low surrogate recoveries that resulted in qualification of the data as estimated. The samples were re-analyzed with similar results; therefore the initial analysis was used.

## **PAH**

Blank contamination was noted in one of the QC blank associated with samples in this batch. Qualifications were added to the data.

The field duplicate pair did not exhibit comparable results for three compounds, qualifications were added to the data.

## **DRO**

Blank contamination was noted in the field QC blanks. Qualifications to the sample results were required.

One of the field duplicate pairs submitted in this SDG exhibited inconsistent results. The results in the field duplicate pair were qualified as estimated J.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 07/31/07 and samples were received at the laboratory 08/01/07. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 06/03/07	isobutanol	0.0496	TRIP BLANK, PEER01	J/R
CC 08/05/07	acetone, acrolein, acetonitrile, acrylonitrile, methyl methacrylate, trans-1,4-dichloro-2-butene, pentachloroethane	38.1%, 49.9%, 25.4%, 40.6%, 23.0%, 46.1%, 30.5%	TRIP BLANK, PEER01	J/UJ
	isobutanol 0.	04098		
CC 08/10/07	iodomethane, acetonitrile, bromomethane, acetone	26.5%, 23.1%, 27.3%,20.1%	PESB01-00, PESB01-01, PESB01-02, PESB02-00, PESB02-04, PESB02-06, PESB03-00, PESB04-07, PESB04-00, PESB05-05	J/UJ
	isobutanol 0.	01971		J/R
CC 08/11/07	acrylonitrile, pentachloroethane, bromomethane, acetone, carbon tetrachloride 1,2-dichloroethane, dibromomethane, cis-1,3-dichloropropene, 1,2-dibromoethane, 1,1,1,2-tetrachloroethane, bromoform, 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane	29.8%, 51.4%, 26.7%, 31.9%, 31.5%, 20.2%, 20.9%, 21.8%, 23.5%, 20.3%, 26.7%, 21.0%, 27.9%	PESB03-04, PESB04-05, PESB05-07, PESB05-00D, PESB03-02, PESB05-00	J/UJ
	isobutanol 0.	02404		J/R

## Blanks

### PAH

The associated QC blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Concentration	Reporting Limit
PEER01 py	rene	0.051J ug/L	0.20 ug/L

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PESB05-05 p	yrene	U

## DRO

The associated method blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Conc.	Action Level	Q Flag
PEER01	diesel	0.13 JB mg/L	21.45 mg/Kg	U at reported concentration

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PESB01-01, PESB01-02, PESB02-04, PESB02-06, PESB03-04, PESB04-07	DRO U	

## **Surrogates**

### VOA

The samples listed in the table below exhibited low surrogate recoveries. These samples were re-analyzed with similar results; therefore, the initial analysis was used. Sample results were qualified as stated in the table below.

Sample ID	Non-compliant surrogate	% REC	QC Limit	Qualification
PESB04-00 t	oluene-d8	63	65-132	J/UJ
PESB05-00 t	oluene-d8	61	65-132	J/UJ
PESB05-05 t	oluene-d8	63	65-132	J/UJ

## **Field Duplicates**

### PAH

Sample PESB05-00 and field duplicate sample PESB05-00D exhibited non-comparable results for 2-methylnaphthalene with 200% RPD; 1-methylnaphthalene with 200% RPD and phenanthrene with 200% RPD. These compounds were qualified as estimated (J/UJ) in both samples.

### DRO

The field duplicate pair of samples PESB05-00 and PESB05-00D exhibited an RPD greater than 100% (156%). Sample results in both the field sample and the field duplicate were qualified as estimated J.

