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Final

Addendum 1 to the Environmental Remedial Investigation Work Plan Solid Waste Management Unit (SWMU) 4

Former Naval Ammunition Support Detachment Vieques, Puerto Rico

Naval Facilities Engineering Command

Prepared for

Department of the Navy

NAVFAC ATLANTIC

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SWMU 4

Section 1:

Introduction

Introduction

This Work Plan constitutes Addendum 1 to the *Final Environmental Remedial Investigation for SWMU 4 at the Former US Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico* (CH2M HILL, January 2007), hereafter referred to as the RI Work Plan. Addendum 1 summarizes the historical data collected at SWMU 4 (including data collected during the 2007 RI), presents the results of a preliminary evaluation of the data, and describes the additional data collection activities to be performed at the site based on the preliminary data evaluation. The additional data collection constitutes follow-on RI activities in that it is intended to result in a comprehensive dataset (when combined with historical data) with which the nature and extent of contamination can be holistically evaluated and the associated human health and ecological risks sufficiently assessed. Because the additional data are intended to supplement the existing data, the additional data collection will be conducted in accordance with the protocols established in the RI Work Plan.

Addendum 1 to the RI Work Plan has been prepared by CH2M HILL on behalf of the Naval Facilities Engineering Command, Atlantic (NAVFAC, Atlantic) under Navy Contract N62470-02-D-3052, Navy Comprehensive Long-Term Environmental Action (CLEAN III), Contract Task Order 175.

Objective of the RI Additional Data Collection Activities

Upon preliminary evaluation of the data collected during the 2006 RI and previous investigations, additional data were deemed necessary in order to produce a comprehensive dataset sufficient for characterizing the nature and extent of contamination and assessing potential human and ecological risks. Therefore, it is the objective of the additional data collection to supplement the existing dataset such that a comprehensive dataset results.

Organization of Addendum 1 to the RI Work Plan

Addendum 1 to the RI Work Plan is organized as follows:

Section 1 provides general rationale and approach for the RI additional data collection activities.

Section 2 summarizes the existing data, provides the preliminary evaluation of the data, and explains the rationale and approach for collecting the supplemental data.

Appendix A contains the tables and figures referred to in Section 2.

Appendix B contains the agency comments on the proposed additional data collection activities, and the associated responses concurred upon by the stakeholder agencies. Where appropriate, these responses have been incorporated into Addendum 1.

SWMU 4

Section 2:

SWMU 4 Preliminary Data Evaluation Sample Collection Presentation

SWMU 4
Preliminary Data Evaluation
and
Recommendation for Additional Sample Collection

Presentation to Environmental Technical Subcommittee
November 2007
revised April 2008 to reflect final responses to comments

Objectives

- The objective of this presentation is not to provide an in-depth evaluation and discussion of the findings. Rather, the objective is to provide a preliminary evaluation to identify where additional data are warranted to sufficiently characterize nature and/or extent of contamination such that the human health and ecological risks can be appropriately assessed.

Proposed Approach

- Following regulatory review of the presentation and the associated figures and tables, hold a conference call or meeting to concur on the additional data collection.
- Because relatively few additional data are necessary to complete the nature and extent determination, because the proposed additional data are the same type as previously collected, and because the same data collection approach will be used that was used during the RI, for which there is an existing work plan, it is proposed that this presentation, the associated figures and tables, and the final minutes of the meeting and/or conference call constitute an addendum to the RI work plan rather than producing a new work plan.

SWMU 4 Sampling*

- Expanded PA/SI (2000)
  - 16 surface soil samples (SB01-SB12, MW05-MW08)
  - 16 subsurface soil samples (SB01-SB12, MW05-MW08)
  - 8 monitoring wells installed/8 groundwater samples (MW01-MW08)
- RI (2007)
  - 36 surface soil samples (SS17-SS42, SS44-SS51, SS54, SS55)
  - 32 subsurface soil samples (SB17-
  - 1 ephemeral stream surface water sample (SW43)
  - 1 ephemeral stream sediment sample (SD43)
  - 5 lagoon surface water samples (SW01-SW05)
  - 18 lagoon sediment samples from 10 locations
    - 10 from upper (top 6”) layer (SD01A-SD10A)
    - 8 from lower, consolidated layer (SD01B,SD02B, SD04B, SD05B, SD08B, SD09B, SD10B)
  - 10 monitoring wells installed (MW09-MW18)/17 groundwater samples (MW01-MW03, MW05-MW18)

* See Figures 1 and 2 for sample locations

Analytical Results

- Surface Soil
  - VOCs: 11 detected
  - SVOCs: 24 detected (2 SVOCs are actually explosives)
  - Pesticides: 18 detected
  - PCBs: None detected
  - Explosives: 4 detected
  - Inorganics: 24 detected
- Subsurface Soil
  - VOCs: 11 detected
  - SVOCs: 25 detected
  - Pesticides: 14 detected
  - PCBs: 1 detected
  - Explosives: 4 detected
  - Inorganics: 23 detected

Analytical Results

- Groundwater
  - VOCs: 7 detected
  - SVOCs: 12 detected
  - Pesticides: 3 detected
  - PCBs: None detected
  - Explosives: 2 detected
  - Inorganics: 18 (total), 16 (dissolved) detected

Analytical Results

- Surface Water (Ephemeral Stream)
  - VOCs: 3 detected
  - SVOCs: 1 detected
  - Pesticides: 2 detected
  - PCBs: None detected
  - Explosives: 1 detected
  - Inorganics: 9 (total), 12 (dissolved) detected
- Sediment (Ephemeral Stream)
  - VOCs: 3 detected
  - SVOCs: 2 detected
  - Pesticides: 5 detected
  - PCBs: None detected
  - Explosives: None detected
  - Inorganics: 13 detected

Analytical Results

- Surface Water (Lagoon)
  - VOCs: 3 detected
  - SVOCs: 3 detected
  - Pesticides: 1 detected
  - PCBs: None detected
  - Explosives: None detected
  - Inorganics: 11 (total), 11 (dissolved) detected
- Sediment (Lagoon)
  - VOCs: 6 detected
  - SVOCs: 10 detected
  - Pesticides: 10 detected
  - PCBs: None detected
  - Explosives: 4 detected
  - Inorganics: 22 detected

SWMU 4 Constituents Detected Above Screening Criteria[1]

- Surface Soil (see Figure 3)
  - VOCs: None
  - SVOCs: 4 SSLs
  - Pesticides: 8 Eco, 4 SSLs
  - Explosives: 1 PRG
  - Inorganics[2]: 5 PRGs, 8 Eco, 12 SSLs

1. Screening Criteria = Residential PRGs (adjusted, as applicable), ecological screening values, SSLs at a DAF of 1
2. Detected above screening criteria and west Vieques background UTL

SWMU 4 Constituents Detected Above Screening Criteria[1]

- Subsurface Soil (see Figure 4)
  - VOCs: None
  - SVOCs: 3 SSLs
  - Pesticides: 2 SSLs
  - PCBs: 1 PRG
  - Explosives: 1 PRG
  - Inorganics[2]: 8 PRGs, 8 SSLs

1. Screening Criteria = Residential PRGs (adjusted, as applicable), SSLs at a DAF of 1
2. Detected above screening criteria and west Vieques background UTL

SWMU 4 Constituents Detected Above Screening Criteria[1]

- Groundwater (see Figure 5)
  - VOCs: 1 PRG, 1 MCL
  - SVOCs: 4 PRGs
  - Pesticides: 1 PRG
  - Explosives: 2 PRGs
  - Inorganics[2]: 9 PRGs, 1 MCL for total; 6 PRGs for dissolved

1. Screening Criteria = Tap water PRGs (adjusted, as applicable), MCLs
2. Detected above screening criteria and background wells MW-16 and MW-17

SWMU 4 Constituents Detected Above Screening Criteria[1]

- Surface Water (Ephemeral Stream) (see Figure 6)
  - VOCs: None
  - SVOCs: None
  - Pesticides: 2 Eco
  - Explosives: None
  - Inorganics: 3 PRGs, 2 Eco

1. Screening Criteria = Tap water PRGs (adjusted, as applicable), ecological screening values (marine)

SWMU 4 Constituents Detected Above Screening Criteria[1]

- Sediment (Ephemeral Stream) (see Figure 7)
  - VOCs: None
  - SVOCs: None
  - Pesticides: 1 Eco
  - Inorganics: 4 PRGs, 1 Eco

1. Screening Criteria = Residential PRGs (adjusted, as applicable), ecological screening values (marine)

SWMU 4 Constituents Detected Above Screening Criteria[1]

- Surface Water (Lagoon) (see Figure 6)
  - VOCs: None
  - SVOCs: 1 PRG
  - Pesticides: 1 Eco
  - Inorganics: 4 PRGs, 4 Eco

1. Screening Criteria = Tap water PRGs (adjusted, as applicable), ecological screening values (marine)

SWMU 4 Constituents Detected Above Screening Criteria[1]

- Sediment (Lagoon) (see Figure 7)
  - VOCs: None
  - SVOCs: 3 Eco
  - Pesticides: 4 Eco
  - Explosives: None
  - Inorganics: 5 PRGs, 8 Eco

1. Screening Criteria = Residential PRGs (adjusted, as applicable), ecological screening values (marine)

Soil Data Observations

- Pit 1 (SS/SB017) – non-detect or relatively low levels of constituents; no substantial release
- Pit 2 (SS/SB018) – non-detect or relatively low levels of constituents; no substantial release
- Pit 3 (SS/SB019) – non-detect or relatively low levels of most constituents; RDX present in subsurface soil (1-3’ bgs) at 7,800 μg/kg
- Pit 4 (SS/SB042) – non-detect or relatively low levels of constituents; no substantial release
- Pit 5 (SS/SB041) – non-detect or relatively low levels of constituents; no substantial release

Soil Data Observations

- Pit 6 (SS/SB040) – non-detect or relatively low levels of constituents; no substantial release
- Pit 7 (SS/SB039) – non-detect or relatively low levels of constituents; no substantial release
- Pit 8 (SS/SB038) – non-detect or relatively low levels of constituents; Aroclor-1254 detected in one subsurface sample above PRG, but not detected in duplicate; no substantial release
- Pit 9 (SS/SB020) - non-detect or relatively low levels of constituents; no substantial release

Soil Data Observations

- Pit 10 (SS022) – non-detect or relatively low levels of constituents; no substantial release
- Pit 11 (SS/SB036) – non-detect or relatively low levels of constituents; no substantial release
- Pit 12 (SS/SB037) – non-detect or relatively low levels of most constituents; highest soil concentration of perchlorate (1,600 μg/kg in SB037)
- Pit 13 (SS/SB035) – non-detect or relatively low levels of most constituents; 330 μg/kg perchlorate in subsurface soil

Soil Data Observations

- Pit 14 (SS/SB029) – non-detect or relatively low levels of most constituents; 160 μg/kg of perchlorate in surface soil and 580 μg/kg perchlorate in subsurface soil
- Pit 15 (SS/SB031) – non-detect or relatively low levels of most constituents; relatively high manganese in subsurface soil (5,120 mg/kg 4-6' bgs; 3,110 mg/kg 6-8' bgs)
- Pit 16 (SS/SB033) – non-detect or relatively low levels of most constituents; relatively high manganese in subsurface soil (2,170 mg/kg 4-6' bgs)

Soil Data Observations

- No VOC exceedances; SVOC exceedances only of SSLs (none of which were detected in groundwater)
- Pesticides detected at low levels; few sporadic exceedances of ecological and SSL values; no pattern of detections or concentrations indicative of a CERCLA-related release
- Explosives – Region IX PRG table does not list SSLs for explosives, so they were calculated following EPA SSL guidance. For perchlorate a 10-foot thickness of contamination (maximum depth to bedrock) was assumed for conservatism.

Soil Data Observations

- Explosives
  - DNT detected in two surface soil samples (SB02, adjacent to Pit 11; SS-51, at location of former ephemeral stream) and one subsurface soil sample (SB036; within Pit 11); concentrations exceeded only SSLs
  - TNT, HMX, and RDX detected in only one surface soil sample (SB10; along road at crossing of southern ephemeral stream) and one subsurface soil sample (SB19; within Pit 3)
  - Perchlorate detected in 19 surface soil samples and 17 subsurface soil samples; highest concentrations in Pit 14 surface/subsurface soil samples SS029/SB029 (160 μg/kg/580 μg/kg), Pit 13 subsurface soil sample SB035 (330 μg/kg), and Pit 12 subsurface soil sample (1,600 μg/kg)

Soil Data Observations

- Inorganics
  - Exceedances
    - Aluminum – not substantially above background, well below unadjusted PRG, no real pattern of exceedances with other inorganics
    - Arsenic – only one surface soil (SS025) and subsurface soil (SB020; Pit 9) detection substantially above background; several other elevated inorganics (e.g., barium, manganese) in SS025
    - Barium – detected at elevated concentrations (relative to background) across site; most SSL exceedances, but some Eco exceedances in surface soil and some PRG exceedances in subsurface soil; highest surface soil concentration in SS025; highest subsurface soil concentrations in SB03 (Pit 12) and SB05 (Pit 5); all concentrations substantially below the unadjusted PRG; barium can be associated with explosives; barium not detected in groundwater above adjusted tap water PRG or MCL in 2007

Soil Data Observations

- Inorganics
  - Exceedances
    - Cadmium – only two exceedances (SSL in SS038 and SB038; Pit 8); cadmium not detected in groundwater in 2007
    - Cobalt – only one surface soil exceedance (Eco in SS025)
    - Copper – only one surface soil exceedance (Eco and SSL in SS036; Pit 11)
    - Iron – only one surface soil exceedance (PRG and SSL in SS025) and one subsurface soil exceedance (PRG and SSL in SB035); both concentrations just above background
    - Lead – only SSL exceedances; total lead not detected above action level in groundwater; dissolved lead not detected in groundwater in 2007

Soil Data Observations

- Inorganics
  - Exceedances
    - Manganese – only a few exceedances of PRG, Eco, and SSL screening criteria (highest concentrations in SS025/SB025 [1,490 mg/kg/1,250 mg/kg], Pit 15 SB031 [5,120 mg/kg and 3,110 mg/kg], Pit 16 SB033 [2,170 mg/kg])
    - Mercury – only one surface soil exceedance (Eco and SSL in SB02); relatively low concentration
    - Nickel – only one surface soil exceedance (Eco and SSL in SS025) and one subsurface soil exceedance (SB028)
    - Selenium – only three surface soil exceedances (Eco and/or SSL in SS21, SS026, SS048); no pattern of exceedances with other inorganics in the samples

Soil Data Observations

- Inorganics
  - Exceedances
    - Silver – only a few SSL exceedances; silver not detected in groundwater in 2007
    - Thallium – several exceedances of PRG and SSL, but primarily in PA/SI samples; all RI thallium results below or comparable to lowest screening value (SSL); therefore, PA/SI thallium results likely falsely elevated
    - Vanadium – only three subsurface soil exceedances of PRG (SB10, Pit 15 SB31, Pit 13 SB35)
    - Zinc – several Eco exceedances; relatively low; all lower than Eco screening value for invertebrates

Groundwater Data Observations

- Figure 8 shows regional and small-scale potentiometric surface
  - On a regional scale, groundwater flow is westward toward the coast.
  - The multiple wells around the former pits demonstrate the small-scale variations in flow direction and potential mounding around well MW09. Not uncommon for bedrock flow regimes. Overall flow is still toward coast, with a component toward the lagoon
  - Wells provide very good spatial coverage of site, especially downgradient of pits

Groundwater Data Observations

- VOCs
  - Very low concentrations of VOCs detected
    - Vast majority of detections below 1 μg/L.
    - Only one PRG (0.035 μg/L) and MCL (0.2 μg/L) exceedance (0.6 μg/L of 1,2-dibromo-3-chloropropane) in well MW07.
    - Highest concentration of a VOC detected was 111 μg/L of acetone in well MW08 in 2000. Acetone was non-detect in this well in 2007. May have been laboratory contamination.
    - At such low concentrations, no trend is apparent, other than overall VOC concentrations were low in 2000 and again in 2007

Groundwater Data Observations

- SVOCs
  - Like VOCs, very low concentrations of SVOCs detected
    - Only 1 detection each of four SVOCs (2,2'-oxybis(1-chloropropane), 3-nitroaniline, 4-nitrophenol, and benzo(a)anthracene) above PRGs.
    - Like VOCs, no trend is apparent other than overall low SVOCs detected in both 2000 and 2007.

Groundwater Data Observations

- Explosives
  - Only two explosives detected in groundwater, both above PRGs
    - 4-nitrotoluene – one detection (1.9 μg/L) above the PRG (0.66 μg/L) in one well (MW02)
    - Perchlorate – detected in 12 of 18 wells, but no apparent trend. Highest concentrations (and only PRG [26 mg/L] exceedances) in wells MW09 (160 μg/L) and MW18 (72 μg/L), which were installed in 2007.

Groundwater Data Observations

- Inorganics
  - Majority of elevated concentrations (with respect to background) are for barium and manganese, both of which were observed at elevated levels (with respect to screening criteria) in soil
  - No apparent trend

Groundwater Data Observations

- Overall Observations
  - No significant trends observed, but only 8 of 18 wells were sampled twice.
  - Concentrations of most constituents are low with respect to screening criteria
  - Some inorganics above screening criteria and background in both groundwater and soil (e.g., barium, manganese)
  - Additional data necessary to effectively evaluate any trends

Surface Water/Sediment Data Observations

- Ephemeral Stream
  - Surface water in ephemeral stream is spatially limited; not present along most of reaches except during rain events
  - Nearly continuous presence of surface water only at blocked mouth of southern ephemeral stream
  - Very low levels of contaminants and potential contaminants detected in surface water and sediment
  - Surface soil sample (SS044) collected immediately upstream of pooled water at mouth of southern ephemeral stream did not show presence of contamination above screening levels other than heptachlor epoxide above Eco and silver above the SSL

Surface Water/Sediment Data Observations

- Lagoon
  - Very low levels of organic constituents detected in surface water; no explosives detected
  - Concentrations of most inorganics in surface water relatively consistent across lagoon
    - One detection of copper (SW03) at a concentration an order of magnitude above others
  - Concentrations of constituents in sediment are relatively similar, taking into consideration that sediment is likely to be less horizontally homogeneous than surface water in the lagoon; none suggest the presence of a “hot spot”

Recommended Additional Data

- Soil (see Figure 9 for proposed locations)
  - TNT, HMX, and RDX were detected in surface sample SB10 (RDX above PRG) during Expanded PA/SI. Road crossing stream has been washed away. Therefore, recommend re-sampling of location if still exists (as close as possible if road washed away), and several locations in the vicinity to confirm explosives presence and extent.
    - Collect one surface/subsurface soil sample at approximate location of SB10 and four additional surface/subsurface soil samples approximately 20 feet north, south, east, and west of this location, as possible. Analyze all samples for explosives, including perchlorate
    - Collect three additional surface/subsurface soil samples approximately 20 feet further out from initial ring of samples; analyze these samples only if initial ring of samples shows exceedances.

Recommended Additional Data

- Soil (see Figure 9 for proposed locations)
  - TNT, HMX, and RDX were detected in Pit 3 subsurface sample SB19 (RDX above PRG) during RI. However, no soil samples have been collected adjacent to pit.
    - Collect four surface/subsurface soil samples just outside the boundaries of the pit to the north, south, east, and west. Analyze all samples for explosives, including perchlorate
    - Collect four additional surface/subsurface soil samples approximately 20 feet further out from initial ring of samples; analyze these samples only if initial ring of samples shows exceedances

Recommended Additional Data

- Soil (see Figure 9 for proposed locations)
  - Perchlorate was detected at relatively low concentrations in surface and subsurface soil across SWMU 4. However, elevated concentrations (relative to the others) were detected in Pits 12, 13, and 14. Therefore, additional samples are warranted to delineate extent.
    - Collect three surface/subsurface soil samples (one to the south, one to the east, and one to the west) of Pit 12. Analyze all samples for explosives, including perchlorate.
      - Collect two additional surface/subsurface soil samples approximately 20 feet further out from initial ring of samples; analyze these samples only if initial ring of samples shows exceedances.
    - Collect four surface/subsurface soil samples just outside the boundaries of Pit 13 to the north, south, east, and west. Analyze all samples for explosives, including perchlorate.
      - Collect four additional surface/subsurface soil samples approximately 20 feet further out from initial ring of samples; analyze these samples only if initial ring of samples shows exceedances.
    - Collect four surface/subsurface soil samples just outside the boundaries of Pit 14 to the north, south, east, west. Analyze all samples for explosives, including perchlorate
      - Collect three additional surface/subsurface soil samples approximately 20 feet further out from initial ring of samples; analyze these samples only if initial ring of samples shows exceedances.

Recommended Additional Data

- Soil (see Figure 9 for proposed locations)
  - The highest concentration of perchlorate in groundwater was detected in well MW-09. The presence of perchlorate in groundwater at MW-09 does not necessarily imply perchlorate is present in soil around the well. Figure 8 shows the direction of groundwater flow at the site. Based on this figure, groundwater beneath Pit 13 may migrate in the direction of MW-09. The soil data for Pit 13 show there was perchlorate detected there (SS/SB-35). However, soil samples will be collected around MW-09 to evaluate whether there is a source of perchlorate in soil in the vicinity of this well.
    - Collect four surface/subsurface soil samples approximately 25 to 50 feet radially around well MW-09. Analyze all samples for perchlorate.

Recommended Additional Data

- Soil (see Figure 9 for proposed locations)
  - Several inorganics (arsenic, barium [surface soil], manganese, nickel [subsurface soil]) detected at elevated concentrations relative to screening levels at location SS025. However, no adjacent soil samples have been collected. Therefore, additional samples are warranted to delineate extent.
    - Collect four surface/subsurface soil samples approximately 20 feet away from SS/SB025. Analyze all samples for TAL inorganics.
      - Collect four additional surface/subsurface soil samples approximately 20 feet further out from initial ring of samples; analyze these samples only if initial ring of samples shows exceedances

Recommended Additional Data

- Soil (see Figure 9 for proposed locations)
  - Manganese was detected at elevated concentrations relative screening criteria and background in subsurface soil in Pits 15 and 16. However, no soil samples have been collected adjacent to pit. Therefore, additional samples are warranted to delineate extent.
    - Collect four surface/subsurface soil samples just outside the boundaries of Pits 15 and 16 to the north, south, east, and west. Analyze all samples for TAL inorganics
      - Collect three additional surface/subsurface soil samples at Pit 15 and four additional surface/subsurface soil samples at Pit 16 approximately 20 feet further out from initial ring of samples; analyze these samples only if initial ring of samples shows exceedances.
  - Analyze the soil samples collected at SB10 and Pit 13 additionally for TAL inorganics. These analyses, together with the TAL inorganics analysis for the samples collected around Pit 15, will address the extent of elevated vanadium detected in subsurface soil at SB10 and Pits 13 and 16.
- Collect all soil samples using slide hammer

Recommended Additional Data

- Groundwater
  - Collect two rounds of synoptic water levels (one approximately corresponding to high tide and one approximately corresponding to low tide) to confirm groundwater flow direction(s) and to evaluate potential tidal influences
  - Collect another round of groundwater samples to assist in evaluating concentration trends
  - Analyze all samples for TCL VOCs, TCL SVOCs, TAL inorganics (total and dissolved), and explosives including perchlorate

Recommended Additional Data

- Ephemeral Stream
  - Due to potentially dynamic nature of the surface water in the ephemeral stream and because several contaminants were detected in the initial surface water sample, collect another surface water sample in the general vicinity of SW43
    - Analyze sample for TCL VOCs, TCL SVOCs, TAL total and dissolved inorganics, and explosives including perchlorate
  - Due to the less dynamic nature of the sediment and because relatively low levels of contaminants were detected, no additional samples are necessary

Recommended Additional Data

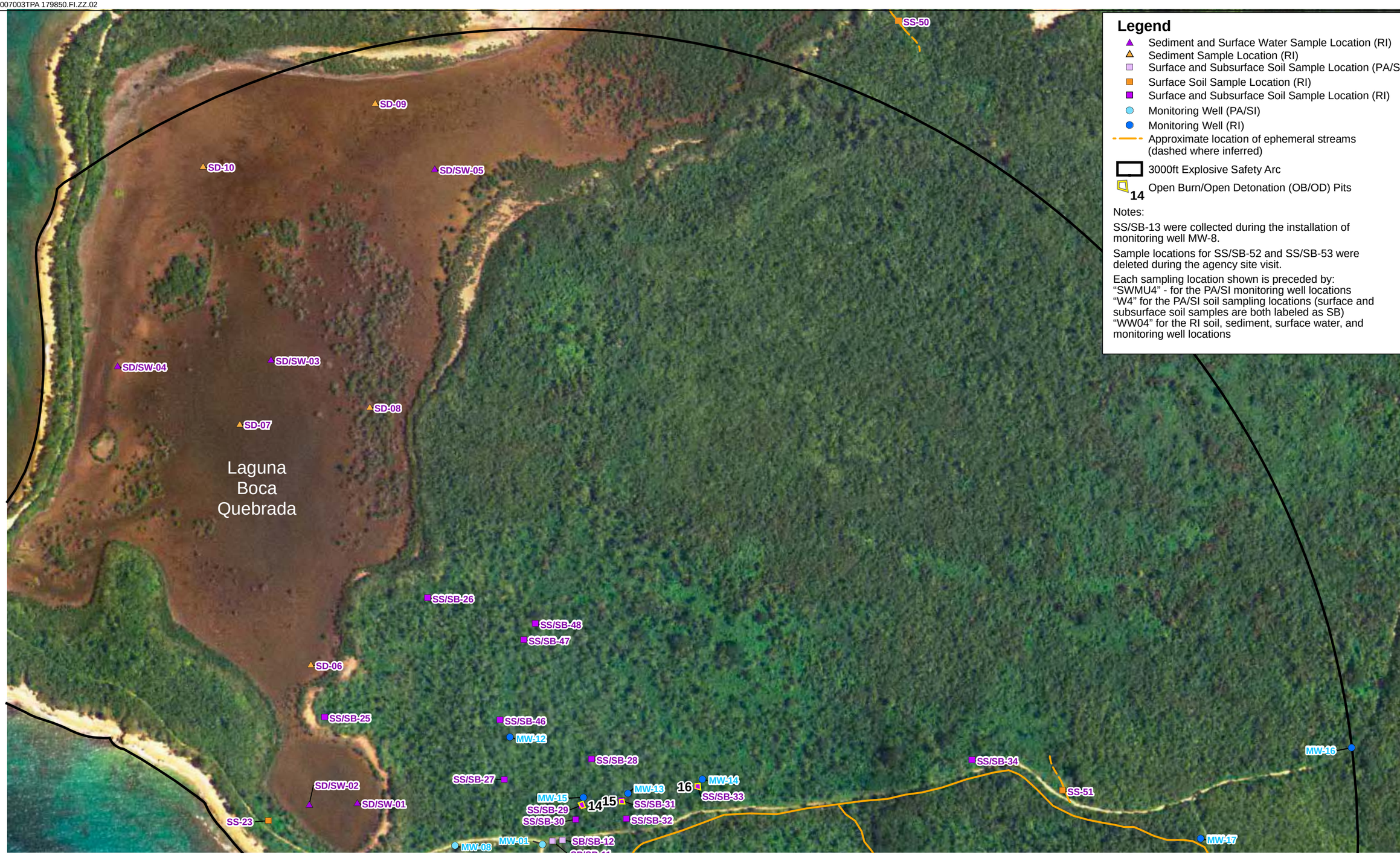
- Lagoon
  - Existing data provide good spatial distribution across lagoon; data are sufficient to characterize nature and extent and associated risks
  - No additional sample collection necessary

SWMU 4

Section 3:

Figures

- Figure 1: Sampling Locations – North
- Figure 2: Sampling Locations – South
- Figure 3: Surface Soil Sample Exceedances
- Figure 4: Subsurface Soil Sample Exceedances
- Figure 5: Groundwater Sample Exceedances
- Figure 6: Surface Water Sample Exceedances Within Laguna Boca Quebrada and the Ephemeral Stream
- Figure 7: Sediment Sample Exceedances Within Laguna Boca Quebrada and the Ephemeral Stream
- Figure 8: Estimated Potentiometric Surface
- Figure 9: Proposed Additional Sampling



Note: 2004 Aerial Photograph

0 200 400
Scale in Feet

North

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Figure 1
Sampling Locations North
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico

Note: 2004 Aerial Photograph

0 200 400
Scale in Feet

North

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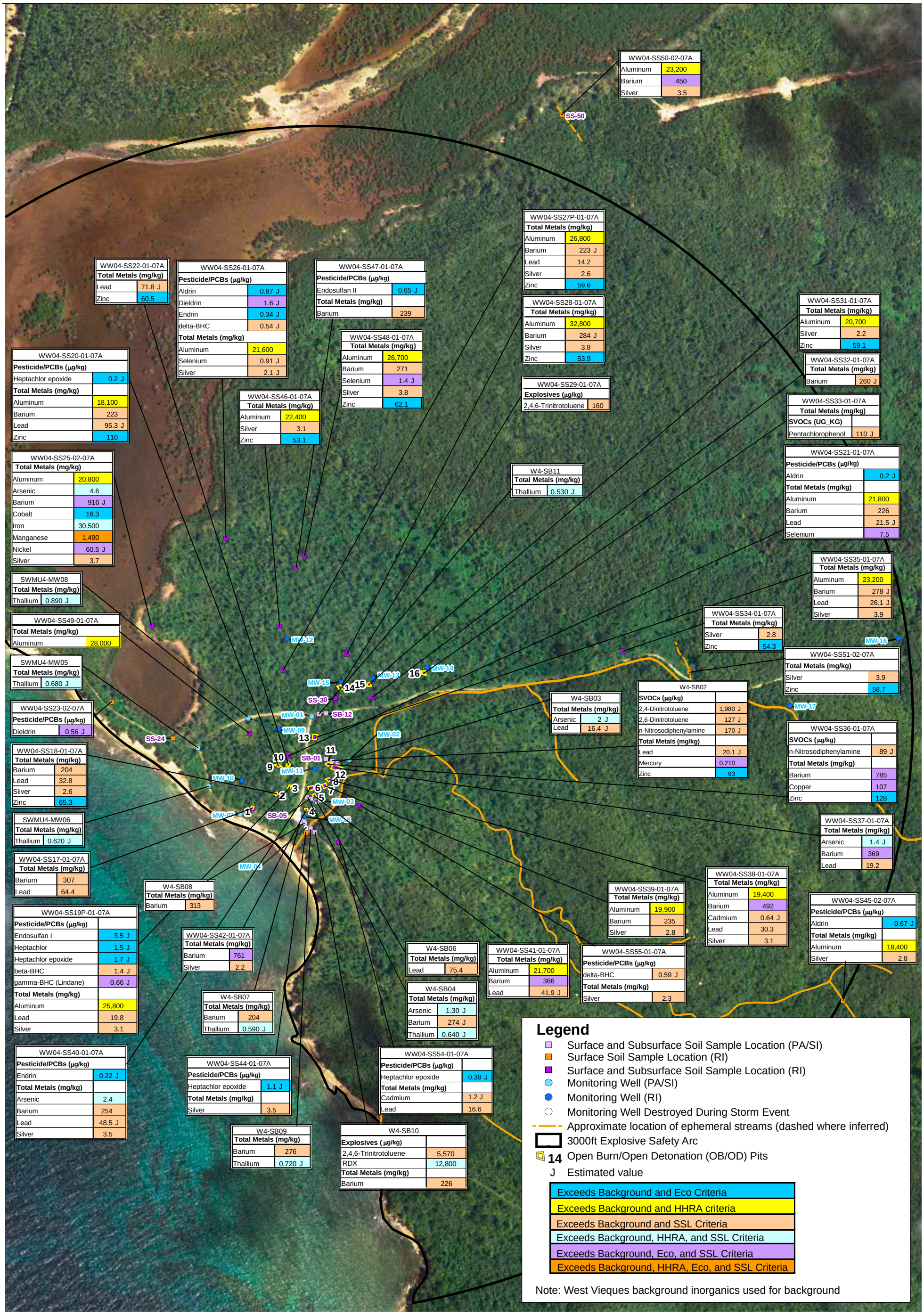
Figure 2
Sampling Locations South
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico



Note: 2004 Aerial Photograph

0 200 400
Scale in Feet

North

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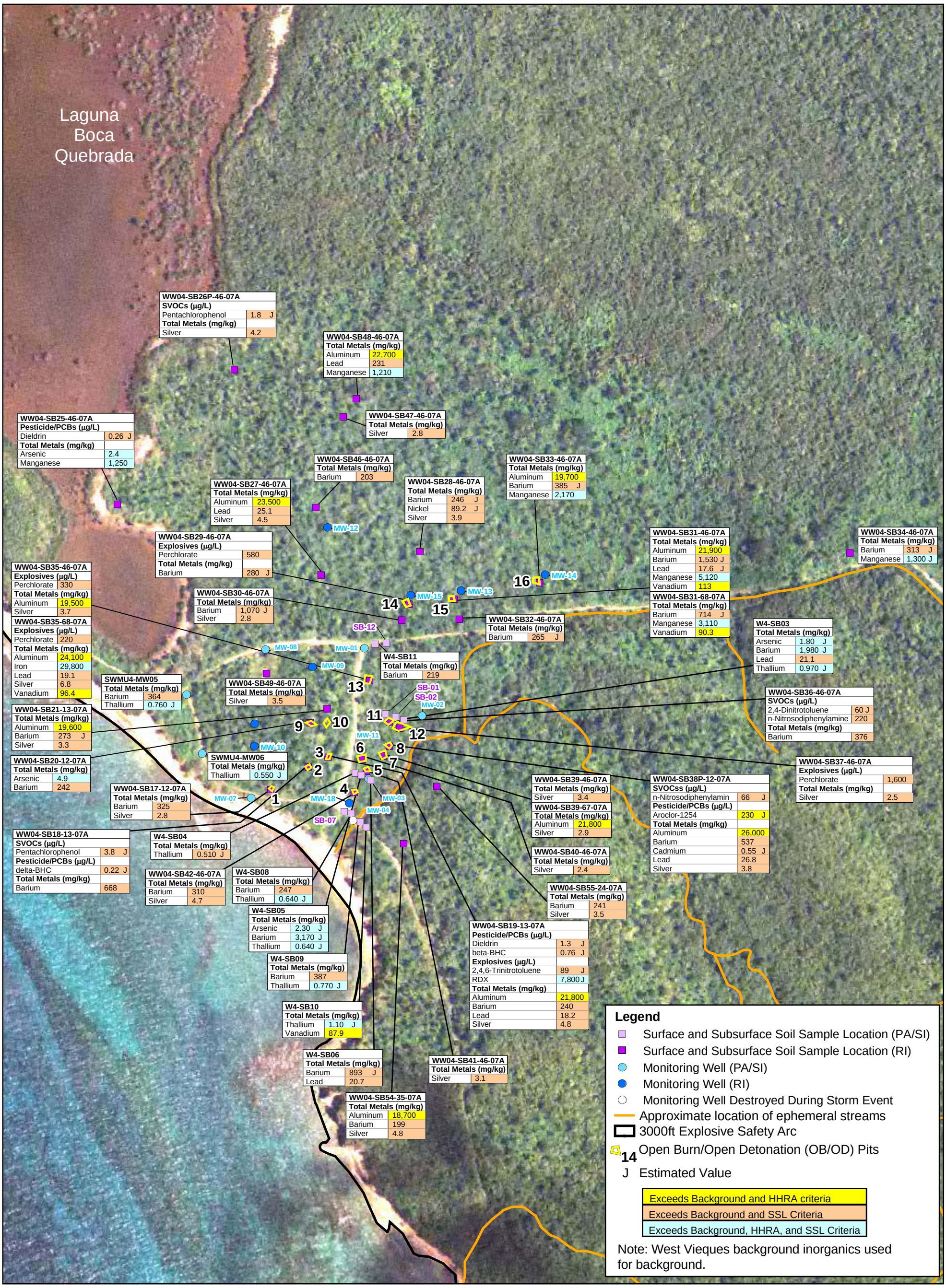
Figure 3
Surface Soil Sample Exceedances
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico



Note: 2004 Aerial Photograph

North

0 150 300 600 Feet

Figure 4
Subsurface Soil Sample Exceedances
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico

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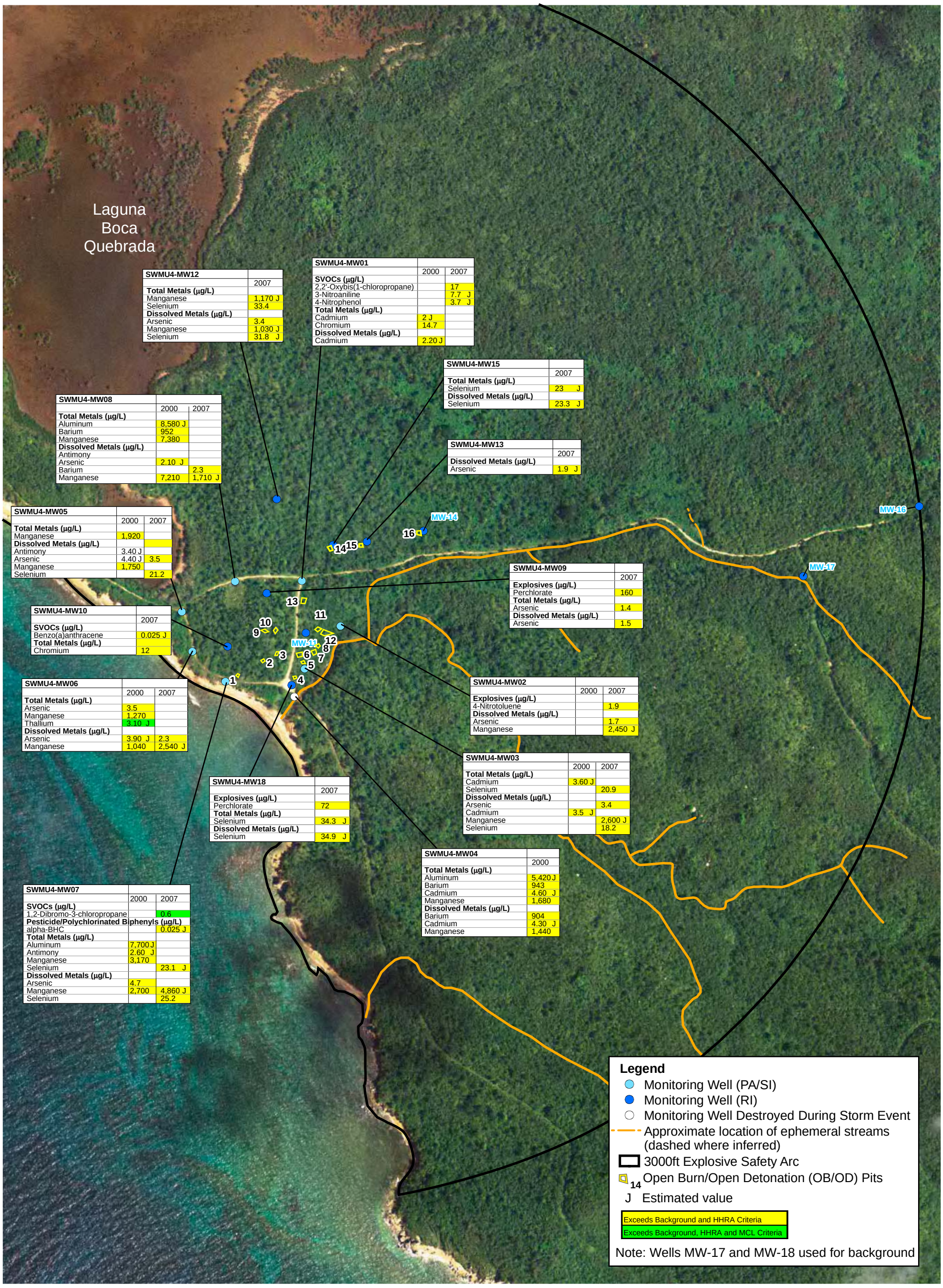

SWMU4-MW12		
		2007
Total Metals (µg/L)		
Manganese		1,170 J
Selenium		33.4
Dissolved Metals (µg/L)		
Arsenic		3.4
Manganese		1,030 J
Selenium		31.8 J

SWMU4-MW01		
	2000	2007
SVOCs (µg/L)		
2,2'-Oxybis(1-chloropropane)		17
3-Nitroaniline		7.7 J
4-Nitrophenol		3.7 J
Total Metals (µg/L)		
Cadmium	2 J	
Chromium	14.7	
Dissolved Metals (µg/L)		
Cadmium	2.20 J	

SWMU4-MW15		
		2007
Total Metals (µg/L)		
Selenium		23 J
Dissolved Metals (µg/L)		
Selenium		23.3 J

SWMU4-MW08		
	2000	2007
Total Metals (µg/L)		
Aluminum	8,580 J	
Barium	952	
Manganese	7,380	
Dissolved Metals (µg/L)		
Antimony		
Arsenic	2.10 J	
Barium		2.3
Manganese	7,210	1,710 J

SWMU4-MW13		
		2007
Dissolved Metals (µg/L)		
Arsenic		1.9 J

SWMU4-MW05		
	2000	2007
Total Metals (µg/L)		
Manganese	1,920	
Dissolved Metals (µg/L)		
Antimony	3.40 J	
Arsenic	4.40 J	3.5
Manganese	1,750	
Selenium		21.2

SWMU4-MW09		
		2007
Explosives (µg/L)		
Perchlorate		160
Total Metals (µg/L)		
Arsenic		1.4
Dissolved Metals (µg/L)		
Arsenic		1.5