## **Compound Identification/Quantitation**

### VOA

Samples PESB04-00RA, PESB05-00RA and PESB05-05RA were not used, in favor of the initial analysis, due to non-compliant surrogate recoveries.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

Laura Maschhoff  
President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q-Flag
TRIP BLANK, PEER01	isobutanol	+/-	J/R
TRIP BLANK, PEER01	acetone, acrolein, acetonitrile, acrylonitrile, methyl methacrylate, trans-1,4-dichloro-2-butene, pentachloroethane	J/UJ	
TRIP BLANK, PEER01	isobutanol	+/-	J/R
PESB01-00, PESB01-01, PESB01-02, PESB02-00, PESB02-04, PESB02-06, PESB03-00, PESB04-07, PESB04-00, PESB05-05	iodomethane, acetonitrile, bromomethane, acetone	J/UJ	
PESB01-00, PESB01-01, PESB01-02, PESB02-00, PESB02-04, PESB02-06, PESB03-00, PESB04-07, PESB04-00, PESB05-05	isobutanol +/	-	J/R
PESB03-04, PESB04-05, PESB05-07, PESB05-00D, PESB03-02, PESB05-00	acrylonitrile, pentachloroethane, bromomethane, acetone, carbon tetrachloride 1,2-dichloroethane, dibromomethane, cis-1,3-dichloropropene, 1,2-dibromoethane, 1,1,1,2-tetrachloroethane, bromoform, 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane	+/- J/UJ	
PESB03-04, PESB04-05, PESB05-07, PESB05-00D, PESB03-02, PESB05-00	isobutanol +/	-	J/R
PESB04-00, PESB05-00, PESB05-05 all	results	+/-	J/UJ
PESB04-00RA, PESB05-00RA, PESB05-05RA	all results	+/-	R

### PAH

Sample ID	Compound	Results	Q-Flag
PESB05-05 p	yrene	+	U
PESB05-00, PESB05-00D	2-methylnaphthalene, 1-methylnaphthalene, phenanthrene	+/- J/UJ	

## Summary of Data Qualifications (continued)

### DRO

<b>Sample ID</b>	<b>Compound</b>	<b>Results</b>	<b>Q-Flag</b>
PESB01-01, PESB01-02, PESB02-04, PESB02-06, PESB03-04, PESB04-07	DRO +		U
PESB05-00, PESB05-00D	DRO	+	J

## **Glossary of Qualification Flags and Abbreviations**

### **Qualification Flags (Q-Flags)**

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
R	result is rejected; the presence or absence of the analyte cannot be verified
D	result value is based on dilution analysis result
NJ	analyte has been tentatively identified, estimated value
L	analyte present, biased low
UL	not detected, quantitation limit is probably higher
K	analyte present, biased high

### **Method/Preparation Blank Qualification Flags (Q-Flags)**

#### **Organic Methods**

NA	The sample result for the blank contaminant is greater than the sample RL and is greater than 5X (10X for common laboratory contaminants) the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U	The sample result for the blank contaminant is greater than the sample RL and is less than 5X (10X for common laboratory contaminants) the blank value.
CRQL	The sample result for the blank contaminant is less than the sample RL and is less than 5X (10X for common laboratory contaminants) the blank value.

### **General Abbreviations**

RL	reporting limit
IDL	instrument detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

October 24, 2007

SDG# 680-28859-1, CompuChem  
 Pico Del Este Radar Facility, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # 680-28859-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory; the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (for 8260B: Rev 2, October 2006-SOP #HW-24 and for 8270: Rev 3, October 2006-SOP #HW-22), and professional judgment. For those methods that do not have an applicable Region II checklist SOP (SW-846 method 8015B for DRO), worksheets were provided. Specific method requirements, Region II flagging conventions and professional judgment were used to validate DRO results. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	App IX VOA	LL-PAH	DRO
PESB06-00 680-	28859-1	soil	X	X	X
PESB06-04 680-	28859-2	soil	X X		X
PESB06-07 680-	28859-3	soil	X X		X
PESB07-00 680-	28859-4	soil	X X		X
PESB07-05 680-	28859-5	soil	X X		X
PESB07-07 680-	28859-6	soil	X X		X
PESB08-00 680-	28859-7	soil	X X		X
PESB08-02 680-	28859-8	soil	X X		X
PESB08-04 680-	28859-9	soil	X X		X
PESB09-00 680-	28859-10	soil	X	X	X
PESB09-05 680-	28859-11	soil	X	X	X
PESB09-07 680-	28859-12	soil	X	X	X
PESB10-00 680-	28859-13	soil	X	X	X
PESB10-00D 680-	28859-14	soil	X	X	X
PESB10-04 680-	28859-15	soil	X	X	X
PESB10-04D 680-	28859-16	soil	X	X	X
PESB10-06 680-	28859-17	soil	X	X	X
PESB11-00 680-	28859-18	soil	X	X	X
PESB11-01 680-	28859-19	soil	X	X	X
PESB11-03 680-	28859-20	soil	X	X	X
PESB12-00 680-	28859-21	soil	X	X	X
PESB12-00D 680-	28859-22	soil	X	X	X
PESB12-01 680-	28859-23	soil	X	X	X
PESB12-01D 680-	28859-24	soil	X	X	X
PESB12-04 680-	28859-25	soil	X	X	X
TRIP BLANKS	680-28859-26	water	X		
PESB12-00 MS	680-28859-21MS	soil	X	X	X
PESB12-00 MSD	680-28859-21MSD	soil	X	X	X
PESB12-01 MS	680-28859-23MS	soil	X	X	X
PESB12-01 MSD	680-28859-23MSD	soil	X	X	X

The following quality control samples were provided with this SDG: sample TRIP BLANKS-trip blank; sample PESB10-00D-field duplicate of sample PESB10-00; sample PESB10-04D-field duplicate of sample PESB10-04; sample PESB12-00D-field duplicate of sample PESB12-00; and sample PESB12-01D-field duplicate of sample PESB12-01.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- Blanks
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*
- Matrix Spike Recoveries \*
- Field Duplicates
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values some compounds were qualified as estimated and rejected.

Blank contamination was noted in one of the method blanks associated with samples in this batch. Qualifications were added to the data.

## **PAH**

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

## **DRO**

Blank contamination was noted in the field QC blanks. Qualifications to the sample results were required.

One of the field duplicate pairs submitted in this SDG exhibited inconsistent results. The results in the field duplicate pair were qualified as estimated J.

The field sample PESB12-01 and the field duplicate PESB12-01D exhibited inconsistent results when compared with the results of the MS and MSD pair that was analyzed with the field samples. The native sample PESB12-01 was spiked in the initial extraction and analysis and exhibited negative recoveries. Therefore, the laboratory re-extracted the field sample, spiked pair and field duplicate. The results of the re-analysis exhibited significantly inconsistent results as well although the recoveries of the spiked pair were within QC limits. Therefore, the results in both the field sample and field duplicate were qualified as estimated J and should be considered potentially suspect.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required for the volatile fraction. One of the Form Vs included in this data package was missing a sample ID, the laboratory was contacted, the corrected form was submitted and included in the attached worksheets.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 08/01/07 and samples were received at the laboratory 08/02/07. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 07/24/07	isobutanol	0.0447	TRIP BLANKS	J/R
CC 08/10/07	acrolein, iodomethane, acetonitrile, 3-chloro-1-propene, acrylonitrile, trans-1,4-dichloro-2-butene dichlorofluoromethane, vinyl acetate, 1,2-dibromo-3-chloropropane	31.8%, 29.4%, 25.4%, 21.4%, 21.7% 32.6%, 22.1%, 20.2%, 26.8%	TRIP BLANKS	J/UJ
	isobutanol 0.	04997		J/R
	pentachloroethane 24	4.1%		J/R
CC 08/11/07	acrylonitrile, pentachloroethane, bromomethane, acetone, carbon tetrachloride 1,2-dichloroethane, dibromomethane, cis-1,3-dichloropropene, 1,2-dibromoethane, 1,1,1,2-tetrachloroethane, bromoform, 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane	29.8%, 51.4%, 26.7%, 31.9%, 31.5% 20.2%, 20.9%, 21.8%, 23.5%, 20.3%, 26.7%, 21.0%, 27.9%	PESB06-04, PESB06-07, PESB07-00, PESB07-05, PESB07-07, PESB08-00, PESB08-02, PESB08-04, PESB09-00, PESB09-05, PESB09-07	J/UJ
	isobutanol 0.	02404		J/R
CC 08/13/07	acrolein, propionitrile, methyl methacrylate, pentachloroethane, carbon tetrachloride	31.9%, 25.1%, 20.1%, 56.7%, 27.8%	PESB06-00, PESB10-00, PESB10-00D, PESB10-04D PESB10-06, PESB11-00, PESB11-01, PESB11-03, PESB12-00, PESB12-00D, PESB12-01, PESB12-01D, PESB12-04, PESB10-04	J/UJ
	acetonitrile isobutanol, acetone	0.04911, 0.02184, 0.04806		J/R