SWMU4-MW10		
		2007
SVOCs (µg/L)		
Benzo(a)anthracene		0.025 J
Total Metals (µg/L)		
Chromium		12

SWMU4-MW06		
	2000	2007
Total Metals (µg/L)		
Arsenic	3.5	
Manganese	1,270	
Thallium	3.10 J	
Dissolved Metals (µg/L)		
Arsenic	3.90 J	2.3
Manganese	1,040	2,540 J

SWMU4-MW02		
	2000	2007
Explosives (µg/L)		
4-Nitrotoluene		1.9
Dissolved Metals (µg/L)		
Arsenic		1.7
Manganese		2,450 J

SWMU4-MW03		
	2000	2007
Total Metals (µg/L)		
Cadmium	3.60 J	
Selenium		20.9
Dissolved Metals (µg/L)		
Arsenic		3.4
Cadmium	3.5 J	
Manganese		2,600 J
Selenium		18.2

SWMU4-MW18		
		2007
Explosives (µg/L)		
Perchlorate		72
Total Metals (µg/L)		
Selenium		34.3 J
Dissolved Metals (µg/L)		
Selenium		34.9 J

SWMU4-MW04	
	2000
Total Metals (µg/L)	
Aluminum	5,420 J
Barium	943
Cadmium	4.60 J
Manganese	1,680
Dissolved Metals (µg/L)	
Barium	904
Cadmium	4.30 J
Manganese	1,440

SWMU4-MW07		
	2000	2007
SVOCs (µg/L)		
1,2-Dibromo-3-chloropropane		0.6
Pesticide/Polychlorinated Biphenyls (µg/L)		
alpha-BHC		0.025 J
Total Metals (µg/L)		
Aluminum	7,700 J	
Antimony	2.60 J	
Manganese	3,170	
Selenium		23.1 J
Dissolved Metals (µg/L)		
Arsenic	4.7	
Manganese	2,700	4,860 J
Selenium		25.2

Note: 2004 Aerial Photograph

N
W E
S

0 200 400 800
Feet

Figure 5
Groundwater Sample Exceedances
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico

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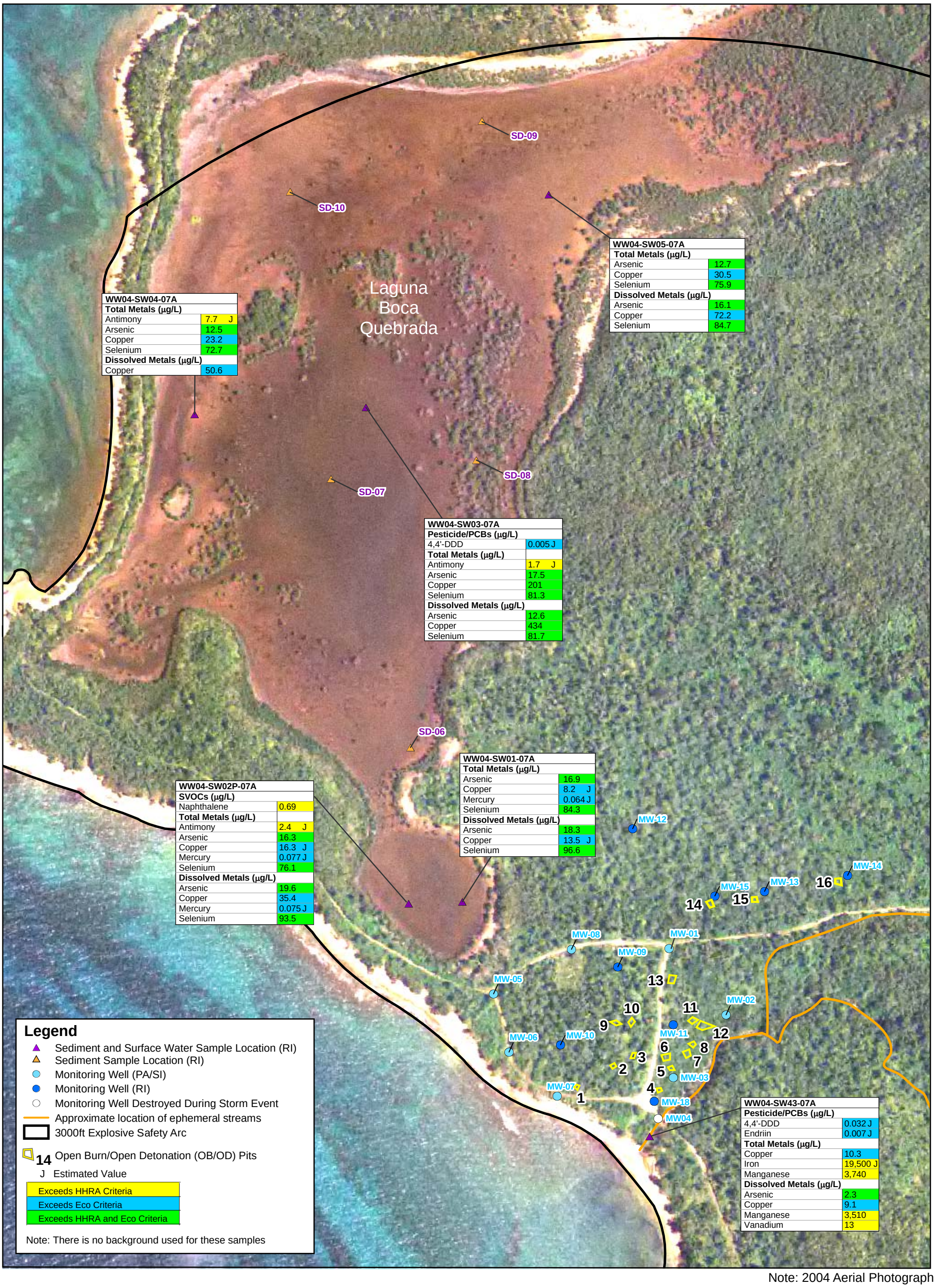

Note: 2004 Aerial Photograph

N
W E
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0 150 300 600
Feet

Figure 6
Surface Water Sample Exceedances Within Laguna Boca Quebrada and the Ephemeral Stream
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico

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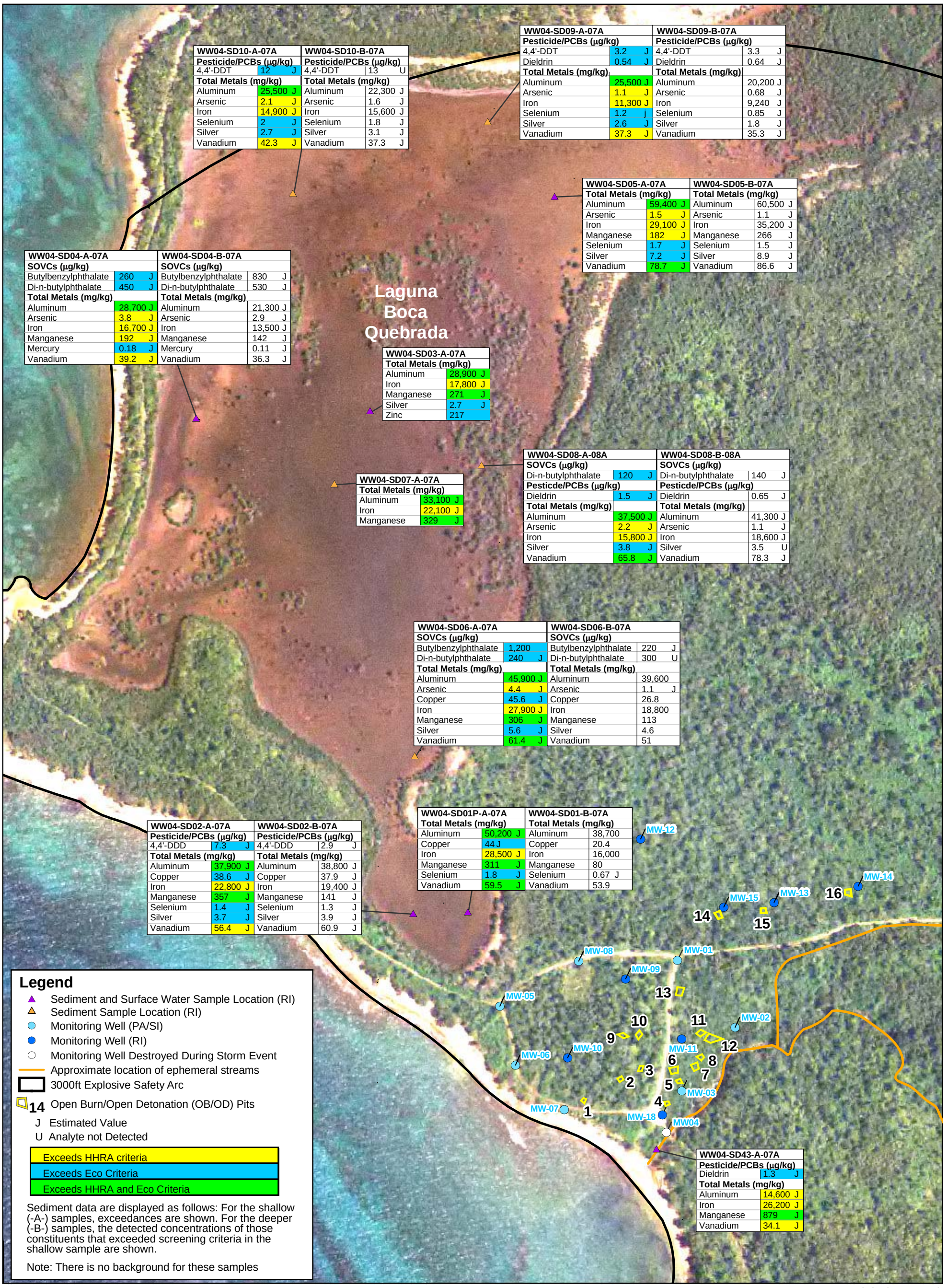
ES112007003TPA



WW04-SD10-A-07A		
Pesticide/PCBs (µg/kg)		
4,4'-DDT	12	J
Total Metals (mg/kg)		
Aluminum	25,500	J
Arsenic	2.1	J
Iron	14,900	J
Selenium	2	J
Silver	2.7	J
Vanadium	42.3	J

WW04-SD10-B-07A		
Pesticide/PCBs (µg/kg)		
4,4'-DDT	13	U
Total Metals (mg/kg)		
Aluminum	22,300	J
Arsenic	1.6	J
Iron	15,600	J
Selenium	1.8	J
Silver	3.1	J
Vanadium	37.3	J

WW04-SD09-A-07A		
Pesticide/PCBs (µg/kg)		
4,4'-DDT	3.2	J
Dieldrin	0.54	J
Total Metals (mg/kg)		
Aluminum	25,500	J
Arsenic	1.1	J
Iron	11,300	J
Selenium	1.2	j
Silver	2.6	J
Vanadium	37.3	J

WW04-SD09-B-07A		
Pesticide/PCBs (µg/kg)		
4,4'-DDT	3.3	J
Dieldrin	0.64	J
Total Metals (mg/kg)		
Aluminum	20,200	J
Arsenic	0.68	J
Iron	9,240	J
Selenium	0.85	J
Silver	1.8	J
Vanadium	35.3	J

WW04-SD05-A-07A		
Total Metals (mg/kg)		
Aluminum	59,400	J
Arsenic	1.5	J
Iron	29,100	J
Manganese	182	J
Selenium	1.7	J
Silver	7.2	J
Vanadium	78.7	J

WW04-SD05-B-07A		
Total Metals (mg/kg)		
Aluminum	60,500	J
Arsenic	1.1	J
Iron	35,200	J
Manganese	266	J
Selenium	1.5	J
Silver	8.9	J
Vanadium	86.6	J

WW04-SD04-A-07A		
SOVCs (µg/kg)		
Butylbenzylphthalate	260	J
Di-n-butylphthalate	450	J
Total Metals (mg/kg)		
Aluminum	28,700	J
Arsenic	3.8	J
Iron	16,700	J
Manganese	192	J
Mercury	0.18	J
Vanadium	39.2	J

WW04-SD04-B-07A		
SOVCs (µg/kg)		
Butylbenzylphthalate	830	J
Di-n-butylphthalate	530	J
Total Metals (mg/kg)		
Aluminum	21,300	J
Arsenic	2.9	J
Iron	13,500	J
Manganese	142	J
Mercury	0.11	J
Vanadium	36.3	J

WW04-SD03-A-07A		
Total Metals (mg/kg)		
Aluminum	28,900	J
Iron	17,800	J
Manganese	271	J
Silver	2.7	J
Zinc	217	

WW04-SD07-A-07A		
Total Metals (mg/kg)		
Aluminum	33,100	J
Iron	22,100	J
Manganese	329	J

WW04-SD08-A-08A		
SOVCs (µg/kg)		
Di-n-butylphthalate	120	J
Pesticde/PCBs (µg/kg)		
Dieldrin	1.5	J
Total Metals (mg/kg)		
Aluminum	37,500	J
Arsenic	2.2	J
Iron	15,800	J
Silver	3.8	J
Vanadium	65.8	J

WW04-SD08-B-08A		
SOVCs (µg/kg)		
Di-n-butylphthalate	140	J
Pesticde/PCBs (µg/kg)		
Dieldrin	0.65	J
Total Metals (mg/kg)		
Aluminum	41,300	J
Arsenic	1.1	J
Iron	18,600	J
Silver	3.5	U
Vanadium	78.3	J

WW04-SD06-A-07A		
SOVCs (µg/kg)		
Butylbenzylphthalate	1,200	
Di-n-butylphthalate	240	J
Total Metals (mg/kg)		
Aluminum	45,900	J
Arsenic	4.4	J
Copper	45.6	J
Iron	27,900	J
Manganese	306	J
Silver	5.6	J
Vanadium	61.4	J

WW04-SD06-B-07A		
SOVCs (µg/kg)		
Butylbenzylphthalate	220	J
Di-n-butylphthalate	300	U
Total Metals (mg/kg)		
Aluminum	39,600	
Arsenic	1.1	J
Copper	26.8	
Iron	18,800	
Manganese	113	
Silver	4.6	
Vanadium	51	

WW04-SD02-A-07A		
Pesticide/PCBs (µg/kg)		
4,4'-DDD	7.3	J
Total Metals (mg/kg)		
Aluminum	37,900	J
Copper	38.6	J
Iron	22,800	J
Manganese	357	J
Selenium	1.4	J
Silver	3.7	J
Vanadium	56.4	J

WW04-SD02-B-07A		
Pesticide/PCBs (µg/kg)		
4,4'-DDD	2.9	J
Total Metals (mg/kg)		
Aluminum	38,800	J
Copper	37.9	J
Iron	19,400	J
Manganese	141	J
Selenium	1.3	J
Silver	3.9	J
Vanadium	60.9	J

WW04-SD01P-A-07A		
Total Metals (mg/kg)		
Aluminum	50,200	J
Copper	44	J
Iron	28,500	J
Manganese	311	J
Selenium	1.8	J
Vanadium	59.5	J

WW04-SD01-B-07A		
Total Metals (mg/kg)		
Aluminum	38,700	
Copper	20.4	
Iron	16,000	
Manganese	80	
Selenium	0.67	J
Vanadium	53.9	

WW04-SD43-A-07A		
Pesticide/PCBs (µg/kg)		
Dieldrin	1.3	J
Total Metals (mg/kg)		
Aluminum	14,600	J
Iron	26,200	J
Manganese	879	J
Vanadium	34.1	J

Note: 2004 Aerial Photograph

N
W E
S

0 150 300 600
Feet

Figure 7
Sediment Sample Exceedances Within Laguna Boca Quebrada and the Ephemeral Stream
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico

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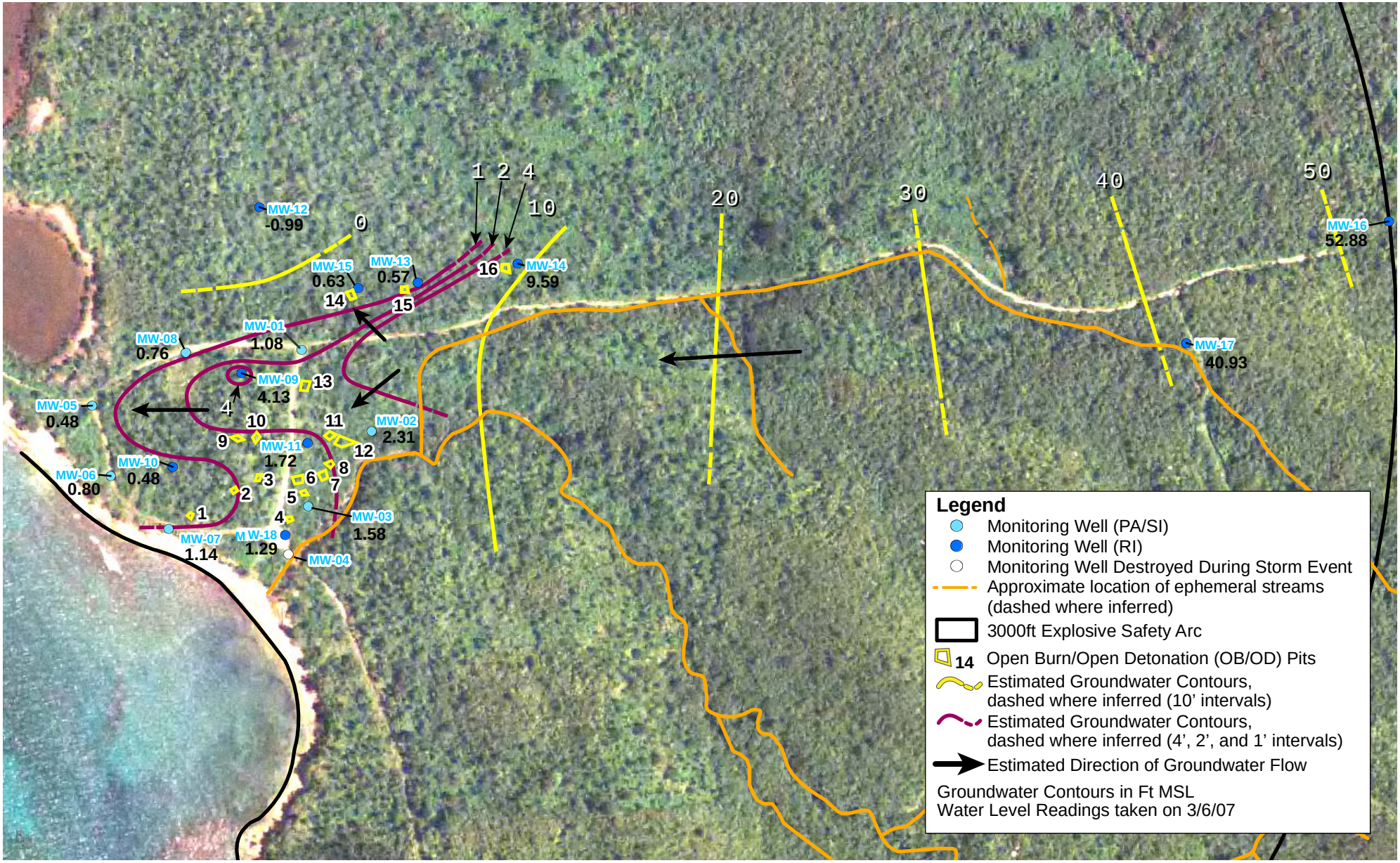

Note: 2004 Aerial Photograph

0 175 350 700 Feet

N W E S

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ES112007003TPA

Figure 8

Estimated Potentiometric Surface

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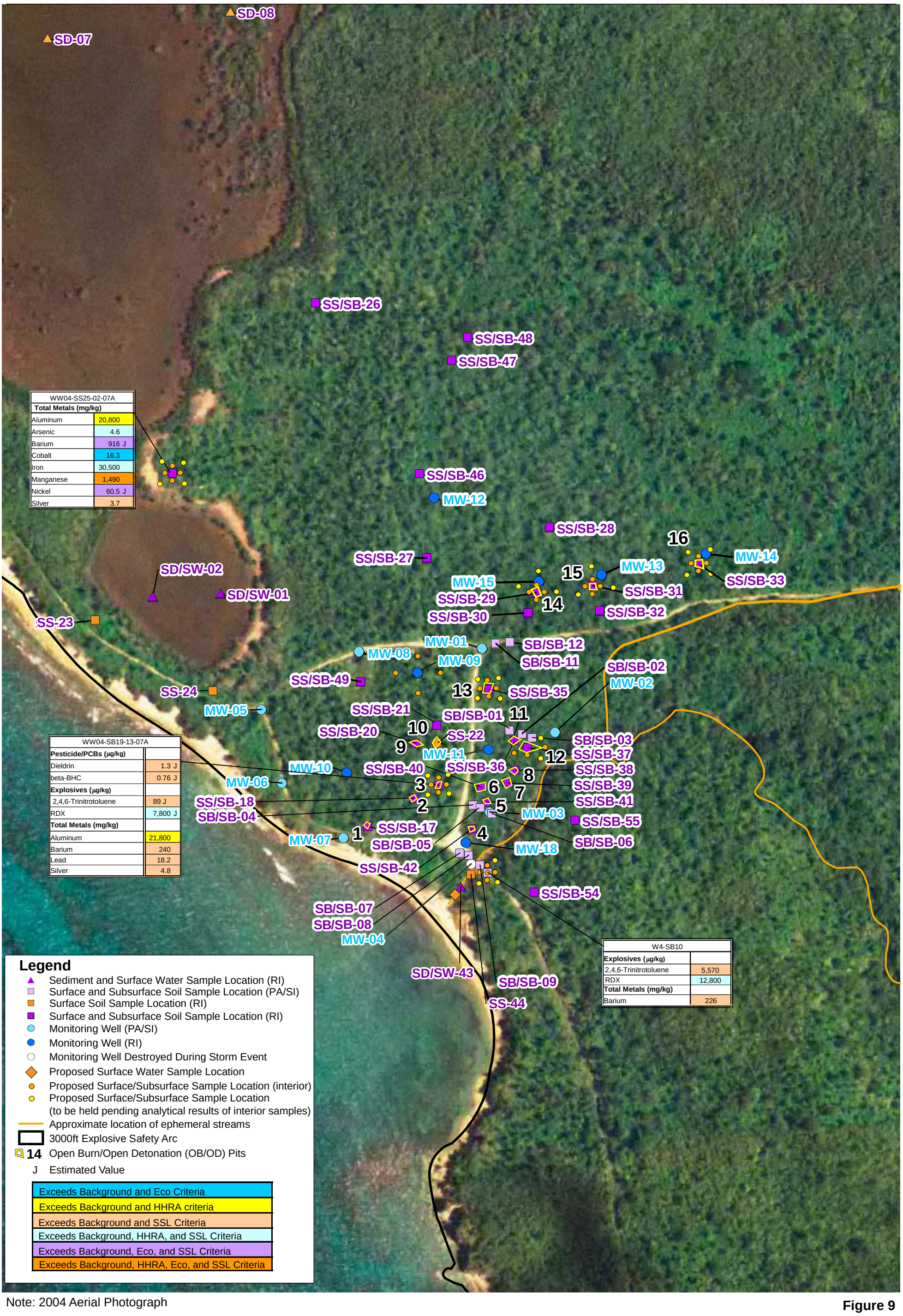

Note: 2004 Aerial Photograph

0 200 400
Scale in Feet
North

CH2MHILL

Figure 9
Proposed Additional Sampling
SWMU 4 Remedial Investigation Report
Former NASD, West Vieques, Puerto Rico

SWMU 4

Section 4:

Tables

- Surface Soil Detection and Exceedance Results (10 Pages)
- Subsurface Soil Detection and Exceedance Results (9 Pages)
- Groundwater Detection and Exceedance Results (9 Pages)
- Sediment – Lagoon Detection and Exceedance Results (1 Page)
- Sediment – Ephemeral Stream Detection and Exceedance Results (1 Page)
- Surface Water – Lagoon Detection and Exceedance Results (1 Page)
- Surface Water – Ephemeral Stream Detection and Exceedance Results (1 Page)

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	SWMU4-MW05	SWMU4-MW06		SWMU4-MW07	SWMU4-MW08	W4-SB01
Sample ID					NDB001	NDB003	NDB004FD1	NDB006	NDB008	NDA057
Sample Date					06/06/00	06/06/00	06/06/00	06/06/00	06/06/00	04/18/00
Chemical Name										
Volatile Organic Compounds (UG_KG)										
2-Butanone	--	2,200,000	--	--	12 R	2 UJ	11 R	12 R	1,050 R	10 R
2-Hexanone	--	310,000	--	--	12 U	11 U	11 U	12 U	10 U	10 U
Acetone	800	1,400,000	--	--	33 R	50 R	52 R	25 R	1,050 R	62 J
Bromoform	40	62,000	--	--	12 U	11 U	11 U	12 U	10 U	10 U
Carbon disulfide	2,000	36,000	--	--	12 U	11 U	11 U	12 U	10 U	10 U
Chlorobenzene	70	15,000	40,000	--	12 U	11 U	11 U	12 U	10 U	10 U
Methyl acetate	--	2,200,000	--	--	NA	NA	NA	NA	NA	NA
Styrene	200	440,000	300,000	--	12 U	11 U	11 U	12 U	10 U	10 U
Toluene	600	630,000	200,000	--	12 U	11 U	11 U	12 U	10 U	0.400 J
Trichloroethene	3	53	100	--	12 U	11 U	11 U	12 U	10 U	10 U
o-Xylene	10,000	27,000	100	--	12 U	11 U	11 U	12 U	10 U	0.300 J
Semi-volatile Organic Compounds (UG_KG)										
2,4-Dinitrotoluene	0.04	12,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
2,6-Dinitrotoluene	0.03	6,100	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
2-Methylnaphthalene	4,000	31,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Acenaphthylene	4,000	370,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Anthracene	590,000	2,200,000	100	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Benzo(a)anthracene	80	620	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Benzo(a)pyrene	400	62	100	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Benzo(b)fluoranthene	200	620	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Benzo(k)fluoranthene	2,000	6,200	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Butylbenzylphthalate	810,000	1,200,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Chrysene	8,000	62,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Di-n-butylphthalate	270,000	610,000	200,000	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Di-n-octylphthalate	10,000,000	240,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Dibenz(a,h)anthracene	80	62	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Diethylphthalate	--	4,900,000	100,000	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Fluoranthene	210,000	230,000	100	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Indeno(1,2,3-cd)pyrene	700	620	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Naphthalene	4,000	5,600	100	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Pentachlorophenol	1	3,000	5,000	--	1,530 U	1,400 U	1,340 U	1,280 U	1,280 U	1,690 UJ
Phenanthrene	210,000	230,000	100	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Pyrene	210,000	230,000	100	--	511 U	468 U	445 U	427 U	427 U	563 UJ
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	511 U	468 U	445 U	427 U	427 U	563 UJ
n-Nitrosodiphenylamine	60	99,000	20,000	--	511 U	468 U	445 U	427 U	427 U	563 UJ
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	800	2,400	10	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
4,4'-DDE	3,000	1,700	10	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
4,4'-DDT	2,000	1,700	10	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
Aldrin	20	29	0.06	--	1.80 U	1.80 U	1.80 U	1.80 U	1.70 U	2.10 UJ
Dieldrin	0.2	30	0.5	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
Endosulfan I	900	37,000	0.01	--	1.80 U	1.80 U	1.80 U	1.80 U	1.70 U	2.10 UJ
Endosulfan II	900	37,000	0.01	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
Endosulfan sulfate	900	37,000	--	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
Endrin	50	1,800	0.04	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
Endrin aldehyde	50	1,800	100	--	3.60 U	3.5 U	3.5 U	3.5 U	3.30 U	4.10 UJ
Heptachlor	1,000	110	0.7	--	1.80 U	1.80 U	1.80 U	1.80 U	1.70 U	2.10 UJ
Heptachlor epoxide	30	53	0.0002	--	1.80 U	1.80 U	1.80 U	1.80 U	1.70 U	2.10 UJ
Methoxychlor	8,000	31,000	--	--	18 U	18 U	18 U	18 U	17 U	21 UJ
alpha-Chlordane	500	1,600	--	--	1.80 U	1.80 U	1.80 U	1.80 U	1.70 U	2.10 UJ
beta-BHC	0.1	320	9	--	1.80 U	1.80 U	1.80 U	1.80 U	1.70 U	2.10 UJ
delta-BHC	0.1	440	--	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	1.70 UJ	2.10 UJ
gamma-BHC (Lindane)	0.5	440	0.05	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	1.70 UJ	2.10 UJ
gamma-Chlordane	500	1,600	--	--	1.80 U	1.80 U	1.80 U	1.80 U	1.70 U	2.10 UJ
Explosives (UG_KG)										
2,4,6-Trinitrotoluene	8.7	16,000	--	--	261 U	260 U	261 U	257 U	246 U	306 U
HMX	7,100	310,000	--	--	261 U	260 U	261 U	257 U	246 U	306 U
Perchlorate	85	55,000	--	--	NA	NA	NA	NA	NA	NA
RDX	0.36	4,400	--	--	261 U	260 U	261 U	257 U	246 U	306 U
Total Metals (MG_KG)										
Aluminum	55,000	7,600	--	18,000	3,350	2,800	2,820	2,640	3,890	4,580 J
Antimony	0.3	3.1	78	2.3	0.150 UJ	0.150 UJ	0.150 UJ	0.150 UJ	0.140 UJ	0.170 UJ
Arsenic	1	0.39	18	1.2	0.830 J	0.810 J	0.680 J	0.570 J	0.900 J	0.880 J
Barium	82	1,600	330	190	78.8	36.3 J	35.7 J	48.9	69.2	219 R
Beryllium	3	15	40	0.45	0.240 J	0.190 J	0.190 J	0.130 J	0.25 J	0.210 J
Cadmium	0.4	3.7	32	0.036	0.0280 J	0.02 U	0.02 U	0.02 U	0.022 J	0.0320 J
Calcium	--	--	--	9,100	784 J	440 J	470 J	586 J	693 J	708 J
Chromium	2	210	0.4	52	1.40 J	1.40 J	1.5 J	1.40 J	1.60 J	2.30 J
Cobalt	33	140	13	13	3.20 J	1.80 J	1.80 J	1.80 J	3 J	3.30 J
Copper	46	310	70	47	6.20	2.10 J	1.90 J	2.90 J	10	10.7
Cyanide	--	120	1	--	NA	NA	NA	NA	NA	NA
Iron	276	2,300	--	28,000	6,990	5,450	5,370	4,580	7,820	6,670 J
Lead	14	400	120	6.9	10	4.90	5.20	5.20	8.20	12 J
Magnesium	--	--	--	12,834	414 J	258 J	263 J	273 J	527 J	414 J
Manganese	57	180	220	1,200	399 J	417 J	311 J	285 J	311 J	337 R
Mercury	0.1	2.3	0.1	0.024	0.01 U	0.01 U	0.01 U	0.0096 U	0.01 U	0.01 U
Nickel	7	160	38	18	0.380 J	0.400 J	0.360 J	0.370 J	0.530 J	0.480 J
Potassium	--	--	--	1,700	442 J	419 J	385 J	464 J	440 J	236 J
Selenium	0.3	39	1	0.73	0.530 J	0.650 J	0.380 J	0.340 J	0.650 J	0.260 U
Silver	2	39	560	0.076	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0600 U
Sodium	--	--	--	310	106 J	118 J	112 J	83.7 J	127 J	98.9 J
Thallium	0.036	0.52	1	0.46	0.680 J	0.620 J	0.570 J	0.420 J	0.890 J	0.340 U
Vanadium	300	7.8	2	80	23.9	19.9	19.7	18.8	23.4	29 J
Zinc	620	2,300	50	53	13.8	5.10	4.5	4.70	16.7	14.1
Wet Chemistry (MG_KG)										
% Solids	--	--	--	--	NA	NA	NA	NA	NA	NA
Total organic carbon (TOC)	--	--	--	--	NA	NA	NA	NA	NA	NA
pH	--	--	--	--	NA	NA	NA	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Surface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	W4-SB02	W4-SB03		W4-SB04	W4-SB05	W4-SB06	W4-SB07	
Sample ID					NDA059	NDA061	NDA062FD1	NDA065	NDA067	NDA069	NDA071	NDA072FD1
Sample Date					04/18/00	04/18/00	04/18/00	04/18/00	04/18/00	04/18/00	04/19/00	04/19/00
Chemical Name												
Volatile Organic Compounds (UG_KG)												
2-Butanone	--	2,200,000	--	--	1,170 R	12 R	12 R	1,220 R	12 R	1,080 R	12 U	11 R
2-Hexanone	--	310,000	--	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
Acetone	800	1,400,000	--	--	1,840 R	33 J	14 J	1,630 R	15 R	1,600 R	12 U	41 R
Bromoform	40	62,000	--	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
Carbon disulfide	2,000	36,000	--	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
Chlorobenzene	70	15,000	40,000	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
Methyl acetate	--	2,200,000	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	200	440,000	300,000	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
Toluene	600	630,000	200,000	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
Trichloroethene	3	53	100	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
o-Xylene	10,000	27,000	100	--	11 U	12 U	12 U	12 U	12 U	11 U	12 U	11 UJ
Semi-volatile Organic Compounds (UG_KG)												
2,4-Dinitrotoluene	0.04	12,000	--	--	1,980 J	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
2,6-Dinitrotoluene	0.03	6,100	--	--	127 J	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
2-Methylnaphthalene	4,000	31,000	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Acenaphthylene	4,000	370,000	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Anthracene	590,000	2,200,000	100	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Benzo(a)anthracene	80	620	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Benzo(a)pyrene	400	62	100	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Benzo(b)fluoranthene	200	620	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Benzo(k)fluoranthene	2,000	6,200	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Butylbenzylphthalate	810,000	1,200,000	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Chrysene	8,000	62,000	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Di-n-butylphthalate	270,000	610,000	200,000	--	28 J	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Di-n-octylphthalate	10,000,000	240,000	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Dibenz(a,h)anthracene	80	62	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Diethylphthalate	--	4,900,000	100,000	--	465 UJ	91 J	523 UJ	38 J	378 UJ	320 UJ	554 UJ	413 UJ
Fluoranthene	210,000	230,000	100	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Indeno(1,2,3-cd)pyrene	700	620	--	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Naphthalene	4,000	5,600	100	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Pentachlorophenol	1	3,000	5,000	--	1,390 UJ	1,410 UJ	1,570 UJ	1,260 UJ	1,130 UJ	959 UJ	1,660 UJ	1,240 UJ
Phenanthrene	210,000	230,000	100	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Pyrene	210,000	230,000	100	--	465 UJ	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	41 J	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
n-Nitrosodiphenylamine	60	99,000	20,000	--	170 J	469 UJ	523 UJ	421 UJ	378 UJ	320 UJ	554 UJ	413 UJ
Pesticide/Polychlorinated Biphenyls (UG_KG)												
4,4'-DDD	800	2,400	10	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
4,4'-DDE	3,000	1,700	10	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
4,4'-DDT	2,000	1,700	10	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
Aldrin	20	29	0.06	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
Dieldrin	0.2	30	0.5	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
Endosulfan I	900	37,000	0.01	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
Endosulfan II	900	37,000	0.01	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
Endosulfan sulfate	900	37,000	--	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
Endrin	50	1,800	0.04	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
Endrin aldehyde	50	1,800	100	--	3.60 UJ	3.5 UJ	3.5 UJ	4.20 UJ	3.60 UJ	3.40 UJ	4 UJ	3.5 UJ
Heptachlor	1,000	110	0.7	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
Heptachlor epoxide	30	53	0.0002	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
Methoxychlor	8,000	31,000	--	--	18 UJ	18 UJ	18 UJ	21 UJ	18 UJ	17 UJ	20 UJ	18 UJ
alpha-Chlordane	500	1,600	--	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
beta-BHC	0.1	320	9	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
delta-BHC	0.1	440	--	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
gamma-BHC (Lindane)	0.5	440	0.05	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
gamma-Chlordane	500	1,600	--	--	1.80 UJ	1.80 UJ	1.80 UJ	2.10 UJ	1.80 UJ	1.70 UJ	2 UJ	1.80 UJ
Explosives (UG_KG)												
2,4,6-Trinitrotoluene	8.7	16,000	--	--	261 U	259 U	256 U	309 U	268 UJ	255 UJ	292 U	128 UJ
HMX	7,100	310,000	--	--	261 U	259 U	256 U	309 U	268 UJ	255 UJ	292 U	128 UJ
Perchlorate	85	55,000	--	--	NA	NA	NA	NA	NA	NA	NA	NA
RDX	0.36	4,400	--	--	261 U	259 U	256 U	309 U	268 UJ	255 UJ	292 U	128 UJ
Total Metals (MG_KG)												
Aluminum	55,000	7,600	--	18,000	4,040 J	4,920 J	5,600 J	11,700	8,480	5,340	5,080	4,510
Antimony	0.3	3.1	78	2.3	0.150 UJ	0.150 UJ	0.150 UJ	0.180 UJ	0.270 J	0.140 UJ	0.170 UJ	0.150 UJ
Arsenic	1	0.39	18	1.2	0.920 J	0.800 J	2 J	1.30 J	0.640 J	0.980 J	0.810 J	0.680 J
Barium	82	1,600	330	190	315 R	150 R	200 R	274 J	66.2 J	168 J	204	187
Beryllium	3	15	40	0.45	0.200 J	0.190 J	0.240 J	0.540 J	0.300 J	0.360 J	0.270 J	0.25 J
Cadmium	0.4	3.7	32	0.036	0.320 J	0.02 U	0.160 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Calcium	--	--	--	9,100	833 J	1,020 J	1,430 J	1,060 J	906 J	958 J	828 J	783 J
Chromium	2	210	0.4	52	2.5	2.30	2.70	3.30	3.20	2.70	2.40 J	2.10 J
Cobalt	33	140	13	13	3.70 J	3.20 J	5.30 J	3.30 J	1.30 J	4.90 J	2.5 J	2.30 J
Copper	46	310	70	47	38.4	7.30	11.8	1.90 J	2.20 J	16.5	8.90	7.70
Cyanide	--	120	1	--	NA	NA	NA	NA	NA	NA	NA	NA
Iron	276	2,300	--	28,000	7,120 J	6,170 J	7,250 J	16,000	8,800	9,320	8,330	7,130
Lead	14	400	120	6.9	20.1 J	11 J	16.4 J	8.20	6.30	75.4	8.60	8.20
Magnesium	--	--	--	12,834	440 J	540 J	685 J	1,040 J	929 J	529 J	848 J	690 J
Manganese	57	180	220	1,200	345 R	382 R	585 R	188	39.9	537	264	265
Mercury	0.1	2.3	0.1	0.024	0.210	0.015 J	0.0360 J	0.0190 J	0.01 U	0.015 J	0.01 U	0.01 U
Nickel	7	160	38	18	0.480 J	0.630 J	0.860 J	0.880 J	0.790 J	0.740 J	0.610 J	0.540 J
Potassium	--	--	--	1,700	233 J	310 J	383 J	291 J	257 J	325 J	243 J	226 J
Selenium	0.3	39	1	0.73	0.230 U	0.220 U	0.430 J	0.600 J	0.230 U	0.410 J	0.25 U	0.220 U
Silver	2	39	560	0.076	0.0500 U	0.0500 U	0.0500 U	0.0600 U	0.0500 U	0.0500 U	0.0600 U	0.0500 U
Sodium	--	--	--	310	104 J	135 J	208 J	402 J	418 J	127 J	870 J	838 J
Thallium	0.036	0.52	1	0.46	0.290 U	0.430 J	0.400 J	0.640 J	0.290 U	0.460 J	0.590 J	0.280 U
Vanadium	300	7.8	2	80	29.9 J	21.3 J	26.6 J	43.7	30.9	38	29.2	26.1
Zinc	620	2,300	50	53	93	12.8	17.5	9.90	7.80	22.4	12.5	11.5
Wet Chemistry (MG_KG)												
% Solids	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Total organic carbon (TOC)	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
pH	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Surface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	W4-SB08	W4-SB09	W4-SB10	W4-SB11	W4-SB12	WW04-SO17	WW04-SO18
Sample ID					NDA074	NDA076	NDA078	NDA080	NDA082	WW04-SS17-01-07A	WW04-SS18-01-07A
Sample Date					04/19/00	04/19/00	04/19/00	04/19/00	04/19/00	02/02/07	02/07/07
Chemical Name											
Volatile Organic Compounds (UG_KG)											
2-Butanone	--	2,200,000	--	--	10 R	10 R	11 R	10 R	13 R	10 U	4.4 J
2-Hexanone	--	310,000	--	--	10 U	10 U	11 U	10 U	13 U	10 U	11 U
Acetone	800	1,400,000	--	--	60 R	10 R	14 R	10 R	13 R	21	30
Bromoform	40	62,000	--	--	10 U	10 U	11 U	10 U	13 U	5.2 U	5.3 U
Carbon disulfide	2,000	36,000	--	--	10 U	10 U	11 U	10 U	13 U	5.2 U	5.3 U
Chlorobenzene	70	15,000	40,000	--	10 U	10 U	11 U	10 U	13 U	5.2 UJ	5.3 U
Methyl acetate	--	2,200,000	--	--	NA	NA	NA	NA	NA	5.2 U	5.3 U
Styrene	200	440,000	300,000	--	10 U	10 U	11 U	10 U	13 U	1.3 J	1.8 J
Toluene	600	630,000	200,000	--	10 U	10 U	11 U	10 U	13 U	0.56 J	0.86 J
Trichloroethene	3	53	100	--	10 U	10 U	11 U	10 U	13 U	5.2 U	5.3 U
o-Xylene	10,000	27,000	100	--	10 U	10 U	11 U	10 U	13 U	5.2 U	5.3 U
Semi-volatile Organic Compounds (UG_KG)											
2,4-Dinitrotoluene	0.04	12,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	180 U	180 U
2,6-Dinitrotoluene	0.03	6,100	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	180 U	180 U
2-Methylnaphthalene	4,000	31,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Acenaphthylene	4,000	370,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Anthracene	590,000	2,200,000	100	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Benzo(a)anthracene	80	620	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Benzo(a)pyrene	400	62	100	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Benzo(b)fluoranthene	200	620	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	0.45 J	0.72 U
Benzo(k)fluoranthene	2,000	6,200	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Butylbenzylphthalate	810,000	1,200,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	180 U	180 U
Chrysene	8,000	62,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Di-n-butylphthalate	270,000	610,000	200,000	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	18 U	130 U
Di-n-octylphthalate	10,000,000	240,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	180 U	180 U
Dibenz(a,h)anthracene	80	62	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	0.56 J	0.62 U
Diethylphthalate	--	4,900,000	100,000	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	180 U	180 U
Fluoranthene	210,000	230,000	100	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Indeno(1,2,3-cd)pyrene	700	620	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	0.58 J	0.68 U
Naphthalene	4,000	5,600	100	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Pentachlorophenol	1	3,000	5,000	--	1,340 UJ	1,260 UJ	1,320 UJ	1,220 UJ	14,000 UJ	340 UJ	350 UJ
Phenanthrene	210,000	230,000	100	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
Pyrene	210,000	230,000	100	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	3.4 U	3.5 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	25 U	33 U
n-Nitrosodiphenylamine	60	99,000	20,000	--	448 UJ	419 UJ	440 UJ	407 UJ	4,660 UJ	180 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)											
4,4'-DDD	800	2,400	10	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	0.87 J	3.5 U
4,4'-DDE	3,000	1,700	10	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	3.4 U	0.35 U
4,4'-DDT	2,000	1,700	10	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	3.4 U	0.55 U
Aldrin	20	29	0.06	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	1.8 U	1.8 U
Dieldrin	0.2	30	0.5	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	0.069 U	3.5 U
Endosulfan I	900	37,000	0.01	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	1.8 U	1.8 U
Endosulfan II	900	37,000	0.01	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	0.25 U	3.5 U
Endosulfan sulfate	900	37,000	--	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	3.4 U	3.5 U
Endrin	50	1,800	0.04	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	3.4 U	3.5 U
Endrin aldehyde	50	1,800	100	--	0.350 UJ	0.350 UJ	0.350 UJ	0.340 UJ	0.340 UJ	3.4 U	0.34 J
Heptachlor	1,000	110	0.7	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	0.047 U	1.8 UJ
Heptachlor epoxide	30	53	0.0002	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	1.8 U	1.8 U
Methoxychlor	8,000	31,000	--	--	1.80 UJ	1.80 UJ	1.80 UJ	1.70 UJ	1.70 UJ	18 U	0.81 U
alpha-Chlordane	500	1,600	--	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	1.8 U	1 J
beta-BHC	0.1	320	9	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	1.8 U	1.8 U
delta-BHC	0.1	440	--	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	1.8 U	1.8 U
gamma-BHC (Lindane)	0.5	440	0.05	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	1.8 U	1.8 U
gamma-Chlordane	500	1,600	--	--	0.180 UJ	0.180 UJ	0.180 UJ	0.170 UJ	0.170 UJ	0.11 U	0.24 U
Explosives (UG_KG)											
2,4,6-Trinitrotoluene	8.7	16,000	--	--	262 U	259 U	5,570	254 U	125 UJ	120 U	120 U
HMX	7,100	310,000	--	--	262 U	259 U	2,150	254 U	125 UJ	120 U	120 U
Perchlorate	85	55,000	--	--	NA	NA	NA	NA	NA	2.1 U	6.6
RDX	0.36	4,400	--	--	262 U	259 U	12,800	254 U	125 UJ	120 U	120 U
Total Metals (MG_KG)											
Aluminum	55,000	7,600	--	18,000	4,840	7,600	4,300	1,960	1,820	13,000	15,300
Antimony	0.3	3.1	78	2.3	0.150 UJ	0.150 UJ	0.150 UJ	0.150 UJ	0.140 UJ	24.9 UJ	12.8 UJ
Arsenic	1	0.39	18	1.2	1.20 J	0.670 J	0.600 J	0.360 U	0.360 J	1.4 U	1.2 U
Barium	82	1,600	330	190	313	276	226	81.8	56	307	204
Beryllium	3	15	40	0.45	0.340 J	0.430 J	0.290 J	0.130 J	0.140 J	0.52 U	0.37 U
Cadmium	0.4	3.7	32	0.036	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	2.1 U	0.11 U
Calcium	--	--	--	9,100	3,470	4,890	1,010 J	1,030 J	879 J	2,620	1,670
Chromium	2	210	0.4	52	2.20	5.60	4.70	2.20	2 J	4.4	5.7
Cobalt	33	140	13	13	2.70 J	5.90 J	3.5 J	3.40 J	2.5 J	9.2 U	4.6 J
Copper	46	310	70	47	6	7.90	11.9	5.5	5 J	10.2 U	13.7
Cyanide	--	120	1	--	NA	NA	NA	NA	NA	2.6 R	2.7 R
Iron	276	2,300	--	28,000	9,370	15,700	8,820	8,950	8,240	22,000	14,400
Lead	14	400	120	6.9	5.20	8.5	7	4	4.40	64.4	32.8
Magnesium	--	--	--	12,834	1,660	2,150	953 J	454 J	438 J	2,000 J	1,130
Manganese	57	180	220	1,200	171	692	207	435	273	809	464
Mercury	0.1	2.3	0.1	0.024	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.026 J
Nickel	7	160	38	18	0.940 J	2.20 J	0.900 J	0.770 J	0.620 J	3.9 U	2.7 U
Potassium	--	--	--	1,700	262 J	403 J	282 J	350 J	312 J	375 J	959 J
Selenium	0.3	39	1	0.73	0.220 U	0.220 U	0.220 U	0.220 U	0.210 U	14.5 U	0.68 J
Silver	2	39	560	0.076	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	3.4 U	2.6
Sodium	--	--	--	310	785 J	1,220 J	1,170 J	51.3 J	54.5 J	2,070 U	278 J
Thallium	0.036	0.52	1	0.46	0.290 U	0.720 J	0.460 J	0.530 J	0.310 J	0.05 U	0.061 U
Vanadium	300	7.8	2	80	29.6	55.1	30.6	30	28.9	44.9	38.2
Zinc	620	2,300	50	53	17.9	19.6	17.9	8.60	9.60	47.9	65.3
Wet Chemistry (MG_KG)											
% Solids	--	--	--	--	NA	NA	NA	NA	NA	96.4	93.5
Total organic carbon (TOC)	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
pH	--	--	--	--	NA	NA	NA	NA	NA	6.48	5.92

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Surface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	WW04-SO19		WW04-SO20	WW04-SO21	WW04-SO22	WW04-SO23
Sample ID					WW04-SS19-01-07A	WW04-SS19P-01-07A	WW04-SS20-01-07A	WW04-SS21-01-07A	WW04-SS22-01-07A	WW04-SS23-02-07A
Sample Date					02/05/07	02/05/07	02/08/07	02/08/07	02/08/07	01/30/07
Chemical Name										
Volatile Organic Compounds (UG_KG)										
2-Butanone	--	2,200,000	--	--	12 U	11 U	9.5 U	10 U	11 U	10 U
2-Hexanone	--	310,000	--	--	2.6 J	11 U	9.5 U	10 U	11 U	10 U
Acetone	800	1,400,000	--	--	94	47	5.8 U	10 U	13 U	1.4 U
Bromoform	40	62,000	--	--	5.9 U	5.4 U	4.8 U	5 U	5.5 U	5.1 U
Carbon disulfide	2,000	36,000	--	--	5.9 U	5.4 U	4.8 U	5 U	5.5 U	5.1 U
Chlorobenzene	70	15,000	40,000	--	5.9 U	5.4 U	4.8 U	5 U	5.5 U	5.1 U
Methyl acetate	--	2,200,000	--	--	5.9 U	5.4 U	4.8 U	5 U	2.9 J	5.1 U
Styrene	200	440,000	300,000	--	5.9 U	5.4 U	4.8 U	5 U	5.5 U	5.1 U
Toluene	600	630,000	200,000	--	5.9 U	5.4 U	4.8 U	5 U	5.5 U	5.1 U
Trichloroethene	3	53	100	--	5.9 U	5.4 U	4.8 U	5 U	5.5 U	5.1 U
o-Xylene	10,000	27,000	100	--	5.9 U	5.4 U	4.8 U	5 U	5.5 U	5.1 U
Semi-volatile Organic Compounds (UG_KG)										
2,4-Dinitrotoluene	0.04	12,000	--	--	180 U	180 U	180 U	180 U	180 U	190 U
2,6-Dinitrotoluene	0.03	6,100	--	--	180 U	180 U	180 U	180 U	180 U	190 U
2-Methylnaphthalene	4,000	31,000	--	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Acenaphthylene	4,000	370,000	--	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Anthracene	590,000	2,200,000	100	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Benzo(a)anthracene	80	620	--	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Benzo(a)pyrene	400	62	100	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Benzo(b)fluoranthene	200	620	--	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	0.48 U	0.55 U	6.5	0.52 U	0.54 U	3.7 U
Benzo(k)fluoranthene	2,000	6,200	--	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Butylbenzylphthalate	810,000	1,200,000	--	--	180 UJ	180 U	180 U	180 U	180 U	190 U
Chrysene	8,000	62,000	--	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Di-n-butylphthalate	270,000	610,000	200,000	--	28 U	37 U	48 U	43 U	46 U	33 U
Di-n-octylphthalate	10,000,000	240,000	--	--	180 UJ	180 U	180 U	180 U	180 U	31 J
Dibenz(a,h)anthracene	80	62	--	--	1.2 U	3.6 U	1.7 U	0.56 U	0.59 U	3.7 U
Diethylphthalate	--	4,900,000	100,000	--	180 UJ	180 U	180 U	180 U	180 U	190 U
Fluoranthene	210,000	230,000	100	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Indeno(1,2,3-cd)pyrene	700	620	--	--	0.88 U	0.92 U	1.8 U	0.66 U	0.53 U	3.7 U
Naphthalene	4,000	5,600	100	--	3.5 U	1.3 J	1.4 J	3.5 U	3.4 UJ	2.2 J
Pentachlorophenol	1	3,000	5,000	--	350 UJ	360 UJ	7.2 U	7.2 U	6.9 U	7.5 R
Phenanthrene	210,000	230,000	100	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Pyrene	210,000	230,000	100	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	180 UJ	180 U	40 U	180 U	180 U	31 U
n-Nitrosodiphenylamine	60	99,000	20,000	--	180 U	180 U	180 U	180 U	180 U	190 U
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	800	2,400	10	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	0.33 J
4,4'-DDE	3,000	1,700	10	--	0.89 U	0.94 J	0.42 U	0.45 J	3.4 U	3.7 U
4,4'-DDT	2,000	1,700	10	--	3.5 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Aldrin	20	29	0.06	--	0.61 U	1.3 U	1.8 U	0.2 J	1.8 U	1.9 U
Dieldrin	0.2	30	0.5	--	1.3 U	1.1 U	3.5 U	3.5 U	3.4 U	0.56 J
Endosulfan I	900	37,000	0.01	--	1.3 U	3.5 J	1.8 U	1.8 U	1.8 U	1.9 U
Endosulfan II	900	37,000	0.01	--	0.33 U	0.29 U	3.5 U	3.5 U	3.4 U	3.7 U
Endosulfan sulfate	900	37,000	--	--	3.5 U	3.6 U	3.5 U	0.22 J	3.4 U	3.7 U
Endrin	50	1,800	0.04	--	0.25 U	3.6 U	3.5 U	3.5 U	3.4 U	3.7 U
Endrin aldehyde	50	1,800	100	--	3.5 U	3.6 U	0.21 U	0.46 U	0.25 J	3.7 U
Heptachlor	1,000	110	0.7	--	1.5 J	1.5 J	1.8 U	1.8 U	1.8 U	0.1 U
Heptachlor epoxide	30	53	0.0002	--	1.3 U	1.7 J	0.2 J	1.8 U	1.8 U	1.9 U
Methoxychlor	8,000	31,000	--	--	18 U	0.7 J	0.65 U	0.44 U	0.26 U	19 U
alpha-Chlordane	500	1,600	--	--	3.7	4.6 J	0.39 J	0.48 U	1.8 U	1.9 U
beta-BHC	0.1	320	9	--	0.51 U	1.4 J	1.8 U	1.8 U	1.8 U	1.9 U
delta-BHC	0.1	440	--	--	0.97 U	1.2 U	1.8 U	0.2 U	1.8 U	1.9 U
gamma-BHC (Lindane)	0.5	440	0.05	--	0.44 U	0.66 J	1.8 U	1.8 U	1.8 U	1.9 U
gamma-Chlordane	500	1,600	--	--	1 U	2.3 R	1.8 U	1.8 U	1.8 U	1.9 U
Explosives (UG_KG)										
2,4,6-Trinitrotoluene	8.7	16,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	--	2.9	2.7	2.2 U	2.5	1.2 J	2.3 U
RDX	0.36	4,400	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)										
Aluminum	55,000	7,600	--	18,000	25,800	21,000	18,100	21,800	14,100	3,010
Antimony	0.3	3.1	78	2.3	32.3 UJ	12.9 UJ	25.8 U	12.9 U	24.7 U	6.7 UJ
Arsenic	1	0.39	18	1.2	0.79 U	0.97 U	2.9 U	1.7 U	1.2 U	0.81 U
Barium	82	1,600	330	190	180	152	223	226	106	10.7 U
Beryllium	3	15	40	0.45	0.54 U	0.46 U	0.6 U	0.5 U	0.37 U	0.56 U
Cadmium	0.4	3.7	32	0.036	2.7 U	1.1 U	0.2 U	1.1 U	2.1 U	0.56 U
Calcium	--	--	--	9,100	1,740 J	1,410	3,210	1,870	1,890 J	5,570
Chromium	2	210	0.4	52	6.5	5.7	8.5 J	4.9 J	6.5 J	2.4
Cobalt	33	140	13	13	8.8 U	6.2 J	6.9 J	7.5 J	7.7 J	1.3 U
Copper	46	310	70	47	12.3 U	9.3	44.9	15.3	26.3	3.3
Cyanide	--	120	1	--	2.7 R	2.7 R	0.072 J	2.7 U	2.6 U	2.8 U
Iron	276	2,300	--	28,000	20,900	17,100	21,400	16,900	18,800	3,120
Lead	14	400	120	6.9	19.8	17	95.3 J	21.5 J	71.8 J	1.4 J
Magnesium	--	--	--	12,834	1,390 J	1,140	1,610 J	1,050 J	1,680 J	946
Manganese	57	180	220	1,200	691	476	530 J	1,170 J	489 J	56.2
Mercury	0.1	2.3	0.1	0.024	0.018 J	0.032 J	0.044 J	0.03 J	0.033 J	0.11 U
Nickel	7	160	38	18	3.6 U	3.1 U	5.1 U	2.6 U	2.9 U	1.2 U
Potassium	--	--	--	1,700	579 J	522 J	578 J	600 J	435 J	321 J
Selenium	0.3	39	1	0.73	18.8 U	0.56 J	15 U	7.5	14.4 U	3.9 U
Silver	2	39	560	0.076	3.5 U	3.1	4 U	1.1 U	3.2 U	0.15 U
Sodium	--	--	--	310	2,690 U	1,080 U	2,150 U	1,070 U	2,060 U	1,370
Thallium	0.036	0.52	1	0.46	0.054 U	0.054 U	0.047 U	0.058 U	0.031 U	0.008 U
Vanadium	300	7.8	2	80	58.3	48.1	52.4	39.2	50.7	14.1
Zinc	620	2,300	50	53	52.3	48.6	110	46.8	60.5	15.8
Wet Chemistry (MG_KG)										
% Solids	--	--	--	--	93	92.7	93.2	93.1	97	89.1
Total organic carbon (TOC)	--	--	--	--	11,100	10,500	NA	NA	6,390	NA
pH	--	--	--	--	5.92	5.92	5.19	6.05	6.65	7.04

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	WW04-SO24	WW04-SO25	WW04-SO26	WW04-SO27		WW04-SO28
Sample ID					WW04-SS24-02-07A	WW04-SS25-02-07A	WW04-SS26-01-07A	WW04-SS27-01-07A	WW04-SS27P-01-07A	WW04-SS28-01-07A
Sample Date					01/31/07	01/30/07	01/30/07	01/26/07	01/26/07	01/31/07
Chemical Name										
Volatile Organic Compounds (UG_KG)										
2-Butanone	--	2,200,000	--	--	11 U	10 U	9.5 U	9.4 U	12 U	11 U
2-Hexanone	--	310,000	--	--	11 U	10 U	9.5 U	9.4 U	12 U	11 U
Acetone	800	1,400,000	--	--	4.3 U	4.2 U	14	3.6 U	4.8 U	6.2 U
Bromoform	40	62,000	--	--	5.4 U	5 U	4.8 U	4.7 U	5.8 U	5.4 U
Carbon disulfide	2,000	36,000	--	--	5.4 U	5 U	4.8 U	4.7 U	5.8 U	5.4 U
Chlorobenzene	70	15,000	40,000	--	5.4 U	5 U	4.8 U	4.7 U	5.8 U	5.4 U
Methyl acetate	--	2,200,000	--	--	5.4 U	5 U	4.8 U	4.7 U	5.8 U	5.4 U
Styrene	200	440,000	300,000	--	2.8 J	2 J	1.5 J	1 U	1.4 U	2.6 J
Toluene	600	630,000	200,000	--	0.71 U	0.77 U	0.59 J	0.75 U	1 U	0.64 U
Trichloroethene	3	53	100	--	5.4 U	5 U	4.8 U	4.7 U	5.8 U	5.4 U
o-Xylene	10,000	27,000	100	--	5.4 U	5 U	4.8 U	4.7 U	5.8 U	5.4 U
Semi-volatile Organic Compounds (UG_KG)										
2,4-Dinitrotoluene	0.04	12,000	--	--	230 U	190 U	180 U	190 U	190 U	190 U
2,6-Dinitrotoluene	0.03	6,100	--	--	230 U	190 U	180 U	190 U	190 U	190 U
2-Methylnaphthalene	4,000	31,000	--	--	4.6 U	3.6 U	3.5 UJ	3.7 U	3.7 U	3.8 U
Acenaphthylene	4,000	370,000	--	--	4.6 U	3.6 U	3.5 UJ	3.7 U	3.7 U	3.8 U
Anthracene	590,000	2,200,000	100	--	4.6 U	3.6 U	3.5 UJ	3.7 U	3.7 U	3.8 U
Benzo(a)anthracene	80	620	--	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Benzo(a)pyrene	400	62	100	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Benzo(b)fluoranthene	200	620	--	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	4.6 U	3.6 U	3.5 U	0.28 J	3.7 U	3.8 U
Benzo(k)fluoranthene	2,000	6,200	--	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Butylbenzylphthalate	810,000	1,200,000	--	--	230 U	190 U	180 UJ	190 U	190 U	190 U
Chrysene	8,000	62,000	--	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Di-n-butylphthalate	270,000	610,000	200,000	--	24 U	100 U	130 U	66 U	200	110 U
Di-n-octylphthalate	10,000,000	240,000	--	--	230 U	190 U	180 UJ	190 U	190 U	190 U
Dibenz(a,h)anthracene	80	62	--	--	4.6 U	3.6 U	3.5 U	0.25 J	3.7 U	3.8 U
Diethylphthalate	--	4,900,000	100,000	--	230 U	190 U	180 UJ	190 U	190 U	190 U
Fluoranthene	210,000	230,000	100	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Indeno(1,2,3-cd)pyrene	700	620	--	--	4.6 U	3.6 U	3.5 U	0.31 J	3.7 U	3.8 U
Naphthalene	4,000	5,600	100	--	1 U	1.8 J	3.5 UJ	2.6 J	3.2 J	0.98 U
Pentachlorophenol	1	3,000	5,000	--	9.3 R	7.4 R	7.2 UJ	370 U	370 U	7.7 R
Phenanthrene	210,000	230,000	100	--	4.6 U	3.6 U	3.5 UJ	3.7 U	3.7 U	3.8 U
Pyrene	210,000	230,000	100	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	38 U	23 U	21 U	190 U	26 J	23 U
n-Nitrosodiphenylamine	60	99,000	20,000	--	230 U	190 U	180 U	190 U	190 U	190 U
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	800	2,400	10	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
4,4'-DDE	3,000	1,700	10	--	4.6 U	3.6 U	0.11 U	3.7 U	3.7 U	3.8 U
4,4'-DDT	2,000	1,700	10	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Aldrin	20	29	0.06	--	2.3 U	1.9 U	0.87 J	1.9 U	1.9 U	0.1 U
Dieldrin	0.2	30	0.5	--	4.6 U	3.6 U	1.6 J	3.7 U	3.7 U	0.099 U
Endosulfan I	900	37,000	0.01	--	2.3 U	1.9 U	0.1 U	1.9 U	1.9 U	0.43 U
Endosulfan II	900	37,000	0.01	--	4.6 U	3.6 U	1.1 U	3.7 U	3.7 U	3.8 U
Endosulfan sulfate	900	37,000	--	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Endrin	50	1,800	0.04	--	4.6 U	3.6 U	0.34 J	3.7 U	3.7 U	0.18 U
Endrin aldehyde	50	1,800	100	--	4.6 U	3.6 U	3.5 U	3.7 U	3.7 U	3.8 U
Heptachlor	1,000	110	0.7	--	2.3 UJ	1.9 UJ	0.61 U	1.9 UJ	1.9 UJ	1.9 UJ
Heptachlor epoxide	30	53	0.0002	--	2.3 U	1.9 U	0.32 U	1.9 U	1.9 U	1.9 U
Methoxychlor	8,000	31,000	--	--	23 U	19 U	18 U	19 U	19 U	0.49 J
alpha-Chlordane	500	1,600	--	--	2.3 U	1.9 U	3	1.9 U	1.9 U	1.9 U
beta-BHC	0.1	320	9	--	2.3 U	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U
delta-BHC	0.1	440	--	--	2.3 U	1.9 U	0.54 J	1.9 U	1.9 U	1.9 U
gamma-BHC (Lindane)	0.5	440	0.05	--	2.3 U	1.9 U	0.28 U	1.9 U	1.9 U	1.9 U
gamma-Chlordane	500	1,600	--	--	2.3 U	1.9 U	0.58 U	1.9 U	1.9 U	1.9 U
Explosives (UG_KG)										
2,4,6-Trinitrotoluene	8.7	16,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	--	2.4 U	2.2 U	2.2 U	2.3 U	2.3 U	2.3 U
RDX	0.36	4,400	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)										
Aluminum	55,000	7,600	--	18,000	10,400	20,800	21,600	22,100	26,800	32,800
Antimony	0.3	3.1	78	2.3	8.3 UJ	26.4 UJ	12.9 U	13.5 UJ	13.5 UJ	13.7 UJ
Arsenic	1	0.39	18	1.2	0.63 U	4.6	2 U	1.1 U	0.56 U	1.5 U
Barium	82	1,600	330	190	77.6 J	916 J	185	96 J	223 J	284 J
Beryllium	3	15	40	0.45	0.21 J	1.1	0.43 U	0.31 U	0.31 U	0.44 U
Cadmium	0.4	3.7	32	0.036	0.69 U	0.27 J	0.097 U	1.1 U	1.1 U	0.23 U
Calcium	--	--	--	9,100	1,840	5,430	2,900	1,270	1,330	2,560
Chromium	2	210	0.4	52	3.7	9.9	5.4	5.7	6.3	8.8
Cobalt	33	140	13	13	2.7 J	16.3	12	3.8 U	3.8 U	7 J
Copper	46	310	70	47	7.2	19.8	16.2	5.1 U	5.7	10.7
Cyanide	--	120	1	--	3.4 U	2.8 U	2.7 U	2.8 U	0.094 J	0.11 J
Iron	276	2,300	--	28,000	9,320	30,500	19,300	12,300	11,700	18,100
Lead	14	400	120	6.9	5.4 J	6.2 J	4.6	14.2	11.9	13.9 J
Magnesium	--	--	--	12,834	1,400	4,510	2,170	973 J	1,210	1,870
Manganese	57	180	220	1,200	269	1,490	1,090	298 J	239 J	585
Mercury	0.1	2.3	0.1	0.024	0.03 J	0.11 U	0.019 J	0.034 J	0.033 J	0.05 J
Nickel	7	160	38	18	2.7 U	60.5 J	3.6 U	1.9 U	2.1 U	3.8 U
Potassium	--	--	--	1,700	850	704 J	680 J	418 J	550 J	817 J
Selenium	0.3	39	1	0.73	0.44 J	15.4 U	0.91 J	0.6 U	0.57 U	0.55 U
Silver	2	39	560	0.076	1.2 U	3.7	2.1 J	2.6	2.6	3.8
Sodium	--	--	--	310	2,710	2,640	125 J	446 J	848 J	542 J
Thallium	0.036	0.52	1	0.46	0.0091 U	0.0097 J	0.018 J	0.025 J	0.02 J	0.022 J
Vanadium	300	7.8	2	80	23.7	68.4	51.5	36.2 J	32.2 J	57.4
Zinc	620	2,300	50	53	39.4	48.1	25.5	34.8	59.6	53.9
Wet Chemistry (MG_KG)										
% Solids	--	--	--	--	72.4	90.8	93	88.9	89	87.4
Total organic carbon (TOC)	--	--	--	--	NA	6,340	NA	NA	NA	8,270
pH	--	--	--	--	7.23	6.91	6.42	5.7	5.33	6.22

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	WW04-SO29	WW04-SO30	WW04-SO31	WW04-SO32	WW04-SO33	WW04-SO34
Sample ID					WW04-SS29-01-07A	WW04-SS30-01-07A	WW04-SS31-01-07A	WW04-SS32-01-07A	WW04-SS33-01-07A	WW04-SS34-01-07A
Sample Date					01/23/07	01/25/07	01/31/07	01/24/07	02/01/07	01/25/07
Chemical Name										
Volatile Organic Compounds (UG_KG)										
2-Butanone	--	2,200,000	--	--	9.3 U	9.7 U	10 U	10 U	9.5 U	8.5 U
2-Hexanone	--	310,000	--	--	9.3 U	9.7 U	10 U	10 U	9.5 U	8.5 U
Acetone	800	1,400,000	--	--	2.7 U	6.3 U	10 U	7.2 U	4.6 U	2.5 U
Bromoform	40	62,000	--	--	4.7 U	4.8 U	5 U	5 U	4.8 U	4.3 U
Carbon disulfide	2,000	36,000	--	--	4.7 U	4.8 U	5 U	5 U	4.8 U	4.3 U
Chlorobenzene	70	15,000	40,000	--	4.7 U	4.8 U	5 UJ	3.7 J	4.8 U	4.3 U
Methyl acetate	--	2,200,000	--	--	4.7 U	4.8 U	5 UJ	5 U	4.8 U	4.3 U
Styrene	200	440,000	300,000	--	4.7 U	4.8 U	5 UJ	5 U	4.8 U	4.3 U
Toluene	600	630,000	200,000	--	4.7 U	4.8 U	5 UJ	1.6 U	4.8 U	4.3 U
Trichloroethene	3	53	100	--	4.7 U	4.8 U	5 UJ	1.3 J	4.8 U	4.3 U
o-Xylene	10,000	27,000	100	--	4.7 U	4.8 U	5 UJ	5 U	4.8 U	4.3 U
Semi-volatile Organic Compounds (UG_KG)										
2,4-Dinitrotoluene	0.04	12,000	--	--	180 U	170 U	190 U	190 U	200 U	180 U
2,6-Dinitrotoluene	0.03	6,100	--	--	180 U	170 U	190 U	190 U	200 U	180 U
2-Methylnaphthalene	4,000	31,000	--	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	3.5 U
Acenaphthylene	4,000	370,000	--	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	11
Anthracene	590,000	2,200,000	100	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	4.3
Benzo(a)anthracene	80	620	--	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	29
Benzo(a)pyrene	400	62	100	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	41
Benzo(b)fluoranthene	200	620	--	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	66
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	0.27 U	0.38 J	3.7 U	3.6 U	0.68 J	17 J
Benzo(k)fluoranthene	2,000	6,200	--	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	20
Butylbenzylphthalate	810,000	1,200,000	--	--	180 U	170 U	22 J	190 U	200 UJ	180 U
Chrysene	8,000	62,000	--	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	42
Di-n-butylphthalate	270,000	610,000	200,000	--	43 U	64 U	79 U	67 U	50 U	170 U
Di-n-octylphthalate	10,000,000	240,000	--	--	180 U	170 U	70 J	190 U	200 UJ	180 U
Dibenz(a,h)anthracene	80	62	--	--	3.6 U	3.4 U	3.7 U	3.6 U	0.68 J	3.5 U
Diethylphthalate	--	4,900,000	100,000	--	180 U	170 U	190 U	190 U	200 UJ	180 U
Fluoranthene	210,000	230,000	100	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	62
Indeno(1,2,3-cd)pyrene	700	620	--	--	0.34 U	0.33 J	3.7 U	3.6 U	0.77 J	27
Naphthalene	4,000	5,600	100	--	5.7	2.8 J	1.4 U	4.9	3.8 U	2.7 J
Pentachlorophenol	1	3,000	5,000	--	360 U	340 U	7.5 R	360 U	110 J	35 R
Phenanthrene	210,000	230,000	100	--	3.6 U	3.4 U	0.28 J	3.6 U	3.8 U	19
Pyrene	210,000	230,000	100	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	85
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	24 U	170 U	52 U	22 U	200 UJ	180 U
n-Nitrosodiphenylamine	60	99,000	20,000	--	180 U	170 U	190 U	190 U	200 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	800	2,400	10	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	3.5 U
4,4'-DDE	3,000	1,700	10	--	3.6 U	3.4 U	3.7 U	0.75 U	0.091 U	3.5 U
4,4'-DDT	2,000	1,700	10	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	3.5 U
Aldrin	20	29	0.06	--	1.8 U	1.7 U	0.089 U	1.9 U	2 U	1.8 U
Dieldrin	0.2	30	0.5	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	3.5 U
Endosulfan I	900	37,000	0.01	--	1.8 U	1.7 U	1.9 U	1.9 U	2 U	1.8 U
Endosulfan II	900	37,000	0.01	--	3.6 U	3.4 U	3.7 U	3.6 U	1.2 U	3.5 U
Endosulfan sulfate	900	37,000	--	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	3.5 U
Endrin	50	1,800	0.04	--	3.6 U	3.4 U	3.7 U	3.6 U	3.8 U	3.5 U
Endrin aldehyde	50	1,800	100	--	0.32 J	0.3 U	3.7 U	0.21 U	3.8 U	0.21 J
Heptachlor	1,000	110	0.7	--	1.8 UJ	1.7 UJ	1.9 UJ	1.9 UJ	0.069 U	1.8 UJ
Heptachlor epoxide	30	53	0.0002	--	1.8 U	1.7 U	1.9 U	1.9 U	2 U	1.8 U
Methoxychlor	8,000	31,000	--	--	18 U	17 U	19 U	19 U	20 U	0.32 U
alpha-Chlordane	500	1,600	--	--	1.8 U	1.7 U	1.9 U	1.9	2 U	1.8 U
beta-BHC	0.1	320	9	--	1.8 U	1.7 U	1.9 U	1.9 U	2 U	1.8 U
delta-BHC	0.1	440	--	--	1.8 U	1.7 U	1.9 U	1.9 U	2 U	0.19 U
gamma-BHC (Lindane)	0.5	440	0.05	--	1.8 U	1.7 U	0.063 U	1.9 U	2 U	1.8 U
gamma-Chlordane	500	1,600	--	--	1.8 U	1.7 U	1.9 U	0.26 U	2 U	1.8 U
Explosives (UG_KG)										
2,4,6-Trinitrotoluene	8.7	16,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	--	160	39	2.2 U	2.1 U	4.1	2.1 U
RDX	0.36	4,400	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)										
Aluminum	55,000	7,600	--	18,000	6,130	4,560	20,700	14,000	13,000	10,100
Antimony	0.3	3.1	78	2.3	13 UJ	12.3 UJ	13.4 UJ	13.1 UJ	13.8 UJ	12.6 UJ
Arsenic	1	0.39	18	1.2	0.5 U	0.46 U	0.9 U	0.53 U	1.1 U	0.42 U
Barium	82	1,600	330	190	123 J	57.7 J	146 J	260 J	121 J	103 J
Beryllium	3	15	40	0.45	0.14 U	1 U	0.36 U	0.21 U	0.4 J	0.22 U
Cadmium	0.4	3.7	32	0.036	1.1 U	1 U	0.1 U	1.1 U	1.1 U	0.093 U
Calcium	--	--	--	9,100	2,390	1,890	3,470	1,350	3,790	3,140
Chromium	2	210	0.4	52	3.6	3.1	6	4.1	4.6	4.8
Cobalt	33	140	13	13	5.1 U	4.3 U	7.9 J	4.9 U	5.2 J	6.3 U
Copper	46	310	70	47	7.5	5.7	10.9	5.1 U	10.5	13.8
Cyanide	--	120	1	--	2.7 U	0.067 J	0.12 J	2.7 U	2.9 U	2.6 U
Iron	276	2,300	--	28,000	13,500	9,940	14,900	9,780	13,400	17,300
Lead	14	400	120	6.9	5 J	4.6 J	8.8 J	6.5 J	8 J	7.2 J
Magnesium	--	--	--	12,834	902 J	710 J	1,910	1,130	1,390	1,540
Manganese	57	180	220	1,200	506 J	381 J	650	697 J	481	566 J
Mercury	0.1	2.3	0.1	0.024	0.021 J	0.017 J	0.028 J	0.022 J	0.035 J	0.022 J
Nickel	7	160	38	18	1.8 U	1.3 U	4.7 U	2.3 U	2.4 U	2.7 U
Potassium	--	--	--	1,700	380 J	328 J	751 J	352 J	594 J	851 J
Selenium	0.3	39	1	0.73	0.68 U	0.52 U	7.8 U	0.59 U	8 U	0.57 U
Silver	2	39	560	0.076	2.1 U	1.5 U	2.2	0.71 U	2 U	2.8
Sodium	--	--	--	310	1,080 U	1,020 U	281 J	326 J	263 J	1,050 U
Thallium	0.036	0.52	1	0.46	0.0082 U	0.0074 U	0.015 J	0.012 J	0.013 J	0.01 J
Vanadium	300	7.8	2	80	48 J	35.7 J	47.3	29.5 J	39.6	55.6
Zinc	620	2,300	50	53	27	35.3	59.1	35.1	50.4	54.3
Wet Chemistry (MG_KG)										
% Solids	--	--	--	--	92.2	97.8	89.3	91.3	87.1	95.3
Total organic carbon (TOC)	--	--	--	--	NA	NA	NA	NA	NA	9,980
pH	--	--	--	--	6.84	6.29	7.32	5.73	7.26	6.41

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	WW04-SO35	WW04-SO36	WW04-SO37		WW04-SO38	WW04-SO39
Sample ID					WW04-SS35-01-07A	WW04-SS36-01-07A	WW04-SS37-01-07A	WW04-SS37P-01-07A	WW04-SS38-01-07A	WW04-SS39-01-07A
Sample Date					02/01/07	02/13/07	02/13/07	02/13/07	02/13/07	02/12/07
Chemical Name										
Volatile Organic Compounds (UG_KG)										
2-Butanone	--	2,200,000	--	--	10 U	11 U	11 U	14 U	10 U	10 U
2-Hexanone	--	310,000	--	--	10 U	11 U	11 U	14 U	10 U	10 U
Acetone	800	1,400,000	--	--	3.1 U	6.4 U	7.8 U	14 U	11 U	6.2 U
Bromoform	40	62,000	--	--	5.1 U	5.7 U	5.5 U	7.1 U	5.2 U	5.2 U
Carbon disulfide	2,000	36,000	--	--	5.1 U	5.7 U	2.2 J	7.1 U	5.2 U	5.2 U
Chlorobenzene	70	15,000	40,000	--	5.1 U	5.7 U	5.5 U	7.1 U	5.2 U	5.2 U
Methyl acetate	--	2,200,000	--	--	5.1 U	5.7 U	5.5 U	7.1 U	5.2 U	5.2 U
Styrene	200	440,000	300,000	--	1.4 J	5.7 U	5.5 U	7.1 U	5.2 U	5.2 U
Toluene	600	630,000	200,000	--	5.1 U	0.6 U	5.5 U	7.1 U	5.2 U	5.2 U
Trichloroethene	3	53	100	--	5.1 U	5.7 U	5.5 U	7.1 U	5.2 U	5.2 U
o-Xylene	10,000	27,000	100	--	5.1 U	5.7 U	5.5 U	7.1 U	5.2 U	5.2 U
Semi-volatile Organic Compounds (UG_KG)										
2,4-Dinitrotoluene	0.04	12,000	--	--	190 U	180 U	180 U	180 U	190 U	180 U
2,6-Dinitrotoluene	0.03	6,100	--	--	190 U	180 U	180 U	180 U	190 U	180 U
2-Methylnaphthalene	4,000	31,000	--	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Acenaphthylene	4,000	370,000	--	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Anthracene	590,000	2,200,000	100	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Benzo(a)anthracene	80	620	--	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Benzo(a)pyrene	400	62	100	--	2.1 J	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Benzo(b)fluoranthene	200	620	--	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	3.7 U	0.41 U	0.34 U	0.34 U	0.41 U	0.5 U
Benzo(k)fluoranthene	2,000	6,200	--	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Butylbenzylphthalate	810,000	1,200,000	--	--	190 UJ	180 U	180 U	180 U	190 U	180 U
Chrysene	8,000	62,000	--	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Di-n-butylphthalate	270,000	610,000	200,000	--	190 UJ	110 U	130 U	110 U	76 U	100 U
Di-n-octylphthalate	10,000,000	240,000	--	--	190 UJ	180 U	180 U	180 U	190 U	180 U
Dibenz(a,h)anthracene	80	62	--	--	3.7 U	0.43 U	0.35 U	0.36 U	0.41 U	0.52 U
Diethylphthalate	--	4,900,000	100,000	--	190 UJ	180 U	180 U	180 U	190 U	810
Fluoranthene	210,000	230,000	100	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Indeno(1,2,3-cd)pyrene	700	620	--	--	3.7 U	0.5 U	0.43 U	0.44 U	0.41 U	0.62 U
Naphthalene	4,000	5,600	100	--	3.7 U	3.6 UJ	3.5 UJ	3.5 UJ	3.7 UJ	0.66 J
Pentachlorophenol	1	3,000	5,000	--	7.5 R	360 U	350 U	350 U	370 U	360 U
Phenanthrene	210,000	230,000	100	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Pyrene	210,000	230,000	100	--	3.7 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	190 UJ	21 J	31 U	36 U	42 U	180 U
n-Nitrosodiphenylamine	60	99,000	20,000	--	190 U	89 J	180 U	180 U	190 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	800	2,400	10	--	0.11 U	3.6 U	3.5 U	3.5 U	0.39 J	3.6 U
4,4'-DDE	3,000	1,700	10	--	0.24 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
4,4'-DDT	2,000	1,700	10	--	3.7 U	3.6 U	3.5 U	3.5 U	0.71 J	0.6 U
Aldrin	20	29	0.06	--	0.41 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U
Dieldrin	0.2	30	0.5	--	0.89 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Endosulfan I	900	37,000	0.01	--	0.29 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U
Endosulfan II	900	37,000	0.01	--	0.42 U	0.18 U	3.5 U	3.5 U	3.7 U	3.6 U
Endosulfan sulfate	900	37,000	--	--	3.7 U	3.6 R	3.5 U	3.5 U	0.26 J	0.18 U
Endrin	50	1,800	0.04	--	0.26 U	3.6 U	3.5 U	3.5 U	3.7 U	3.6 U
Endrin aldehyde	50	1,800	100	--	0.12 U	0.34 U	3.5 U	0.2 U	3.7 U	0.18 U
Heptachlor	1,000	110	0.7	--	0.19 U	1.8 UJ	1.8 UJ	1.8 UJ	1.9 UJ	1.8 UJ
Heptachlor epoxide	30	53	0.0002	--	0.079 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U
Methoxychlor	8,000	31,000	--	--	0.43 U	18 U	0.35 U	18 U	19 U	1.1 U
alpha-Chlordane	500	1,600	--	--	1.8 U	0.26 U	1.8 U	1.8 U	0.3 J	0.59 J
beta-BHC	0.1	320	9	--	0.39 U	1.8 U	1.8 U	1.8 U	1.9 U	0.39 U
delta-BHC	0.1	440	--	--	0.62 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U
gamma-BHC (Lindane)	0.5	440	0.05	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U
gamma-Chlordane	500	1,600	--	--	0.96 U	1.8 U	0.2 J	0.22 U	0.29 U	0.42 J
Explosives (UG_KG)										
2,4,6-Trinitrotoluene	8.7	16,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	--	4.1	5.1 J	11	9.9	13	4.1 J
RDX	0.36	4,400	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)										
Aluminum	55,000	7,600	--	18,000	23,200	17,700	10,800	12,800	19,400	19,900
Antimony	0.3	3.1	78	2.3	13.5 UJ	13 UJ	6.4 U	12.7 U	13.4 U	12.9 UJ
Arsenic	1	0.39	18	1.2	0.84 U	0.99 U	1.2 J	1.4 J	1.1 J	0.52 U
Barium	82	1,600	330	190	278 J	785	369	262	492	235
Beryllium	3	15	40	0.45	0.41 U	0.31 U	0.28 J	0.3 J	0.35 J	0.38 U
Cadmium	0.4	3.7	32	0.036	0.7 U	0.44 U	0.19 J	0.31 J	0.64 J	0.18 U
Calcium	--	--	--	9,100	825 J	1,300	1,380	2,020	2,220	1,710
Chromium	2	210	0.4	52	5	5.6	4.1	4.9	8.3	6.6
Cobalt	33	140	13	13	2.7 J	5.5 J	10.8 J	6.1 J	5.1 J	4.1 J
Copper	46	310	70	47	9.2	107	6.3	7.3	29.2	11
Cyanide	--	120	1	--	0.32 J	2.7 U	0.25 J	2.6 UJ	2.8 UJ	2.7 U
Iron	276	2,300	--	28,000	17,100	12,200	8,970	8,970	15,000	14,100
Lead	14	400	120	6.9	26.1 J	31.4 R	19.2	16.6	30.3	119 R
Magnesium	--	--	--	12,834	1,270	997 J	1,020	987 J	1,350	1,770
Manganese	57	180	220	1,200	155	422	1,040	587	281	268
Mercury	0.1	2.3	0.1	0.024	0.11 U	0.084 U	0.11 U	0.027 J	0.027 J	0.03 U
Nickel	7	160	38	18	2.3 U	2.2 U	2.5 J	2.1 J	4.8 J	3.2 U
Potassium	--	--	--	1,700	453 J	599 J	301 J	353 J	702 J	553 J
Selenium	0.3	39	1	0.73	7.9 U	7.6 U	3.7 U	0.71 R	0.47 R	7.5 U
Silver	2	39	560	0.076	3.9	2.1 U	1.1 U	0.96 J	3.1	2.8
Sodium	--	--	--	310	1,020 J	164 J	296 J	187 J	1,110 U	754 U
Thallium	0.036	0.52	1	0.46	0.015 J	0.032 U	0.046 J	0.033 J	0.038 J	0.033 U
Vanadium	300	7.8	2	80	50	37	33.7	35.5	42.7	38.4
Zinc	620	2,300	50	53	45	128	18.1	23.9	46	33.7 J
Wet Chemistry (MG_KG)										
% Solids	--	--	--	--	88.9	92.6	94.2	94.8	89.7	92.9
Total organic carbon (TOC)	--	--	--	--	NA	NA	6,550	4,780	NA	5,460
pH	--	--	--	--	6.54	5.42	8.06	7.72	7.19	6.78