## Blanks

### VOA

The associated method blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
MB 680-82804	acetone	9.6J ug/Kg	50 ug/Kg	96 ug/Kg

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PESB06-00, PESB10-00, PESB10-00D, PESB10-04	acetone	U

### PAH

The associated QC blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
PEER01 7/31	phenanthrene	0.064J ug/L	0.20 ug/L	0.32 ug/L
	pyrene	0.051 ug/L	0.20 ug/L	0.255 ug/L

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PESB07-05 phe	nanthrene	U
PESB07-00, PESB07-05, PESB10-00, PESB12-00, PESB12-01	pyrene	U

### DRO

The associated method blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Conc.	Action Level	Q Flag
MB 680-82258/12A	diesel	0.76J mg/Kg	3.8 mg/Kg	U at reported concentration
PEER01	diesel	0.13 JB mg/L	21.45 mg/Kg	U at reported concentration

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PESB07-07, PESB08-00, PESB08-02, PESB08-04, PESB09-07, PESB10-04, PESB10-04D, PESB11-00, PESB11-01, PESB11-03, PESB12-00, PESB12-04	DRO U	

### Field Duplicates

#### DRO

The field duplicate pair of samples PESB10-00 and PESB10-00D exhibited an RPD greater than 100% (140%). Sample results in both the field sample and the field duplicate were qualified as estimated J.

### Compound Identification/Quantitation

#### DRO

The samples PESB12-01 and PESB12-01D exhibited incomparable results between the initial extraction/analysis and the re-extraction/re-analysis several days later. (See tables below) The samples were re-extracted by the laboratory due to negative recoveries in the MS/MSD pair of sample PESB12-01. The inconsistency affected the field duplicate reproducibility in the re-extraction to a great extent and in the initial analysis to a lesser extent. There may be a homogeneity issue, however an obvious pattern to the results isn't clear. Based on the COC the samples were sent in from the field in separate containers. According to the laboratory the native sample (PESB12-01) color and texture did not match that of the MS and MSD sample aliquots. For this reason these samples were not flagged due to MS/MSD non-compliances. However, due to the inconsistencies exhibited by the spike recoveries and the analysis of the RE samples, it is the professional opinion of the validator that the results in both sample PESB12-01 and PESB12-01D are flagged as estimated and considered potentially suspect. The RE samples PESB12-01RE and PESB12-01DRE exhibited even greater inconsistency and are rejected.

Sample ID: PESB12-01 RE Sample ID: PESB12-01RE

Compound	Sample Conc.	RE Sample Conc.	RPD
DRO	220	19	168%

Sample ID: PESB12-01D RE Sample ID: PESB12-01DRE

Compound	Sample Conc.	RE Sample Conc.	RPD
DRO	120	390	106%

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

Laura Maschhoff  
President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q-Flag
TRIP BLANKS	isobutanol	+/-	J/R
TRIP BLANKS	acrolein, iodomethane, acetonitrile, 3-chloro-1-propene, acrylonitrile, trans-1,4-dichloro-2-butene dichlorofluoromethane, vinyl acetate, 1,2-dibromo-3-chloropropane	+/- J/UJ	
TRIP BLANKS	isobutanol	+/-	J/R
TRIP BLANKS	pentachloroethane	+/-	J/R
PESB06-04, PESB06-07, PESB07-00, PESB07-05, PESB07-07, PESB08-00, PESB08-02, PESB08-04, PESB09-00, PESB09-05, PESB09-07	acrylonitrile, pentachloroethane, bromomethane, acetone, carbon tetrachloride, 1,2-dichloroethane, dibromomethane, cis-1,3-dichloropropene, 1,2-dibromoethane, 1,1,1,2-tetrachloroethane, bromoform, 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane	+/- J/UJ	
PESB06-04, PESB06-07, PESB07-00, PESB07-05, PESB07-07, PESB08-00, PESB08-02, PESB08-04, PESB09-00, PESB09-05, PESB09-07	isobutanol +/-	-	J/R
PESB06-00, PESB10-00, PESB10-00D, PESB10-04D, PESB10-06, PESB11-00, PESB11-01, PESB11-03, PESB12-00, PESB12-00D, PESB12-01, PESB12-01D, PESB12-04, PESB10-04	acrolein, propionitrile, methyl methacrylate, pentachloroethane, carbon tetrachloride	+/- J/UJ	
PESB06-00, PESB10-00, PESB10-00D, PESB10-04D, PESB10-06, PESB11-00, PESB11-01, PESB11-03, PESB12-00, PESB12-00D, PESB12-01, PESB12-01D, PESB12-04, PESB10-04	acetonitrile isobutanol, acetone	+/- J/R	
PESB06-00, PESB10-00, PESB10-00D, PESB10-04	acetone +		U