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	WW04-SO40	WW04-SO41	WW04-SO42	WW04-SO44	WW04-SO45	WW04-SO46
Sample ID					WW04-SS40-01-07A	WW04-SS41-01-07A	WW04-SS42-01-07A	WW04-SS44-01-07A	WW04-SS45-02-07A	WW04-SS46-01-07A
Sample Date					02/09/07	02/09/07	02/12/07	02/02/07	02/15/07	01/26/07
Chemical Name										
Volatile Organic Compounds (UG_KG)										
2-Butanone	--	2,200,000	--	--	12 U	14 U	8.7 U	12 U	12 J	9.8 U
2-Hexanone	--	310,000	--	--	12 U	14 U	8.7 U	12 U	9.7 U	9.8 U
Acetone	800	1,400,000	--	--	10 U	9.9 U	6.9 U	6.1 J	72 J	2.7 U
Bromoform	40	62,000	--	--	5.8 U	7 U	4.4 U	5.8 U	4.9 U	4.9 U
Carbon disulfide	2,000	36,000	--	--	5.8 U	7 U	4.4 U	5.8 U	4.9 U	4.9 U
Chlorobenzene	70	15,000	40,000	--	5.8 U	7 U	4.4 U	5.8 U	4.9 UJ	4.9 U
Methyl acetate	--	2,200,000	--	--	5.8 U	7 U	4.4 U	5.8 U	4.9 J	4.9 U
Styrene	200	440,000	300,000	--	5.8 U	1.1 J	4.4 U	1.2 J	4.9 U	1.1 U
Toluene	600	630,000	200,000	--	0.61 J	0.75 J	4.4 U	5.8 U	0.58 J	0.74 U
Trichloroethene	3	53	100	--	5.8 U	7 U	4.4 U	5.8 U	4.9 UJ	4.9 U
o-Xylene	10,000	27,000	100	--	5.8 U	7 U	4.4 U	5.8 U	4.9 UJ	4.9 U
Semi-volatile Organic Compounds (UG_KG)										
2,4-Dinitrotoluene	0.04	12,000	--	--	180 U	190 U	180 U	210 U	180 U	190 U
2,6-Dinitrotoluene	0.03	6,100	--	--	180 U	190 U	180 U	210 U	180 U	190 U
2-Methylnaphthalene	4,000	31,000	--	--	3.5 U	3.6 U	3.5 U	4 U	0.79 J	3.7 U
Acenaphthylene	4,000	370,000	--	--	3.5 U	3.6 U	3.5 U	4 U	0.33 J	3.7 U
Anthracene	590,000	2,200,000	100	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Benzo(a)anthracene	80	620	--	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Benzo(a)pyrene	400	62	100	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Benzo(b)fluoranthene	200	620	--	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	0.43 U	1.5 U	0.4 U	0.57 J	0.24 J	3.7 U
Benzo(k)fluoranthene	2,000	6,200	--	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Butylbenzylphthalate	810,000	1,200,000	--	--	180 U	190 U	180 U	210 UJ	180 U	190 U
Chrysene	8,000	62,000	--	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Di-n-butylphthalate	270,000	610,000	200,000	--	90 U	69 U	23 U	21 U	37 J	32 U
Di-n-octylphthalate	10,000,000	240,000	--	--	180 U	20 J	180 U	210 UJ	180 U	190 U
Dibenz(a,h)anthracene	80	62	--	--	0.53 U	1.5 U	0.47 U	0.65 J	3.4 U	3.7 U
Diethylphthalate	--	4,900,000	100,000	--	30 J	190 U	180 U	210 UJ	180 U	190 U
Fluoranthene	210,000	230,000	100	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Indeno(1,2,3-cd)pyrene	700	620	--	--	0.53 U	1.5 U	0.48 U	0.64 J	3.4 U	3.7 U
Naphthalene	4,000	5,600	100	--	3.5 UJ	3.6 UJ	3.5 UJ	4 U	1.2 J	2.7 J
Pentachlorophenol	1	3,000	5,000	--	7.1 U	7.4 U	350 U	400 UJ	340 UJ	370 U
Phenanthrene	210,000	230,000	100	--	3.5 U	3.6 U	180 U	4 U	0.51 J	3.7 U
Pyrene	210,000	230,000	100	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	19 U	23 U	20 U	210 UJ	180 U	190 U
n-Nitrosodiphenylamine	60	99,000	20,000	--	180 U	190 U	180 U	210 U	180 U	190 U
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	800	2,400	10	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
4,4'-DDE	3,000	1,700	10	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
4,4'-DDT	2,000	1,700	10	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Aldrin	20	29	0.06	--	1.8 U	1.9 U	1.8 U	2.1 U	0.67 J	1.9 U
Dieldrin	0.2	30	0.5	--	3.5 U	3.6 U	3.5 U	0.12 U	3.4 U	3.7 U
Endosulfan I	900	37,000	0.01	--	1.8 U	1.9 U	1.8 U	2.1 U	1.8 U	1.9 U
Endosulfan II	900	37,000	0.01	--	3.5 U	3.6 U	3.5 U	4 U	3.4 U	3.7 U
Endosulfan sulfate	900	37,000	--	--	3.5 U	0.27 U	3.5 U	0.3 U	0.28 U	3.7 U
Endrin	50	1,800	0.04	--	0.22 J	3.6 U	3.5 U	4 U	0.31 U	3.7 U
Endrin aldehyde	50	1,800	100	--	0.25 U	0.26 U	1.5 J	4 U	1.8 U	3.7 U
Heptachlor	1,000	110	0.7	--	1.8 U	1.9 U	1.8 UJ	0.066 U	1.8 UJ	1.9 UJ
Heptachlor epoxide	30	53	0.0002	--	1.8 U	1.9 U	1.8 U	1.1 J	1.8 U	1.9 U
Methoxychlor	8,000	31,000	--	--	18 U	19 U	18 U	21 U	0.56 U	19 U
alpha-Chlordane	500	1,600	--	--	0.49 J	1.8 J	1.1 J	2.1 U	2.2 J	0.27 J
beta-BHC	0.1	320	9	--	1.8 U	1.9 U	1.8 U	2.1 U	1.8 U	1.9 U
delta-BHC	0.1	440	--	--	1.8 U	1.9 U	1.8 U	2.1 U	1.8 U	1.9 U
gamma-BHC (Lindane)	0.5	440	0.05	--	1.8 U	1.9 U	1.8 U	2.1 U	1.8 U	1.9 U
gamma-Chlordane	500	1,600	--	--	0.19 U	0.22 U	0.2 J	2.1 U	0.6 U	1.9 U
Explosives (UG_KG)										
2,4,6-Trinitrotoluene	8.7	16,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	--	2.9	4.4	2.1 J	2.3 U	2.1 U	0.99 J
RDX	0.36	4,400	--	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)										
Aluminum	55,000	7,600	--	18,000	14,100	21,700	16,600	15,300	18,400	22,400
Antimony	0.3	3.1	78	2.3	12.8 U	13.2 U	12.8 UJ	14.6 UJ	12.4 U	13.5 UJ
Arsenic	1	0.39	18	1.2	2.4	0.83 U	0.61 U	0.36 U	0.31 J	1 U
Barium	82	1,600	330	190	254	366	761	132	108	160 J
Beryllium	3	15	40	0.45	0.37 U	0.45 U	0.33 U	0.34 U	0.32 J	0.31 U
Cadmium	0.4	3.7	32	0.036	0.13 U	0.12 U	1.1 U	1.2 U	0.12 J	0.095 U
Calcium	--	--	--	9,100	1,010 J	6,180	1,590	2,390	1,850	2,150
Chromium	2	210	0.4	52	4.5 J	6.2 J	4.5	5.8	5.6	4.5
Cobalt	33	140	13	13	6 J	6.6 J	5.1 J	6.9 U	8 U	4.1 U
Copper	46	310	70	47	25.1	16.3	10.3	11.9	8.6	7
Cyanide	--	120	1	--	2.7 U	2.7 U	2.7 U	3 R	2.6 U	2.8 U
Iron	276	2,300	--	28,000	20,200	15,700	12,200	16,200	17,700	13,100
Lead	14	400	120	6.9	48.5 J	41.9 J	11.2 R	7.8	6.9	8.1 J
Magnesium	--	--	--	12,834	1,120	2,160	1,390	1,930	1,150	1,300
Manganese	57	180	220	1,200	616 J	708 J	349	263	754	138 J
Mercury	0.1	2.3	0.1	0.024	0.04 J	0.026 J	0.021 U	0.12 U	0.019 J	0.025 J
Nickel	7	160	38	18	4.5 U	3.4 U	1.8 U	3.3 U	3 J	2.7 U
Potassium	--	--	--	1,700	360 J	631 J	571 J	892 J	567 J	556 J
Selenium	0.3	39	1	0.73	7.5 U	7.7 U	0.49 J	8.5 U	1.3 U	0.65 J
Silver	2	39	560	0.076	3.5	1.6 U	2.2	3.5	2.8	3.1
Sodium	--	--	--	310	188 J	647 J	493 U	1,050 J	1,040 U	617 J
Thallium	0.036	0.52	1	0.46	0.028 U	0.028 U	0.028 U	0.035 U	0.029 J	0.014 J
Vanadium	300	7.8	2	80	35.3	54.8	34.9	53	58.6	42.9 J
Zinc	620	2,300	50	53	31	40.7	33.3 J	49	34.8	53.1
Wet Chemistry (MG_KG)										
% Solids	--	--	--	--	93.8	90.9	93.9	82	96.4	88.7
Total organic carbon (TOC)	--	--	--	--	NA	NA	5,380	NA	NA	NA
pH	--	--	--	--	6.63	8.52	6.6	6.17	5.23	5.51

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
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Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	WW04-SO47	WW04-SO48	WW04-SO49	WW04-SO50	WW04-SO51
Sample ID					WW04-SS47-01-07A	WW04-SS48-01-07A	WW04-SS49-01-07A	WW04-SS50-02-07A	WW04-SS51-02-07A
Sample Date					01/29/07	01/29/07	01/23/07	02/09/07	02/15/07
Chemical Name									
Volatile Organic Compounds (UG_KG)									
2-Butanone	--	2,200,000	--	--	9.5 U	10 U	8.7 U	13 U	11 U
2-Hexanone	--	310,000	--	--	9.5 U	10 U	8.7 U	13 U	11 UJ
Acetone	800	1,400,000	--	--	2.9 U	2.6 U	85	12 U	31
Bromoform	40	62,000	--	--	4.8 U	5.1 U	4.3 U	6.7 U	5.3 J
Carbon disulfide	2,000	36,000	--	--	4.8 U	5.1 U	4.3 U	6.7 U	5.3 U
Chlorobenzene	70	15,000	40,000	--	4.8 U	5.1 U	4.3 U	6.7 U	5.3 UJ
Methyl acetate	--	2,200,000	--	--	4.8 U	5.1 U	4.3 U	6.7 U	5.3 U
Styrene	200	440,000	300,000	--	4.8 U	5.1 U	4.3 U	6.7 U	5.3 UJ
Toluene	600	630,000	200,000	--	4.8 U	5.1 U	4.3 U	0.67 J	5.3 UJ
Trichloroethene	3	53	100	--	4.8 U	5.1 U	4.3 U	6.7 U	5.3 UJ
o-Xylene	10,000	27,000	100	--	4.8 U	5.1 U	4.3 U	6.7 U	5.3 UJ
Semi-volatile Organic Compounds (UG_KG)									
2,4-Dinitrotoluene	0.04	12,000	--	--	190 U	190 U	180 U	200 U	220
2,6-Dinitrotoluene	0.03	6,100	--	--	190 U	190 U	180 U	200 U	180 U
2-Methylnaphthalene	4,000	31,000	--	--	3.7 U	3.7 U	3.5 U	4 U	0.77 J
Acenaphthylene	4,000	370,000	--	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Anthracene	590,000	2,200,000	100	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Benzo(a)anthracene	80	620	--	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Benzo(a)pyrene	400	62	100	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Benzo(b)fluoranthene	200	620	--	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	0.54 J	0.25 J	3.5 U	0.49 J	0.66 J
Benzo(k)fluoranthene	2,000	6,200	--	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Butylbenzylphthalate	810,000	1,200,000	--	--	190 U	190 U	180 U	200 U	180 U
Chrysene	8,000	62,000	--	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Di-n-butylphthalate	270,000	610,000	200,000	--	120 U	45 U	63 U	89 U	28 J
Di-n-octylphthalate	10,000,000	240,000	--	--	190 U	190 U	180 U	200 U	180 U
Dibenz(a,h)anthracene	80	62	--	--	3.7 U	3.7 U	3.5 U	0.59 J	3.5 U
Diethylphthalate	--	4,900,000	100,000	--	190 U	190 U	180 U	200 U	180 U
Fluoranthene	210,000	230,000	100	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Indeno(1,2,3-cd)pyrene	700	620	--	--	0.57 J	3.7 U	3.5 U	0.65 J	3.5 U
Naphthalene	4,000	5,600	100	--	3.1 J	3.1 J	5.5	4 UJ	1 J
Pentachlorophenol	1	3,000	5,000	--	7.5 U	7.6 U	91 J	8 U	0.82 J
Phenanthrene	210,000	230,000	100	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Pyrene	210,000	230,000	100	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	190 U	190 U	39 U	22 U	180 U
n-Nitrosodiphenylamine	60	99,000	20,000	--	190 U	190 U	180 U	200 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)									
4,4'-DDD	800	2,400	10	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
4,4'-DDE	3,000	1,700	10	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
4,4'-DDT	2,000	1,700	10	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Aldrin	20	29	0.06	--	1.9 U	1.9 U	1.8 U	0.22 U	1.8 U
Dieldrin	0.2	30	0.5	--	3.7 U	0.062 U	3.5 U	4 U	3.5 U
Endosulfan I	900	37,000	0.01	--	1.9 U	1.9 U	1.8 U	2 U	1.8 U
Endosulfan II	900	37,000	0.01	--	0.65 J	3.7 U	3.5 U	4 U	3.5 U
Endosulfan sulfate	900	37,000	--	--	0.66 U	3.7 U	3.5 U	4 U	3.5 U
Endrin	50	1,800	0.04	--	3.7 U	3.7 U	3.5 U	4 U	3.5 U
Endrin aldehyde	50	1,800	100	--	3.7 U	3.7 U	0.33 U	4 U	3.5 U
Heptachlor	1,000	110	0.7	--	1.9 UJ	1.9 UJ	1.8 UJ	2 U	1.8 UJ
Heptachlor epoxide	30	53	0.0002	--	1.9 U	1.9 U	1.8 U	2 U	1.8 U
Methoxychlor	8,000	31,000	--	--	0.39 U	19 U	1.2 J	0.39 U	1.1 U
alpha-Chlordane	500	1,600	--	--	1.9 U	1.9 U	1.1 J	2 U	1.8 U
beta-BHC	0.1	320	9	--	1.9 U	1.9 U	1.8 U	2 U	1.8 U
delta-BHC	0.1	440	--	--	1.9 U	1.9 U	1.8 U	2 U	1.8 U
gamma-BHC (Lindane)	0.5	440	0.05	--	1.9 U	1.9 U	1.8 U	2 U	1.8 U
gamma-Chlordane	500	1,600	--	--	1.9 U	1.9 U	1.8 U	2 U	1.8 U
Explosives (UG_KG)									
2,4,6-Trinitrotoluene	8.7	16,000	--	--	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	--	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	--	2.2 U	2.3 U	68	2.2 U	2 U
RDX	0.36	4,400	--	--	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)									
Aluminum	55,000	7,600	--	18,000	17,900	26,700	28,000	23,200	15,900
Antimony	0.3	3.1	78	2.3	13.4 U	13.6 U	12.6 UJ	14.4 U	12.8 U
Arsenic	1	0.39	18	1.2	0.79 U	0.41 U	1 U	1.4 U	0.62 J
Barium	82	1,600	330	190	239	271	177 J	450	97.5
Beryllium	3	15	40	0.45	0.38 U	0.48 U	0.54 U	0.58 U	0.28 J
Cadmium	0.4	3.7	32	0.036	0.15 U	0.17 U	0.18 U	1.2 U	0.16 J
Calcium	--	--	--	9,100	2,060	2,970	1,240	2,930	4,260
Chromium	2	210	0.4	52	5.9	8.9	3.8	5.5 J	7.5
Cobalt	33	140	13	13	7.2 U	9 U	5.1 U	11.1 J	5.2 J
Copper	46	310	70	47	11	14.4	6.9	10.5	13.2
Cyanide	--	120	1	--	0.2 J	2.8 U	0.097 J	3 U	0.08 J
Iron	276	2,300	--	28,000	14,500	22,000	12,800	21,600	19,000
Lead	14	400	120	6.9	11.9	9.2	8.4 J	10.8 J	5.3
Magnesium	--	--	--	12,834	1,590	2,070	884 J	2,020	2,380
Manganese	57	180	220	1,200	839	743	659 J	744 J	359
Mercury	0.1	2.3	0.1	0.024	0.037 J	0.027 J	0.024 J	0.033 J	0.038 J
Nickel	7	160	38	18	3.6 U	4.4 U	2.8 U	3.5 U	3.9 J
Potassium	--	--	--	1,700	518 J	864 J	435 J	678 J	511 J
Selenium	0.3	39	1	0.73	7.8 U	1.4 J	0.4 U	8.4 U	0.41 U
Silver	2	39	560	0.076	1.6 J	3.8	1.8 U	3.5	3.9
Sodium	--	--	--	310	198 J	607 J	260 J	1,090 J	1,060 U
Thallium	0.036	0.52	1	0.46	0.026 J	0.017 J	0.022 J	0.025 U	0.008 U
Vanadium	300	7.8	2	80	43.8	58.6	32.9 J	60.3	54.4
Zinc	620	2,300	50	53	46.1	62.1	50.7	35.8	58.7
Wet Chemistry (MG_KG)									
% Solids	--	--	--	--	89.7	88.1	95	83.3	94.1
Total organic carbon (TOC)	--	--	--	--	9,920 J	NA	NA	NA	NA
pH	--	--	--	--	5.59	5.78	6.15	7.47	5.08

Notes:

J - Analyte Present; Reported value may be biased high

NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and Eco Criteria
Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria
Exceeds Background, Eco, and DAF 1 Criteria
Exceeds Background, HHRA, Eco, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques Eco SO	Vieques (West) Background Zone Ktd SO	WW04-SO54	WW04-SO55	
Sample ID					WW04-SS54-01-07A	WW04-SS55-01-07A	WW04-SS55P-01-07A
Sample Date					02/14/07	02/14/07	02/14/07
Chemical Name							
Volatile Organic Compounds (UG_KG)							
2-Butanone	--	2,200,000	--	--	14 U	11 U	11 U
2-Hexanone	--	310,000	--	--	14 U	11 U	11 U
Acetone	800	1,400,000	--	--	16	110	34
Bromoform	40	62,000	--	--	6.9 U	5.6 U	5.7 U
Carbon disulfide	2,000	36,000	--	--	6.9 U	5.6 U	5.7 U
Chlorobenzene	70	15,000	40,000	--	6.9 U	5.6 U	5.7 UJ
Methyl acetate	--	2,200,000	--	--	6.9 U	5.6 U	5.7 U
Styrene	200	440,000	300,000	--	1.2 J	1.1 J	5.7 U
Toluene	600	630,000	200,000	--	6.9 U	5.6 U	5.7 U
Trichloroethene	3	53	100	--	6.9 U	5.6 U	5.7 U
o-Xylene	10,000	27,000	100	--	6.9 U	5.6 U	5.7 U
Semi-volatile Organic Compounds (UG_KG)							
2,4-Dinitrotoluene	0.04	12,000	--	--	200 U	180 U	180 U
2,6-Dinitrotoluene	0.03	6,100	--	--	200 U	180 U	180 U
2-Methylnaphthalene	4,000	31,000	--	--	1.1 J	1 J	0.88 J
Acenaphthylene	4,000	370,000	--	--	3.9 U	3.4 U	3.5 U
Anthracene	590,000	2,200,000	100	--	3.9 U	3.4 U	3.5 U
Benzo(a)anthracene	80	620	--	--	3.9 U	3.4 U	3.5 U
Benzo(a)pyrene	400	62	100	--	3.9 U	3.4 U	3.5 U
Benzo(b)fluoranthene	200	620	--	--	3.9 U	3.4 U	3.5 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	--	3.9 U	3.4 U	3.5 U
Benzo(k)fluoranthene	2,000	6,200	--	--	3.9 U	3.4 U	3.5 U
Butylbenzylphthalate	810,000	1,200,000	--	--	200 U	180 U	180 U
Chrysene	8,000	62,000	--	--	3.9 U	3.4 U	3.5 U
Di-n-butylphthalate	270,000	610,000	200,000	--	200 U	26 U	86 U
Di-n-octylphthalate	10,000,000	240,000	--	--	200 U	180 U	180 U
Dibenz(a,h)anthracene	80	62	--	--	3.9 U	3.4 U	3.5 U
Diethylphthalate	--	4,900,000	100,000	--	53 J	180 U	180 U
Fluoranthene	210,000	230,000	100	--	3.9 U	3.4 U	3.5 U
Indeno(1,2,3-cd)pyrene	700	620	--	--	3.9 U	3.4 U	3.5 U
Naphthalene	4,000	5,600	100	--	3.9 U	3.4 U	3.5 U
Pentachlorophenol	1	3,000	5,000	--	390 U	340 U	350 U
Phenanthrene	210,000	230,000	100	--	3.9 U	3.4 U	3.5 U
Pyrene	210,000	230,000	100	--	3.9 U	3.4 U	3.5 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	--	200 U	18 J	26 J
n-Nitrosodiphenylamine	60	99,000	20,000	--	200 U	180 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)							
4,4'-DDD	800	2,400	10	--	3.9 U	0.2 U	0.51 U
4,4'-DDE	3,000	1,700	10	--	3.9 U	0.35 U	0.31 U
4,4'-DDT	2,000	1,700	10	--	3.9 U	0.19 U	0.25 U
Aldrin	20	29	0.06	--	2 U	1.8 U	1.8 U
Dieldrin	0.2	30	0.5	--	3.9 U	0.74 U	0.9 U
Endosulfan I	900	37,000	0.01	--	2 U	0.18 U	1.8 U
Endosulfan II	900	37,000	0.01	--	3.9 U	1.7 U	1.8 U
Endosulfan sulfate	900	37,000	--	--	3.9 U	0.8 J	0.67 J
Endrin	50	1,800	0.04	--	3.9 U	0.39 U	0.4 U
Endrin aldehyde	50	1,800	100	--	0.8 J	0.54 U	0.59 U
Heptachlor	1,000	110	0.7	--	2 UJ	1.8 UJ	1.8 UJ
Heptachlor epoxide	30	53	0.0002	--	0.39 J	0.26 U	0.24 U
Methoxychlor	8,000	31,000	--	--	20 U	18 U	0.3 U
alpha-Chlordane	500	1,600	--	--	2 U	0.82 U	0.82 U
beta-BHC	0.1	320	9	--	2 U	0.82 U	0.67 U
delta-BHC	0.1	440	--	--	2 U	0.18 U	0.59 J
gamma-BHC (Lindane)	0.5	440	0.05	--	2 U	1.8 U	1.8 U
gamma-Chlordane	500	1,600	--	--	2 U	0.45 U	0.51 U
Explosives (UG_KG)							
2,4,6-Trinitrotoluene	8.7	16,000	--	--	120 U	120 U	120 U
HMX	7,100	310,000	--	--	120 U	120 U	120 U
Perchlorate	85	55,000	--	--	5.6	4.8	2.9
RDX	0.36	4,400	--	--	120 U	120 U	120 U
Total Metals (MG_KG)							
Aluminum	55,000	7,600	--	18,000	13,400	14,600	14,900
Antimony	0.3	3.1	78	2.3	14.3 U	12.5 U	12.6 U
Arsenic	1	0.39	18	1.2	0.48 J	0.99 J	0.84 J
Barium	82	1,600	330	190	89.3	92.8	128
Beryllium	3	15	40	0.45	0.27	0.44	0.33
Cadmium	0.4	3.7	32	0.036	1.2 J	0.15 J	0.14 J
Calcium	--	--	--	9,100	2,190	1,220	1,270
Chromium	2	210	0.4	52	4.5	3.6	3.6
Cobalt	33	140	13	13	4.7 J	6.6 J	4.8 J
Copper	46	310	70	47	6.7	6.70	7.35
Cyanide	--	120	1	--	3 UJ	2.6 UJ	2.6 UJ
Iron	276	2,300	--	28,000	12,100	15,600	13,000
Lead	14	400	120	6.9	16.6	10.2	8.4
Magnesium	--	--	--	12,834	1,030 J	719 J	766 J
Manganese	57	180	220	1,200	542	857	656
Mercury	0.1	2.3	0.1	0.024	0.031 J	0.03 J	0.029 J
Nickel	7	160	38	18	1.96 J	1.94 J	1.73 J
Potassium	--	--	--	1,700	327 J	260 J	265 J
Selenium	0.3	39	1	0.73	0.89 R	0.56 R	0.42 R
Silver	2	39	560	0.076	1.7 J	2.3	1.9 J
Sodium	--	--	--	310	1,190 U	1,040 U	1,050 U
Thallium	0.036	0.52	1	0.46	0.028 U	0.04 U	0.047 U
Vanadium	300	7.8	2	80	42.7	52.2	42.6
Zinc	620	2,300	50	53	45.5	31.9	40.7
Wet Chemistry (MG_KG)							
% Solids	--	--	--	--	83.7	96	95.2
Total organic carbon (TOC)	--	--	--	--	NA	NA	NA
pH	--	--	--	--	6.15	5.55	5.87

Notes:

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MG_KG - Milligrams per Kilogram
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Exceeds Background and Eco Criteria
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Subsurface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	SWMU4-MW05	SWMU4-MW06	SWMU4-MW07	SWMU4-MW08	W4-SB01	W4-SB02	W4-SB03	
Sample ID				NDB002	NDB005	NDB007	NDB009	NDA058	NDA060	NDA063	NDA064FD1
Sample Date				06/06/00	06/06/00	06/06/00	06/06/00	04/18/00	04/18/00	04/18/00	04/18/00
Chemical Name											
Volatile Organic Compounds (UG_KG)											
1,2-Dichlorobenzene	900	110,000	--	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	--	2,200,000	--	6 J	3 J	11 R	11 R	10 R	3 J	11 R	10 R
4-Methyl-2-pentanone	--	530,000	--	10 U	2 J	11 U	11 U	10 UJ	10 U	11 UJ	10 UJ
Acetone	800	1,400,000	--	123 R	55 R	48 R	17 R	11 R	30 R	22 R	10 R
Benzene	2	640	--	10 U	11 U	11 U	0.200 J	10 UJ	10 U	11 UJ	10 UJ
Chlorobenzene	70	15,000	--	10 U	11 U	11 U	11 U	10 UJ	10 U	11 UJ	10 UJ
Styrene	200	440,000	--	10 U	11 U	11 U	11 U	10 UJ	10 U	11 UJ	10 UJ
Toluene	600	630,000	--	10 U	11 U	11 U	11 U	10 UJ	10 U	11 UJ	10 UJ
Trichloroethene	3	53	--	10 U	11 U	11 U	11 U	10 UJ	10 U	11 UJ	10 UJ
Xylene, total	10,000	27,000	--	10 U	0.300 J	11 U	11 U	10 UJ	10 U	11 UJ	10 UJ
m- and p-Xylene	--	27,000	--	10 U	0.300 J	11 U	11 U	10 UJ	10 U	11 UJ	10 UJ
Semi-volatile Organic Compounds (UG_KG)											
2,4-Dinitrotoluene	0.04	12,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
2-Methylnaphthalene	4,000	31,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Acenaphthene	29,000	370,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Acenaphthylene	4,000	370,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Anthracene	590,000	2,200,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Benzo(a)anthracene	80	620	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Benzo(a)pyrene	400	62	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Benzo(b)fluoranthene	200	620	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Benzo(g,h,i)perylene	210,000	2,300,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Benzo(k)fluoranthene	2,000	6,200	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Butylbenzylphthalate	810,000	1,200,000	--	468 U	467 U	407 U	56 J	460 UJ	478 UJ	382 UJ	351 UJ
Chrysene	8,000	62,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Di-n-butylphthalate	270,000	610,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Di-n-octylphthalate	10,000,000	240,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Dibenz(a,h)anthracene	80	62	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Diethylphthalate	--	4,900,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Dimethyl phthalate	--	61,000,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Fluoranthene	210,000	230,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Indeno(1,2,3-cd)pyrene	700	620	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Naphthalene	4,000	5,600	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Pentachlorophenol	1	3,000	--	1,400 U	1,400 U	1,220 U	1,580 U	1,380 UJ	1,430 UJ	1,150 UJ	1,050 UJ
Phenanthrene	210,000	230,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Pyrene	210,000	230,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
bis(2-Ethylhexyl)phthalate	--	35,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
n-Nitrosodiphenylamine	60	99,000	--	468 U	467 U	407 U	527 U	460 UJ	478 UJ	382 UJ	351 UJ
Pesticide/Polychlorinated Biphenyls (UG_KG)											
4,4'-DDD	800	2,400	--	3.80 U	3.5 U	3.40 U	4 U	3.70 UJ	3.70 UJ	3.60 UJ	3.60 UJ
4,4'-DDE	3,000	1,700	--	3.80 U	3.5 U	3.40 U	4 U	3.70 UJ	3.70 UJ	3.60 UJ	3.60 UJ
4,4'-DDT	2,000	1,700	--	3.80 U	3.5 U	3.40 U	4 U	3.70 UJ	3.70 UJ	3.60 UJ	3.60 UJ
Aroclor-1254	--	110	--	38 U	35 U	34 U	40 U	37 UJ	36 UJ	35 UJ	35 UJ
Dieldrin	0.2	30	--	3.80 U	3.5 U	3.40 U	4 U	3.70 UJ	3.70 UJ	3.60 UJ	3.60 UJ
Endosulfan I	900	37,000	--	1.90 U	1.80 U	1.80 U	2 U	1.90 UJ	1.90 UJ	1.80 UJ	1.80 UJ
Endosulfan sulfate	900	37,000	--	3.80 U	3.5 U	3.40 U	4 U	3.70 UJ	3.70 UJ	3.60 UJ	3.60 UJ
Endrin	50	1,800	--	3.80 U	3.5 U	3.40 U	4 U	3.70 UJ	3.70 UJ	3.60 UJ	3.60 UJ
Endrin aldehyde	50	1,800	--	3.80 U	3.5 U	3.40 U	4 U	3.70 UJ	3.70 UJ	3.60 UJ	3.60 UJ
Heptachlor	1,000	110	--	1.90 U	1.80 U	1.80 U	2 U	1.90 UJ	1.90 UJ	1.80 UJ	1.80 UJ
Heptachlor epoxide	30	53	--	1.90 U	1.80 U	1.80 U	2 U	1.90 UJ	1.90 UJ	1.80 UJ	1.80 UJ
alpha-Chlordane	500	1,600	--	1.90 U	1.80 U	1.80 U	2 U	1.90 UJ	1.90 UJ	1.80 UJ	1.80 UJ
beta-BHC	0.1	320	--	1.90 U	1.80 U	1.80 U	2 U	1.90 UJ	1.90 UJ	1.80 UJ	1.80 UJ
delta-BHC	0.1	440	--	1.90 UJ	1.80 UJ	1.80 UJ	2 UJ	1.90 UJ	1.90 UJ	1.80 UJ	1.80 UJ
gamma-Chlordane	500	1,600	--	1.90 U	1.80 U	1.80 U	2 U	1.90 UJ	1.90 UJ	1.80 UJ	1.80 UJ
Explosives (UG_KG)											
2,4,6-Trinitrotoluene	8.7	16,000	--	283 U	256 U	253 U	288 U	270 U	265 U	269 UJ	266 U
HMX	7,100	310,000	--	283 U	256 U	253 U	288 U	270 U	265 U	269 UJ	266 U
Perchlorate	85	55,000	--	NA	NA	NA	NA	NA	NA	NA	NA
RDX	0.36	4,400	--	283 U	256 U	253 U	288 U	270 U	265 U	269 UJ	266 U
Total Metals (MG_KG)											
Aluminum	55,000	7,600	18,000	3,510	2,030	2,440	3,140	7,470 J	4,610 J	7,700	6,200
Arsenic	1	0.39	1.2	1.20 J	0.75 J	0.830 J	0.970 J	0.660 J	0.620 J	1.80 J	1.5 J
Barium	82	1,600	190	364	78.6	101	87.5	710 R	177 R	504 J	1,980 J
Beryllium	3	15	0.45	0.290 J	0.260 J	0.260 J	0.200 J	0.370 J	0.270 J	0.600 J	0.520 J
Cadmium	0.4	3.7	0.036	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Calcium	--	--	9,100	976 J	470 J	961 J	1,120 J	821 J	668 J	1,310	987 J
Chromium	2	210	52	19	3.60	2 J	5.80	7	9.70	10	7.80
Cobalt	33	140	13	6.10 J	2.10 J	1.90 J	3.70 J	3.60 J	4.40 J	5.5 J	0.210 J
Copper	46	310	47	7.90	2.70 J	5.70	11.3	5.20 J	8.10	10	6.30
Cyanide	--	120	--	NA	NA	NA	NA	NA	NA	NA	NA
Iron	276	2,300	28,000	7,700	6,170	4,920	6,790	8,390 J	5,530 J	16,000	11,700
Lead	14	400	6.9	11.9	4.20	4	8.60	7.80 J	10 J	21.1	12.2
Magnesium	--	--	12,834	957 J	806 J	938 J	670 J	983 J	673 J	1,340	1,180
Manganese	57	180	1,200	696 J	362 J	412 J	367 J	956 R	703 R	742	293
Mercury	0.1	2.3	0.024	0.01 U	0.01 U	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.01 U
Nickel	7	160	18	7.10 J	0.490 J	0.540 J	1.30 J	2.5 J	3.60 J	1.80 J	1.40 J
Potassium	--	--	1,700	479 J	407 J	433 J	566 J	321 J	231 J	357 J	278 J
Selenium	0.3	39	0.73	0.410 J	0.220 U	0.330 J	0.380 J	0.260 J	0.230 U	0.230 U	0.320 J
Silver	2	39	0.076	0.0500 U	0.0500 U	0.0500 U	0.0600 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Sodium	--	--	310	416 J	655 J	590 J	226 J	1,220	740 J	1,510 J	1,470 J
Thallium	0.036	0.52	0.46	0.760 J	0.550 J	0.450 J	0.330 U	0.300 U	0.300 U	0.970 J	0.760 J
Vanadium	300	7.8	80	31.6	19.4	14.7	19	35.5 J	23.2 J	71.9	57.6
Zinc	620	2,300	53	15	13.6	15.1	19	9.60	14.7	14.8	10.1
Wet Chemistry (MG_KG)											
% Solids	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Total organic carbon (TOC)	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
pH	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Subsurface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	W4-SB04	W4-SB05	W4-SB06	W4-SB07	W4-SB08	W4-SB09	W4-SB10	W4-SB11
Sample ID				NDA066	NDA068	NDA070	NDA073	NDA075	NDA077	NDA079	NDA081
Sample Date				04/18/00	04/18/00	04/19/00	04/19/00	04/19/00	04/19/00	04/19/00	04/19/00
Chemical Name											
Volatile Organic Compounds (UG_KG)											
1,2-Dichlorobenzene	900	110,000	--	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	--	2,200,000	--	1,190 R	11 R	10 R	10 R	10 R	10 R	10 R	10 R
4-Methyl-2-pentanone	--	530,000	--	10 UJ	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Acetone	800	1,400,000	--	2,020 R	26 R	16 R	12 R	13 R	18 R	11 R	10 R
Benzene	2	640	--	10 UJ	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Chlorobenzene	70	15,000	--	10 UJ	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Styrene	200	440,000	--	0.600 J	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Toluene	600	630,000	--	10 UJ	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Trichloroethene	3	53	--	10 UJ	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Xylene, total	10,000	27,000	--	10 UJ	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
m- and p-Xylene	--	27,000	--	10 UJ	11 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Semi-volatile Organic Compounds (UG_KG)											
2,4-Dinitrotoluene	0.04	12,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
2-Methylnaphthalene	4,000	31,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Acenaphthene	29,000	370,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Acenaphthylene	4,000	370,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Anthracene	590,000	2,200,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Benzo(a)anthracene	80	620	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Benzo(a)pyrene	400	62	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Benzo(b)fluoranthene	200	620	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Benzo(g,h,i)perylene	210,000	2,300,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Benzo(k)fluoranthene	2,000	6,200	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Butylbenzylphthalate	810,000	1,200,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Chrysene	8,000	62,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Di-n-butylphthalate	270,000	610,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Di-n-octylphthalate	10,000,000	240,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Dibenz(a,h)anthracene	80	62	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Diethylphthalate	--	4,900,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Dimethyl phthalate	--	61,000,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Fluoranthene	210,000	230,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Indeno(1,2,3-cd)pyrene	700	620	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Naphthalene	4,000	5,600	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Pentachlorophenol	1	3,000	--	1,030 UJ	1,080 UJ	1,210 UJ	1,150 UJ	1,200 UJ	1,320 UJ	1,400 UJ	1,180 UJ
Phenanthrene	210,000	230,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Pyrene	210,000	230,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
bis(2-Ethylhexyl)phthalate	--	35,000	--	344 UJ	360 UJ	101 J	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
n-Nitrosodiphenylamine	60	99,000	--	344 UJ	360 UJ	404 UJ	383 UJ	401 UJ	441 UJ	466 UJ	393 UJ
Pesticide/Polychlorinated Biphenyls (UG_KG)											
4,4'-DDD	800	2,400	--	3.5 UJ	3.60 UJ	3.5 UJ	3.5 UJ	0.350 UJ	0.400 UJ	0.380 UJ	0.350 UJ
4,4'-DDE	3,000	1,700	--	3.5 UJ	3.60 UJ	3.5 UJ	3.5 UJ	0.350 UJ	0.400 UJ	0.380 UJ	0.350 UJ
4,4'-DDT	2,000	1,700	--	3.5 UJ	3.60 UJ	3.5 UJ	3.5 UJ	0.350 UJ	0.400 UJ	0.380 UJ	0.350 UJ
Aroclor-1254	--	110	--	35 UJ	36 UJ	35 UJ	35 UJ	34 UJ	39 UJ	38 UJ	34 UJ
Dieldrin	0.2	30	--	3.5 UJ	3.60 UJ	3.5 UJ	3.5 UJ	0.350 UJ	0.400 UJ	0.380 UJ	0.350 UJ
Endosulfan I	900	37,000	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	0.180 UJ	0.200 UJ	0.190 UJ	0.180 UJ
Endosulfan sulfate	900	37,000	--	3.5 UJ	3.60 UJ	3.5 UJ	3.5 UJ	0.350 UJ	0.400 UJ	0.380 UJ	0.350 UJ
Endrin	50	1,800	--	3.5 UJ	3.60 UJ	3.5 UJ	3.5 UJ	0.350 UJ	0.400 UJ	0.380 UJ	0.350 UJ
Endrin aldehyde	50	1,800	--	3.5 UJ	3.60 UJ	3.5 UJ	3.5 UJ	0.350 UJ	0.400 UJ	0.380 UJ	0.350 UJ
Heptachlor	1,000	110	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	0.180 UJ	0.200 UJ	0.190 UJ	0.180 UJ
Heptachlor epoxide	30	53	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	0.180 UJ	0.200 UJ	0.190 UJ	0.180 UJ
alpha-Chlordane	500	1,600	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	0.180 UJ	0.200 UJ	0.190 UJ	0.180 UJ
beta-BHC	0.1	320	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	0.180 UJ	0.200 UJ	0.190 UJ	0.180 UJ
delta-BHC	0.1	440	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	0.180 UJ	0.200 UJ	0.190 UJ	0.180 UJ
gamma-Chlordane	500	1,600	--	1.80 UJ	1.80 UJ	1.80 UJ	1.80 UJ	0.180 UJ	0.200 UJ	0.190 UJ	0.180 UJ
Explosives (UG_KG)											
2,4,6-Trinitrotoluene	8.7	16,000	--	261 U	272 U	255 U	261 U	256 U	292 U	143 UJ	266 U
HMX	7,100	310,000	--	261 U	272 U	255 U	261 U	256 U	292 U	143 UJ	266 U
Perchlorate	85	55,000	--	NA	NA	NA	NA	NA	NA	NA	NA
RDX	0.36	4,400	--	261 U	272 U	255 U	261 U	256 U	292 U	143 UJ	266 U
Total Metals (MG_KG)											
Aluminum	55,000	7,600	18,000	7,150	11,500	7,760	3,050	5,850	5,110	8,500	6,020
Arsenic	1	0.39	1.2	1.10 J	2.30	0.830 J	0.580 J	1.20 J	0.880 J	0.850 J	0.360 U
Barium	82	1,600	190	103 J	3,170 J	893 J	108	247	387	164	219
Beryllium	3	15	0.45	0.470 J	1.30	0.380 J	0.660 J	0.430 J	0.380 J	0.550 J	0.260 J
Cadmium	0.4	3.7	0.036	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Calcium	--	--	9,100	1,000 J	2,970	37,000	611 J	2,540	2,050	8,790	894 J
Chromium	2	210	52	4.5	3.70	7.80	3	6.40	3.70	5.70	14.7
Cobalt	33	140	13	3.80 J	2.5 J	3.70 J	6 J	4.30 J	7.10 J	8 J	2.40 J
Copper	46	310	47	3.10 J	4.70 J	9.70	4 J	6.80	7.70	7.20	2.30 J
Cyanide	--	120	--	NA	NA	NA	NA	NA	NA	NA	NA
Iron	276	2,300	28,000	10,400	14,200	10,400	10,000	13,900	12,000	22,700	4,470
Lead	14	400	6.9	7.20	7.70	20.7	4.80	7.70	9	7.5	5.60
Magnesium	--	--	12,834	1,000 J	4,620	2,660	1,160	2,950	1,330	2,380	538 J
Manganese	57	180	1,200	280	574	477	447	460	906	761	169
Mercury	0.1	2.3	0.024	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Nickel	7	160	18	1.10 J	1.80 J	4.40 J	0.890 J	2.30 J	2.20 J	2 J	2 J
Potassium	--	--	1,700	238 J	373 J	433 J	293 J	290 J	340 J	262 J	198 J
Selenium	0.3	39	0.73	0.220 U	0.230 U	0.220 U	0.290 J	0.220 U	0.25 U	0.240 U	0.220 U
Silver	2	39	0.076	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0600 U	0.0500 U	0.0500 U
Sodium	--	--	310	448 J	3,730 J	1,370 J	912 J	1,420 J	653 J	1,960 J	453 J
Thallium	0.036	0.52	0.46	0.510 J	0.640 J	0.290 U	0.310 J	0.640 J	0.770 J	1.10 J	0.290 U
Vanadium	300	7.8	80	31.5	35	37.1	31.3	33.8	47.2	87.9	17.7
Zinc	620	2,300	53	13	26.1	20.6	14.9	24.5	15.8	13.6	8.10
Wet Chemistry (MG_KG)											
% Solids	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Total organic carbon (TOC)	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
pH	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Subsurface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	W4-SB12	WW04-SO17	WW04-SO18	WW04-SO19	WW04-SO20
Sample ID				NDA083	WW04-SB17-12-07A	WW04-SB18-13-07A	WW04-SB19-13-07A	WW04-SB20-12-07A
Sample Date				04/19/00	02/06/07	02/09/07	02/06/07	02/08/07
Chemical Name								
Volatile Organic Compounds (UG_KG)								
1,2-Dichlorobenzene	900	110,000	--	NA	0.72 J	5.3 R	5.5 U	4.8 U
2-Butanone	--	2,200,000	--	10 R	11 U	11 R	11 U	9.5 U
4-Methyl-2-pentanone	--	530,000	--	10 U	11 U	11 R	11 U	9.5 U
Acetone	800	1,400,000	--	12 R	13 U	11 U	6.6 U	5.2 U
Benzene	2	640	--	10 U	5.7 U	5.3 R	5.5 U	4.8 U
Chlorobenzene	70	15,000	--	10 U	5.7 U	5.3 R	5.5 U	4.8 U
Styrene	200	440,000	--	10 U	5.7 U	5.3 R	5.5 U	4.8 U
Toluene	600	630,000	--	10 U	5.7 U	1.5 J	5.5 U	4.8 U
Trichloroethene	3	53	--	10 U	5.7 U	5.3 R	5.5 U	4.8 U
Xylene, total	10,000	27,000	--	10 U	NA	NA	NA	NA
m- and p-Xylene	--	27,000	--	10 U	5.7 U	5.3 R	5.5 U	4.8 U
Semi-volatile Organic Compounds (UG_KG)								
2,4-Dinitrotoluene	0.04	12,000	--	4,240 UJ	180 U	180 U	180 U	180 U
2-Methylnaphthalene	4,000	31,000	--	4,240 UJ	3.5 U	3.4 U	3.5 U	3.4 U
Acenaphthene	29,000	370,000	--	4,240 UJ	3.5 U	3.4 U	3.5 U	3.4 U
Acenaphthylene	4,000	370,000	--	4,240 UJ	3.5 U	3.4 U	3.5 U	3.4 U
Anthracene	590,000	2,200,000	--	4,240 UJ	3.5 U	3.4 U	3.5 U	3.4 U
Benzo(a)anthracene	80	620	--	4,240 UJ	3.5 U	0.39 J	3.5 U	3.4 U
Benzo(a)pyrene	400	62	--	4,240 UJ	3.5 U	3.4 U	3.5 U	3.4 U
Benzo(b)fluoranthene	200	620	--	4,240 UJ	3.5 U	1.2 J	3.5 U	3.4 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	4,240 UJ	0.6 U	0.88 U	0.55 U	0.58 U
Benzo(k)fluoranthene	2,000	6,200	--	4,240 UJ	3.5 U	0.72 J	3.5 U	3.4 U
Butylbenzylphthalate	810,000	1,200,000	--	4,240 UJ	180 UJ	180 U	180 UJ	180 U
Chrysene	8,000	62,000	--	4,240 UJ	3.5 U	0.74 J	3.5 U	3.4 U
Di-n-butylphthalate	270,000	610,000	--	4,240 UJ	66 U	160 U	26 U	35 U
Di-n-octylphthalate	10,000,000	240,000	--	4,240 UJ	180 UJ	180 U	180 UJ	180 U
Dibenz(a,h)anthracene	80	62	--	4,240 UJ	0.61 U	0.78 U	0.68 U	0.46 U
Diethylphthalate	--	4,900,000	--	4,240 UJ	180 UJ	180 U	180 UJ	180 U
Dimethyl phthalate	--	61,000,000	--	4,240 UJ	180 UJ	180 U	180 UJ	180 U
Fluoranthene	210,000	230,000	--	4,240 UJ	0.97 J	1.2 J	3.5 U	3.4 U
Indeno(1,2,3-cd)pyrene	700	620	--	4,240 UJ	0.62 U	0.82 U	0.62 U	0.54 U
Naphthalene	4,000	5,600	--	4,240 UJ	3.5 U	3.4 UJ	0.97 J	3.4 UJ
Pentachlorophenol	1	3,000	--	12,700 UJ	350 UJ	3.8 J	350 UJ	6.9 U
Phenanthrene	210,000	230,000	--	4,240 UJ	0.69 J	1.3 J	3.5 U	3.4 U
Pyrene	210,000	230,000	--	4,240 UJ	3.5 U	1.1 J	3.5 U	3.4 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	4,240 UJ	180 UJ	41 U	180 UJ	180 U
n-Nitrosodiphenylamine	60	99,000	--	4,240 UJ	180 U	180 U	180 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)								
4,4'-DDD	800	2,400	--	0.340 UJ	3.5 U	3.4 U	0.068 U	3.4 U
4,4'-DDE	3,000	1,700	--	0.340 UJ	3.5 U	3.4 U	0.34 J	3.4 U
4,4'-DDT	2,000	1,700	--	0.340 UJ	3.5 U	3.4 U	3.5 U	3.4 U
Aroclor-1254	--	110	--	34 UJ	35 U	34 U	35 U	34 U
Dieldrin	0.2	30	--	0.340 UJ	3.5 U	3.4 U	1.3 J	3.4 U
Endosulfan I	900	37,000	--	0.170 UJ	0.062 U	1.8 U	1 U	1.8 U
Endosulfan sulfate	900	37,000	--	0.340 UJ	0.29 J	3.4 U	3.5 U	3.4 U
Endrin	50	1,800	--	0.340 UJ	3.5 U	0.18 U	3.5 U	3.4 U
Endrin aldehyde	50	1,800	--	0.340 UJ	0.2 U	3.4 U	3.5 U	0.2 J
Heptachlor	1,000	110	--	0.170 UJ	0.096 U	1.8 U	0.53 U	1.8 U
Heptachlor epoxide	30	53	--	0.170 UJ	1.8 U	1.8 U	0.59 U	1.8 U
alpha-Chlordane	500	1,600	--	0.170 UJ	1.8 U	1.6 J	3	1.8 U
beta-BHC	0.1	320	--	0.170 UJ	1.8 U	1.8 U	0.76 J	1.8 U
delta-BHC	0.1	440	--	0.170 UJ	0.096 U	0.22 J	0.43 U	1.8 U
gamma-Chlordane	500	1,600	--	0.170 UJ	0.088 U	0.25 U	5	1.8 U
Explosives (UG_KG)								
2,4,6-Trinitrotoluene	8.7	16,000	--	236 U	120 U	120 U	89 J	120 U
HMX	7,100	310,000	--	236 U	120 U	120 U	1,500	120 U
Perchlorate	85	55,000	--	NA	1.6 J	1.6 J	5.4	2.1 U
RDX	0.36	4,400	--	236 U	120 U	120 U	7,800 J	120 U
Total Metals (MG_KG)								
Aluminum	55,000	7,600	18,000	2,080	13,900	6,820	21,800	7,270
Arsenic	1	0.39	1.2	0.350 U	1.7 U	0.98 U	1.1 U	4.9
Barium	82	1,600	190	104	325	668	240	242
Beryllium	3	15	0.45	0.160 J	0.59 U	0.45 U	0.35 U	0.74 U
Cadmium	0.4	3.7	0.036	0.02 U	1.1 U	1 U	2.1 U	2.1 U
Calcium	--	--	9,100	1,090	2,230	707 J	1,440 J	1,470 J
Chromium	2	210	52	1.90 J	4.1	2.4 J	5.1	3.8 U
Cobalt	33	140	13	3 J	8.8 J	4.7 J	5.1 J	5.4 J
Copper	46	310	47	3.40 J	6.6	12.9	13.2	11
Cyanide	--	120	--	NA	2.7 R	2.6 U	0.16 J	0.078 J
Iron	276	2,300	28,000	6,530	16,700	12,500	21,600	20,000
Lead	14	400	6.9	4.60	10.8	5.9 J	18.2	11.7 J
Magnesium	--	--	12,834	382 J	2,700	1,800	1,870 J	953 J
Manganese	57	180	1,200	321	582	476 J	325	1,050 J
Mercury	0.1	2.3	0.024	0.01 U	0.11 U	0.032 J	0.1 U	0.018 J
Nickel	7	160	18	0.470 J	2.7 U	1.7 U	2.9 U	3.1 U
Potassium	--	--	1,700	263 J	769 J	1,060	476 J	357 J
Selenium	0.3	39	0.73	0.220 U	7.5 U	7.2 U	14.8 U	14.4 U
Silver	2	39	0.076	0.0500 U	2.8	2 U	4.8	2.5 U
Sodium	--	--	310	93.6 J	579 J	1,300	191 J	2,060 U
Thallium	0.036	0.52	0.46	0.330 J	0.048 U	0.038 U	0.048 U	0.021 U
Vanadium	300	7.8	80	25.1	39.7	27	54.7	61.1
Zinc	620	2,300	53	6.60	55.2	51	52.7	55.8
Wet Chemistry (MG_KG)								
% Solids	--	--	--	NA	93.4	96.6	94.5	96.9
Total organic carbon (TOC)	--	--	--	NA	NA	NA	6,130	NA
pH	--	--	--	NA	6.31	6.98	5.93	5.81

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
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Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Subsurface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	WW04-SO21		WW04-SO25	WW04-SO26		WW04-SO27
Sample ID				WW04-SB21-13-07A	WW04-SB21P-13-07A	WW04-SB25-46-07A	WW04-SB26-46-07A	WW04-SB26P-46-07A	WW04-SB27-46-07A
Sample Date				02/08/07	02/08/07	01/30/07	01/30/07	01/30/07	01/26/07
Chemical Name									
Volatile Organic Compounds (UG_KG)									
1,2-Dichlorobenzene	900	110,000	--	5 U	4.7 U	5.4 U	4.6 U	5.1 U	4.9 UJ
2-Butanone	--	2,200,000	--	9.9 U	9.5 U	11 U	9.2 U	10 U	9.8 U
4-Methyl-2-pentanone	--	530,000	--	9.9 U	9.5 U	11 U	9.2 U	10 U	9.8 U
Acetone	800	1,400,000	--	8.1 U	5.3 U	2.5 U	4 U	2.7 U	2.8 U
Benzene	2	640	--	5 U	4.7 U	5.4 U	4.6 U	5.1 U	4.9 U
Chlorobenzene	70	15,000	--	5 U	4.7 U	5.4 U	4.6 U	5.1 U	4.9 UJ
Styrene	200	440,000	--	5 U	4.7 U	5.4 U	1.5 J	1.4 J	4.9 UJ
Toluene	600	630,000	--	5 U	4.7 U	5.4 U	0.55 J	0.51 U	0.62 U
Trichloroethene	3	53	--	5 U	4.7 U	5.4 U	4.6 UJ	5.1 U	4.9 UJ
Xylene, total	10,000	27,000	--	NA	NA	NA	NA	NA	NA
m- and p-Xylene	--	27,000	--	5 U	4.7 U	5.4 U	4.6 UJ	5.1 U	4.9 UJ
Semi-volatile Organic Compounds (UG_KG)									
2,4-Dinitrotoluene	0.04	12,000	--	170 U	180 U	180 U	180 U	180 U	190 U
2-Methylnaphthalene	4,000	31,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Acenaphthene	29,000	370,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Acenaphthylene	4,000	370,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Anthracene	590,000	2,200,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Benzo(a)anthracene	80	620	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Benzo(a)pyrene	400	62	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Benzo(b)fluoranthene	200	620	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	0.49 U	0.47 U	3.6 U	3.5 U	2 J	3.8 U
Benzo(k)fluoranthene	2,000	6,200	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Butylbenzylphthalate	810,000	1,200,000	--	170 U	180 U	180 U	180 U	180 U	190 U
Chrysene	8,000	62,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Di-n-butylphthalate	270,000	610,000	--	36 U	30 U	96 U	160 U	120 U	170 U
Di-n-octylphthalate	10,000,000	240,000	--	170 U	180 U	180 U	180 U	180 U	190 U
Dibenz(a,h)anthracene	80	62	--	0.49 U	0.5 U	3.6 U	3.5 U	1.9 J	3.8 U
Diethylphthalate	--	4,900,000	--	170 U	180 U	180 U	180 U	180 U	190 U
Dimethyl phthalate	--	61,000,000	--	170 U	180 U	180 U	180 U	180 U	190 U
Fluoranthene	210,000	230,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Indeno(1,2,3-cd)pyrene	700	620	--	0.57 U	0.58 U	3.6 U	3.5 U	1.8 J	3.8 U
Naphthalene	4,000	5,600	--	3.4 UJ	3.5 UJ	1.7 J	1.3 J	1.4 J	2.8 J
Pentachlorophenol	1	3,000	--	6.9 U	7 U	7.3 R	7.1 U	1.8 J	380 U
Phenanthrene	210,000	230,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Pyrene	210,000	230,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	170 U	180 U	180 U	31 U	20 U	190 U
n-Nitrosodiphenylamine	60	99,000	--	170 U	180 U	180 U	180 U	180 U	190 U
Pesticide/Polychlorinated Biphenyls (UG_KG)									
4,4'-DDD	800	2,400	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
4,4'-DDE	3,000	1,700	--	0.5 U	0.24 U	3.6 U	3.5 U	3.5 U	3.8 U
4,4'-DDT	2,000	1,700	--	3.4 U	3.5 U	0.25 J	3.5 U	3.5 U	3.8 U
Aroclor-1254	--	110	--	34 U	35 U	36 U	35 U	35 U	38 U
Dieldrin	0.2	30	--	3.4 U	3.5 U	0.26 J	3.5 U	3.5 U	3.8 U
Endosulfan I	900	37,000	--	1.7 U	1.8 U	1.8 U	0.38 J	1.8 U	1.9 U
Endosulfan sulfate	900	37,000	--	3.4 U	3.5 U	3.6 U	3.5 U	3.5 U	3.8 U
Endrin	50	1,800	--	3.4 U	3.5 U	0.26 J	3.5 U	3.5 U	3.8 U
Endrin aldehyde	50	1,800	--	0.29 U	0.21 U	3.6 U	3.5 U	3.5 U	3.8 U
Heptachlor	1,000	110	--	0.2 J	1.8 U	0.22 U	0.17 U	0.13 U	1.9 UJ
Heptachlor epoxide	30	53	--	0.31 J	1.8 U	1.8 U	0.082 U	0.07 U	1.9 U
alpha-Chlordane	500	1,600	--	1.1 J	0.27 J	1.8 U	0.47 J	0.49 J	1.9 U
beta-BHC	0.1	320	--	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U
delta-BHC	0.1	440	--	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U
gamma-Chlordane	500	1,600	--	1.7 U	1.8 U	1.8 U	1 J	0.77 J	1.9 U
Explosives (UG_KG)									
2,4,6-Trinitrotoluene	8.7	16,000	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	7.7	7.3	2.2 U	2.1 U	2.1 U	2.3 U
RDX	0.36	4,400	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)									
Aluminum	55,000	7,600	18,000	18,600	19,600	10,900	14,400	14,500	23,500
Arsenic	1	0.39	1.2	0.99 U	1.3 U	2.4	1.6 U	1.7 U	0.87 U
Barium	82	1,600	190	129 J	273 J	170 J	101	134	180 J
Beryllium	3	15	0.45	0.41 U	0.43 U	0.4 U	0.35 U	0.24 U	0.64 U
Cadmium	0.4	3.7	0.036	1 U	1 U	0.11 J	0.18 J	2.1 U	0.14 U
Calcium	--	--	9,100	1,600	1,640	2,910	5,180	5,510	1,210
Chromium	2	210	52	4.1 J	4.4 J	4.9	6.1	7	10.4
Cobalt	33	140	13	4.3 J	4.3 J	16.3	10.3 U	12.8 U	7.6 U
Copper	46	310	47	6	6.4	8.2	17.2	18.5	16.4
Cyanide	--	120	--	2.6 U	2.6 U	2.7 U	2.6 U	0.081 J	2.9 U
Iron	276	2,300	28,000	16,300	17,200	19,200	24,600	26,300	18,700
Lead	14	400	6.9	10.5 J	10.2 J	2.2 J	2 U	2.2 U	25.1
Magnesium	--	--	12,834	1,540	1,600 J	3,900	5,140	5,760	1,910
Manganese	57	180	1,200	376 J	347 J	1,250	817	1,080	234 J
Mercury	0.1	2.3	0.024	0.017 J	0.032 J	0.11 U	0.016 J	0.1 U	0.11 U
Nickel	7	160	18	2 U	2.2 U	6.5 U	3.4 U	3.7 U	6.8 U
Potassium	--	--	1,700	421 J	478 J	328 J	416 J	398 J	450 J
Selenium	0.3	39	0.73	7.2 U	7.3 U	7.6 U	14.8 U	14.8 U	0.46 J
Silver	2	39	0.076	3.1	3.3	1.8 U	4.1 U	4.2	4.5
Sodium	--	--	310	332 J	306 J	2,960	1,350 J	1,410 J	2,030
Thallium	0.036	0.52	0.46	0.035 U	0.036 U	0.0081 U	0.008 U	0.0077 U	0.017 J
Vanadium	300	7.8	80	44.2	44.4	47.1	53	63.7	66.5
Zinc	620	2,300	53	34.9	34.3	53.3	78	69.7	72.2
Wet Chemistry (MG_KG)									
% Solids	--	--	--	97.5	95.3	92.1	94.7	94.5	87.3
Total organic carbon (TOC)	--	--	--	NA	NA	552 U	NA	NA	NA
pH	--	--	--	6.54	6.62	7.19	6.38	6.9	5.09

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Subsurface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	WW04-SO28	WW04-SO29	WW04-SO30	WW04-SO31		WW04-SO32
Sample ID				WW04-SB28-46-07A	WW04-SB29-46-07A	WW04-SB30-46-07A	WW04-SB31-46-07A	WW04-SB31-68-07A	WW04-SB32-46-07A
Sample Date				01/31/07	01/23/07	01/25/07	01/31/07	01/31/07	01/24/07
Chemical Name									
Volatile Organic Compounds (UG_KG)									
1,2-Dichlorobenzene	900	110,000	--	5.5 U	4.3 U	5.6 U	4.8 UJ	4.7 UJ	5.6 U
2-Butanone	--	2,200,000	--	11 U	8.5 U	11 U	9.6 U	9.4 U	11 U
4-Methyl-2-pentanone	--	530,000	--	11 U	8.5 U	11 U	9.6 UJ	9.4 U	11 U
Acetone	800	1,400,000	--	3 U	2.3 U	3.8 U	9.6 U	9.4 U	4.9 U
Benzene	2	640	--	5.5 U	4.3 U	5.6 U	4.8 UJ	4.7 UJ	5.6 U
Chlorobenzene	70	15,000	--	5.5 U	4.3 U	5.6 U	4.8 UJ	4.7 UJ	2.2 J
Styrene	200	440,000	--	2.4 J	4.3 U	5.6 U	4.8 UJ	4.7 UJ	5.6 U
Toluene	600	630,000	--	0.62 U	4.3 U	5.6 U	4.8 UJ	4.7 UJ	1 U
Trichloroethene	3	53	--	5.5 U	4.3 U	5.6 U	4.8 UJ	4.7 UJ	0.81 J
Xylene, total	10,000	27,000	--	NA	NA	NA	NA	NA	NA
m- and p-Xylene	--	27,000	--	5.5 U	4.3 U	5.6 U	4.8 UJ	4.7 UJ	5.6 U
Semi-volatile Organic Compounds (UG_KG)									
2,4-Dinitrotoluene	0.04	12,000	--	190 U	180 U	190 U	190 U	190 U	190 U
2-Methylnaphthalene	4,000	31,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Acenaphthene	29,000	370,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Acenaphthylene	4,000	370,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Anthracene	590,000	2,200,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(a)anthracene	80	620	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(a)pyrene	400	62	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(b)fluoranthene	200	620	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	3.6 U	3.6 U	0.059 J	3.7 U	3.7 U	3.6 U
Benzo(k)fluoranthene	2,000	6,200	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Butylbenzylphthalate	810,000	1,200,000	--	190 U	180 U	190 U	190 U	190 U	190 U
Chrysene	8,000	62,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Di-n-butylphthalate	270,000	610,000	--	94 U	73 U	72 U	84 U	28 U	66 U
Di-n-octylphthalate	10,000,000	240,000	--	190 U	24 J	190 U	190 U	26 J	190 U
Dibenz(a,h)anthracene	80	62	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Diethylphthalate	--	4,900,000	--	190 U	180 U	190 U	190 U	190 U	190 U
Dimethyl phthalate	--	61,000,000	--	190 U	180 U	190 U	190 U	190 U	190 U
Fluoranthene	210,000	230,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Indeno(1,2,3-cd)pyrene	700	620	--	3.6 U	3.6 U	0.067 J	3.7 U	3.7 U	3.6 U
Naphthalene	4,000	5,600	--	3.6 U	4.9	2.7 J	1.5 U	1.3 U	5.7
Pentachlorophenol	1	3,000	--	7.4 R	360 U	370 U	7.5 R	7.6 R	360 U
Phenanthrene	210,000	230,000	--	3.6 U	3.6 U	3.7 U	3.7 U	0.21 J	3.6 U
Pyrene	210,000	230,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	190 U	37 U	190 U	190 U	31 U	33 U
n-Nitrosodiphenylamine	60	99,000	--	190 U	180 U	190 U	190 U	190 U	190 U
Pesticide/Polychlorinated Biphenyls (UG_KG)									
4,4'-DDD	800	2,400	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
4,4'-DDE	3,000	1,700	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
4,4'-DDT	2,000	1,700	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Aroclor-1254	--	110	--	36 U	36 U	37 U	37 U	37 U	36 U
Dieldrin	0.2	30	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Endosulfan I	900	37,000	--	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U
Endosulfan sulfate	900	37,000	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Endrin	50	1,800	--	3.6 U	3.6 U	3.7 U	3.7 U	3.7 U	3.6 U
Endrin aldehyde	50	1,800	--	3.6 U	3.6 U	13	3.7 U	3.7 U	3.6 U
Heptachlor	1,000	110	--	0.16 U	1.8 UJ	1.9 UJ	0.079 U	0.13 U	1.9 UJ
Heptachlor epoxide	30	53	--	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U
alpha-Chlordane	500	1,600	--	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	0.22 J
beta-BHC	0.1	320	--	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U
delta-BHC	0.1	440	--	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U
gamma-Chlordane	500	1,600	--	1.9 U	0.2 J	1.9 U	1.9 U	1.9 U	1.9 U
Explosives (UG_KG)									
2,4,6-Trinitrotoluene	8.7	16,000	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	2.2 U	580	41	2.3 U	2.2 U	1.9 J
RDX	0.36	4,400	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)									
Aluminum	55,000	7,600	18,000	14,100	13,300	16,700	21,900	16,300	11,200
Arsenic	1	0.39	1.2	1.9 U	0.53 U	0.43 U	0.93 U	0.7 U	0.94 U
Barium	82	1,600	190	246 J	280 J	1,070 J	1,530 J	714 J	265 J
Beryllium	3	15	0.45	1.8	0.57 U	0.32 U	0.92 U	0.84 U	0.5 U
Cadmium	0.4	3.7	0.036	0.33 U	1.1 U	1.1 U	0.17 U	1.1 U	1.1 U
Calcium	--	--	9,100	1,840	1,190	1,430	2,420	1,340	1,920
Chromium	2	210	52	7.4	7.4	5.8	10.6	9.8	5.7
Cobalt	33	140	13	8.7 J	5.3 U	5.1 U	26.8	28.5	11.6
Copper	46	310	47	11.5	8.3	7.9	17.3	14.2	9
Cyanide	--	120	--	2.7 U	0.086 J	0.1 J	0.15 J	2.8 U	2.7 U
Iron	276	2,300	28,000	21,600	13,500	14,600	18,800	22,700	13,800
Lead	14	400	6.9	6.3 J	13.8	6.6 J	17.6 J	10.7 J	4.9 J
Magnesium	--	--	12,834	2,450	1,740	1,840	2,490	2,410	1,650
Manganese	57	180	1,200	915	969 J	437 J	5,120	3,110	1,050 J
Mercury	0.1	2.3	0.024	0.11 U	0.019 J	NA	0.11 U	0.11 U	0.11 U
Nickel	7	160	18	89.2 J	3.3 U	3.4 U	6.1 U	7.8 U	3.3 U
Potassium	--	--	1,700	295 J	404 J	469 J	714 J	455 J	455 J
Selenium	0.3	39	0.73	0.71 U	7.5 U	7.8 U	7.8 U	15.9 U	0.44 U
Silver	2	39	0.076	3.9	1 U	2.8	2.2 U	2.3 U	0.72 U
Sodium	--	--	310	2,000	1,270	1,090 J	1,630	1,730	805 J
Thallium	0.036	0.52	0.46	0.0084 U	0.015 J	0.0081 U	0.027 J	0.033 J	0.038 J
Vanadium	300	7.8	80	66.6	43.4 J	39.5 J	113	90.3	46.2 J
Zinc	620	2,300	53	45.2	24.5	42.3	55.9	35.9	42.4
Wet Chemistry (MG_KG)									
% Solids	--	--	--	91.1	92.8	89.3	89.5	88.3	91.3
Total organic carbon (TOC)	--	--	--	544 U	NA	NA	NA	NA	NA
pH	--	--	--	6.26	6.93	6.32	7.26	7.31	6.77

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Subsurface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	WW04-SO33	WW04-SO34	WW04-SO35		WW04-SO36	WW04-SO37
Sample ID				WW04-SB33-46-07A	WW04-SB34-46-07A	WW04-SB35-46-07A	WW04-SB35-68-07A	WW04-SB36-46-07A	WW04-SB37-46-07A
Sample Date				02/01/07	01/25/07	02/01/07	02/02/07	02/13/07	02/13/07
Chemical Name									
Volatile Organic Compounds (UG_KG)									
1,2-Dichlorobenzene	900	110,000	--	5 U	5.6 U	5.5 U	5.1 U	6.3 U	7.1 U
2-Butanone	--	2,200,000	--	10 U	11 U	11 U	10 U	13 U	14 U
4-Methyl-2-pentanone	--	530,000	--	10 U	11 U	11 U	10 U	13 U	14 U
Acetone	800	1,400,000	--	2 U	3.4 U	3.4 U	10 U	4.7 U	8.8 U
Benzene	2	640	--	5 U	5.6 U	5.5 U	5.1 UJ	6.3 U	7.1 U
Chlorobenzene	70	15,000	--	5 U	5.6 U	5.5 U	5.1 U	6.3 U	7.1 U
Styrene	200	440,000	--	1.4 J	5.6 U	1.6 J	5.1 UJ	6.3 U	7.1 U
Toluene	600	630,000	--	5 U	5.6 U	5.5 U	5.1 UJ	6.3 U	7.1 U
Trichloroethene	3	53	--	5 U	5.6 U	5.5 U	5.1 UJ	6.3 U	7.1 U
Xylene, total	10,000	27,000	--	NA	NA	NA	NA	NA	NA
m- and p-Xylene	--	27,000	--	5 U	5.6 U	5.5 U	5.1 UJ	6.3 U	7.1 U
Semi-volatile Organic Compounds (UG_KG)									
2,4-Dinitrotoluene	0.04	12,000	--	190 U	190 U	190 U	190 U	60 J	190 U
2-Methylnaphthalene	4,000	31,000	--	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.6 U
Acenaphthene	29,000	370,000	--	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.6 U
Acenaphthylene	4,000	370,000	--	3.7 U	1.2 J	3.7 U	3.7 U	3.7 U	3.6 U
Anthracene	590,000	2,200,000	--	3.7 U	0.57 J	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(a)anthracene	80	620	--	3.7 U	2.3 J	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(a)pyrene	400	62	--	3.7 U	6	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(b)fluoranthene	200	620	--	3.7 U	9.5	3.7 U	3.7 U	3.7 U	3.6 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	0.92 J	3.1 J	0.61 J	0.62 J	1 U	0.4 U
Benzo(k)fluoranthene	2,000	6,200	--	3.7 U	3 J	3.7 U	3.7 U	3.7 U	3.6 U
Butylbenzylphthalate	810,000	1,200,000	--	190 U	190 U	190 U	190 UJ	190 U	190 U
Chrysene	8,000	62,000	--	3.7 U	3.5 J	3.7 U	3.7 U	3.7 U	3.6 U
Di-n-butylphthalate	270,000	610,000	--	23 U	65 U	62 U	50 U	210	89 U
Di-n-octylphthalate	10,000,000	240,000	--	190 U	190 U	190 U	190 UJ	190 U	190 U
Dibenz(a,h)anthracene	80	62	--	1 J	3.7 U	0.62 J	0.69 J	0.54 U	0.41 U
Diethylphthalate	--	4,900,000	--	190 U	190 U	190 U	190 UJ	190 U	190 U
Dimethyl phthalate	--	61,000,000	--	190 U	190 U	190 U	190 UJ	190 U	190 U
Fluoranthene	210,000	230,000	--	3.7 U	6.4	3.7 U	3.7 U	3.7 U	3.6 U
Indeno(1,2,3-cd)pyrene	700	620	--	0.98 J	4.7	0.61 J	0.68 J	0.79 U	0.48 U
Naphthalene	4,000	5,600	--	3.7 U	2.9 J	3.7 U	3.7 U	3.7 UJ	3.6 UJ
Pentachlorophenol	1	3,000	--	7.5 R	370 U	7.4 R	370 UJ	370 U	360 U
Phenanthrene	210,000	230,000	--	3.7 U	3.2 J	3.7 U	3.7 U	3.7 U	3.6 U
Pyrene	210,000	230,000	--	1.1 J	7.9	3.7 U	3.7 U	3.7 U	3.6 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	20 U	190 U	190 U	20 U	190 U	26 U
n-Nitrosodiphenylamine	60	99,000	--	190 U	190 U	190 U	190 U	220	190 U
Pesticide/Polychlorinated Biphenyls (UG_KG)									
4,4'-DDD	800	2,400	--	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.6 U
4,4'-DDE	3,000	1,700	--	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.6 U
4,4'-DDT	2,000	1,700	--	3.7 U	3.7 U	3.7 U	0.11 U	3.7 U	3.6 U
Aroclor-1254	--	110	--	37 U	37 U	37 U	37 U	37 U	36 U
Dieldrin	0.2	30	--	3.7 U	3.7 U	0.084 U	3.7 U	3.7 U	3.6 U
Endosulfan I	900	37,000	--	1.9 U	1.9 U	1.9 U	0.67 J	1.9 U	1.9 U
Endosulfan sulfate	900	37,000	--	3.7 U	3.7 U	3.7 U	3.7 U	3.7 R	3.6 U
Endrin	50	1,800	--	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.6 U
Endrin aldehyde	50	1,800	--	3.7 U	3.7 U	3.7 U	3.7 U	0.48 U	3.6 U
Heptachlor	1,000	110	--	0.075 U	1.9 UJ	0.09 U	0.29 U	1.9 UJ	1.9 UJ
Heptachlor epoxide	30	53	--	1.9 U	1.9 U	0.072 U	1.9 U	1.9 U	1.9 U
alpha-Chlordane	500	1,600	--	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
beta-BHC	0.1	320	--	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
delta-BHC	0.1	440	--	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
gamma-Chlordane	500	1,600	--	1.9 U	1.9 U	1.9 U	1.9 U	0.23 U	1.9 U
Explosives (UG_KG)									
2,4,6-Trinitrotoluene	8.7	16,000	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	23	2.2 U	330	220	2.2 U	1,600
RDX	0.36	4,400	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)									
Aluminum	55,000	7,600	18,000	19,700	16,700	19,500	24,100	17,000	16,100
Arsenic	1	0.39	1.2	1 U	0.4 U	0.94 U	0.98 U	1.5 U	0.78 J
Barium	82	1,600	190	385 J	313 J	118 J	151	376	106
Beryllium	3	15	0.45	0.73 U	0.37 U	0.49 U	0.94 U	0.39 U	0.33 J
Cadmium	0.4	3.7	0.036	1.1 U	0.11 U	1.1 U	2.3 U	0.14 U	0.14 J
Calcium	--	--	9,100	2,110	2,530	561 J	666 J	1,250	3,090
Chromium	2	210	52	8.4	7.5	4.3	9.5	6.6	8.1
Cobalt	33	140	13	20.6	12.7	1.8 U	3 U	5.8 J	7.5 J
Copper	46	310	47	15.3	12.8	5.4 U	10 U	25	12
Cyanide	--	120	--	0.15 J	0.079 J	2.8 U	2.8 R	0.13 U	2.7 UJ
Iron	276	2,300	28,000	18,900	19,100	14,600	29,800	12,700	17,400
Lead	14	400	6.9	8.4 J	9.1 J	6.8 J	19.1	11.7 R	8.1
Magnesium	--	--	12,834	3,130	1,800	873 J	1,360 J	1,370	2,230
Manganese	57	180	1,200	2,170	1,300 J	64.8	383	748	706
Mercury	0.1	2.3	0.024	0.11 U	0.023 J	0.11 U	0.11 U	0.047 U	0.11 U
Nickel	7	160	18	5.7 U	5.6 U	2 U	3.2 U	3.1 U	5 J
Potassium	--	--	1,700	685 J	672 J	288 J	336 J	537 J	343 J
Selenium	0.3	39	0.73	7.9 U	0.49 U	7.7 U	15.9 U	7.9 U	7.7 U
Silver	2	39	0.076	2.2 U	1.5 U	3.7	6.8	1.3 U	2.5
Sodium	--	--	310	2,100	190 J	1,290	1,510 J	1,200	1,190
Thallium	0.036	0.52	0.46	0.066 J	0.017 J	0.0082 U	0.042 U	0.042 U	0.045 J
Vanadium	300	7.8	80	44.9	53.5 J	44.3	96.4	39.3	52.1
Zinc	620	2,300	53	63.6	49.9	30.2	29.9	55.3	29.5
Wet Chemistry (MG_KG)									
% Solids	--	--	--	89	90	90.4	88.2	88.8	91.4
Total organic carbon (TOC)	--	--	--	NA	4,400	NA	NA	NA	1,710
pH	--	--	--	7.69	6.98	6.78	6.58	5.42	8.03