PAH

<b>Sample ID</b>	<b>Compound</b>	<b>Results</b>	<b>Q-Flag</b>
PESB07-05 phe	nanthrene	+	U
PESB07-00, PESB07-05, PESB10-00, PESB12-00, PESB12-01	pyrene +		U

DRO

<b>Sample ID</b>	<b>Compound</b>	<b>Results</b>	<b>Q-Flag</b>
PESB12-01, PESB12-01D	DRO	+/-	J/UJ
PESB12-01RE, PESB12-01DRE	DRO	+/-	R
PESB07-07, PESB08-00, PESB08-02, PESB08-04, PESB09-07, PESB10-04, PESB10-04D, PESB11-00, PESB11-01, PESB11-03, PESB12-00, PESB12-04	DRO +		U
PESB10-00, PESB10-00D	DRO	+	J

## **Glossary of Qualification Flags and Abbreviations**

### **Qualification Flags (Q-Flags)**

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
R	result is rejected; the presence or absence of the analyte cannot be verified
D	result value is based on dilution analysis result
NJ	analyte has been tentatively identified, estimated value
L	analyte present, biased low
UL	not detected, quantitation limit is probably higher
K	analyte present, biased high

### **Method/Preparation Blank Qualification Flags (Q-Flags)**

#### **Organic Methods**

NA	The sample result for the blank contaminant is greater than the sample RL and is greater than 5X (10X for common laboratory contaminants) the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U	The sample result for the blank contaminant is greater than the sample RL and is less than 5X (10X for common laboratory contaminants) the blank value.
CRQL	The sample result for the blank contaminant is less than the sample RL and is less than 5X (10X for common laboratory contaminants) the blank value.

### **General Abbreviations**

RL	reporting limit
IDL	instrument detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

October 24, 2007  
 SDG# 680-28896, CompuChem  
 Pico Del Este Radar Facility, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # 680-28896. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory; the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (for 8260B: Rev 2, October 2006-SOP #HW-24 and for 8270: Rev 3, October 2006-SOP #HW-22), and professional judgment. For those methods that do not have an applicable Region II checklist SOP (SW-846 method 8015B for DRO), worksheets were provided. Specific method requirements, Region II flagging conventions and professional judgment were used to validate DRO results. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	App IX VOA	LL-PAH	DRO
PESB13-00 680-28896-1	680-28896-1	soil	X	X	X
PESB13-03 680-28896-2	680-28896-2	soil	X	X	X
PESB13-09 680-28896-3	680-28896-3	soil	X	X	X
PESB14-00 680-28896-4	680-28896-4	soil	X	X	X
PESB14-07 680-28896-5	680-28896-5	soil	X	X	X
PESB14-09 680-28896-6	680-28896-6	soil	X	X	X
PEER02 680-28896-7	680-28896-7	water	X	X	X
PEFB01 680-28896-8	680-28896-8	water	X	X	X
TRIP BLANK	680-28896-9	water	X		

The following quality control samples were provided with this SDG: sample PEER02-equipment blank; sample PEFB01-field blank; and sample TRIP BLANK-trip-blank.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- Blanks
- Internal Standards \*
- Surrogate Recoveries \*

- Laboratory Control Samples \*
- Matrix Spike Recoveries NA
- Matrix Duplicate RPDs NA
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria.

#### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values some compounds were qualified as estimated and rejected.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

#### **PAH**

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

#### **DRO**

Blank contamination was noted in the method blanks. Qualifications to the sample results were required.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required.