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Subsurface Soil Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	WW04-SO38		WW04-SO39			WW04-SO40
Sample ID				WW04-SB38-12-07A	WW04-SB38P-12-07A	WW04-SB39-46-07A	WW04-SB39P-46-07A	WW04-SB39-67-07A	WW04-SB40-46-07A
Sample Date				02/13/07	02/13/07	02/12/07	02/12/07	02/12/07	02/09/07
Chemical Name									
Volatile Organic Compounds (UG_KG)									
1,2-Dichlorobenzene	900	110,000	--	4.9 U	4.8 U	5 U	5 U	5.1 U	0.61 R
2-Butanone	--	2,200,000	--	9.7 U	9.6 U	10 U	9.9 U	10 U	9 R
4-Methyl-2-pentanone	--	530,000	--	9.7 U	9.6 U	10 U	9.9 U	10 U	9 R
Acetone	800	1,400,000	--	6.9 U	8.9 U	8.2 U	3.7 U	5.3 U	6.1 R
Benzene	2	640	--	4.9 U	4.8 U	5 U	5 U	5.1 U	4.5 R
Chlorobenzene	70	15,000	--	4.9 U	4.8 U	5 U	5 U	5.1 U	0.66 R
Styrene	200	440,000	--	4.9 U	4.8 U	5 U	5 U	5.1 U	1.2 R
Toluene	600	630,000	--	4.9 U	4.8 U	5 U	5 U	5.1 U	1 R
Trichloroethene	3	53	--	4.9 U	4.8 U	5 U	5 U	5.1 U	0.62 R
Xylene, total	10,000	27,000	--	NA	NA	NA	NA	NA	NA
m- and p-Xylene	--	27,000	--	4.9 U	4.8 U	5 U	5 U	5.1 U	4 J
Semi-volatile Organic Compounds (UG_KG)									
2,4-Dinitrotoluene	0.04	12,000	--	180 U	180 U	180 U	190 U	190 U	180 U
2-Methylnaphthalene	4,000	31,000	--	1.5 J	1.2 J	3.6 U	3.7 U	3.7 U	3.5 U
Acenaphthene	29,000	370,000	--	3.5 U	3.5 U	8.9	3.7 U	3.7 U	3.5 U
Acenaphthylene	4,000	370,000	--	0.11 J	0.49 J	3.6 U	3.7 U	3.7 U	3.5 U
Anthracene	590,000	2,200,000	--	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	3.5 U
Benzo(a)anthracene	80	620	--	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	0.53 J
Benzo(a)pyrene	400	62	--	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	3.5 U
Benzo(b)fluoranthene	200	620	--	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	3.5 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	3.5 U	3.5 U	0.4 U	0.4 U	1.1 U	0.83 U
Benzo(k)fluoranthene	2,000	6,200	--	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	3.5 U
Butylbenzylphthalate	810,000	1,200,000	--	180 U	180 U	180 U	190 U	190 U	180 U
Chrysene	8,000	62,000	--	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	0.58 J
Di-n-butylphthalate	270,000	610,000	--	27 U	620	130 U	160 U	78 U	82 U
Di-n-octylphthalate	10,000,000	240,000	--	180 U	180 U	180 U	190 U	190 U	180 U
Dibenz(a,h)anthracene	80	62	--	3.5 U	3.5 U	0.47 U	0.42 U	1.1 U	0.93 U
Diethylphthalate	--	4,900,000	--	89 J	6,700	180 U	190 U	190 U	180 U
Dimethyl phthalate	--	61,000,000	--	180 U	200	180 U	190 U	190 U	180 U
Fluoranthene	210,000	230,000	--	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	3.5 U
Indeno(1,2,3-cd)pyrene	700	620	--	3.5 U	3.5 U	0.45 U	0.4 U	1.1 U	0.95 U
Naphthalene	4,000	5,600	--	3.5 U	1.9 J	3.6 UJ	3.7 UJ	3.7 UJ	5.6 J
Pentachlorophenol	1	3,000	--	350 U	350 U	360 U	370 U	370 U	7.2 U
Phenanthrene	210,000	230,000	--	3.5 U	1.9 J	3.6 U	3.7 U	3.7 U	3.5 U
Pyrene	210,000	230,000	--	3.5 U	3.5 U	10	3.7 U	3.7 U	3.5 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	26 U	230	21 U	27 U	190 U	30 U
n-Nitrosodiphenylamine	60	99,000	--	180 U	66 J	180 U	190 U	190 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)									
4,4'-DDD	800	2,400	--	3.5 U	24	3.6 U	3.7 U	3.7 U	3.5 U
4,4'-DDE	3,000	1,700	--	0.42 J	6.9 NJ	3.6 U	3.7 U	3.7 U	3.5 U
4,4'-DDT	2,000	1,700	--	3.5 U	4.5 R	3.6 U	3.7 U	3.7 U	3.5 U
Aroclor-1254	--	110	--	35 U	230 J	36 U	37 U	37 U	35 U
Dieldrin	0.2	30	--	3.5 U	2.4 U	3.6 U	3.7 U	3.7 U	3.5 U
Endosulfan I	900	37,000	--	1.8 U	1.3 U	1.8 U	1.9 U	1.9 U	1.8 U
Endosulfan sulfate	900	37,000	--	0.26 J	0.19 U	3.6 U	3.7 U	3.7 U	3.5 U
Endrin	50	1,800	--	3.5 U	1.1 U	3.6 U	3.7 U	3.7 U	3.5 U
Endrin aldehyde	50	1,800	--	0.31 U	2.5 J	0.21 U	0.81 U	0.25 U	0.48 U
Heptachlor	1,000	110	--	1.8 UJ	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 U
Heptachlor epoxide	30	53	--	1.8 U	3.5 R	1.8 U	1.9 U	1.9 U	1.8 U
alpha-Chlordane	500	1,600	--	1.8 U	0.73 U	1.8 U	1.9 U	1.9 U	0.97 J
beta-BHC	0.1	320	--	1.8 U	1.8 R	1.8 U	0.25 U	0.21 U	1.8 U
delta-BHC	0.1	440	--	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U
gamma-Chlordane	500	1,600	--	1.8 U	0.59 U	0.3 U	0.23 J	0.26 J	0.2 J
Explosives (UG_KG)									
2,4,6-Trinitrotoluene	8.7	16,000	--	120 U	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	120 U	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	3.4	4.4	2.7 J	0.76 J	0.78 J	1.4 J
RDX	0.36	4,400	--	120 U	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)									
Aluminum	55,000	7,600	18,000	10,100	26,000	12,000	13,500	21,800	13,200
Arsenic	1	0.39	1.2	0.65 J	0.82 J	1 U	2.2 U	0.38 U	0.97 U
Barium	82	1,600	190	268	537	106	124	101	80.1
Beryllium	3	15	0.45	0.21 J	0.37 J	0.3 U	0.24 U	0.39 U	0.34 U
Cadmium	0.4	3.7	0.036	0.23 J	0.55 J	1.1 U	1.1 U	1.1 U	1.1 U
Calcium	--	--	9,100	1,310	2,350	2,360	2,230	2,140	622 J
Chromium	2	210	52	5.5	12.8	5.6	5.8	9	4.2 J
Cobalt	33	140	13	3.9 J	6 J	4.8 J	6.1 J	8.4 J	4.5 J
Copper	46	310	47	12.3	30.5	8	6.8	10.7	7.6
Cyanide	--	120	--	0.33 J	2.6 UJ	0.13 U	2.8 U	2.8 U	2.7 U
Iron	276	2,300	28,000	9,820	15,900	17,600 J	12,200 J	19,800	13,000
Lead	14	400	6.9	9.9	26.8	13.9 R	8.9 R	9.1 R	8.4 J
Magnesium	--	--	12,834	773 J	1,580	1,460	1,460	2,480	1,190
Manganese	57	180	1,200	452	255	400 J	663 J	787	367 J
Mercury	0.1	2.3	0.024	0.11 U	0.025 J	0.019 U	0.03 U	0.037 U	0.11 U
Nickel	7	160	18	3.6 J	5.1 J	2.2 U	2.3 U	3.7 U	2 U
Potassium	--	--	1,700	387 J	827 J	352 J	369 J	549 J	471 J
Selenium	0.3	39	0.73	0.51 R	0.75 R	7.6 U	7.9 U	7.8 U	7.5 U
Silver	2	39	0.076	1.6 J	3.8	3.4	1.2 U	2.9	2.4
Sodium	--	--	310	1,070 U	1,050 U	988 U	1,140 J	2,150 J	931 J
Thallium	0.036	0.52	0.46	0.029 J	0.03 J	0.021 U	0.025 U	0.038 U	0.021 U
Vanadium	300	7.8	80	44.7	52.3	61.1 R	35 R	52.7	35.8
Zinc	620	2,300	53	27.8	58	16.6 J	21.6 J	50.1	31
Wet Chemistry (MG_KG)									
% Solids	--	--	--	93.3	94.8	92.4	89	89.2	93.5
Total organic carbon (TOC)	--	--	--	4,550	4,600	1,960	1,740	1,180	NA
pH	--	--	--	6.48	6.68	7.09	7.41	7.6	6.5

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	WW04-SO41	WW04-SO42	WW04-SO46	WW04-SO47	WW04-SO48
Sample ID				WW04-SB41-46-07A	WW04-SB42-46-07A	WW04-SB46-46-07A	WW04-SB47-46-07A	WW04-SB48-46-07A
Sample Date				02/09/07	02/12/07	01/26/07	01/29/07	01/29/07
Chemical Name								
Volatile Organic Compounds (UG_KG)								
1,2-Dichlorobenzene	900	110,000	--	7.2 U	6.1 U	5 U	4.8 U	5.1 U
2-Butanone	--	2,200,000	--	14 U	12 U	10 U	9.6 U	10 U
4-Methyl-2-pentanone	--	530,000	--	14 U	12 U	10 U	9.6 U	10 U
Acetone	800	1,400,000	--	6.9 U	7.8 U	3.4 U	3.2 U	3.5 U
Benzene	2	640	--	7.2 U	6.1 U	5 U	4.8 U	5.1 U
Chlorobenzene	70	15,000	--	7.2 U	6.1 U	5 U	4.8 U	5.1 U
Styrene	200	440,000	--	1.2 J	6.1 U	1.1 J	4.8 U	5.1 U
Toluene	600	630,000	--	7.2 U	6.1 U	0.75 J	4.8 U	5.1 U
Trichloroethene	3	53	--	7.2 U	6.1 U	5 U	4.8 U	5.1 U
Xylene, total	10,000	27,000	--	NA	NA	NA	NA	NA
m- and p-Xylene	--	27,000	--	7.2 U	6.1 U	5 U	4.8 U	5.1 U
Semi-volatile Organic Compounds (UG_KG)								
2,4-Dinitrotoluene	0.04	12,000	--	190 U	180 U	180 U	190 U	190 U
2-Methylnaphthalene	4,000	31,000	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Acenaphthene	29,000	370,000	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Acenaphthylene	4,000	370,000	--	0.36 J	3.5 U	3.5 U	3.8 U	3.7 U
Anthracene	590,000	2,200,000	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Benzo(a)anthracene	80	620	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Benzo(a)pyrene	400	62	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Benzo(b)fluoranthene	200	620	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	0.5 U	0.44 U	3.5 U	0.2 J	3.7 U
Benzo(k)fluoranthene	2,000	6,200	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Butylbenzylphthalate	810,000	1,200,000	--	190 U	180 U	180 U	190 U	190 U
Chrysene	8,000	62,000	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Di-n-butylphthalate	270,000	610,000	--	93 U	75 U	40 U	38 U	27 U
Di-n-octylphthalate	10,000,000	240,000	--	190 U	180 U	180 U	100 J	190 U
Dibenz(a,h)anthracene	80	62	--	0.52 U	0.48 U	3.5 U	3.8 U	3.7 U
Diethylphthalate	--	4,900,000	--	190 U	180 U	180 U	190 U	190 U
Dimethyl phthalate	--	61,000,000	--	190 U	180 U	180 U	190 U	190 U
Fluoranthene	210,000	230,000	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
Indeno(1,2,3-cd)pyrene	700	620	--	0.57 U	0.46 U	3.5 U	3.8 U	3.7 U
Naphthalene	4,000	5,600	--	3.7 UJ	3.5 UJ	2.6 J	2.8 J	2.8 J
Pentachlorophenol	1	3,000	--	7.5 U	350 U	7 U	7.6 U	7.6 U
Phenanthrene	210,000	230,000	--	0.43 J	3.5 U	3.5 U	3.8 U	3.7 U
Pyrene	210,000	230,000	--	3.7 U	3.5 U	3.5 U	3.8 U	3.7 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	31 U	180 U	180 U	86 U	190 U
n-Nitrosodiphenylamine	60	99,000	--	190 U	180 U	180 U	190 U	190 U
Pesticide/Polychlorinated Biphenyls (UG_KG)								
4,4'-DDD	800	2,400	--	3.7 U	3.5 U	3.5 U	3.8 U	3.8 U
4,4'-DDE	3,000	1,700	--	3.7 U	3.5 U	3.5 U	3.8 U	3.8 U
4,4'-DDT	2,000	1,700	--	3.7 U	3.5 U	3.5 U	3.8 U	3.8 U
Aroclor-1254	--	110	--	37 U	35 U	35 U	38 U	38 U
Dieldrin	0.2	30	--	3.7 U	3.5 U	3.5 U	0.24 U	0.11 U
Endosulfan I	900	37,000	--	1.9 U	1.8 U	1.8 U	1.9 U	1.9 U
Endosulfan sulfate	900	37,000	--	3.7 U	3.5 U	3.5 U	3.8 U	3.8 U
Endrin	50	1,800	--	3.7 U	3.5 U	3.5 U	3.8 U	3.8 U
Endrin aldehyde	50	1,800	--	0.19 U	3.5 U	3.5 U	3.8 U	3.8 U
Heptachlor	1,000	110	--	1.9 U	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ
Heptachlor epoxide	30	53	--	1.9 U	1.8 U	1.8 U	1.9 U	1.9 U
alpha-Chlordane	500	1,600	--	0.33 J	0.31 J	1.8 U	1.9 U	1.9 U
beta-BHC	0.1	320	--	1.9 U	1.8 U	1.8 U	1.9 U	1.9 U
delta-BHC	0.1	440	--	1.9 U	1.8 U	1.8 U	1.9 U	1.9 U
gamma-Chlordane	500	1,600	--	0.23 J	1.8 U	1.8 U	1.9 U	1.9 U
Explosives (UG_KG)								
2,4,6-Trinitrotoluene	8.7	16,000	--	120 U	120 U	120 U	120 U	120 U
HMX	7,100	310,000	--	120 U	120 U	120 U	120 U	120 U
Perchlorate	85	55,000	--	2.2 U	2.1 U	2.1 U	2.3 U	2.3 U
RDX	0.36	4,400	--	120 U	120 U	120 U	120 U	120 U
Total Metals (MG_KG)								
Aluminum	55,000	7,600	18,000	13,800	11,900	13,200	17,900	22,700
Arsenic	1	0.39	1.2	0.47 U	2 U	0.98 U	0.56 U	2.3 U
Barium	82	1,600	190	66.1	310	203	185	231
Beryllium	3	15	0.45	0.37 U	0.92 U	0.59 U	0.21 U	0.36 U
Cadmium	0.4	3.7	0.036	1.1 U	0.095 U	1 U	1.1 U	0.1 U
Calcium	--	--	9,100	1,720	1,510	2,860	3,090	1,750
Chromium	2	210	52	7.2 J	6.1	2.6	7.1	7.5
Cobalt	33	140	13	7.3 J	4.2 J	12.8	3.2 U	8.3 U
Copper	46	310	47	10.8	7.3	16.4	6.8	8.2
Cyanide	--	120	--	2.8 U	0.11 U	0.11 J	2.8 U	2.8 U
Iron	276	2,300	28,000	18,100	20,100	18,600	11,900	14,700
Lead	14	400	6.9	5.9 J	9.7 R	6.9	6.3	9.4
Magnesium	--	--	12,834	1,780	2,820	3,910	1,880	2,150
Manganese	57	180	1,200	490 J	226	1,150	109	1,210
Mercury	0.1	2.3	0.024	0.037 J	0.017 U	0.013 U	0.11 U	0.11 U
Nickel	7	160	18	3.3 U	2.5 U	2.3 U	3.4 U	4.1 U
Potassium	--	--	1,700	315 J	249 J	345 J	649 J	625 J
Selenium	0.3	39	0.73	7.8 U	0.49 J	7.3 U	0.45 J	0.46 J
Silver	2	39	0.076	3.1	4.7	1.9 J	2.8	0.67 J
Sodium	--	--	310	1,310	1,590 J	2,250	1,190	2,020
Thallium	0.036	0.52	0.46	0.034 U	0.022 U	0.008 U	0.0097 J	0.035 J
Vanadium	300	7.8	80	58	57.4	51.8	33.2	41.5
Zinc	620	2,300	53	24.6	39.7 J	75.4	48.9	55.2
Wet Chemistry (MG_KG)								
% Solids	--	--	--	89.4	94.5	95.6	87.8	88
Total organic carbon (TOC)	--	--	--	NA	2,480	NA	1,160 J	NA
pH	--	--	--	6.5	7.7	5.53	5.44	6.21

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Station ID	Region IX SSLs - DAF 1	Vieques HHRA SO	Vieques (West) Background Zone Ktd SO	WW04-SO49	WW04-SO54	WW04-SO55
Sample ID				WW04-SB49-46-07A	WW04-SB54-35-07A	WW04-SB55-24-07A
Sample Date				01/23/07	02/14/07	02/14/07
Chemical Name						
Volatile Organic Compounds (UG_KG)						
1,2-Dichlorobenzene	900	110,000	--	4.4 U	5.2 U	5.5 U
2-Butanone	--	2,200,000	--	8.9 U	10 U	11 U
4-Methyl-2-pentanone	--	530,000	--	8.9 U	2.2 J	11 U
Acetone	800	1,400,000	--	11	21	29
Benzene	2	640	--	4.4 U	5.2 U	5.5 U
Chlorobenzene	70	15,000	--	4.4 U	5.2 U	5.5 U
Styrene	200	440,000	--	4.4 U	5.2 U	5.5 U
Toluene	600	630,000	--	4.4 U	5.2 U	5.5 U
Trichloroethene	3	53	--	4.4 U	5.2 U	5.5 U
Xylene, total	10,000	27,000	--	NA	NA	NA
m- and p-Xylene	--	27,000	--	4.4 U	5.2 U	5.5 U
Semi-volatile Organic Compounds (UG_KG)						
2,4-Dinitrotoluene	0.04	12,000	--	180 U	180 U	180 U
2-Methylnaphthalene	4,000	31,000	--	3.5 U	3.6 U	0.93 J
Acenaphthene	29,000	370,000	--	3.5 U	3.6 U	3.6 U
Acenaphthylene	4,000	370,000	--	3.5 U	3.6 U	3.6 U
Anthracene	590,000	2,200,000	--	3.5 U	3.6 U	3.6 U
Benzo(a)anthracene	80	620	--	3.5 U	3.6 U	3.6 U
Benzo(a)pyrene	400	62	--	3.5 U	3.6 U	3.6 U
Benzo(b)fluoranthene	200	620	--	3.5 U	3.6 U	3.6 U
Benzo(g,h,i)perylene	210,000	2,300,000	--	3.5 U	3.6 U	3.6 U
Benzo(k)fluoranthene	2,000	6,200	--	3.5 U	3.6 U	3.6 U
Butylbenzylphthalate	810,000	1,200,000	--	180 U	180 U	180 U
Chrysene	8,000	62,000	--	3.5 U	3.6 U	3.6 U
Di-n-butylphthalate	270,000	610,000	--	46 U	180 U	180 U
Di-n-octylphthalate	10,000,000	240,000	--	180 U	20 J	180 U
Dibenz(a,h)anthracene	80	62	--	3.5 U	3.6 U	3.6 U
Diethylphthalate	--	4,900,000	--	180 U	180 U	180 U
Dimethyl phthalate	--	61,000,000	--	180 U	180 U	180 U
Fluoranthene	210,000	230,000	--	3.5 U	3.6 U	3.6 U
Indeno(1,2,3-cd)pyrene	700	620	--	3.5 U	3.6 U	3.6 U
Naphthalene	4,000	5,600	--	3.6	3.6 U	3.6 U
Pentachlorophenol	1	3,000	--	350 U	360 U	360 U
Phenanthrene	210,000	230,000	--	3.5 U	3.6 U	3.6 U
Pyrene	210,000	230,000	--	3.5 U	3.6 U	3.6 U
bis(2-Ethylhexyl)phthalate	--	35,000	--	46 U	180 U	180 U
n-Nitrosodiphenylamine	60	99,000	--	180 U	180 U	180 U
Pesticide/Polychlorinated Biphenyls (UG_KG)						
4,4'-DDD	800	2,400	--	3.5 U	3.6 U	3.6 U
4,4'-DDE	3,000	1,700	--	3.5 U	3.6 U	3.6 U
4,4'-DDT	2,000	1,700	--	3.5 U	3.6 U	3.6 U
Aroclor-1254	--	110	--	35 U	36 U	36 U
Dieldrin	0.2	30	--	3.5 U	3.6 U	3.6 U
Endosulfan I	900	37,000	--	1.8 U	1.8 U	0.29 J
Endosulfan sulfate	900	37,000	--	3.5 U	3.6 U	3.6 U
Endrin	50	1,800	--	3.5 U	3.6 U	3.6 U
Endrin aldehyde	50	1,800	--	3.5 U	3.6 U	0.43 J
Heptachlor	1,000	110	--	1.8 UJ	1.8 UJ	1.8 UJ
Heptachlor epoxide	30	53	--	1.8 U	1.8 U	1.8 U
alpha-Chlordane	500	1,600	--	0.45 J	1.8 U	0.91 J
beta-BHC	0.1	320	--	1.8 U	1.8 U	1.8 U
delta-BHC	0.1	440	--	1.8 U	1.8 U	1.8 U
gamma-Chlordane	500	1,600	--	1.8 U	1.8 U	1.8 U
Explosives (UG_KG)						
2,4,6-Trinitrotoluene	8.7	16,000	--	120 U	120 U	120 U
HMX	7,100	310,000	--	120 U	120 U	120 U
Perchlorate	85	55,000	--	56	55	83
RDX	0.36	4,400	--	120 U	120 U	120 U
Total Metals (MG_KG)						
Aluminum	55,000	7,600	18,000	13,300	18,700	13,000
Arsenic	1	0.39	1.2	1.2 U	0.49 J	0.67 J
Barium	82	1,600	190	168 J	199	241
Beryllium	3	15	0.45	0.53 U	0.35	0.33
Cadmium	0.4	3.7	0.036	1.1 U	0.14 J	0.11 J
Calcium	--	--	9,100	1,600	1,320	1,360
Chromium	2	210	52	15.7	5.9	4.7
Cobalt	33	140	13	4.4 U	4.6 J	6.5 J
Copper	46	310	47	15	9.12	7.6
Cyanide	--	120	--	2.7 U	2.7 UJ	2.7 UJ
Iron	276	2,300	28,000	17,300	18,800	18,000
Lead	14	400	6.9	9.1 J	7	6.5
Magnesium	--	--	12,834	1,470	2,310	1,510
Manganese	57	180	1,200	471 J	328	627
Mercury	0.1	2.3	0.024	0.11 U	0.11 U	0.11 U
Nickel	7	160	18	2.3 U	1.9 J	2 J
Potassium	--	--	1,700	322 J	220 J	203 J
Selenium	0.3	39	0.73	7.5 U	1.2 R	0.89 R
Silver	2	39	0.076	3.5	4.8	3.5
Sodium	--	--	310	639 J	988 J	381 J
Thallium	0.036	0.52	0.46	0.0076 U	0.022 J	0.035 U
Vanadium	300	7.8	80	42.6 J	59.9	57.1
Zinc	620	2,300	53	44.5	39.9	40.5
Wet Chemistry (MG_KG)						
% Solids	--	--	--	93.2	92.7	92.7
Total organic carbon (TOC)	--	--	--	NA	NA	NA
pH	--	--	--	7.55	5.91	5.72

Notes:

J - Analyte Present; Reported value may be biased high
NJ - Analyte present at approximate quantity due to poor resolution
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram

Exceeds Background and HHRA criteria
Exceeds Background and DAF 1 Criteria
Exceeds Background, HHRA, DAF 1 Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	SWMU4-MW01		
Sample ID					NDA001	NDA332	WW04-MW01-07A
Sample Date					04/28/00	06/04/00	03/08/07
Chemical Name							
Volatile Organic Compounds (UG_L)							
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	1 U	NA	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	1 U	NA	0.5 U
2-Butanone	700	--	--	--	5 U	NA	5 UJ
2-Hexanone	150	--	--	--	5 U	NA	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	NA	5 U
Acetone	550	--	--	--	5 U	NA	0.5 U
Benzene	0.35	5	--	--	1 U	NA	0.5 U
Carbon disulfide	100	--	--	--	1 U	NA	0.19 U
Chloromethane	16	--	--	--	1 U	NA	0.5 U
Xylene, total	21		--	--	1 U	NA	NA
m- and p-Xylene	21		--	--	1 U	NA	0.5 U
Semi-volatile Organic Compounds (UG_L)							
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	5 U	NA	17
2-Methylnaphthalene	2.4	--	--	--	5 U	NA	0.1 U
3-Nitroaniline	1.1	--	--	--	22 U	NA	7.7 J
4-Nitrophenol	0.34	--	--	--	22 U	NA	3.7 J
Anthracene	180	--	--	--	5 U	NA	0.1 U
Benzaldehyde	360	--	--	--	NA	NA	0.93 J
Benzo(a)anthracene	0.0092	--	--	--	5 U	NA	0.1 U
Chrysene	9.2	--	--	--	5 U	NA	0.1 U
Di-n-butylphthalate	360	--	--	--	5 U	NA	0.63 U
Diethylphthalate	2900	--	--	--	5 U	NA	5 U
Naphthalene	0.62	--	--	--	5 U	NA	0.1 UJ
Pentachlorophenol	0.56	--	--	--	22 U	NA	10 U
Phenanthrene	18	--	--	--	5 U	NA	0.1 U
Phenol	1100	--	--	--	5 U	NA	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	3 J	NA	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)							
alpha-BHC	0.011	--	--	--	0.01 UJ	NA	0.05 U
beta-BHC	0.037	--	--	--	0.01 U	NA	0.05 U
delta-BHC	0.052	--	--	--	0.01 U	NA	0.05 U
gamma-Chlordane	0.19	--	--	--	0.01 U	NA	0.014 J
Explosives (UG_L)							
4-Nitrotoluene	0.66	--	--	--	5 UJ	NA	0.25 U
Perchlorate	26	--	--	--	NA	16 U	1.7
Total Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	2,900	NA	20,000 U
Antimony	1.5	6	2 U	0.19 U	1.40 U	NA	0.9 U
Arsenic	0.045	10	1 R	0.33 R	3.40 U	NA	2.4 R
Barium	730	2,000	87	17.2	486	NA	84.6
Cadmium	1.8	5	1 U	1 U	2 J	NA	1 U
Calcium	--	--	55,500 J	12,800 J	435,000	NA	240,000 J
Chromium	11	100	1.6 J	0.5 U	14.7	NA	3.1
Cobalt	73	--	0.78 U	0.092 U	0.5 U	NA	0.22 J
Copper	150	1,300	8.2 J	2 UJ	3.30 J	NA	2 UJ
Cyanide	73	200	10 U	10 U	NA	NA	10 U
Iron	1100	--	11,000	1,000 U	1,830 J	NA	2,390 U
Lead	15	15	0.24 U	0.092 U	1.80 J	NA	0.084 U
Magnesium	--	--	47,400 J	14,800 J	577,000	NA	236,000 J
Manganese	88	--	723	40.6	154	NA	26.5
Mercury	1.1	2	0.2 U	0.2 U	0.180 U	NA	0.2 U
Nickel	73	--	1.1	0.38 J	11.8 J	NA	0.7 J
Potassium	--	--	500,000 U	50,000 U	14,400 J	NA	500,000 U
Selenium	18	50	2.9 U	3 U	5.40	NA	30.1
Silver	18	--	0.31 U	0.02 U	0.5 U	NA	1 U
Sodium	--	--	6,360,000	423,000 J	4,340,000 J	NA	3,860,000 J
Thallium	0.24	2	1 U	1 U	2.70 U	NA	1 U
Vanadium	3.6	--	59.9 J	26.2 J	9.30 J	NA	3.4 J
Zinc	1,100	--	6.8 J	1.6 U	38.4	NA	4.4 J
Dissolved Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	27.8 J	NA	20,000 U
Antimony	1.5	6	2 U	2 U	1.40 U	NA	0.63 U
Arsenic	0.045	10	1.1 R	1 U	3.40 U	NA	2.7 R
Barium	730	2,000	81.8	16.3	445	NA	82.2
Cadmium	1.8	5	1 U	1 U	2.20 J	NA	1 U
Calcium	--	--	55,000 J	11,800 J	450,000	NA	234,000 J
Chromium	11	100	0.71 J	2 U	4 J	NA	2.7
Cobalt	73	--	0.57 U	0.065 U	0.5 U	NA	0.2 U
Copper	150	1,300	3.6 J	2 UJ	1.90 U	NA	2 UJ
Lead	15	15	1 U	0.07 U	1.10 U	NA	1 U
Magnesium	--	--	47,800 J	13,400 J	522,000	NA	231,000 J
Manganese	88	--	685	36.8	32.6	NA	23.8
Mercury	1.1	2	0.2	0.2 U	0.180 U	NA	0.2 U
Nickel	73	--	0.82 J	0.42 J	6.10 J	NA	0.61 J
Potassium	--	--	500,000 U	50,000 U	12,500 J	NA	500,000 U
Selenium	18	50	3 U	2.1 U	6.80	NA	31.2
Silver	18	--	1 U	0.015 U	0.5 U	NA	1 U
Sodium	--	--	6,560,000	388,000	3,970,000 J	NA	3,870,000
Vanadium	3.6	--	58.9 J	25.2 J	4.70 J	NA	4.5 J
Zinc	1,100	--	4.2 J	1.6 U	30.8	NA	3.5 J
Wet Chemistry (MG_L)							
Alkalinity		--	--	--	NA	NA	540
Chloride	--	--	--	--	NA	NA	6,200
Nitrate	--	--	--	--	NA	NA	3.3
Nitrite	--	--	--	--	NA	NA	0.04 U
Sulfate	--	--	--	--	NA	NA	490
Total dissolved solids (TDS)	--	--	--	--	NA	NA	12,000

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter
Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	SWMU4-MW02			
Sample ID					NDA003	NDA003FD1	NDA333	WW04-MW02-07A
Sample Date					04/27/00	04/27/00	06/05/00	03/10/07
Chemical Name								
Volatile Organic Compounds (UG_L)								
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	1 U	1 U	NA	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	1 U	1 U	NA	0.07 J
2-Butanone	700	--	--	--	5 U	5 U	NA	5 U
2-Hexanone	150	--	--	--	5 U	5 U	NA	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	5 U	NA	5 U
Acetone	550	--	--	--	5 U	5 U	NA	5 U
Benzene	0.35	5	--	--	1 U	1 U	NA	0.5 U
Carbon disulfide	100	--	--	--	1 U	1 U	NA	0.5 U
Chloromethane	16	--	--	--	1 U	1 U	NA	0.5 U
Xylene, total	21		--	--	1 U	1 U	NA	NA
m- and p-Xylene	21		--	--	1 U	1 U	NA	0.5 U
Semi-volatile Organic Compounds (UG_L)								
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	5 U	5 U	NA	5 U
2-Methylnaphthalene	2.4	--	--	--	5 U	5 U	NA	0.1 U
3-Nitroaniline	1.1	--	--	--	21 U	22 U	NA	10 U
4-Nitrophenol	0.34	--	--	--	21 U	22 U	NA	10 U
Anthracene	180	--	--	--	5 U	5 U	NA	0.1 U
Benzaldehyde	360	--	--	--	NA	NA	NA	5 U
Benzo(a)anthracene	0.0092	--	--	--	5 U	5 U	NA	0.1 U
Chrysene	9.2	--	--	--	5 U	5 U	NA	0.1 U
Di-n-butylphthalate	360	--	--	--	5 U	5 U	NA	1.9 J
Diethylphthalate	2900	--	--	--	2 J	3 J	NA	5 U
Naphthalene	0.62	--	--	--	5 U	5 U	NA	0.1 U
Pentachlorophenol	0.56	--	--	--	21 U	22 U	NA	0.2 U
Phenanthrene	18	--	--	--	5 U	5 U	NA	0.1 U
Phenol	1100	--	--	--	5 U	5 U	NA	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	5 U	5 U	NA	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)								
alpha-BHC	0.011	--	--	--	0.01 UJ	0.01 UJ	NA	0.05 U
beta-BHC	0.037	--	--	--	0.01 U	0.01 U	NA	0.05 U
delta-BHC	0.052	--	--	--	0.01 U	0.01 U	NA	0.05 U
gamma-Chlordane	0.19	--	--	--	0.01 U	0.01 U	NA	0.0051 J
Explosives (UG_L)								
4-Nitrotoluene	0.66	--	--	--	5 U	5 U	NA	1.9
Perchlorate	26	--	--	--	NA	NA	20	11
Total Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	635 J	513 J	NA	6,150 R
Antimony	1.5	6	2 U	0.19 U	1.40 U	1.40 U	NA	0.13 U
Arsenic	0.045	10	1 R	0.33 R	3.40 U	3.40 U	NA	3.3 R
Barium	730	2,000	87	17.2	280	277	NA	451
Cadmium	1.8	5	1 U	1 U	0.380 J	0.400 J	NA	0.078 U
Calcium	--	--	55,500 J	12,800 J	103,000 J	103,000 J	NA	58,100 J
Chromium	11	100	1.6 J	0.5 U	1.40 J	1.30 J	NA	10.3
Cobalt	73	--	0.78 U	0.092 U	0.560 J	0.5 U	NA	4.1
Copper	150	1,300	8.2 J	2 UJ	4.70 J	5.30 J	NA	13.9 R
Cyanide	73	200	10 U	10 U	NA	NA	NA	10 U
Iron	1100	--	11,000	1,000 U	488	390	NA	6,250 U
Lead	15	15	0.24 U	0.092 U	2 J	1.40 J	NA	2.5
Magnesium	--	--	47,400 J	14,800 J	52,000	52,300	NA	50,400 J
Manganese	88	--	723	40.6	560	553	NA	4,580 R
Mercury	1.1	2	0.2 U	0.2 U	0.180 U	0.180 UJ	NA	0.2 U
Nickel	73	--	1.1	0.38 J	1 J	0.950 J	NA	5.9
Potassium	--	--	500,000 U	50,000 U	6,990 J	6,930 J	NA	500,000 U
Selenium	18	50	2.9 U	3 U	2.10 U	2.10 U	NA	4.5 J
Silver	18	--	0.31 U	0.02 U	0.5 U	0.5 U	NA	0.088 U
Sodium	--	--	6,360,000	423,000 J	1,040,000 J	1,040,000 J	NA	1,400,000 J
Thallium	0.24	2	1 U	1 U	2.70 U	2.70 U	NA	1 U
Vanadium	3.6	--	59.9 J	26.2 J	14.2 J	12.9 J	NA	15.3 J
Zinc	1,100	--	6.8 J	1.6 U	8.10 J	47.4	NA	16.7 R
Dissolved Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	25.8 U	25.8 U	NA	20,000 U
Antimony	1.5	6	2 U	2 U	1.40 U	1.40 U	NA	2 U
Arsenic	0.045	10	1.1 R	1 U	3.40 U	3.40 U	NA	1.7
Barium	730	2,000	81.8	16.3	257	268	NA	225
Cadmium	1.8	5	1 U	1 U	0.25 J	0.430 J	NA	1 U
Calcium	--	--	55,000 J	11,800 J	96,800 J	102,000 J	NA	57,300 J
Chromium	11	100	0.71 J	2 U	0.830 J	1.10 J	NA	0.76 U
Cobalt	73	--	0.57 U	0.065 U	0.5 U	0.5 U	NA	0.42 U
Copper	150	1,300	3.6 J	2 UJ	5.5 J	4.60 J	NA	29.6 R
Lead	15	15	1 U	0.07 U	3.40	1.60 J	NA	0.17 U
Magnesium	--	--	47,800 J	13,400 J	50,800	52,500	NA	49,900 J
Manganese	88	--	685	36.8	535	529	NA	2,450 J
Mercury	1.1	2	0.2	0.2 U	0.180 U	0.180 U	NA	0.2 U
Nickel	73	--	0.82 J	0.42 J	0.800 U	1.40 J	NA	0.84 J
Potassium	--	--	500,000 U	50,000 U	6,560 J	6,880 J	NA	500,000 U
Selenium	18	50	3 U	2.1 U	2.10 U	2.10 U	NA	4.4 J
Silver	18	--	1 U	0.015 U	0.5 U	0.5 U	NA	1 U
Sodium	--	--	6,560,000	388,000	1,040,000 J	1,060,000 J	NA	1,430,000
Vanadium	3.6	--	58.9 J	25.2 J	12.1 J	12.6 J	NA	1 R
Zinc	1,100	--	4.2 J	1.6 U	10.9 J	4.20 J	NA	27.9 R
Wet Chemistry (MG_L)								
Alkalinity		--	--	--	NA	NA	NA	430
Chloride	--	--	--	--	NA	NA	NA	1,700
Nitrate	--	--	--	--	NA	NA	NA	0.063 J
Nitrite	--	--	--	--	NA	NA	NA	0.02 R
Sulfate	--	--	--	--	NA	NA	NA	610
Total dissolved solids (TDS)	--	--	--	--	NA	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter

Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	SWMU4-MW03		
Sample ID					NDA004	NDA334	WW04-MW03-07A
Sample Date					04/27/00	06/05/00	03/10/07
Chemical Name							
Volatile Organic Compounds (UG_L)							
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	1 U	NA	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	1 U	NA	0.5 U
2-Butanone	700	--	--	--	5 U	NA	5 U
2-Hexanone	150	--	--	--	5 U	NA	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	NA	5 U
Acetone	550	--	--	--	5 U	NA	5 U
Benzene	0.35	5	--	--	1 U	NA	0.5 U
Carbon disulfide	100	--	--	--	1 U	NA	0.5 U
Chloromethane	16	--	--	--	1 U	NA	0.5 U
Xylene, total	21		--	--	1 U	NA	NA
m- and p-Xylene	21		--	--	1 U	NA	0.5 U
Semi-volatile Organic Compounds (UG_L)							
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	5 U	NA	5 U
2-Methylnaphthalene	2.4	--	--	--	5 U	NA	0.1 U
3-Nitroaniline	1.1	--	--	--	20 U	NA	10 U
4-Nitrophenol	0.34	--	--	--	20 U	NA	10 U
Anthracene	180	--	--	--	5 U	NA	0.1 U
Benzaldehyde	360	--	--	--	NA	NA	5 U
Benzo(a)anthracene	0.0092	--	--	--	5 U	NA	0.1 U
Chrysene	9.2	--	--	--	5 U	NA	0.1 U
Di-n-butylphthalate	360	--	--	--	5 U	NA	0.64 J
Diethylphthalate	2900	--	--	--	5 U	NA	5 U
Naphthalene	0.62	--	--	--	5 U	NA	0.1 U
Pentachlorophenol	0.56	--	--	--	20 U	NA	0.2 U
Phenanthrene	18	--	--	--	5 U	NA	0.1 U
Phenol	1100	--	--	--	5 U	NA	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	5 U	NA	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)							
alpha-BHC	0.011	--	--	--	0.01 UJ	NA	0.05 U
beta-BHC	0.037	--	--	--	0.01 U	NA	0.05 U
delta-BHC	0.052	--	--	--	0.01 U	NA	0.05 U
gamma-Chlordane	0.19	--	--	--	0.01 U	NA	0.05 U
Explosives (UG_L)							
4-Nitrotoluene	0.66	--	--	--	5 U	NA	0.25 U
Perchlorate	26	--	--	--	NA	16 U	0.17 J
Total Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	1,650 J	NA	20,000 R
Antimony	1.5	6	2 U	0.19 U	1.40 U	NA	0.18 U
Arsenic	0.045	10	1 R	0.33 R	3.40 U	NA	4.3 R
Barium	730	2,000	87	17.2	671	NA	194
Cadmium	1.8	5	1 U	1 U	3.60 J	NA	1 U
Calcium	--	--	55,500 J	12,800 J	1,090,000 J	NA	1,020,000
Chromium	11	100	1.6 J	0.5 U	4.90 J	NA	2.6
Cobalt	73	--	0.78 U	0.092 U	0.520 J	NA	3.6
Copper	150	1,300	8.2 J	2 UJ	4.20 J	NA	302 R
Cyanide	73	200	10 U	10 U	NA	NA	10 U
Iron	1100	--	11,000	1,000 U	1,230	NA	4,690 U
Lead	15	15	0.24 U	0.092 U	4.20	NA	0.048 U
Magnesium	--	--	47,400 J	14,800 J	824,000	NA	767,000
Manganese	88	--	723	40.6	217	NA	2,950 R
Mercury	1.1	2	0.2 U	0.2 U	0.180 U	NA	0.2 U
Nickel	73	--	1.1	0.38 J	4.80 J	NA	4.1
Potassium	--	--	500,000 U	50,000 U	20,100 J	NA	500,000 U
Selenium	18	50	2.9 U	3 U	3.70 J	NA	20.9
Silver	18	--	0.31 U	0.02 U	0.5 U	NA	0.033 U
Sodium	--	--	6,360,000	423,000 J	3,550,000 J	NA	3,500,000 J
Thallium	0.24	2	1 U	1 U	2.70 U	NA	1 U
Vanadium	3.6	--	59.9 J	26.2 J	7.5 J	NA	1 R
Zinc	1,100	--	6.8 J	1.6 U	18.5 J	NA	282 R
Dissolved Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	25.8 U	NA	20,000 U
Antimony	1.5	6	2 U	2 U	1.40 U	NA	0.28 U
Arsenic	0.045	10	1.1 R	1 U	3.40 U	NA	3.4
Barium	730	2,000	81.8	16.3	600	NA	186
Cadmium	1.8	5	1 U	1 U	3.5 J	NA	1 U
Calcium	--	--	55,000 J	11,800 J	1,050,000 J	NA	950,000
Chromium	11	100	0.71 J	2 U	1.90 J	NA	2.2
Cobalt	73	--	0.57 U	0.065 U	0.5 U	NA	3.6
Copper	150	1,300	3.6 J	2 UJ	4.40 J	NA	5.9 R
Lead	15	15	1 U	0.07 U	4	NA	0.13 U
Magnesium	--	--	47,800 J	13,400 J	809,000	NA	711,000
Manganese	88	--	685	36.8	131	NA	2,600 J
Mercury	1.1	2	0.2	0.2 U	0.280	NA	0.2 U
Nickel	73	--	0.82 J	0.42 J	3.10 J	NA	4
Potassium	--	--	500,000 U	50,000 U	18,800 J	NA	500,000 U
Selenium	18	50	3 U	2.1 U	4.10 J	NA	18.2
Silver	18	--	1 U	0.015 U	0.530 J	NA	0.056 U
Sodium	--	--	6,560,000	388,000	3,460,000 J	NA	3,370,000
Vanadium	3.6	--	58.9 J	25.2 J	4.20 J	NA	1 R
Zinc	1,100	--	4.2 J	1.6 U	8.10 J	NA	5.9 R
Wet Chemistry (MG_L)							
Alkalinity		--	--	--	NA	NA	220
Chloride	--	--	--	--	NA	NA	8,900
Nitrate	--	--	--	--	NA	NA	0.02 R
Nitrite	--	--	--	--	NA	NA	0.02 R
Sulfate	--	--	--	--	NA	NA	1,000
Total dissolved solids (TDS)	--	--	--	--	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter
Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	SWMU4-MW04		SWMU4-MW05	
Sample ID					NDA002	NDA335	NDB010	WW04-MW05-07A
Sample Date					04/27/00	06/03/00	06/12/00	03/09/07
Chemical Name								
Volatile Organic Compounds (UG_L)								
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	1 U	NA	1 U	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	1 U	NA	1 U	0.5 U
2-Butanone	700	--	--	--	5 U	NA	5 R	5 U
2-Hexanone	150	--	--	--	5 U	NA	5 U	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	NA	5 U	5 U
Acetone	550	--	--	--	5 U	NA	5 R	1.2 U
Benzene	0.35	5	--	--	1 U	NA	1 U	0.5 U
Carbon disulfide	100	--	--	--	1 U	NA	1 U	0.5 U
Chloromethane	16	--	--	--	1 U	NA	1 U	0.61
Xylene, total	21		--	--	1 U	NA	1 U	NA
m- and p-Xylene	21		--	--	1 U	NA	1 U	0.5 U
Semi-volatile Organic Compounds (UG_L)								
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	6 U	NA	6 U	5 U
2-Methylnaphthalene	2.4	--	--	--	6 U	NA	6 U	0.1 U
3-Nitroaniline	1.1	--	--	--	22 U	NA	23 U	10 U
4-Nitrophenol	0.34	--	--	--	22 U	NA	23 U	10 U
Anthracene	180	--	--	--	6 U	NA	6 U	0.1 U
Benzaldehyde	360	--	--	--	NA	NA	NA	5 U
Benzo(a)anthracene	0.0092	--	--	--	6 U	NA	6 U	0.1 U
Chrysene	9.2	--	--	--	6 U	NA	6 U	0.1 U
Di-n-butylphthalate	360	--	--	--	6 U	NA	6 U	0.65 U
Diethylphthalate	2900	--	--	--	6 U	NA	6 U	5 U
Naphthalene	0.62	--	--	--	6 U	NA	6 U	0.1 U
Pentachlorophenol	0.56	--	--	--	22 U	NA	23 U	0.2 U
Phenanthrene	18	--	--	--	6 U	NA	6 U	0.1 U
Phenol	1100	--	--	--	6 U	NA	6 U	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	6 U	NA	6 U	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)								
alpha-BHC	0.011	--	--	--	0.01 UJ	NA	0.01 UJ	0.05 U
beta-BHC	0.037	--	--	--	0.01 UJ	NA	0.01 U	0.0054 J
delta-BHC	0.052	--	--	--	0.01 J	NA	0.01 UJ	0.05 U
gamma-Chlordane	0.19	--	--	--	0.01 UJ	NA	0.01 U	0.0067 U
Explosives (UG_L)								
4-Nitrotoluene	0.66	--	--	--	5 U	NA	5 U	0.25 U
Perchlorate	26	--	--	--	NA	16 U	8 U	0.2 U
Total Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	5,420 J	NA	219 J	20,000 R
Antimony	1.5	6	2 U	0.19 U	1.40 U	NA	1.40 U	0.24 U
Arsenic	0.045	10	1 R	0.33 R	3.40 U	NA	3.40 U	3.7 R
Barium	730	2,000	87	17.2	943	NA	219	101
Cadmium	1.8	5	1 U	1 U	4.60 J	NA	0.200 U	0.29 U
Calcium	--	--	55,500 J	12,800 J	1,020,000 J	NA	831,000	987,000
Chromium	11	100	1.6 J	0.5 U	3.60 J	NA	0.550 J	2.3
Cobalt	73	--	0.78 U	0.092 U	3.5 J	NA	1.90 J	1.6
Copper	150	1,300	8.2 J	2 UJ	10.8 J	NA	4.40 J	97 R
Cyanide	73	200	10 U	10 U	NA	NA	NA	10 U
Iron	1100	--	11,000	1,000 U	4,600	NA	86.1 J	3,100 U
Lead	15	15	0.24 U	0.092 U	6.70	NA	1.10 U	0.16 U
Magnesium	--	--	47,400 J	14,800 J	755,000	NA	551,000	688,000
Manganese	88	--	723	40.6	1,680	NA	1,920	673 R
Mercury	1.1	2	0.2 U	0.2 U	0.180 U	NA	0.180 U	0.083 J
Nickel	73	--	1.1	0.38 J	3.80 J	NA	3.30 J	2.7
Potassium	--	--	500,000 U	50,000 U	30,000 J	NA	30,000 J	500,000 U
Selenium	18	50	2.9 U	3 U	4.80 J	NA	2.10 U	23.2
Silver	18	--	0.31 U	0.02 U	0.650 J	NA	0.810 J	0.23 U
Sodium	--	--	6,360,000	423,000 J	1,810,000 J	NA	4,210,000	5,190,000 J
Thallium	0.24	2	1 U	1 U	2.70 U	NA	2.70 U	1 U
Vanadium	3.6	--	59.9 J	26.2 J	15.7 J	NA	3.90 J	4.6 J
Zinc	1,100	--	6.8 J	1.6 U	39.5	NA	2.5 U	90.7 R
Dissolved Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	25.8 U	NA	38.3 J	20,000 U
Antimony	1.5	6	2 U	2 U	1.40 U	NA	3.40 J	0.19 U
Arsenic	0.045	10	1.1 R	1 U	3.40 U	NA	4.40 J	3.5
Barium	730	2,000	81.8	16.3	904	NA	193 J	101
Cadmium	1.8	5	1 U	1 U	4.30 J	NA	0.200 U	0.29 U
Calcium	--	--	55,000 J	11,800 J	1,020,000 J	NA	804,000	950,000
Chromium	11	100	0.71 J	2 U	1.10 J	NA	0.5 U	2
Cobalt	73	--	0.57 U	0.065 U	0.5 U	NA	1.60 J	1.6
Copper	150	1,300	3.6 J	2 UJ	4.10 J	NA	3.30 J	66.7 R
Lead	15	15	1 U	0.07 U	5.20	NA	1.10 U	0.2 U
Magnesium	--	--	47,800 J	13,400 J	770,000	NA	488,000	663,000
Manganese	88	--	685	36.8	1,440	NA	1,750	588 J
Mercury	1.1	2	0.2	0.2 U	0.180 U	NA	0.180 U	0.07 U
Nickel	73	--	0.82 J	0.42 J	1.90 J	NA	3.80 J	2.6
Potassium	--	--	500,000 U	50,000 U	29,800 J	NA	28,600 J	500,000 U
Selenium	18	50	3 U	2.1 U	2.10 U	NA	2.10 U	21.2
Silver	18	--	1 U	0.015 U	0.5 U	NA	0.610 J	0.2 U
Sodium	--	--	6,560,000	388,000	1,830,000 J	NA	4,140,000	5,230,000
Vanadium	3.6	--	58.9 J	25.2 J	3.70 J	NA	3.80 J	4.5 J
Zinc	1,100	--	4.2 J	1.6 U	8.80 J	NA	2.5 U	62.6 R
Wet Chemistry (MG_L)								
Alkalinity		--	--	--	NA	NA	NA	180
Chloride	--	--	--	--	NA	NA	NA	11,000
Nitrate	--	--	--	--	NA	NA	NA	0.02 R
Nitrite	--	--	--	--	NA	NA	NA	0.02 R
Sulfate	--	--	--	--	NA	NA	NA	1,300
Total dissolved solids (TDS)	--	--	--	--	NA	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter

Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	SWMU4-MW06	SWMU4-MW06	
Sample ID					NDB011	NDB012FD1	WW04-MW06-07A
Sample Date					06/12/00	06/12/00	03/09/07
Chemical Name							
Volatile Organic Compounds (UG_L)							
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	1 U	1 U	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	1 U	1 U	0.5 U
2-Butanone	700	--	--	--	5 R	5 R	5 U
2-Hexanone	150	--	--	--	5 U	5 U	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	5 U	5 U
Acetone	550	--	--	--	5 R	5 R	5 U
Benzene	0.35	5	--	--	1 U	1 U	0.5 U
Carbon disulfide	100	--	--	--	1 U	1 U	0.5 U
Chloromethane	16	--	--	--	1 U	1 U	0.61
Xylene, total	21		--	--	1 U	1 U	NA
m- and p-Xylene	21		--	--	1 U	1 U	0.5 U
Semi-volatile Organic Compounds (UG_L)							
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	6 U	6 U	5 U
2-Methylnaphthalene	2.4	--	--	--	6 U	6 U	0.1 U
3-Nitroaniline	1.1	--	--	--	22 U	22 U	10 U
4-Nitrophenol	0.34	--	--	--	22 U	22 U	10 U
Anthracene	180	--	--	--	6 U	6 U	0.1 U
Benzaldehyde	360	--	--	--	NA	NA	5 U
Benzo(a)anthracene	0.0092	--	--	--	6 U	6 U	0.1 U
Chrysene	9.2	--	--	--	6 U	6 U	0.1 U
Di-n-butylphthalate	360	--	--	--	6 U	6 U	0.59 U
Diethylphthalate	2900	--	--	--	6 U	6 U	5 U
Naphthalene	0.62	--	--	--	6 U	6 U	0.1 U
Pentachlorophenol	0.56	--	--	--	22 U	22 U	0.2 U
Phenanthrene	18	--	--	--	6 U	6 U	0.1 U
Phenol	1100	--	--	--	6 U	6 U	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	6 U	6 U	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)							
alpha-BHC	0.011	--	--	--	0.01 UJ	0.01 UJ	0.05 U
beta-BHC	0.037	--	--	--	0.01 U	0.01 U	0.05 U
delta-BHC	0.052	--	--	--	0.01 UJ	0.01 UJ	0.05 U
gamma-Chlordane	0.19	--	--	--	0.01 U	0.01 U	0.05 U
Explosives (UG_L)							
4-Nitrotoluene	0.66	--	--	--	5 U	5 U	0.25 U
Perchlorate	26	--	--	--	8 U	8 U	0.08 J
Total Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	1,770 J	1,510 J	20,000 R
Antimony	1.5	6	2 U	0.19 U	1.5 J	1.5 J	0.28 U
Arsenic	0.045	10	1 R	0.33 R	3.40 U	3.5 J	3 R
Barium	730	2,000	87	17.2	407	405	202
Cadmium	1.8	5	1 U	1 U	0.200 U	0.200 U	1 U
Calcium	--	--	55,500 J	12,800 J	694,000	703,000	866,000
Chromium	11	100	1.6 J	0.5 U	1.10 J	0.5 U	3.2
Cobalt	73	--	0.78 U	0.092 U	2.10 J	1.20 J	2.3
Copper	150	1,300	8.2 J	2 UJ	4.70 J	3.5 J	0.57 R
Cyanide	73	200	10 U	10 U	NA	NA	10 U
Iron	1100	--	11,000	1,000 U	1,480 J	1,320 J	2,430 U
Lead	15	15	0.24 U	0.092 U	1.80 J	1.10 U	0.31 U
Magnesium	--	--	47,400 J	14,800 J	481,000 J	489,000	555,000
Manganese	88	--	723	40.6	1,260	1,270	1,530 R
Mercury	1.1	2	0.2 U	0.2 U	0.180 U	0.180 U	0.2 U
Nickel	73	--	1.1	0.38 J	4.20 J	4.5 J	3.2
Potassium	--	--	500,000 U	50,000 U	17,800 J	17,600 J	500,000 U
Selenium	18	50	2.9 U	3 U	2.10 U	2.20 J	15.3
Silver	18	--	0.31 U	0.02 U	0.820 J	0.760 J	0.023 U
Sodium	--	--	6,360,000	423,000 J	2,970,000	2,980,000	3,520,000 J
Thallium	0.24	2	1 U	1 U	3.10 J	2.70 U	1 U
Vanadium	3.6	--	59.9 J	26.2 J	7.20 J	7.60 J	1 R
Zinc	1,100	--	6.8 J	1.6 U	2.5 U	2.5 U	4 R
Dissolved Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	42.4 J	30.7 J	20,000 U
Antimony	1.5	6	2 U	2 U	1.40 U	1.40 U	0.24 U
Arsenic	0.045	10	1.1 R	1 U	3.70 J	3.40 U	2.3
Barium	730	2,000	81.8	16.3	335	326	189
Cadmium	1.8	5	1 U	1 U	0.200 U	0.200 U	1 U
Calcium	--	--	55,000 J	11,800 J	692,000	688,000	832,000
Chromium	11	100	0.71 J	2 U	0.5 U	0.5 U	1.9 U
Cobalt	73	--	0.57 U	0.065 U	0.890 J	0.890 J	2.2
Copper	150	1,300	3.6 J	2 UJ	3.20 J	3 J	1.7 R
Lead	15	15	1 U	0.07 U	1.10 U	1.10 U	0.26 U
Magnesium	--	--	47,800 J	13,400 J	476,000	463,000	534,000
Manganese	88	--	685	36.8	1,040	1,020	2,540 J
Mercury	1.1	2	0.2	0.2 U	0.180 U	0.180 U	0.2 U
Nickel	73	--	0.82 J	0.42 J	3.80 J	4.10 J	2.9
Potassium	--	--	500,000 U	50,000 U	16,800 J	16,400 J	500,000 U
Selenium	18	50	3 U	2.1 U	2.10 U	2.10 U	10.6
Silver	18	--	1 U	0.015 U	0.5 U	0.680 J	0.03 U
Sodium	--	--	6,560,000	388,000	2,950,000	2,890,000	3,580,000
Vanadium	3.6	--	58.9 J	25.2 J	4.40 J	4.5 J	1 R
Zinc	1,100	--	4.2 J	1.6 U	2.5 U	2.5 U	2.3 R
Wet Chemistry (MG_L)							
Alkalinity		--	--	--	NA	NA	170
Chloride	--	--	--	--	NA	NA	7,800
Nitrate	--	--	--	--	NA	NA	0.13 R
Nitrite	--	--	--	--	NA	NA	0.02 R
Sulfate	--	--	--	--	NA	NA	780
Total dissolved solids (TDS)	--	--	--	--	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter

Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	SWMU4-MW07		SWMU4-MW08	
Sample ID					NDB013	WW04-MW07-07A	NDB014	WW04-MW08-07A
Sample Date					06/12/00	03/09/07	06/12/00	03/09/07
Chemical Name								
Volatile Organic Compounds (UG_L)								
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	1 U	0.6	1 U	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	1 U	0.5 U	1 U	0.5 U
2-Butanone	700	--	--	--	5 R	5 U	4 J	5 U
2-Hexanone	150	--	--	--	5 U	2.2 J	5 U	5 U
4-Methyl-2-pentanone	200	--	--	--	3 J	5 U	5 U	5 U
Acetone	550	--	--	--	5 R	0.49 J	111 J	5 U
Benzene	0.35	5	--	--	1 U	0.5 U	1 U	0.5 U
Carbon disulfide	100	--	--	--	1 U	0.5 U	1 U	0.5 U
Chloromethane	16	--	--	--	1 U	0.55 U	1 U	0.5 U
Xylene, total	21		--	--	0.300 J	NA	0.400 J	NA
m- and p-Xylene	21		--	--	0.300 J	0.5 U	0.400 J	0.5 U
Semi-volatile Organic Compounds (UG_L)								
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	NA	5 U	NA	5 U
2-Methylnaphthalene	2.4	--	--	--	NA	0.019 J	NA	0.1 U
3-Nitroaniline	1.1	--	--	--	NA	10 U	NA	10 U
4-Nitrophenol	0.34	--	--	--	NA	10 U	NA	10 U
Anthracene	180	--	--	--	NA	0.1 U	NA	0.1 U
Benzaldehyde	360	--	--	--	NA	5 U	NA	5 U
Benzo(a)anthracene	0.0092	--	--	--	NA	0.1 U	NA	0.1 U
Chrysene	9.2	--	--	--	NA	0.1 U	NA	0.1 U
Di-n-butylphthalate	360	--	--	--	NA	1.6 U	NA	0.91 U
Diethylphthalate	2900	--	--	--	NA	5 U	NA	5 U
Naphthalene	0.62	--	--	--	NA	0.033 J	NA	0.1 U
Pentachlorophenol	0.56	--	--	--	NA	0.2 U	NA	0.2 U
Phenanthrene	18	--	--	--	NA	0.1 U	NA	0.1 U
Phenol	1100	--	--	--	NA	5 U	NA	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	NA	5 U	NA	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)								
alpha-BHC	0.011	--	--	--	0.01 UJ	0.025 J	0.01 UJ	0.05 U
beta-BHC	0.037	--	--	--	0.01 U	0.0081 U	0.01 U	0.05 U
delta-BHC	0.052	--	--	--	0.01 UJ	0.012 U	0.01 UJ	0.05 U
gamma-Chlordane	0.19	--	--	--	0.01 U	0.025 U	0.01 U	0.05 U
Explosives (UG_L)								
4-Nitrotoluene	0.66	--	--	--	5 U	0.25 U	5 U	0.25 U
Perchlorate	26	--	--	--	8 U	0.43	8 U	0.53
Total Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	7,700 J	20,000 R	8,580 J	20,000 R
Antimony	1.5	6	2 U	0.19 U	2.60 J	0.22 U	1.40 U	2 U
Arsenic	0.045	10	1 R	0.33 R	3.40 U	4.4 R	3.40 U	2.3 R
Barium	730	2,000	87	17.2	404	201	952	658
Cadmium	1.8	5	1 U	1 U	0.200 U	1 U	0.200 U	1 U
Calcium	--	--	55,500 J	12,800 J	915,000	1,130,000	98,700	63,600 J
Chromium	11	100	1.6 J	0.5 U	2 J	2.6 J	3.80 J	1.4 U
Cobalt	73	--	0.78 U	0.092 U	8.80 J	4.8 J	9.80 J	3.6
Copper	150	1,300	8.2 J	2 UJ	8.90 J	1.9 R	123	12.3 R
Cyanide	73	200	10 U	10 U	NA	10 U	NA	10 U
Iron	1100	--	11,000	1,000 U	7,090 J	3,690 U	8,080 J	10,000 UJ
Lead	15	15	0.24 U	0.092 U	2.70 J	0.15 U	7.60	0.73 U
Magnesium	--	--	47,400 J	14,800 J	672,000	842,000	133,000	106,000 J
Manganese	88	--	723	40.6	3,170	4,340 R	7,380	1,940 R
Mercury	1.1	2	0.2 U	0.2 U	0.180 U	0.2	0.180 U	0.2 U
Nickel	73	--	1.1	0.38 J	7.20 J	5.5 J	8.10 J	3.3
Potassium	--	--	500,000 U	50,000 U	16,600 J	500,000 U	11,600 J	500,000 U
Selenium	18	50	2.9 U	3 U	2.40 J	23.1 J	2.90 J	6.2
Silver	18	--	0.31 U	0.02 U	0.5 U	0.06 U	0.5 U	0.025 U
Sodium	--	--	6,360,000	423,000 J	2,020,000	2,360,000 J	1,630,000	1,930,000 J
Thallium	0.24	2	1 U	1 U	2.70 U	1 U	2.70 U	1 U
Vanadium	3.6	--	59.9 J	26.2 J	21.4 J	1 R	24.9 J	12.3 J
Zinc	1,100	--	6.8 J	1.6 U	29.3	2.4 U	36.7	12.3 R
Dissolved Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	28 J	20,000 U	25.8 U	20,000 U
Antimony	1.5	6	2 U	2 U	1.5 J	0.19 U	2.10 J	2 U
Arsenic	0.045	10	1.1 R	1 U	3.40 U	4.7	3.40 U	2.3
Barium	730	2,000	81.8	16.3	238	202	838	669
Cadmium	1.8	5	1 U	1 U	0.200 U	1 U	0.200 U	1 U
Calcium	--	--	55,000 J	11,800 J	910,000	1,110,000	100,000	62,400 J
Chromium	11	100	0.71 J	2 U	0.5 U	2.2	1.60 J	0.87 U
Cobalt	73	--	0.57 U	0.065 U	5.30 J	4.8	6.20 J	3.2
Copper	150	1,300	3.6 J	2 UJ	2.90 J	1.4 R	3 J	2 R
Lead	15	15	1 U	0.07 U	1.10 U	0.21 U	1.10 U	0.071 U
Magnesium	--	--	47,800 J	13,400 J	666,000	830,000	137,000	104,000 J
Manganese	88	--	685	36.8	2,700	4,860 J	7,210	1,710 J
Mercury	1.1	2	0.2	0.2 U	0.180 U	0.074 J	0.180 U	0.2 U
Nickel	73	--	0.82 J	0.42 J	5.90 J	5.7	6.40 J	2.9
Potassium	--	--	500,000 U	50,000 U	14,900 J	500,000 U	10,500 J	500,000 U
Selenium	18	50	3 U	2.1 U	2.10 U	25.2	2.90 J	7.5
Silver	18	--	1 U	0.015 U	0.5 U	0.046 U	0.5 U	0.036 U
Sodium	--	--	6,560,000	388,000	1,980,000	2,280,000	1,650,000	1,910,000
Vanadium	3.6	--	58.9 J	25.2 J	3.30 J	1 R	5 J	10.2 J
Zinc	1,100	--	4.2 J	1.6 U	2.5 U	1.9 R	2.5 U	2.3 R
Wet Chemistry (MG_L)								
Alkalinity		--	--	--	NA	200	NA	180
Chloride	--	--	--	--	NA	7,800	NA	3,300
Nitrate	--	--	--	--	NA	0.58 J	NA	2.1 J
Nitrite	--	--	--	--	NA	0.02 R	NA	0.02 R
Sulfate	--	--	--	--	NA	580	NA	120
Total dissolved solids (TDS)	--	--	--	--	NA	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter

Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	WW04-MW09	WW04-MW10	
Sample ID					WW04-MW09-07A	WW04-MW10-07A	WW04-MW10P-07A
Sample Date					03/07/07	03/10/07	03/10/07
Chemical Name							
Volatile Organic Compounds (UG_L)							
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	0.05 U	0.0034 U	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	0.5 U	0.5 U	0.5 U
2-Butanone	700	--	--	--	5 U	5 U	5 U
2-Hexanone	150	--	--	--	5 U	5 U	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	5 U	5 U
Acetone	550	--	--	--	38	1.9 U	1.8 U
Benzene	0.35	5	--	--	0.5 U	0.12 J	0.11 J
Carbon disulfide	100	--	--	--	0.29 J	0.089 U	0.082 U
Chloromethane	16	--	--	--	0.21 U	0.5 U	0.5 U
Xylene, total	21		--	--	NA	NA	NA
m- and p-Xylene	21		--	--	0.5 U	0.5 U	0.5 U
Semi-volatile Organic Compounds (UG_L)							
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	5 U	5 U	5 U
2-Methylnaphthalene	2.4	--	--	--	0.1 U	0.1 U	0.36
3-Nitroaniline	1.1	--	--	--	10 U	10 U	10 U
4-Nitrophenol	0.34	--	--	--	10 U	10 U	10 U
Anthracene	180	--	--	--	0.1 U	0.1 U	0.036 J
Benzaldehyde	360	--	--	--	5 U	5 U	5 U
Benzo(a)anthracene	0.0092	--	--	--	0.1 U	0.1 U	0.025 J
Chrysene	9.2	--	--	--	0.1 U	0.1 U	0.021 J
Di-n-butylphthalate	360	--	--	--	1.5 U	1.1 J	1 J
Diethylphthalate	2900	--	--	--	5 U	5 U	5 U
Naphthalene	0.62	--	--	--	0.17 J	0.1 U	0.39
Pentachlorophenol	0.56	--	--	--	10 U	0.2 U	0.2 U
Phenanthrene	18	--	--	--	0.1 U	0.1 U	0.15
Phenol	1100	--	--	--	5 U	5 U	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	0.66 U	5 U	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)							
alpha-BHC	0.011	--	--	--	0.05 U	0.05 U	0.05 U
beta-BHC	0.037	--	--	--	0.0073 U	0.05 U	0.05 U
delta-BHC	0.052	--	--	--	0.014 U	0.05 U	0.05 U
gamma-Chlordane	0.19	--	--	--	0.05 U	0.01 U	0.011 J
Explosives (UG_L)							
4-Nitrotoluene	0.66	--	--	--	0.25 U	0.25 U	0.25 U
Perchlorate	26	--	--	--	160	0.54	0.51
Total Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	847 R	1,000 R	1,000 R
Antimony	1.5	6	2 U	0.19 U	0.84 U	0.13 U	0.12 U
Arsenic	0.045	10	1 R	0.33 R	1.4	0.77 R	0.81 U
Barium	730	2,000	87	17.2	21.9	104	106
Cadmium	1.8	5	1 U	1 U	1 U	1 U	1 U
Calcium	--	--	55,500 J	12,800 J	3,610 J	67,300	61,500
Chromium	11	100	1.6 J	0.5 U	8.1	12	11.6
Cobalt	73	--	0.78 U	0.092 U	0.29 U	0.86 U	0.83 U
Copper	150	1,300	8.2 J	2 UJ	2	126 R	108 R
Cyanide	73	200	10 U	10 U	10 U	10 U	10 U
Iron	1100	--	11,000	1,000 U	866 R	192 U	243 U
Lead	15	15	0.24 U	0.092 U	0.43 U	1 U	0.05 U
Magnesium	--	--	47,400 J	14,800 J	2,660 J	48,500	44,400
Manganese	88	--	723	40.6	25.5	227 R	201 R
Mercury	1.1	2	0.2 U	0.2 U	0.2 U	0.1 J	0.2 U
Nickel	73	--	1.1	0.38 J	1.8	4.5	4.3
Potassium	--	--	500,000 U	50,000 U	884 J	1,600 J	1,690 J
Selenium	18	50	2.9 U	3 U	0.9 J	3.3 J	3.2 J
Silver	18	--	0.31 U	0.02 U	1 U	0.011 U	1 U
Sodium	--	--	6,360,000	423,000 J	169,000 J	257,000 J	230,000 J
Thallium	0.24	2	1 U	1 U	1 U	1 U	1 U
Vanadium	3.6	--	59.9 J	26.2 J	24 J	1.2 R	1 R
Zinc	1,100	--	6.8 J	1.6 U	8.2 J	117 R	101 R
Dissolved Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	400 U	1,000 U	1,000 U
Antimony	1.5	6	2 U	2 U	0.94 U	0.11 U	2 U
Arsenic	0.045	10	1.1 R	1 U	1.5	0.56 U	0.86 U
Barium	730	2,000	81.8	16.3	15.4	105	105
Cadmium	1.8	5	1 U	1 U	1 U	1 U	1 U
Calcium	--	--	55,000 J	11,800 J	3,400 J	60,500	61,400
Chromium	11	100	0.71 J	2 U	1 J	4.7	4.5
Cobalt	73	--	0.57 U	0.065 U	0.35 U	0.96 U	0.92 U
Copper	150	1,300	3.6 J	2 UJ	1.3 J	99.5 R	93.2 R
Lead	15	15	1 U	0.07 U	0.053 U	0.11 U	1 U
Magnesium	--	--	47,800 J	13,400 J	2,460 J	43,500	44,500
Manganese	88	--	685	36.8	4.5	205 J	217 J
Mercury	1.1	2	0.2	0.2 U	0.057 J	0.2 U	0.2 U
Nickel	73	--	0.82 J	0.42 J	1.6	4.5	5.1
Potassium	--	--	500,000 U	50,000 U	783 J	25,000 U	25,000 U
Selenium	18	50	3 U	2.1 U	1 J	2.4 J	2.7 J
Silver	18	--	1 U	0.015 U	1 U	1 U	1 U
Sodium	--	--	6,560,000	388,000	168,000	225,000	234,000
Vanadium	3.6	--	58.9 J	25.2 J	24.8 J	2 J	3.2 J
Zinc	1,100	--	4.2 J	1.6 U	6.9 J	93.2 R	87.4 R
Wet Chemistry (MG_L)							
Alkalinity		--	--	--	150	96	92
Chloride	--	--	--	--	120	450	460
Nitrate	--	--	--	--	2	4.4 J	4.3 J
Nitrite	--	--	--	--	0.02	0.02 R	0.021 J
Sulfate	--	--	--	--	49	80	79
Total dissolved solids (TDS)	--	--	--	--	NA	NA	NA

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter
Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	WW04-MW11	WW04-MW12	WW04-MW13	WW04-MW14
Sample ID					WW04-MW11-07A	WW04-MW12-07A	WW04-MW13-07A	WW04-MW14-07A
Sample Date					03/07/07	03/08/07	03/07/07	03/07/07
Chemical Name								
Volatile Organic Compounds (UG_L)								
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	0.05 U	7.30E-04 U	0.0037 U	0.05 U
1,4-Dichlorobenzene	0.5	75	--	--	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	700	--	--	--	5 U	5 U	5 U	5 U
2-Hexanone	150	--	--	--	5 U	2.6 U	5 U	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	5 U	5 U	5 U
Acetone	550	--	--	--	10 U	1.6 U	2.6 U	0.71 U
Benzene	0.35	5	--	--	0.5 U	0.081 U	0.12 J	0.5 U
Carbon disulfide	100	--	--	--	0.5 U	0.5 U	0.11 J	0.065 J
Chloromethane	16	--	--	--	0.5 U	0.53 U	0.43 U	0.5 U
Xylene, total	21		--	--	NA	NA	NA	NA
m- and p-Xylene	21		--	--	0.5 U	0.5 U	0.5 U	0.5 U
Semi-volatile Organic Compounds (UG_L)								
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	5 U	5 U	5 U	5 U
2-Methylnaphthalene	2.4	--	--	--	0.1 UJ	0.1 U	0.1 U	0.1 U
3-Nitroaniline	1.1	--	--	--	10 U	10 U	10 U	10 U
4-Nitrophenol	0.34	--	--	--	10 U	10 U	10 U	10 U
Anthracene	180	--	--	--	0.1 UJ	0.1 U	0.1 U	0.1 U
Benzaldehyde	360	--	--	--	5 U	5 U	5 U	5 U
Benzo(a)anthracene	0.0092	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U
Chrysene	9.2	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U
Di-n-butylphthalate	360	--	--	--	2.2 U	0.92 U	5 U	0.66 U
Diethylphthalate	2900	--	--	--	5 U	5 U	5 U	5 U
Naphthalene	0.62	--	--	--	0.017 U	0.1 U	0.1 U	0.1 UJ
Pentachlorophenol	0.56	--	--	--	10 U	10 U	10 U	10 U
Phenanthrene	18	--	--	--	0.1 UJ	0.1 U	0.1 U	0.1 U
Phenol	1100	--	--	--	0.62 J	5 U	5 U	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	1.6 U	5 U	5 U	1.2 U
Pesticide/Polychlorinated Biphenyls (UG_L)								
alpha-BHC	0.011	--	--	--	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.037	--	--	--	0.05 U	0.05 U	0.011 U	0.05 U
delta-BHC	0.052	--	--	--	0.0083 U	0.029 U	0.023 U	0.009 U
gamma-Chlordane	0.19	--	--	--	0.05 U	0.05 U	0.05 U	0.0055 J
Explosives (UG_L)								
4-Nitrotoluene	0.66	--	--	--	0.25 U	0.25 U	0.25 U	0.25 U
Perchlorate	26	--	--	--	2.9	0.2 U	0.2 U	0.96
Total Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	20,000 U	20,000 U	20,000 U	20,000 U
Antimony	1.5	6	2 U	0.19 U	0.42 U	0.33 J	0.52 J	2 U
Arsenic	0.045	10	1 R	0.33 R	1.2 R	3.7 R	1.4 R	0.87 R
Barium	730	2,000	87	17.2	569	167	45.1 R	205
Cadmium	1.8	5	1 U	1 U	1 U	0.12 U	1 U	1 U
Calcium	--	--	55,500 J	12,800 J	500,000 U	409,000 J	134,000 J	76,700 J
Chromium	11	100	1.6 J	0.5 U	8.5	6.3 J	4.1	1.2 U
Cobalt	73	--	0.78 U	0.092 U	0.53 U	1.2	0.14 U	0.59 U
Copper	150	1,300	8.2 J	2 UJ	63.3 J	179 R	6 J	2 UJ
Cyanide	73	200	10 U	10 U	10 U	10 U	10 U	10 U
Iron	1100	--	11,000	1,000 U	4,440 U	4,610 U	6,030 U	10,000 U
Lead	15	15	0.24 U	0.092 U	1 U	1 U	0.068 U	1 U
Magnesium	--	--	47,400 J	14,800 J	59,400 J	468,000 J	219,000 J	88,600 J
Manganese	88	--	723	40.6	68.2	1,170 J	80.2 R	177
Mercury	1.1	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	73	--	1.1	0.38 J	2.5	2.9	0.89 J	0.81 J
Potassium	--	--	500,000 U	50,000 U	500,000 U	500,000 U	500,000 U	500,000 U
Selenium	18	50	2.9 U	3 U	8.3	33.4	15.5 R	7.1
Silver	18	--	0.31 U	0.02 U	1 U	0.17 U	1 U	1 U
Sodium	--	--	6,360,000	423,000 J	1,260,000 J	3,970,000	2,970,000	713,000 J
Thallium	0.24	2	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	3.6	--	59.9 J	26.2 J	13.1 J	1 R	8.6 J	2.8 J
Zinc	1,100	--	6.8 J	1.6 U	37 J	115 R	3.3 J	1.9 U
Dissolved Metals (UG_L)								
Aluminum	3600	--	20,000 U	2,000 U	20,000 U	20,000 U	20,000 U	20,000 U
Antimony	1.5	6	2 U	2 U	0.49 U	0.34 J	0.16 J	2 U
Arsenic	0.045	10	1.1 R	1 U	0.86 R	3.4	1.9 J	1.1 R
Barium	730	2,000	81.8	16.3	577	169 J	82 R	212
Cadmium	1.8	5	1 U	1 U	1 U	1 U	1 U	1 U
Calcium	--	--	55,000 J	11,800 J	500,000 U	434,000 J	136,000 J	81,600 J
Chromium	11	100	0.71 J	2 U	4.1	4.6 J	3.1 J	0.84 U
Cobalt	73	--	0.57 U	0.065 U	0.33 U	1.2 J	0.18 U	0.65 U
Copper	150	1,300	3.6 J	2 UJ	61 J	273 R	5.3 J	2 UJ
Lead	15	15	1 U	0.07 U	1 U	0.088 U	1 U	1 U
Magnesium	--	--	47,800 J	13,400 J	61,200 J	496,000 J	223,000 J	93,200 J
Manganese	88	--	685	36.8	60.1	1,030 J	158 R	184
Mercury	1.1	2	0.2	0.2 U	0.2 U	0.082 U	0.2 U	0.2 U
Nickel	73	--	0.82 J	0.42 J	2	3.3 J	1.3	0.87 J
Potassium	--	--	500,000 U	50,000 U	500,000 U	500,000 U	500,000 U	500,000 U
Selenium	18	50	3 U	2.1 U	8.1	31.8 J	28.9 R	7.5
Silver	18	--	1 U	0.015 U	1 U	0.12 U	1 U	0.013 U
Sodium	--	--	6,560,000	388,000	1,370,000	4,400,000	3,140,000	703,000
Vanadium	3.6	--	58.9 J	25.2 J	10.4 J	1 R	9.9 J	3.5 J
Zinc	1,100	--	4.2 J	1.6 U	34.6 J	193 R	4.6 J	2.1 J
Wet Chemistry (MG_L)								
Alkalinity		--	--	--	160	350	680	240
Chloride	--	--	--	--	2,400	8,200	5,100	1,300
Nitrate	--	--	--	--	3.1	0.84	1.6 J	2.1 J
Nitrite	--	--	--	--	0.02 U	0.04 U	0.02 R	0.02 R
Sulfate	--	--	--	--	57	740	940	110
Total dissolved solids (TDS)	--	--	--	--	4,100	17,000	10,000	2,600

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter
Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Groundwater Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Human Health Project Screening Values	MCL-Groundwater	Background WW04-MW16	Background WW04-MW17	WW04-MW15		WW04-MW18
Sample ID					WW04-MW15-07A	WW04-MW15P-07A	WW04-MW18-07A
Sample Date					03/08/07	03/08/07	03/08/07
Chemical Name							
Volatile Organic Compounds (UG_L)							
1,2-Dibromo-3-chloropropane	0.035	0.2	--	--	0.05 U	0.0023 U	0.0021 U
1,4-Dichlorobenzene	0.5	75	--	--	0.5 U	0.5 U	0.5 U
2-Butanone	700	--	--	--	5 UJ	5 U	5 U
2-Hexanone	150	--	--	--	5 U	5 U	5 U
4-Methyl-2-pentanone	200	--	--	--	5 U	5 U	5 U
Acetone	550	--	--	--	5 UJ	0.63 U	3.2 U
Benzene	0.35	5	--	--	0.5 U	0.5 U	0.5 U
Carbon disulfide	100	--	--	--	0.17 U	0.14 U	0.074 U
Chloromethane	16	--	--	--	0.5 U	0.5 U	0.5 U
Xylene, total	21		--	--	NA	NA	NA
m- and p-Xylene	21		--	--	0.5 U	0.5 U	0.5 U
Semi-volatile Organic Compounds (UG_L)							
2,2'-Oxybis(1-chloropropane)	0.27	--	--	--	5 U	5 U	5 U
2-Methylnaphthalene	2.4	--	--	--	0.1 U	0.1 U	0.0042 U
3-Nitroaniline	1.1	--	--	--	10 U	10 U	10 U
4-Nitrophenol	0.34	--	--	--	10 U	10 U	10 U
Anthracene	180	--	--	--	0.1 U	0.1 U	0.1 U
Benzaldehyde	360	--	--	--	5 U	5 U	5 U
Benzo(a)anthracene	0.0092	--	--	--	0.0036 J	0.1 U	0.1 U
Chrysene	9.2	--	--	--	0.1 U	0.1 U	0.1 U
Di-n-butylphthalate	360	--	--	--	0.72 U	0.71 U	5 U
Diethylphthalate	2900	--	--	--	5 U	5 U	5 U
Naphthalene	0.62	--	--	--	0.1 UJ	0.1 UJ	0.017 U
Pentachlorophenol	0.56	--	--	--	10 U	10 U	10 U
Phenanthrene	18	--	--	--	0.1 U	0.1 U	0.1 U
Phenol	1100	--	--	--	5 U	5 U	5 U
bis(2-Ethylhexyl)phthalate	4.8	--	--	--	5 U	5 U	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)							
alpha-BHC	0.011	--	--	--	0.05 U	0.05 U	0.05 U
beta-BHC	0.037	--	--	--	0.05 U	0.05 U	0.05 U
delta-BHC	0.052	--	--	--	0.05 U	0.05 U	0.05 U
gamma-Chlordane	0.19	--	--	--	0.0061 U	0.05 U	0.05 U
Explosives (UG_L)							
4-Nitrotoluene	0.66	--	--	--	0.25 U	0.25 U	0.25 U
Perchlorate	26	--	--	--	0.13 J	0.14 J	72
Total Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	20,000 U	20,000 U	20,000 U
Antimony	1.5	6	2 U	0.19 U	0.48 U	0.25 U	0.35 J
Arsenic	0.045	10	1 R	0.33 R	2.5 R	2.6 R	3.7 R
Barium	730	2,000	87	17.2	78	78.2	152
Cadmium	1.8	5	1 U	1 U	1 U	1 U	1 U
Calcium	--	--	55,500 J	12,800 J	325,000 J	322,000 J	688,000
Chromium	11	100	1.6 J	0.5 U	6.4 J	6.6 J	3.6 J
Cobalt	73	--	0.78 U	0.092 U	1.3 J	1.3 J	1.1 J
Copper	150	1,300	8.2 J	2 UJ	0.85 J	1.2 U	3.5 J
Cyanide	73	200	10 U	10 U	3.8 J	10 U	10 U
Iron	1100	--	11,000	1,000 U	4,260 U	4,890 U	5,820 U
Lead	15	15	0.24 U	0.092 U	1 U	0.052 U	0.11 U
Magnesium	--	--	47,400 J	14,800 J	304,000 J	301,000 J	556,000
Manganese	88	--	723	40.6	219 J	212 J	407 J
Mercury	1.1	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	73	--	1.1	0.38 J	2.8 J	2.8 J	3.1 J
Potassium	--	--	500,000 U	50,000 U	500,000 U	500,000 U	500,000 U
Selenium	18	50	2.9 U	3 U	23 J	23.3 J	34.3 J
Silver	18	--	0.31 U	0.02 U	1 U	0.011 U	0.077 U
Sodium	--	--	6,360,000	423,000 J	2,910,000 J	2,880,000 J	4,100,000
Thallium	0.24	2	1 U	1 U	1 U	1 U	1 U
Vanadium	3.6	--	59.9 J	26.2 J	7.8 J	8.5 J	4.9 J
Zinc	1,100	--	6.8 J	1.6 U	2.9 J	2.9 J	4.7 J
Dissolved Metals (UG_L)							
Aluminum	3600	--	20,000 U	2,000 U	20,000 U	20,000 U	20,000 U
Antimony	1.5	6	2 U	2 U	0.29 U	0.25 U	0.37 J
Arsenic	0.045	10	1.1 R	1 U	2.5 R	2.5 R	4 R
Barium	730	2,000	81.8	16.3	76.5	75.1	151
Cadmium	1.8	5	1 U	1 U	1 U	1 U	1 U
Calcium	--	--	55,000 J	11,800 J	319,000 J	317,000 J	674,000
Chromium	11	100	0.71 J	2 U	4.2 J	2.9 J	2.8 J
Cobalt	73	--	0.57 U	0.065 U	1.2 J	1.2 J	0.98 U
Copper	150	1,300	3.6 J	2 UJ	1.4 U	0.52 U	1.9 U
Lead	15	15	1 U	0.07 U	0.049 U	1 U	0.16 U
Magnesium	--	--	47,800 J	13,400 J	300,000 J	298,000 J	544,000
Manganese	88	--	685	36.8	204 J	198 J	403 J
Mercury	1.1	2	0.2	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	73	--	0.82 J	0.42 J	2.9 J	2.6 J	3 J
Potassium	--	--	500,000 U	50,000 U	500,000 U	500,000 U	500,000 U
Selenium	18	50	3 U	2.1 U	23.3 J	22.4 J	34.9 J
Silver	18	--	1 U	0.015 U	0.036 U	1 U	0.04 U
Sodium	--	--	6,560,000	388,000	2,730,000	2,880,000	4,000,000
Vanadium	3.6	--	58.9 J	25.2 J	7.9 J	7.8 J	5 J
Zinc	1,100	--	4.2 J	1.6 U	3.1 J	2.8 J	5.4 J
Wet Chemistry (MG_L)							
Alkalinity		--	--	--	640	640	270
Chloride	--	--	--	--	4,800	4,900	8,900
Nitrate	--	--	--	--	0.82 J	0.81 J	0.81
Nitrite	--	--	--	--	0.02 R	0.02 R	0.04 U
Sulfate	--	--	--	--	870	900	580
Total dissolved solids (TDS)	--	--	--	--	10,000	9,600	20,000