## Technical Holding Times

According to chain of custody records, sampling was performed on 08/02/07 and samples were received at the laboratory 08/03/07. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 07/24/07	isobutanol	0.0447	all samples	J/R
CC 08/10/07	acrolein, iodomethane, acetonitrile, 3-chloro-1-propene, acrylonitrile, trans-1,4-dichloro-2-butene dichlorofluoromethane, vinyl acetate, 1,2-dibromo-3-chloropropane	31.8%, 29.4%, 25.4%, 21.4%, 21.7% 32.6%, 22.1%, 20.2%, 26.8%	TRIP BLANK, PEER02, PEFB01	J/UJ
	isobutanol 0.	04997		J/R
	pentachloroethane 24	4.1%		J/R
08/15/07	acrylonitrile 2	4.3%	PESB13-00, PESB13-03, PESB13-09, PESB14-00, PESB14-07	J/UJ
	isobutanol 0.	02254		J/R
	pentachloroethane 97	.2%		J/R
08/16/07	acrylonitrile, acrolein, pentachloroethane	41.8%, 36.9%, 72.6%	PESB14-09	J/UJ
	isobutanol 0.	02311		J/R

## Blanks

### VOA

The associated QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
TRIP BLANK	toluene	0.039J ug/L	1.0 ug/L	0.39 ug/L
PEFB01	toluene	0.99J ug/L	1.0 ug/L	9.9 ug/L

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PESB14-00 to	luene	U

### PAH

The associated QC blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
PEER01 7/31	phenanthrene	0.064J ug/L	0.20 ug/L	0.32 ug/L
	pyrene	0.051 ug/L	0.20 ug/L	0.255 ug/L

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PESB13-09 phe	nanthrene	U
PESB13-03 p	yrene	U

### DRO

The associated method blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table.

Blank ID	Compound	Conc.	Action Level	Q Flag
MB 680-82063/17A	diesel	0.049J mg/L	0.245 mg/L	U at RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
PEER02	DRO	U at RL

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

Laura Maschhoff  
President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q-Flag
all samples	isobutanol	+/-	J/R
TRIP BLANK, PEER02, PEFB01	acrolein, iodomethane, acetonitrile, 3-chloro-1-propene, acrylonitrile, trans-1,4-dichloro-2-butene dichlorofluoromethane, vinyl acetate, 1,2-dibromo-3-chloropropane	+/- J/UJ	
TRIP BLANK, PEER02, PEFB01	isobutanol	+/-	J/R
TRIP BLANK, PEER02, PEFB01	pentachloroethane	+/-	J/R
PESB13-00, PESB13-03, PESB13-09, PESB14-00, PESB14-07	acrylonitrile +/-		J/UJ
PESB13-00, PESB13-03, PESB13-09, PESB14-00, PESB14-07	isobutanol +/-	-	J/R
PESB13-00, PESB13-03, PESB13-09, PESB14-00, PESB14-07	pentachloroethane +/-	-	J/R
PESB14-09 acrylo	nitrile, acrolein, pentachloroethane	+/- J/UJ	
PESB14-09 i	isobutanol	+/-	J/R
PESB14-00 to	luene	+	U

### PAH

Sample ID	Compound	Results	Q-Flag
PESB13-09 phe	nanthrene	+	U
PESB13-03 p	pyrene	+	U

### DRO

Sample ID	Compound	Results	Q flag
PEER02	DRO	+J	U at RL

## **Glossary of Qualification Flags and Abbreviations**

### **Qualification Flags (Q-Flags)**

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
R	result is rejected; the presence or absence of the analyte cannot be verified
D	result value is based on dilution analysis result
NJ	analyte has been tentatively identified, estimated value
L	analyte present, biased low
UL	not detected, quantitation limit is probably higher
K	analyte present, biased high

### **Method/Preparation Blank Qualification Flags (Q-Flags)**

#### **Organic Methods**

NA	The sample result for the blank contaminant is greater than the sample RL and is greater than 5X (10X for common laboratory contaminants) the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U	The sample result for the blank contaminant is greater than the sample RL and is less than 5X (10X for common laboratory contaminants) the blank value.
CRQL	The sample result for the blank contaminant is less than the sample RL and is less than 5X (10X for common laboratory contaminants) the blank value.

### **General Abbreviations**

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result