Notes:

J - Analyte Present; Reported value may be biased high
R - Rejected result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter
Exceeds Region IX PRG and Background Criteria
Exceeds Region IX PRG, MCL, and Background Criteria

Shading Indicates one or more screening criteria were exceeded

Sediment - Lagoon Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rioc

Station ID	Vieques HHRA SD	Vieques Eco Marine SD	WW04-SDSW01			WW04-SDSW02		WW04-SDSW03	WW04-SDSW04		WW04-SDSW05		WW04-SDSW06			WW04-SDSW07	WW04-SDSW08		WW04-SDSW09		WW04-SDSW10	
Sample ID			WW04-SD01-A-07A	WW04-SD01P-A-07A	WW04-SD01-B-07A	WW04-SD02-A-07A	WW04-SD02-B-07A	WW04-SD03-A-07A	WW04-SD04-A-07A	WW04-SD04-B-07A	WW04-SD05-A-07A	WW04-SD05-B-07A	WW04-SD06-A-07A	WW04-SD06P-A-07A	WW04-SD06-B-07A	WW04-SD07-A-07A	WW04-SD08-A-07A	WW04-SD08-B-07A	WW04-SD09-A-07A	WW04-SD09-B-07A	WW04-SD10-A-07A	WW04-SD10-B-07A
Sample Date			02/13/07	02/13/07	02/13/07	02/13/07	02/13/07	02/16/07	02/15/07	02/15/07	02/14/07	02/14/07	02/15/07	02/15/07	02/15/07	02/16/07	02/15/07	02/15/07	02/14/07	02/14/07	02/14/07	02/14/07
Chemical Name			0-6" fluff	0-6" fluff	6-12" consol.	0-6" fluff	6-12" consol.	0-6" fluff	0-4" fluff; 4-6" consol.	4-10" consol.	0-1" fluff; 1-6" consol.	1-7" consol.	0-5" fluff; 5-6" consol.	0-5" fluff; 5-6" consol.	5-11" consol.	0-6" fluff	0-2" fluff; 2-6" consol.	2-8" consol.	0-2" fluff; 2-6" consol.	2-8" consol.	0-2" fluff; 2-6" consol.	2-8" consol.
Volatile Organic Compounds (UG_KG)																						
2-Butanone	2,200,000	--	36 UJ	54 UJ	30 U	42 J	46 UJ	140 UJ	210	45 UJ	26 U	19 U	48 J	46 J	26 U	110 U	31 J	36 U	11 J	26 U	49 UJ	38 UJ
Acetone	1,400,000	--	36 U	89 J	16 U	110 J	88 J	190 J	400	51 J	33	19 U	140 J	160 J	21 U	250 J	87 UJ	44	29	31	87	38 U
Carbon disulfide	36,000	--	14 J	80 J	31	34 J	120 J	68 UJ	24 J	25 J	13 U	12	49 J	55 UJ	4.3 J	62 UJ	6.6 U	6.6 J	11 U	13 U	62	33 J
Chloroform	220	--	18 U	3.3 U	1.6 U	2.7 U	3.1 U	68 UJ	31 U	2.4 J	13 UJ	9.6 UJ	31 UJ	3.6 J	13 U	7.5 J	1.7 J	1.9 U	11 UJ	13 U	24 UJ	19 UJ
Styrene	440,000	--	18 UJ	27 UJ	15 U	19 UJ	23 UJ	68 UJ	31 U	22 UJ	2.3 J	9.6 UJ	31 UJ	29 UJ	13 U	62 UJ	16 UJ	18 UJ	11 UJ	13 U	24 UJ	19 UJ
Toluene	630,000	--	18 UJ	3 U	15 U	19 UJ	3.2 U	68 UJ	31 U	22 UJ	13 UJ	9.6 UJ	3.2 J	29 UJ	13 U	62 UJ	2.1 J	1.9 J	11 UJ	13 U	24 UJ	19 UJ
Semi-volatile Organic Compounds (UG_KG)																						
2-Methylnaphthalene	31,000	70	14 UJ	14 UJ	7.8 U	12 UJ	11 UJ	8.9 J	4.8 J	5 J	1.5 J	6.4 U	18 U	17 U	5.9 U	30 U	4.5 J	3.6 J	1.8 J	2 J	3.8 J	3.3 J
Benzaldehyde	610,000	--	700 UJ	720 UJ	400 U	610 UJ	580 UJ	1,500 U	1,100 U	830 U	44 J	34 J	110 J	190 U	300 U	1,500 U	130 J	100 J	63 J	68 J	140 J	80 J
Benzo(a)anthracene	620	261	14 UJ	14 UJ	7.8 U	12 UJ	11 UJ	28 U	130 J	16 U	7.4 U	6.4 U	18 U	17 U	5.9 U	30 U	12 U	11 U	7.9 U	7.5 U	14 UJ	13 UJ
Butylbenzylphthalate	1,200,000	63	700 UJ	720 UJ	400 U	610 UJ	580 UJ	1,500 U	260 J	830 U	380 U	330 U	910 U	850 U	300 U	1,500 U	590 U	550 U	410 U	390 U	700 UJ	650 UJ
Chrysene	62,000	384	14 UJ	14 UJ	7.8 U	12 UJ	11 UJ	28 U	140 J	16 U	7.4 U	6.4 U	18 U	17 U	5.9 U	30 U	12 U	11 U	7.9 U	7.5 U	14 UJ	13 UJ
Di-n-butylphthalate	610,000	58	700 U	300 U	400 U	610 UJ	340 U	190 U	450 J	530 J	380 U	330 U	1,200	840 J	220 J	310 U	120 J	140 J	410 U	390 U	700 U	420 J
Naphthalene	5,600	160	14 UJ	14 UJ	7.8 UJ	12 UJ	11 UJ	28 U	4.4 J	16 U	2.4 J	6.4 U	18 U	17 U	5.9 U	30 U	6.3 J	4.3 J	2.7 J	2.6 J	5.6 J	5 J
Pentachlorophenol	3,000	17	1,400 UJ	1,400 UJ	780 U	1,200 UJ	1,100 UJ	57 U	43 U	7.8 J	740 UJ	640 UJ	36 U	34 U	12 U	61 U	23 U	22 U	790 UJ	750 UJ	1,400 UJ	1,300 UJ
Phenanthrene	230,000	240	14 UJ	14 UJ	7.8 U	12 UJ	11 UJ	28 U	21 U	16 U	1.3 J	6.4 U	18 U	17 U	5.9 U	30 U	2.8 J	11 U	7.9 U	1 J	14 UJ	13 UJ
bis(2-Ethylhexyl)phthalate	35,000	182	76 J	140 J	69 J	76 J	580 UJ	1,500 U	1,100 U	830 U	51 J	41 J	200 J	240 J	300 U	1,500 U	590 U	550 U	51 J	62 J	700 UJ	150 J
Pesticide/Polychlorinated Biphenyls (UG_KG)																						
4,4'-DDD	2,400	2	14 UJ	14 UJ	0.99 U	1.5 U	0.72 U	28 UJ	21 UJ	16 UJ	7.4 U	6.4 U	18 UJ	16 UJ	5.9 U	30 UJ	12 UJ	11 U	7.9 U	3.9 U	14 UJ	2.5 J
4,4'-DDE	1,700	2.2	1.8 J	2 J	1.2 J	7.3 J	2.9 J	28 UJ	21 UJ	16 UJ	7.4 U	6.4 U	18 UJ	16 UJ	1.3 J	30 UJ	1.2 U	1.2 U	7.9 U	3.9 U	14 U	13 UJ
4,4'-DDT	1,700	1	14 UJ	14 UJ	7.8 U	12 UJ	0.67 J	28 UJ	1.3 U	16 UJ	7.4 U	6.4 U	1.1 UJ	16 UJ	5.9 U	30 UJ	4.7 U	0.71 U	3.2 J	3.3 J	12 J	13 U
Aldrin	29	9.5	7 UJ	7.2 UJ	4 U	6.1 UJ	0.58 J	15 UJ	11 UJ	8.3 UJ	3.8 U	3.3 U	9.1 UJ	8.5 UJ	3 U	15 UJ	5.9 UJ	5.5 UJ	4.1 U	3.9 U	7 UJ	6.5 U
Dieldrin	30	0.02	14 UJ	14 UJ	7.8 U	12 UJ	11 UJ	28 UJ	21 UJ	16 UJ	7.4 U	6.4 U	18 UJ	16 UJ	5.9 U	30 UJ	1.5 J	0.65 J	0.54 J	0.64 J	14 UJ	13 UJ
Endosulfan I	37,000	--	7 UJ	7.2 UJ	4 U	6.1 UJ	5.8 UJ	15 UJ	11 UJ	8.3 UJ	3.8 U	3.3 U	9.1 UJ	8.5 UJ	3 U	15 UJ	5.9 UJ	0.93 J	4.1 U	3.9 U	7 UJ	6.5 UJ
Endosulfan sulfate	37,000	--	14 R	14 R	7.8 R	12 R	3.4 U	28 UJ	21 UJ	16 UJ	7.4 U	6.4 U	18 UJ	16 UJ	5.9 U	30 UJ	1.7 J	11 U	7.9 U	7.6 U	14 UJ	13 UJ
Endrin aldehyde	1,800	--	14 U	1.1 J	7.8 U	1 U	1.7 U	28 UJ	1.1 U	1.8 J	7.4 U	6.4 U	18 UJ	16 UJ	15	4.1 U	1.4 J	1.1 U	7.9 U	9.2 J	14 U	17 J
Endrin ketone	1,800	--	14 UJ	14 UJ	7.8 U	12 UJ	11 UJ	28 UJ	2.5 U	16 UJ	7.4 U	6.4 U	1.7 U	0.98 J	5.9 U	30 UJ	4.2 J	0.9 U	7.9 U	7.6 U	14 U	13 UJ
Heptachlor epoxide	53	--	7 UJ	7.2 UJ	4 U	0.65 J	5.8 UJ	15 UJ	11 UJ	8.3 UJ	3.8 U	3.3 U	9.1 UJ	8.5 UJ	3 U	15 UJ	1.3 U	5.5 U	4.1 U	3.9 U	1.6 J	6.5 U
Explosives (UG_KG)																						
2,4,6-Trinitrotoluene	16,000	--	120 U	120 U	120 U	120 U	120 U	120 J	120 U	120 U	120 U	120 U	120 U	120 U	120 U	2,500	120 U	120 U	120 U	120 U	120 U	120 U
HMX	310,000	--	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	140	120 U	120 U	120 U	120 U	120 U	120 U
RDX	4,400	--	120 U	120 U	120 U	120 U	120 U	88 J	120 U	120 U	120 U	120 U	120 U	120 U	120 U	470	120 U	120 U	120 U	120 U	120 U	120 U
Tetryl	61,000	--	120 U	120 U	120 U	120 UJ	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	100 J
Total Metals (MG_KG)																						
Aluminum	7,600	18,000	41,000 J	50,200 J	38,700	37,900 J	38,800 J	28,900 J	28,700 J	21,300 J	59,400 J	60,500	45,900 J	30,400 J	39,600	33,100 J	37,500	41,300 J	25,500 J	20,200 J	25,500 J	22,300 J
Arsenic	0.39	8.2	2.9 U	2.7 U	1.1 U	2.1 U	1.2 U	6.6 U	3.8 J	2.9 J	1.9 J	1.1 J	4.4 J	3.8 J	1.1 J	6.1 U	2.2 J	1.1 J	1.1 J	0.68 J	2.1 J	1.6 J
Barium	1,600	--	165.0 U	74.5 U	213	81.8 J	133 J	39.5 J	38.6 J	69.2 J	138 J	127	51 J	34.1 J	174	43.2 J	165 J	185 J	28.5 J	26.7 J	39.9 J	43.5 J
Beryllium	15	--	4.1 U	0.76 U	0.62 U	0.64 U	0.69 U	4.3 UJ	0.38 J	0.36 J	0.63 J	0.7	0.53 J	0.38 J	0.42 J	4.5 UJ	0.45 J	0.62 J	0.28 J	0.22 J	0.27 J	0.26 J
Cadmium	3.7	1.2	4.1 UJ	4.2 UJ	0.19 U	0.27 U	0.27 U	4.3 UJ	3.2 UJ	2.4 UJ	0.37 J	0.4 J	0.38 J	2.5 UJ	0.19 J	4.5 UJ	0.16 J	0.35 J	0.16 J	0.095 J	2.1 UJ	0.22 J
Calcium	--	--	9,540 J	10,200 J	4,300	14,900 J	9,460 J	15,200 J	23,800 J	13,200 J	4,020 J	3,870	12,700 J	11,400 J	3,020	22,400 J	6,700 J	8,110 J	5,020 J	5,250 J	10,300 J	8,720 J
Chromium	210	81	10.8 J	13.5 J	8.3	9.4 J	9.6 J	11.8 J	11.8 J	9.7 J	15.2 J	16.8	15.8 J	10.4 J	12.5	13.8 J	10.4 J	12.4 J	10 J	7.7 J	10.8 J	9.3 J
Cobalt	140	10	6 J	7.8 J	3.8 J	6.8 J	8.6 J	5.2 J	4.7 U	6.6 U	6.9 J	9.8 J	7.7 U	5.3 U	4.1 U	6.8 J	4.6 U	5.1 U	2.5 J	2.2 J	4.5 J	4.6 J
Copper	310	34	39 J	44 J	20.4	38.6 J	37.9 J	26.1 J	23.8 J	20.1 J	31.1 J	32.1	45.6 J	32.4 J	26.8	33.4 J	27.2 J	38.2 J	9.71 J	8.5 J	12.4 J	10.7 J
Iron	2,300	220,000	24,600 J	28,500 J	16,000	22,800 J	19,400 J	17,800 J	16,700 J	13,500 J	29,100 J	35,200	27,900 J	19,600 J	18,800	22,100 J	15,800 J	18,600 J	11,300 J	9,240 J	14,900 J	15,600 J
Lead	400	46.7	21.7 J	22.3 J	13.4	23.8 J	15.9 J	9.4 J	13.2 J	7.4 J	12 J	17.9	19.2 J	14.1 J	6.7	13.7 J	8.2 J	9.8 J	6.2 J	5 J	6.3 J	4.6 J
Magnesium	--	--	9,500 J	10,500 J	7,280	10,300 J	11,600 J	16,600 J	15,700 J	17,300 J	8,780 J	9,220	13,100 J	11,300 J	5,710	19,200 J	10,300 J	11,500 J	7,070 J	6,390 J	12,600 J	11,300 J
Manganese	180	260	286 J	311 J	80	357 J	141 J	271 J	192 J	142 J	182 J	256	306 J	229 J	113	329 J	103 J	117 J	70.3 J	64.7 J	129 J	142 J
Mercury	2.3	0.15	0.41 U	0.22 U	0.13 U	0.12 U	0.19 U	0.12 J	0.18 J	0.11 J	0.096 J	0.055 J	0.13 J	0.092 J	0.063 J	0.12 J	0.13 J	0.081 J	0.087 J	0.065 J	0.14 J	0.12 J
Nickel	160	20.9	32.9 U	7.6 U	4.5 U	5.5 U	6.8 U	6.7 J	6.9 J	9.3 J	6.7 J	6.53	7.5 J	5.9 J	3.8 J	7.8 J	5.4 J	7.4 J	4.04 J	3.4 J	5.2 J	4.5 J
Potassium	--	--	6,950 J	7,950 J	5,290	6,860 J	6,100 J	9,100 J	7,630 J	5,570 J	7,570 J	8,340	9,540 J	7,140 J	5,430	10,400 J	5,940 J	5,850 J	4,370 J	3,470 J	5,600 J	4,650 J
Selenium	39	1	28.8 UJ	1.8 J	0.67 J	1.4 J	1.3 J	2.9 U	1.8 U	1.9 U	1.7 J	1.5 J	2.1 U	1.5 U	1.3 U	3.5 U	1.5 U	1.4 U	1.2 J	0.85 J	2 J	1.8 J
Silver	39	1	8.2 U	6.6 U	3.5	3.7 J	3.9 J	2.7 J	1.3 U	1.9 U	7.2 J	8.9	5.6 J	3.3 U	4.6	2.6 U	3.8 J	3.5 U	2.6 J	1.8 J	2.7 J	3.1 J
Sodium	--	--	40,400 J	42,600 J	27,200	40,800 J	39,900 J	114,000 J	73,100 J	69,900 J	21,100 J	16,900	61,300 J	63,200 J	13,200	128,000 J	38,900 J	34,700 J	25,300 J	20,300 J	52,200 J	42,100 J
Thallium	0.52	--	0.11 U	0.11 U	0.053 U	0.077 U	0.058 U	0.27 J	0.076 J	0.035 UJ	0.058 J	0.029 J	0.087 J	0.11 J	0.03 J	0.24 J	0.052 J	0.039 J	0.015 J	0.019 J	0.031 J	0.11 J
Vanadium	7.8	57	49.5 J	59.5 J	53.9	56.4 J	60.9 J	31.2 U	39.2 J	36.3 J	78.7 J	86.6	81.4 J	39.6 J	51	36.5 U	65.8 J	78.3 J	37.3 J	35.3 J	42.3 J	37.3 J
Zinc	2,300	150	79.2 J	117 J	51.1	67.9 J	62.2 J	217	107 J	93 J	114 J	122	114 J	90.2 J	53.4	148 J	98.4 J	83.2 J	66.7 J	46.8 J	67.7 J	69.6 J
Wet Chemistry (MG_KG)																						
% Solids	--	--	24.3	23.6	42.1	28	29.2	11.7	15.7	20.6	44.4	51.9	18.7	20	56	11	28.6	30.8	41.7	43.7	24.2	26.1
Cation Exchange Capacity (MEQ/100G)			24 J	19.9 J	30.6	23.1 J	34.5	15	26.4	61.6	41.4	17.5	22.5	28.2	16	13.1	41.7	45.9	38.8	45.2	44.9	55.5
Total organic carbon (TOC)	--	--	68,900 J	72,300 J	88,300	115,000 J	165,000	105,000	160,000	298,000	24,300	17,600	85,500	106,000	35,600	126,000	127,000	139,000	52,600	88,200	148,000	124,000
pH	--	--	7.49	7.58	7.54	7.23	7.54	7.62	7.16	7.28	6.49	6.99	7.27	7.23	7.75	7.63	6.99	7.07	6.81	6.88	6.99	7.21
Acid Volatile Sulfide/Simultaneously Extractable Metals (UMOL_G)																						
Acid volatile sulfide	--	--	12.7 J	25.3 J	2.1 J	7.5 J	2.3 J	23.6	40.9	10.9	1.4	0.58 U	19.3	20.4	1.3	20.8	2	3.2	0.81 U	1.1 U	3	1.3 U
Cadmium	--	--	0.0047 UJ	0.0047 UJ	0.0027 UJ	0.0037 UJ	0.0035 UJ	0.012 U	0.0089 U	0.0061 U	0.0041	0.0016 U	0.0064	0.006 U	0.0023 U	0.011 U	0.0044 U	0.0043 U	0.0021 U	0.0028 U	0.0046 U	0.0036 U
Copper	--	--	0.036 UJ	0.036 UJ	0.02 UJ	0.028 UJ	0.027 UJ	0.1 UJ	0.074 U	0.05 U	0.025 U	0.013 U	0.055	0.049 U	0.019 U	0.088 UJ	0.036 U	0.036 U	0.017 U	0.024 U	0.038 U	0.03 U
Lead	--	--	0.019 J	0.024 J	0.011 J	0.01 J	0.0063 UJ	0.033 U	0.023 U	0.016 U	0.0082 U	0.0041 U	0.016	0.015 U	0.0063 U	0.028 U	0.012 U	0.011 U	0.0058 U	0.0077 U	0.012 U	0.0092 U
Nickel	--	--	0.027 UJ	0.027 UJ	0.015 UJ	0.022 UJ	0.02 UJ	0.11 U	0.077 U	0.053 U	0.034	0.013 U	0.048 U	0.051 U	0.02 U	0.092 U	0.037 U	0.037 U	0.019 U	0.026 U	0.039 U	0.031 U
Zinc	--	--	0.29 U	0.31 U	0.069 U	0.17 U	0.087 U	0.58 J	0.32	0.19	0.16	0.09	0.25	0.25	0.073	0.56 J	0.13	0.22	0.054	0.072	0.13	0.093

Notes:

J - Analyte Present; Reported value may be biased high
R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
MG_KG - Milligrams per Kilogram
MEQ/100G - Millieqiuvalents per 100 grams
UG_KG - Micrograms per Kilogram
UMOL_G - Micromoles per Gram

Exceeds HHRA criteria
Exceeds Eco Criteria
Exceeds HHRA and Eco Criteria

Shading Indicates one or more screening criteria were exceeded

Sediment - Ephemeral Stream Detection and Exceedance Results
SWMU 4 Remedial Investigation Results
Former NASD, Vieques, Puerto Rico

Station ID	Vieques HHRA SD	Vieques Eco Marine SD	WW04-SDSW43
Sample ID			WW04-SD43-A-07A
Sample Date			01/30/07
Chemical Name			
Volatile Organic Compounds (UG_KG)			
2-Butanone	2,200,000	--	65 J
Acetone	1,400,000	--	160 J
Carbon disulfide	36,000	--	21 J
Semi-volatile Organic Compounds (UG_KG)			
Acetophenone	780,000	--	65 J
Naphthalene	5,600	160	3.2 J
Pesticide/Polychlorinated Biphenyls (UG_KG)			
Dieldrin	30	0.02	1.3 J
Endosulfan sulfate	37,000	--	4.4 J
Endrin ketone	1,800	--	1.1 J
Heptachlor epoxide	53	--	0.81 J
alpha-BHC	90	--	2.7 J
Explosives (UG_KG)			
No Detections			
Total Metals (MG_KG)			
Aluminum	7,600	18,000	14,600 J
Barium	1,600	--	96.2 J
Calcium	--	--	28,200 J
Chromium	210	81	5 J
Copper	310	34	11 J
Iron	2,300	220,000	26,200 J
Lead	400	46.7	4.9 J
Magnesium	--	--	6,840 J
Manganese	180	260	879 J
Potassium	--	--	2,300 J
Sodium	--	--	31,400 J
Vanadium	7.8	57	34.1 J
Zinc	2,300	150	88.5 J
Wet Chemistry (MG_KG)			
% Solids	--	--	29.5
Cation Exchange Capacity (MEQ/100G)			15.5
Total organic carbon (TOC)	--	--	39,600
pH	--	--	7.38
Acid Volatile Sulfide/Simultaneously Extractable Metals (UMOL_G)			
Acid volatile sulfide	--	--	100
Cadmium	--	--	0.0038 J
Copper	--	--	0.082 J
Lead	--	--	0.033 J
Nickel	--	--	0.039 J
Zinc	--	--	0.37

Notes:

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R - Unreliable Result
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
MG_KG - Milligrams per Kilogram
MEQ/100G - Milliequivalents per 100 grams
UG_KG - Micrograms per Kilogram
UMOL_G - Micromoles per Gram

Exceeds HHRA criteria
Exceeds Eco Criteria
Exceeds HHRA and Eco Criteria

Shading Indicates one or more screening criteria were exceeded

Surface Water - Lagoon Detection and Exceedance Results
SWMU 4 Remedial Investigation Results
Former NASD, Vieques, Puerto Rico

Station ID	Vieques HHRA SW	Vieques Eco Marine SW	WW04-SDSW01	WW04-SDSW02		WW04-SDSW03	WW04-SDSW04	WW04-SDSW05
Sample ID			WW04-SW01-07A	WW04-SW02-07A	WW04-SW02P-07A	WW04-SW03-07A	WW04-SW04-07A	WW04-SW05-07A
Sample Date			02/14/07	02/14/07	02/14/07	02/16/07	02/15/07	02/15/07
Chemical Name								
Volatile Organic Compounds (UG_L)								
Carbon disulfide	100	--	0.33 J	0.36 J	0.26 J	0.086 U	0.22 U	0.2 U
Chloromethane	16	--	0.47 J	0.58	0.19 J	0.18 J	0.25 J	0.5 U
Toluene	230	200,000	0.5 U	0.5 U	0.034 J	0.028 J	0.5 U	0.029 J
Semi-volatile Organic Compounds (UG_L)								
Benzo(g,h,i)perylene	18	--	0.1 U	0.11 U	0.018 J	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	0.092	0.49	0.1 U	0.11 U	0.016 J	0.1 U	0.1 U	0.1 U
Naphthalene	0.62	--	0.1 U	0.11 U	0.69	0.1 U	0.1 U	0.1 U
Pesticide/Polychlorinated Biphenyls (UG_L)								
4,4'-DDD	0.28	0.001	0.1 U	0.11 UJ	0.11 U	0.005 J	0.1 U	0.1 UJ
Explosives (UG_L)								
No Detections								
Total Metals (UG_L)								
Antimony	1.5	4,300	20 U	1.7 U	2.4 J	1.7 J	7.7 J	20 U
Arsenic	0.045	1.4	16.9	14.5	16.3	17.5	12.5	12.7
Calcium	--	--	480,000 J	5,000,000 U	5,000,000 U	485,000 J	5,000,000 U	472,000 J
Copper	150	3.1	8.2 J	4.8 J	16.3 J	201	23.2	30.5
Magnesium	--	--	1,440,000 J	1,440,000 J	1,390,000 J	1,470,000 J	1,380,000 J	1,370,000
Manganese	88	--	49.7	38.6	36.8	16	6 U	11.7
Mercury	1.1	0.051	0.064 J	0.077 J	0.2 U	0.2 U	0.2 U	0.2 U
Potassium	--	--	378,000 J	418,000 J	366,000 J	419,000 J	376,000 J	493,000 J
Selenium	18	71	84.3	76.1	72.6	81.3	72.7	75.9
Sodium	--	--	11,000,000	10,900,000	10,400,000	11,500,000 J	10,300,000 J	12,100,000 J
Zinc	1,100	81	9.5 J	20 U	20 U	20 U	8 J	20 U
Dissolved Metals (UG_L)								
Antimony	1.5	4,300	20 U	20 U	1.1 J	20 U	1.4 J	20 U
Arsenic	0.045	1.4	18.3	18.5	19.6	12.6	10 U	16.1
Calcium	--	--	5,000,000 U	522,000 J	5,000,000 U	5,000,000 U	5,000,000 U	5,000,000 U
Copper	150	3.1	13.5 J	6.6 J	35.4	434	50.6	72.2
Magnesium	--	--	1,420,000 J	1,580,000 J	1,440,000 J	1,360,000 J	1,340,000 J	1,470,000 J
Manganese	88	--	18.9	13.6	12	7.3 U	10 U	4.2 J
Mercury	1.1	0.051	0.2 U	0.075 J	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	73	8.2	3.5 J	10 U	10 U	10 U	10 U	10 U
Potassium	--	--	394,000 J	421,000 J	407,000 J	311,000 J	342,000 J	385,000 J
Selenium	18	71	96.6	83.6	93.5	81.7	20.4 U	84.7
Sodium	--	--	10,600,000	12,300,000	11,100,000	10,800,000	10,300,000	11,400,000
Wet Chemistry (MG_L)								
Alkalinity	--	--	150	140	140	130	120	120
Chloride	--	--	23,000	22,000	23,000	22,000	21,000	25,000
Nitrite	--	--	2 U	3.9	2 U	2 U	2 U	2 U
Sulfate	--	--	3,200	3,200	3,400	3,100	3,000	3,600
Total organic carbon (TOC)	--	--	3	2.8	2.9	1.5	1	1.8
pH	--	--	8.47	8.46	8.5	8.04	8.29	8.32

Notes:

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U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter

Exceeds HHRA Criteria
Exceeds Eco Criteria
Exceeds HHRA and Eco Criteria

Shading Indicates one or more screening criteria were exceeded

Surface Water - Ephemeral Stream Detection and Exceedance Results
SWMU 4 Remedial Investigation Report
Former NASD, Vieques, Puerto Rico

Station ID	Vieques HHRA SW	Vieques Eco Marine SW	WW04-SDSW43	
Sample ID			WW04-SW43-07A	WW04-SW43A-07A
Sample Date			01/30/07	02/12/07
Chemical Name				
Volatile Organic Compounds (UG_L)				
2-Butanone	700	--	50 U	0.46 J
Carbon disulfide	100	--	0.89 J	0.072 J
Methyl acetate	610	--	5 U	0.072 J
Semi-volatile Organic Compounds (UG_L)				
Di-n-butylphthalate	360	12,000	1.5 J	NA
Pesticide/Polychlorinated Biphenyls (UG_L)				
4,4'-DDD	0.28	0.001	0.032 J	NA
Endrin	1.1	0.0023	0.007 J	NA
Explosives (UG_L)				
4-Nitrotoluene	0.66	--	0.25 J	NA
Total Metals (UG_L)				
Barium	730	--	529	NA
Calcium	--	--	450,000	NA
Copper	150	3.1	10.3	NA
Iron	1,100	--	19,500 J	NA
Magnesium	--	--	1,380,000 J	NA
Manganese	88	--	3,740	NA
Nickel	73	8.2	0.93 J	NA
Potassium	--	--	405,000 J	NA
Sodium	--	--	11,200,000	NA
Dissolved Metals (UG_L)				
Arsenic	0.045	1.4	2.3	NA
Barium	730	--	635	NA
Calcium	--	--	470,000	NA
Cobalt	73	--	1.2	NA
Copper	150	3.1	9.1	NA
Magnesium	--	--	1,330,000 J	NA
Manganese	88	--	3,510	NA
Nickel	73	8.2	1.3	NA
Potassium	--	--	379,000 J	NA
Selenium	18	71	11.9	NA
Sodium	--	--	9,460,000	NA
Vanadium	3.6	--	13	NA
Wet Chemistry (MG_L)				
Alkalinity	--	--	320	NA
Chloride	--	--	19,000	NA
Hardness	--	--	14,000	NA
Sulfate	--	--	2,400	NA
Total organic carbon (TOC)	--	--	5.1 J	NA
pH	--	--	7.48	NA

Notes:

J - Analyte Present; Reported value may be biased high
U - Analyte not Detected
UJ - Analyte not Detected; quantitation limit may be imprecise
NA - Not Analyzed
MG_L - Milligrams per Liter
UG_L - Micrograms per Liter
SW-43 was re-sampled for VOCs because the lab said the VOC vials foamed because of the high salinity content.

Exceeds HHRA Criteria
Exceeds Eco Criteria
Exceeds HHRA and Eco Criteria

Shading Indicates one or more screening criteria were exceeded

SWMU 4

Section 5:

Final Responses to EPA Comments SWMU 4 Additional Sampling

Responses to
EPA Comments on the SWMU 4 Preliminary Data Evaluation and Recommendation for Additional Sample Collection
Presentation to the Environmental Technical Subcommittee
November 2007

1. Soils in the area around MW09 should be investigated given that the highest perchlorate groundwater concentration exists in this well and no soil samples have been taken at this location.

Navy Response: The presence of perchlorate in groundwater at MW-09 does not necessarily imply perchlorate is present in soil around the well. Figure 8 of the presentation shows the direction of groundwater flow at the site. Based on this figure, groundwater beneath Pit 13 may migrate in the direction of MW-09. The soil data for Pit 13 show there was perchlorate detected there (SS/SB-35). This pit was recommended for additional sampling in the presentation submitted in November 2007. However, four surface soil/subsurface soil samples will be collected around MW-09 and analyzed for perchlorate, as shown in the revised Figure 9. The revision was also made to the Powerpoint presentation (new Slide 37).

2. The proposed round of water level measurements need to be coordinated with tidal stages to investigate potential tidal influences on groundwater flow direction.

Navy Response: Two sets of groundwater-level measurements exist for all 17 monitoring wells (3-5-2007 and 3-6-2007). However, although both rounds were collected at different times during the day, both coincided approximately with low tide. Therefore, two additional rounds of groundwater levels will be collected within a 24-hour period. One round will coincide approximately with high tide and one round will coincide approximately with low tide. The Powerpoint presentation (Slide 40) has been revised to reflect this.

3. If the results of the proposed additional soil sampling in the SB10 area confirm former SSL exceedances, a monitoring well will be necessary in this area to determine impacts on groundwater.

Navy Response: The need for a monitoring well near the SB10 location will be determined after the soil results have been evaluated.

4. A groundwater monitoring well may be necessary in the SS25 area based on the results of the proposed additional soil sampling in this area.

Navy Response: The need for a monitoring well near the SS25 location will be determined after the soil results have been evaluated.

5. An additional round of groundwater is proposed for all monitoring wells. It is understood that not all wells have been sampled with the same frequency. Please note that decisions will need to be made on how to handle the monitoring well data if certain wells have been sampled more frequently than others. For example, will all data from each well be averaged into one sample point per well,

will all of the data – regardless of how many times an individual well was sampled – be evaluated separately, or will some other assessment of the data be considered?

Navy Response: With the exception of MW-4 (which was destroyed in 2002), all wells (MW-1 through MW-18) were sampled in March 2007 and will be sampled again in March 2008. In accordance with the final QAPP, for wells in the apparent center of the plume, the analytical data from both sampling events will be merged into one dataset and the 95 percent upper confidence limit (UCL) (or other recommended output from ProUCL Version 4.0) will be calculated and used as the exposure point concentration. If a plume is not identified, analytical data from the two sampling events (for all wells indicated above) will be merged into one dataset and the 95 percent UCL (or other recommended output from ProUCL Version 4.0) will be calculated and used in the HHRA.

Earlier groundwater data (i.e., from 2000) will be considered when evaluating trend information, but only the most recent rounds of data will be used in the HHRA.

6. How will SWMU 4 be evaluated in the risk assessment from the perspective of exposure? Will the entire site be considered one exposure area, which would allow for all of the data to be included in the same data set, or is it likely that exposure would occur to different areas uniquely, which would then require separate data sets. This is important, as data sets used to calculate exposure point concentrations typically require a minimum of 10 samples for statistical evaluation. If separate exposure areas are identified, the appropriate number of samples should be collected from each exposure area to ensure that statistical evaluation of the data can be performed.

Navy Response: Based on information presented in the Fish and Wildlife Service's Vieques National Wildlife Refuge Comprehensive Conservation Plan and Environmental Impact Statement (FWS, 2007), SWMU 4 is within the area designated as the Western Vieques Refuge. Residential or industrial development will not occur in this area. The following public uses were identified for the refuge area (not necessarily all of which would occur within the SWMU 4 area):

- Land crabbing
- Access (hours the refuge is open)
- Hunting
- Use of off road vehicles
- Hiking trails
- Biking trails
- Horseback riding
- Grazing
- Camping
- Night fishing
- Commercial activities
- Kayaking
- Law enforcement activities

Therefore, one exposure area (for a recreational user) will be addressed in the HHRA. As such, one exposure unit (the size of SMWU 4) will likely be used. However, it may be desirable and possible to evaluate other exposure scenarios, including residential, based on the existing data and the data proposed for collection. The final area (i.e., site boundary) for consideration in the HHRA should be based on the area of contamination, not the explosive safety arc of SWMU 4, which is the current investigation boundary. Therefore, there may be sufficient samples within the area ultimately identified as the site boundary to perform an HHRA for scenarios other than recreational. This determination will be made following collection of the additional data and proposed in the HHRA interim deliverable.

EPA Evaluation of Response:

EPA agrees that for human health exposure, it is appropriate to consider SWMU 4 as 1 exposure area for recreational scenarios. However, please note that a review of the data should be performed to identify potential hot spots or other areas which require separate exposure evaluation.

Navy Response:

The data will be reviewed to identify potential hot spots or other areas that warrant separate exposure evaluation.

7. The data summary section states in a few places that concentrations of some metals are not substantially above background. Please note that if this approach will be used in the RI, a more statistical evaluation will be necessary to compare the onsite data with the western end background data.

Navy Response: Comparison of site-specific data to background will be performed using a methodology or methodologies consistent with the intended goal. As warranted, a more detailed statistical evaluation may be used in the RI report. Any such evaluation will be justified in the text of the report. It should be noted that comparisons to background can involve more than simple comparisons to background threshold values (BTVs) such as the west Vieques background inorganics upper tolerance limits (UTLs). This is an appropriate approach since true background concentrations can exceed the BTV. The additional factors can include a consideration of the magnitude of concentrations exceeding the BTV as well as conclusions from other statistical comparisons (e.g., quantile, slippage, and central tendency comparisons, which are also referred to as population-to-population comparisons). All of these can be legitimate considerations when interpreting site-specific data relative to background.

8. Please clarify if the inorganics that are proposed to be collected in the ephemeral stream will be both total and dissolved.

Navy Response: The inorganics that are proposed to be collected in the ephemeral stream will be analyzed for both total and dissolved inorganics. The Powerpoint presentation (Slide 41) has been revised to reflect this.

9. Overall, it would have been helpful to include the screening criteria (sediment, surface water, and surface soil) in both the site figures depicting sample exceedances, as well as in the discussion of sample results. This would allow the

reviewer to gauge the magnitude of exceedances observed. Further, while these values are provided in the data tables, it should be clearly indicated whether these screening values represent acute or chronic values (surface water) or effect range-low (ER-Ls) or effect range-medium (ER-M values) for sediment. The references for these screening criteria should be included in site data tables and site figures.

Navy Response: The information above will be included on figures generated for the RI report. For the surface water and sediment screening values, the most conservative values available are used for screening. This information, including the references, will be included on the RI report tables.

10. In the discussion of analytical results for lagoon sediments, it is noted that 4 explosives were detected. In the table entitled "Sediment-Lagoon Detection and Exceedance Results," the following contaminants were reported for Sample WW04-SD007-A-07A in the 0-6 inch depth: 2,4,6-Trinitrotoluene (2500 ug/kg), HMX (140 ug/kg) and RDX (470 ug/kg). At Sample WW04-SD10-B-07A, in the 2-8 inch depth, there was one exceedance, Tetryl (100 ug/kg). These values were the only reported detection of explosive constituents in lagoon sediments. Due to the fact that these were the only locations where explosives were detected, it is recommended that an additional sample from each of these locations be collected. This is in accordance with what is being proposed for surface water sample SW-43, which is located at the mouth of the ephemeral stream. At SW-43, 4-Nitrotoluene was detected at 0.25 mg/L, and therefore the Navy has recommended that an additional sample be collected (during the next sampling event) to better characterize this sample location. The additional sampling proposed will include analysis for explosives.

Navy Response: Re-sampling the sediment locations of the lagoon would not be in accordance with the rationale for re-sampling of the surface water of the ephemeral stream. The surface water is being re-sampled due to its dynamic nature. The sediment of the lagoon is not as dynamic as the surface water of the ephemeral stream. Surface water, by its very nature, is dynamic. In addition, the ephemeral streams at Vieques are very dynamic given that they receive periodic precipitation, flow temporarily, and are subject to evaporation. Therefore, concentrations detected in the ponded water at the terminus of the ephemeral stream may change substantially in a short period of time. Sediment in the lagoon, on the other hand, is likely to be much more static. In addition, contrary to what the comment notes, none of the explosives in sediment exceeded a screening value. The tetryl concentration detected was 100 µg/kg. The screening value for tetryl is 61,000 µg/kg. Therefore, no additional lagoon sediment sampling is proposed.

11. No ecological screening values for explosives for sediment (marine) or surface water (marine) are listed in the data tables. There are some criteria available (e.g., see NOAA SQIRT tables) which potentially may be used as surrogates for some of the explosive constituents that are being reported.

Navy Response: The Navy is unaware of any guidance on the use of surrogates for explosives. Please provide a reference to this guidance.

SWMU 4

Section 6:

Final Responses to EQB Comments SWMU 4 Additional Sampling

Responses to the
Technical Evaluation

SWMU 4 Preliminary Data Evaluation and Recommendation for Additional Sample Collection
November 2007

INTRODUCTION

TRC has reviewed and provides this evaluation of the SWMU 4 Preliminary Data Evaluation and Recommendation for Additional Sample Collection, November 2007.

GENERAL COMMENT

1. The collection of conditional samples is valid and should be included. However, the holding time(s) for analysis should be maintained incase the conditional samples are required. For example, Method 8330 has a 7-day extraction requirement and a 40-day holding time following extraction. The samples should be extracted following receipt by the laboratory so that the holding times for the conditional samples are not violated.

Navy Response: All proposed samples shown on Figure 9 that are to be held pending results that require extraction in order to avoid holding time exceedances will be extracted upon arrival to the laboratory.

SPECIFIC COMMENT

2. RECOMMENDED ADDITIONAL DATA
   For Pit 12, additional surface/subsurface soil sample should be collected to the west to ensure coverage in all directions.

Navy Response: Pit 11 is located just to the northwest of Pit 12. Surface/subsurface soil samples (SSS/SB-36) were collected at Pit 11 and results indicated either non-detect or relatively low concentrations of constituents. These samples were to be used to represent the area west of Pit 12. Therefore, no additional samples are necessary.

PREQB Evaluation of Response: The proposed conditional sample located west of Pit 12 should be converted to an interior (i.e., non-pending and denoted as an orange circle in Revised Figure 9) sample. This location would provide data from the gap west of Pit 12 and south of Pit 11.

Navy Response: The second tier sample just west of the first tier sample on the south side of Pit 12 will be analyzed as a first tier sample instead of being extracted and held pending the analysis of the first tier samples. Figure 9 has been revised to show this (i.e., the sample color has been changed from yellow to orange). In addition, the Powerpoint presentation (Slide 36) has been revised to reflect this change.